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As filed with the Securities and Exchange Commission on January 29, 2014

Registration No. 333-192232

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

AMENDMENT
NO. 3
TO
FORM S-1
REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

AMEDICA CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	3841	84-1375299
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(IRS Employer Identification No.)

1885 West 2100 South
Salt Lake City, UT 84119
(801) 839-3500
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Eric K. Olson
Chief Executive Officer
Amedica Corporation
1885 West 2100 South
Salt Lake City, UT 84119
(801) 839-3500
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Approximate date of commencement of proposed sale to public: As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are being offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 (the "Securities Act"), check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and smaller reporting company" in Rule 12b-2 of the Exchange Act.

(Check one):

Large accelerated filer ☐ Accelerated filer ☐

Non-accelerated filer ☒ Smaller reporting company ☐

(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Proposed maximum aggregate offering price (1)	Amount of Registration Fee (2)
Common Stock, $0.01 par value per share	$43,909,092	$5,656

(1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) of the Securities Act of 1933, as amended, based upon an estimate of the maximum offering price. Includes the offering price of additional shares the underwriters have the option to purchase.

(2) $4,508 was previously paid.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell securities, and we are not soliciting offers to buy these securities, in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED JANUARY 29, 2014

PRELIMINARY PROSPECTUS

3,181,818 Shares

Common Stock

$ per share

Amedica Corporation is offering 3,181,818 shares of its common stock. This is our initial public offering and no public market currently exists for our shares. We anticipate that the initial public offering price of our common stock will be between $10.00 and $12.00 per share.

We have applied to have our common stock listed on The NASDAQ Global Market under the symbol "AMDA."

We are an "emerging growth company" as defined under the Jumpstart Our Business Startups Act of 2012, and as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and future filings.

We have granted the underwriters an option for a period of 30 days to purchase up to an additional 477,273 shares of common stock.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 12.

	Per Share	Total
Public offering price	$	$
Underwriting discount(1)	$	$
Proceeds, before expenses, to us	$	$

(1) We refer you to "Underwriting" beginning on page 131 of this prospectus for additional information regarding total underwriting compensation.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2014.

Neither the Securities and Exchange Commission nor any state securities regulators has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

JMP Securities

Needham & Company

The date of this prospectus is , 2014.

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AMEDICA®

Material Matters

*CAUTIONARY NOTE: Amedica's Femoral Head for Total Hip, Femoral Component for Total Knee, and Dental Implant product candidates are investigational devices under development, have not been approved by any regulatory agency, including the U.S. Food and Drug Administration, and are not available for commercial sale.

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Through and including , 2014 (25 days after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This delivery is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to their unsold allotments or subscriptions.

You should rely only on the information contained in this prospectus. Neither we nor any of the underwriters has authorized anyone to provide you with information different from, or in addition to, that contained in this prospectus or any free writing prospectus prepared by or on behalf of us or to which we may have referred you in connection with this offering. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. Neither we nor any of the underwriters is making an offer to sell or seeking offers to buy these securities in any jurisdiction where or to any person to whom the offer or sale is not permitted. The information in this prospectus is accurate only as of the date on the front cover of this prospectus, regardless of the time of delivery of this prospectus or of any sale of shares of our common stock, and the information in any free writing prospectus that we may provide you in connection with this offering is accurate only as of the date of that free writing prospectus. Our business, financial condition, results of operations and future growth prospects may have changed since those dates.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe these industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data.

For investors outside the United States: neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus or any free writing prospectus we may provide to you in connection with this offering in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus and any free writing prospectus outside of the United States.

PROSPECTUS SUMMARY

This summary highlights information contained elsewhere in this prospectus. Because it is only a summary, it does not contain all of the information that you should consider before investing in shares of our common stock and it is qualified in its entirety by, and should be read in conjunction with the more detailed information appearing elsewhere in this prospectus. You should read the entire prospectus carefully, especially "Risk Factors" and our consolidated financial statements and the related notes included in this prospectus. Unless the context requires otherwise, references to "Amedica," "we," "our" and "us" in this prospectus refer to Amedica Corporation and its subsidiary.

Amedica Corporation

Our Company

We are a commercial biomaterial company focused on using our silicon nitride technology platform to develop, manufacture and sell a broad range of medical devices. We currently market spinal fusion products and are developing products for use in total hip and knee joint replacements. We believe our silicon nitride technology platform enables us to offer new and transformative products in the orthopedic and other medical device markets. We believe we are the first and only company to use silicon nitride in medical applications and over 14,000 of our silicon nitride spine products have been implanted in patients.

Biomaterials are synthetic or natural materials available in a variety of forms that are used in virtually every medical specialty. We believe our silicon nitride biomaterial has superior characteristics compared to commonly used biomaterials in the markets we are targeting, including polyetheretherketone, or PEEK, which is the most common biomaterial used for interbody spinal fusion products. Specifically, we believe our silicon nitride has the following key attributes: promotion of bone growth; hardness, strength and resistance to fracture; resistance to wear; non-corrosive; anti-infective properties; and superior diagnostic imaging compatibility.

We currently market our *Valeo* family of silicon nitride interbody spinal fusion devices in the United States and Europe for use in the cervical and thoracolumbar areas of the spine. We believe our *Valeo* devices have a number of advantages over existing products due to silicon nitride's key characteristics, resulting in faster and more effective fusion and reduced risk of infection. To date, the rate of adverse events reported to the U.S. Food and Drug Administration, or FDA, for our implanted *Valeo* interbody spinal fusion devices is 0.1%.

In addition to our silicon nitride-based spinal fusion products, we market a complementary line of non-silicon nitride spinal fusion products which allows us to provide surgeons and hospitals with a broader range of products. These products include three lines of spinal fusion devices and five types of orthobiologics, which are used by surgeons to help promote bone growth and fusion in spinal fusion procedures. Although our non-silicon nitride products have accounted for approximately 70% or more of our product revenues for the years ended December 31, 2012 and 2011 and the nine months ended September 30, 2013, we believe the continued promotion and potential for adoption of our silicon nitride products and product candidates, if approved, provides us the greatest opportunity to grow our business in new and existing markets and achieve our goal to become a leading biomaterial company.

We are also incorporating our silicon nitride technology into components for use in total hip and knee replacement product candidates that we are, or plan on, developing in collaboration with a strategic partner. We believe that our silicon nitride total hip and knee product candidates will provide competitive advantages over current products made with traditional biomaterials. We believe our silicon nitride technology platform can be used for developing products in other markets and have developed prototypes for use in the dental, sports medicine and trauma markets. As a result of some of the key characteristics of our silicon nitride, we also believe our coating technology may be used to enhance our metal products as well as commercially available metal spinal fusion, joint replacement and other medical products.

We operate a 30,000 square foot manufacturing facility located at our corporate headquarters in Salt Lake City, Utah, and we are the only vertically integrated silicon nitride orthopedic medical device manufacturer in the

world. We market and sell our products to surgeons and hospitals in the United States and select markets in Europe and South America through our established network of more than 50 independent sales distributors who are managed by our experienced in-house sales and marketing management team.

Market Opportunity

Our products and product candidates target the interbody spinal fusion and total hip and knee joint replacement markets. According to iData Research, Inc., in 2012, the markets for spinal implants in the United States and in combined major European markets were $5.3 billion and $1.0 billion, respectively. Interbody spinal fusions accounted for over $1.2 billion and $172.2 million of these markets, respectively. Additionally, Orthopedic Network News reported that the U.S. markets for the components of total hip and knee replacement product candidates that we are initially developing were $455.0 million and $1.5 billion, respectively.

Our Silicon Nitride Technology Platform

We believe our silicon nitride, an advanced ceramic, is ideally suited for use in many medical applications and has the following characteristics that make it superior to other biomaterials, which do not possess all of these characteristics:

- *Promotes Bone Growth*. The biomaterials used in interbody spinal fusion devices should promote bone growth in and around the device to further support fusion and stability. Our silicon nitride has an inherent surface chemistry and topography which creates an ideal environment for the promotion of new bone growth.
- *Hard, Strong and Resistant to Fracture*. The biomaterials used in interbody spinal fusion devices and joint replacement implants should be strong and resistant to fracture during implantation of the device and withstand the static and dynamic forces exerted on the spine or to adequately bear the significant loads placed on joints during daily activities. Biomaterials used in joint replacements should also be resistant to deformation, which is referred to as hardness. We believe our silicon nitride is hard, strong and resistant to fracture.
- *Anti-Infective*. Infection is a serious problem in orthopedic surgery and treating device-related infection generally requires extensive repeat surgery, including replacement, or revision, surgery, which extends patient suffering and increases costs. We have demonstrated in *in vitro* and *in vivo* studies that our silicon nitride has inherent anti-infective properties, which reduce the risk of infection in and around a silicon nitride device. We demonstrated that live bacteria counts were between 8 to 30 times lower on silicon nitride than PEEK and up to 8 times lower on silicon nitride than titanium, another commonly used biomaterial.
- *Imaging Compatible.* The biomaterials used in interbody spinal fusion devices should be visible through, and not inhibit the effective use of, common surgical and diagnostic imaging techniques, such as x-ray, CT and MRI. Our silicon nitride interbody spinal fusion devices are semi-radiolucent and clearly visible in x-rays, and produce no distortion under MRI and no scattering under CT. These characteristics enable an exact view of the device for precise intra-operative placement and post-operative bone fusion assessment in spinal fusion procedures. We believe these qualities provide surgeons with greater certainty of outcomes with our silicon nitride devices than with other biomaterials, such as PEEK and metals.
- *Resistant to Wear*. The biomaterials used in joint replacement procedures should have sufficient hardness and toughness, as well as extremely smooth surfaces, to effectively resist wear. Because the articulating implants move against each other, they are subject to friction and cyclic loading, which frequently lead to abrasive wear and fatigue failure. We believe joint implants incorporating our silicon nitride components will have comparable or higher resistance to wear than the two most commonly used combinations of biomaterials in total hip replacement implants.
- *Non-Corrosive*. Biomaterials should be non-corrosive and should not cause adverse patient reactions. Metal placed in the human body corrodes over time and also results in the release of metal ions that can cause serious adverse reactions and conditions. Our silicon nitride does not have the drawbacks associated with the corrosive nature of metal within the body nor does it result in the release of metal ions into the body.

We produce silicon nitride in four forms: (1) a fully dense, load-bearing solid, referred to as *MC^2*; (2) a porous bone-like cancellous structured form, referred to as *C^SC*; (3) a composite incorporating both our solid *MC^2* material and our porous *C^SC* material intended to promote an ideal environment for bone growth; and (4) a coating for application onto other biomaterials. This capability provides us with the ability to utilize our silicon nitride in distinct ways depending on its intended application, which, together with our silicon nitride's key characteristics, distinguishes us from manufacturers of other biomaterials and our products from products using other biomaterials.

Our Competitive Strengths

We believe we can use our silicon nitride technology platform to become a leading biomaterial company and have the following principal strengths:

- *Sole Provider of Silicon Nitride Medical Devices*. We believe we are the only company that designs, develops, manufactures and sells medical grade silicon nitride-based products.
- *In-House Manufacturing Capabilities.* We operate a 30,000 square foot manufacturing facility located at our corporate headquarters in Salt Lake City, Utah. This state-of-the-art facility allows us to rapidly design and produce silicon nitride products and control the entire manufacturing process from raw material to finished goods. We are also party to a cooperative research and development agreement with Kyocera Industrial Ceramics Corporation, or Kyocera, under which we will work with Kyocera to determine its ability to become a second qualified manufacturer of our silicon nitride-based spinal fusion products and product candidates.
- *Established Commercial Infrastructure.* We market and sell our products to surgeons and hospitals in the United States and select markets in Europe and South America through our established network of more than 50 independent sales distributors who are managed by our experienced in-house sales and marketing management team.
- *Portfolio of Non-Silicon Nitride Products.* We offer a full suite of spinal fusion products, which increases our access to surgeons and hospitals and allows us to more effectively market our silicon nitride spinal fusion products to our customers.
- *Highly Experienced Management and Surgeon Advisory Team*. We have recently assembled a senior management team with over 150 years of collective experience in the healthcare industry. Members of our management team have experience in product development, launching of new products into the orthopedics market and selling to hospitals through direct sales organizations, distributors, manufacturers and other orthopedic companies. We also collaborate with a network of leading surgeon advisors in the design, development and use of our products and product candidates.

Our Strategy

Our goal is to become a leading biomaterial company focused on using our silicon nitride technology platform to develop, manufacture and commercialize a broad range of medical devices. Key elements of our strategy to achieve this goal are the following:

- *Drive Further Adoption of our Silicon Nitride Interbody Spinal Fusion Devices*. We believe that increasing the awareness of our silicon nitride technology by educating surgeons about its key benefits, and the design improvements to our silicon nitride products and related instruments, will accelerate the adoption of our products and ultimately help improve patient outcomes. To drive further awareness of our products and the associated benefits offered by our silicon nitride technology, we will continue to educate surgeons through multiple channels, including industry conferences and meetings, media outlets and through our sales and marketing efforts.
- *Continue to Implement our Design and Build Program*. In the first half of 2013, we initiated a commercialization strategy, referred to as our Design and Build Program, in which we collaborate with

influential surgeons to develop customized silicon nitride spinal fusion products and instruments. We first sell these products to the designing surgeons and a team of evaluating surgeons. After evaluation and acceptance by these surgeons, we plan to introduce these products more broadly into the market. The first products designed under this program were sold for initial evaluation in the third quarter of 2013.

- *Enhance our Commercial Infrastructure*. We expect to increase the productivity of our sales and marketing team by continuing to engage experienced independent sales distributors with strong orthopedic surgeon relationships. For example, in October 2013, we entered into a new European sales agent agreement with K2M, Inc., one of the largest privately held spinal device companies in the world. We may also establish distribution collaborations in the United States and abroad when access to large or well-established sales and marketing organizations may help us gain access to new markets, increase sales in our existing markets or accelerate market penetration for selected products.
- *Develop Silicon Nitride for Total Joint Components*. We are incorporating our silicon nitride technology into silicon nitride-coated metal components for use in total hip and knee replacement product candidates that we plan on developing in collaboration with a strategic partner. We also have designs for solid silicon nitride components and we will make a decision in the future about whether to pursue the development of these components. In December 2013, we participated in a pre-submission meeting with the FDA to finalize the regulatory requirements for a 510(k) clearance of our silicon nitride-coated total joint components in the United States. The FDA reviewers confirmed that the regulatory pathway would be a standard 510(k) clearance with supporting biomechanical testing. In response, we intend to develop silicon nitride-coated metal joint replacement components and then, together with a strategic partner, initiate biomechanical testing with our silicon nitride-coated metal components for use in total hip and knee replacement procedures to support a 510(k) submission to the FDA. We intend to pursue clearance of a total hip replacement product first and, if clearance is obtained, we intend to commercially launch silicon nitride-coated metal products for use in total hip replacement by the second half of 2015.
- *Apply our Silicon Nitride Technology Platform to Other Opportunities.* Our silicon nitride technology platform is adaptable and we believe it may be used to develop products to address other significant opportunities, such as in the dental, sports medicine and trauma markets. We have manufactured prototypes of dental implants, sports medicine and trauma products, and we have developed a process to coat metals with our silicon nitride to enhance current medical devices and instruments. We plan to collaborate with other companies to develop and commercialize any future products in those areas or we may develop any one of them by ourselves should sufficient resources become available.

Risks Associated with Our Business

Our business is subject to a number of risks that you should be aware of before making an investment decision. These risks are discussed more fully in the section of this prospectus entitled “Risk Factors” immediately following this prospectus summary. You should read these risks before you invest in our common stock. We may be unable, for many reasons, including those that are beyond our control, to implement our business strategy. In particular, risks associated with our business include:

- our accumulated deficit as of September 30, 2013, of $140.6 million, and we expect we will continue to incur additional, and possibly increasing, losses, which, among other things, raises doubts about our ability to continue as a going concern;
- our success depends on our ability to successfully commercialize silicon nitride-based medical devices, which to date have experienced only limited market acceptance and may not be widely accepted by hospitals and surgeons in the future;
- we may not be able to increase the productivity of our sales and marketing infrastructure to successfully penetrate the spinal fusion market;
- our long-term success depends substantially on our ability to obtain regulatory clearance or approval of our product candidates and then successfully commercializing these product candidates;

- the orthopedic market is highly competitive and we may not be able to compete effectively against the larger, well-established companies that dominate this market or emerging and small innovative companies; and
- we and our independent registered public accounting firm have identified material weaknesses and a significant deficiency in our internal control over financial reporting, which increases the risk of material misstatements in our future financial statements.

Preliminary Unaudited Fourth Quarter and 2013 Financial Expectations

Set forth below are certain preliminary revenue, cost, expense and net loss expectations for the three months and the year ended December 31, 2013. As we complete our year-end financial close process and finalize our 2013 financial statements, we will be required to make significant judgments in a number of areas, including inventory, stock-based compensation, income taxes, long-lived and intangible assets, and the liability for preferred stock warrants and common stock warrants. As described elsewhere in this prospectus, we have identified four material weaknesses in our internal control over financial reporting involving our financial close process. It is possible that we or our auditors may identify items that require us to make adjustments to the financial information set forth below and those changes could be material. Additionally, the risk of a material adjustment could be greater as a result of the material weaknesses described above. Our independent registered public accounting firm has not audited, reviewed, or performed any procedures with respect to this preliminary financial data and accounting treatment information and does not express an opinion or any other form of assurance with respect thereto. We expect to complete our financial statements for the year ended December 31, 2013 subsequent to the completion of this offering. Accordingly, undue reliance should not be placed on these preliminary estimates. These preliminary estimates are not necessarily indicative of any future period and should be read together with "Risk Factors," "Special Note Regarding Forward-looking Statements," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Selected Consolidated Financial Data" and our financial statements and related notes included elsewhere in this prospectus.

We estimate that our total product revenue for the three months ended December 31, 2013 will be between approximately $5.2 million and $5.7 million, of which 41% is estimated to consist of silicon nitride product sales, as compared to $5.9 million for the three months ended December 31, 2012, of which 32% consisted of silicon nitride product sales. This estimated decrease in total product revenue was primarily attributable to the timing of the launch of our second generation *Valeo* products. The estimated increase in the proportion of silicon nitride product sales for the three months ended December 31, 2013 was primarily attributable to the focus of a new sales team on silicon nitride product sales versus non-silicon nitride product sales.

We estimate that our total product revenue for the year ended December 31, 2013 will be between approximately $21.8 million and $22.3 million, of which 34% is estimated to consist of silicon nitride product sales, as compared to $23.1 million for the year ended December 31, 2012, of which 29% consisted of silicon nitride product sales. This estimated decrease in total product revenue was primarily attributable to the restructuring of our sales and marketing teams during the first quarter of 2013, resulting from changes in our distribution network, the timing of the launch of our second generation *Valeo* products and a one-time sale of non-silicon nitride products to a customer in 2012 with no corresponding sale in 2013. The estimated increase in the proportion of silicon nitride product sales for the year ended December 31, 2013 was primarily attributable to the one-time sale of non-silicon nitride products in 2012 and the focus of the new sales team on silicon nitride product sales versus non-silicon nitride product sales.

We believe that our cost of revenue and operating expenses, other than impairment expense, for the three months and year ended December 31, 2013 will be generally consistent with cost of revenue and operating expenses in the same periods in the prior year. We cannot accurately estimate at this time impairment expense, if any, for the year ended December 31, 2013. When we complete our impairment review and if we determine our intangible assets are impaired, the maximum impairment expense we could record for the year ended December 31, 2013 would not exceed the $15.3 million impairment expense we recorded for the year ended December 31, 2012.

We expect interest expense, the most significant component of our other expenses, for the three months and year ended December 31, 2013 will be less than the $1.7 million and $5.6 million of interest expense for the three months and year ended December 31, 2012, respectively. This expected decrease is due to the lower interest on our senior secured credit facility we had in place in 2013 as compared to the interest we incurred in 2012 related to our senior secured convertible promissory notes and certain assumed acquisition indebtedness that was outstanding until December 2012. However, we have not completed an analysis of the other components of our other expenses, including expenses for a change in fair value of preferred stock warrants and common stock warrants, and, as a result we cannot estimate other components of our other expenses with certainty at this time. Accordingly, we expect to incur net losses for the three months and the year ended December 31, 2013; however, no conclusions should be drawn as to the size of our net loss based on the foregoing revenue and expense estimates.

Implications of Being an Emerging Growth Company

As a company with less than $1.0 billion in revenue during our most recently completed fiscal year, we qualify as an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933 or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable, in general, to public companies that are not emerging growth companies. These provisions include:

- reduced disclosure about our executive compensation arrangements;
- no requirement to hold non-binding stockholder advisory votes on executive compensation or golden parachute arrangements;
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting; and
- reduced disclosure of financial information in this prospectus, including two years of audited financial information and two years of selected financial information.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock. We would cease to be an emerging growth company if we have more than $1.0 billion in annual revenues as of the end of a fiscal year, if we are deemed to be a large-accelerated filer under the rules of the Securities and Exchange Commission, or if we issue more than $1.0 billion of non-convertible debt over a three-year-period.

The JOBS Act also permits us, as an emerging growth company, to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies and thereby allows us to delay the adoption of those standards until those standards would apply to private companies. We are electing to use this extended transition period under the JOBS Act. As a result, our financial statements may not be comparable to the financial statements of issuers who are required to comply with the effective dates for new or revised accounting standards that are applicable to public companies.

Corporate Information

We were incorporated in Delaware in 1996 under the name Amedica Corp. and have since changed our name to Amedica Corporation. Effective September 20, 2010, we acquired all of the outstanding shares of US Spine, Inc. which then became our wholly-owned subsidiary, which is our only subsidiary. Our principal executive offices are located at 1885 West 2100 South, Salt Lake City, Utah 84119, and our telephone number is (801) 839-3500. Our web site address is www.amedicacorp.com. The information on, or that may be accessed through, our web site is not incorporated by reference into this prospectus and should not be considered a part of this prospectus.

Certain monetary amounts, percentages and other figures included in this prospectus have been subject to rounding adjustments. Accordingly, figures shown as totals in certain tables may not be the arithmetic aggregation of the figures that precede them, and figures expressed as percentages in the text may not total 100% or, as applicable, when aggregated may not be the arithmetic aggregation of the percentages that precede them.

"Amedica," "*C*^{5}*C,*" "*MC*^{2}," "*Valeo*" and "rethink what's possible" are registered U.S. trademarks of Amedica Corporation. "US Spine" is a registered U.S. trademark of our subsidiary, US Spine, Inc. All other trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners. Trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or TM symbols for convenience. Such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

THE OFFERING

Common stock offered by us	3,181,818 shares (or 3,659,091 shares if the underwriters exercise in full their option to purchase additional shares)
Common stock to be outstanding after this offering	11,363,636 shares (or 11,840,909 shares if the underwriters exercise in full their option to purchase additional shares)
Option to purchase additional shares	We have granted to the underwriters the option, exercisable for 30 days from the date of this prospectus, to purchase up to 477,273 additional shares of common stock.
Use of proceeds	We intend to use the net proceeds from this offering (i) to continue to build sales, marketing and distribution capabilities for our silicon nitride technology platform, including the costs of inventory and instruments, (ii) to fund research and development and commercialization activities of our product candidates, including the funding of clinical trials we plan to conduct for our product candidates, and (iii) to support working capital needs and other general corporate purposes, including debt service under our existing term loan and credit facility with General Electric Capital Corporation and Zions First National Bank. See "Use of Proceeds."
Offering price	$ per share
Risk factors	See "Risk Factors" beginning on page 11 and other information included in this prospectus for a discussion of factors that you should consider carefully before deciding to invest in our common stock.
Proposed NASDAQ Global Market symbol	AMDA

The number of shares of our common stock to be outstanding after this offering is based on 597,745 shares of common stock outstanding as of September 30, 2013, and assumes the conversion of all of our shares of convertible preferred stock outstanding as of September 30, 2013 into 7,584,073 shares of common stock upon the completion of this offering. It does not include:

- 94,161 shares of common stock issuable upon the exercise of outstanding options to purchase common stock as of September 30, 2013 under our 2003 Stock Option Plan, or the 2003 Plan, at a weighted-average exercise price of $29.38 per share;
- 153,720 shares of common stock issuable upon the exercise of warrants for shares of Series C, Series D, Series E and Series F convertible preferred stock, on an as converted basis, outstanding as of September 30, 2013, at a weighted-average exercise price of $59.28 per share;
- 473,952 shares of common stock issuable upon the exercise of warrants for shares of our common stock outstanding as of September 30, 2013, at a weighted-average exercise price of $28.09 per share;

- 188,251 shares of common stock issuable upon the vesting of outstanding restricted stock units, or RSUs, issued under our Amended and Restated 2012 Equity Incentive Plan, or the 2012 Plan, outstanding as of January 15, 2014;
- 1,405,919 shares of our common stock issuable upon the vesting of RSUs to be issued under our 2012 Plan in connection with this offering; and
- 1,405,830 additional shares of common stock reserved for issuance under the 2012 Plan, which reflects November 2013 and January 2014 amendments to the 2012 Plan, subject to shareholder approval and the completion of this offering.

Unless otherwise indicated, all information contained in this prospectus:

- assumes the underwriters do not exercise their option to purchase up to an additional 477,273 shares of our common stock;
- reflects a 1-for-25.7746 reverse split of our common stock to be effected prior to the completion of this offering;
- reflects the automatic conversion of all of our outstanding shares of convertible preferred stock into 7,584,073 shares of common stock upon completion of this offering, based on an assumed initial public offering price of $11.00 per share (the midpoint of the price range set forth on the front cover of this prospectus);
- reflects the conversion of all outstanding warrants exercisable for 2,344,731 shares of preferred stock into warrants exercisable for 153,720 shares of common stock upon completion of this offering; and
- assumes the adoption of our amended and restated certificate of incorporation and amended and restated bylaws upon the completion of this offering.

SUMMARY CONSOLIDATED FINANCIAL DATA

The summary consolidated financial data set forth below should be read in conjunction with our consolidated financial statements and the related notes, "Selected Consolidated Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus.

We derived the summary consolidated statement of comprehensive loss data for the fiscal years ended December 31, 2011 and 2012 from our audited consolidated financial statements appearing elsewhere in this prospectus. We derived the summary consolidated statement of comprehensive loss data for the nine months ended September 30, 2012 and 2013 and consolidated balance sheet data as of September 30, 2013 from our unaudited consolidated financial statements appearing elsewhere in this prospectus.

	Years Ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
			(unaudited)	
	(in thousands, except per share amounts)			
Consolidated Statement of Comprehensive Loss Data:				
Product revenue	$ 20,261	$ 23,065	$ 17,126	$ 16,604
Cost of revenue				
Product revenue	4,088	5,423	3,363	4,235
Write-down of excess and obsolete inventory	—	1,043	—	778
Total cost of revenue	4,088	6,466	3,363	5,013
Gross profit	16,173	16,599	13,763	11,591
Operating expenses				
Research and development	7,789	6,013	4,488	2,866
General and administrative	7,263	7,313	5,458	4,067
Sales and marketing	17,145	17,094	11,944	12,123
Impairment loss on intangible assets	—	15,281	—	—
Change in fair value of contingent consideration	4,832	—	—	—
Total operating expenses	37,029	45,701	21,890	19,056
Loss from operations	(20,856)	(29,102)	(8,127)	(7,465)
Other income (expense)				
Interest income	72	57	45	13
Interest expense	(3,456)	(5,611)	(3,864)	(1,345)
Loss on extinguishment of debt	—	(251)	—	—
Change in fair value of preferred stock warrants	308	(85)	(110)	73
Change in fair value of common stock warrants	172	(618)	1,348	(224)
Other income / (expense)	9	(151)	(4)	—
Total other expense	(2,895)	(6,659)	(2,585)	(1,483)
Other expense, net				
Net loss before income taxes	(23,751)	(35,761)	(10,712)	(8,948)
Income tax benefit	—	726	—	—
Net loss	$(23,751)	$(35,035)	$ (10,712)	(8,948)
Other comprehensive loss, net of tax:				
Unrealized gain / (loss) on marketable securities	(23)	25	35	(2)
Total comprehensive loss	$(23,774)	$(35,010)	$ (10,677)	$ (8,950)
Net loss per share attributable to common stockholders				
Basic and diluted(1)	$ (68.28)	$(100.52)	$ (30.74)	$ (17.64)
Shares used to calculate net loss attributable to common stockholders				
Basic and diluted(1)	348	349	348	507
Pro forma net loss per share attributable to common stockholders (unaudited)				
Basic and diluted(1)		$ (9.90)		$ (1.27)
Weighted-average shares used to calculate pro forma net loss per share attributable to common stockholders (unaudited)				
Basic and diluted(1)		3,532		7,120

(1) See Note 1 to our consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma net loss per share, basic and diluted, and the number of shares used in the computation of the per share amounts.

	As of September 30, 2013 (unaudited) (in thousands)		
	Actual	Pro Forma(1)	Pro Forma as Adjusted (1)(2)
Consolidated Balance Sheet Data:			
Cash, restricted cash and cash equivalents(3)	$ 7,861	$ 7,861	$ 36,191
Working capital	(1,708)	(1,708)	26,625
Total assets	35,569	35,569	63,899
Long-term debt, including current portion	17,917	17,917	17,917
Convertible preferred stock	161,456	—	—
Total stockholders' equity (deficit)	(153,896)	8,012	36,342

(1) The pro forma balance sheet data above reflect our unaudited capitalization as of September 30, 2013, on a pro forma basis giving effect to (i) the automatic conversion of all outstanding shares of convertible preferred stock into an aggregate of 7,584,073 shares of our common stock upon the completion of this offering, and (ii) the conversion of all outstanding warrants to purchase shares of our convertible preferred stock into warrants to purchase an aggregate of 153,720 shares of our common stock (but not assuming the exercise of the common stock warrants) and the related reclassification of the preferred stock warrant liability to additional paid-in-capital upon the completion of this offering.

(2) The pro forma as adjusted balance sheet data above reflects the issuance of 3,181,818 shares of our common stock upon the completion of this offering at an assumed initial public offering price of $11.00 per share (the midpoint of the price range on the front cover of this prospectus) after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, as if this offering occurred on September 30, 2013.

(3) Restricted cash consists of cash we receive from payments of our accounts receivables held in a segregated account that must be applied to pay amounts owed under our revolving credit facility.

RISK FACTORS

An investment in shares of our common stock involves a high degree of risk. You should carefully read and consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes, before deciding to invest in our common stock. The occurrence of any of the following risks could have a material adverse effect on our business, financial condition, results of operations or cash flows. In that case, the trading price of our common stock could decline, and you could lose all or part of your investment.

Risks Related to Our Business and Strategy

We have incurred net losses since our inception and anticipate that we will continue to incur substantial net losses for the foreseeable future. We may never achieve or sustain profitability.

We have incurred substantial net losses since our inception. For the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 and 2013, we incurred a net loss of $23.8 million, $35.0 million, $10.7 million and $8.9 million, respectively, and used cash in operations of $14.9 million, $9.7 million, $6.4 million and $4.6 million, respectively. We have an accumulated deficit of $131.6 million as of December 31, 2012 and $140.6 million as of September 30, 2013. With the exception of a small net income for the years ended December 31, 2002 and 1999, we have incurred net losses in each year since inception. Our losses have resulted principally from costs incurred in connection with our sales and marketing activities, research and development activities, manufacturing activities, general and administrative expenses associated with our operations, impairments on intangible assets and interest expense. Even if we are successful in launching additional products into the market, we expect to continue to incur substantial losses for the foreseeable future as we continue to sell and market our current products and research and develop, and seek regulatory approvals for, our product candidates.

If sales revenue from any of our current products or product candidates that receive marketing clearance from the FDA or other regulatory body is insufficient, if we are unable to develop and commercialize any of our product candidates, or if our product development is delayed, we may never become profitable. Even if we do become profitable, we may be unable to sustain or increase our profitability on a quarterly or annual basis.

Our success depends on our ability to successfully commercialize silicon nitride-based medical devices, which to date have experienced only limited market acceptance.

We believe we are the first and only company to use silicon nitride in medical applications. To date, however, we have had limited acceptance of our silicon nitride-based products and our product revenue has been derived substantially from our non-silicon nitride products. In order to succeed in our goal of becoming a leading biomaterial technology company utilizing silicon nitride, we must increase market awareness of our silicon nitride interbody spinal fusion products, continue to implement our sales and marketing strategy, enhance our commercial infrastructure and commercialize our silicon nitride joint replacement components and other products. If we fail in any of these endeavors or experience delays in pursuing them, we will not generate revenues as planned and will need to curtail operations or seek additional financing earlier than otherwise anticipated.

Our current products and our future products may not be accepted by hospitals and surgeons and may not become commercially successful.

Although we received 510(k) regulatory clearance from the FDA for our first silicon nitride spinal fusion products in 2008, we have not been able to obtain significant market share of the interbody spinal fusion market to date, and may not obtain such market share in the future. Even if we receive regulatory clearances or approvals for our product candidates in development, these product candidates may not gain market acceptance among orthopedic surgeons and the medical community. Orthopedic surgeons may elect not to use our products for a variety of reasons, including:

- lack or perceived lack of evidence supporting the beneficial characteristics of our silicon nitride technology;
- limited long-term data on the use of silicon nitride in medical devices;
- lower than expected clinical benefits in comparison with other products;

- surgeons' perception that there are insufficient advantages of our products relative to currently available products;
- hospitals may choose not to purchase our products;
- group purchasing organizations may choose not to contract for our products, thus limiting availability of our products to hospital purchasers;
- the price of our products, which may be higher than products made of the other commonly used biomaterials in the interbody spinal fusion market and total joint market;
- lack of coverage or adequate payment from managed care plans and other third-party payors for the procedures that use our products;
- Medicare, Medicaid or other third-party payors may limit or not permit reimbursement for procedures using our products;
- ineffective marketing and distribution support;
- the time and resources that may be required for training, or the inadequate training, of surgeons in the proper use of our products;
- the development of alternative biomaterials and products that render our products less competitive or obsolete; and
- the development of or improvement of competitive products.

If surgeons do not perceive our silicon nitride products and product candidates as superior alternatives to competing products, we will not be able to generate significant revenues, if any.

Even if surgeons are convinced of the superior characteristics of our silicon nitride products and our product candidates that we successfully introduce compared to the limitations of the current commonly used biomaterials, surgeons may find other methods or turn to other biomaterials besides silicon nitride to overcome such limitations. For instance, with respect to interbody spinal fusion products, surgeons or device manufacturers may use more effective markers for enhancing the imaging compatibility of PEEK devices, more effective antibiotics to prevent or treat implant-related infections, and more effective osteoconductive and osteoinductive materials when implanting an interbody spinal fusion device. Device manufacturers may also coat metal with existing traditional ceramics to reduce the risk of metal wear particles and corrosion in total joint replacement implants. Additionally, surgeons may increase their use of metal interbody spinal fusion devices if there is an increasing perception that PEEK devices are limited by their strength and resistance to fracture.

If we are unable to increase the productivity of our sales and marketing infrastructure we will not be able to penetrate the spinal fusion market.

We market and sell our products to surgeons and hospitals in the United States and select markets in Europe and South America using a network of independent third-party distributors who have existing surgeon relationships. We manage this distribution network through our in-house sales and marketing management team. We may also establish distribution collaborations in the United States and abroad in instances where access to a large or well-established sales and marketing organization may help to expand the market or accelerate penetration for selected products.

We cannot assure you that we will succeed in entering into and maintaining productive arrangements with an adequate number of distributors that are sufficiently committed to selling our products. The establishment of a distribution network is expensive and time consuming. As we launch new products and increase our marketing effort with respect to existing products, we will need to continue to hire, train, retain and motivate skilled independent distributors with significant technical knowledge in various areas, such as spinal fusion and total hip and knee joint replacement. In addition, the commissions we pay our distributors have increased over time, which has resulted in higher sales and marketing expenses, and those commissions and expenses may increase in the future. Furthermore, current and potential distributors may market and sell the products of our competitors. Even if the distributors market and sell our products, our competitors may be able, by offering higher commission payments or other incentives, to persuade these distributors to reduce or terminate their sales and marketing efforts related to our products. The distributors may also help competitors solicit business from our existing customers. Some of our independent distributors account for a significant portion of our sales volume, and, if we were to lose them, our sales could be adversely affected.

Even if we engage and maintain suitable relationships with an adequate number of distributors, they may not generate revenue as quickly as we expect them to, commit the necessary resources to effectively market and sell our products, or ultimately succeed in selling our products. We have been unable to obtain meaningful market share in the interbody spinal fusion device market with our current silicon nitride products to date and we may not be successful in increasing the productivity of our sales and marketing team and distribution network to gain meaningful market share for our silicon nitride products, which could adversely affect our business and financial condition.

The orthopedic market is highly competitive and we may not be able to compete effectively against the larger, well-established companies that dominate this market or emerging and small innovative companies that may seek to obtain or increase their share of the market.

The markets for spinal fusions and total hip and knee implant products are intensely competitive, and many of our competitors are much larger and have substantially more financial and human resources than we do. Many have long histories and strong reputations within the industry, and a relatively small number of companies dominate these markets. In 2012, Medtronic, Inc.; DePuy Synthes Companies, a group of Johnson & Johnson companies; Stryker Corporation; Biomet, Inc.; Zimmer Holdings, Inc.; and Smith & Nephew plc, accounted for more than 65% of orthopedic sales worldwide.

These companies enjoy significant competitive advantages over us, including:

- broad product offerings, which address the needs of orthopedic surgeons and hospitals in a wide range of procedures;
- products that are supported by long-term clinical data;
- greater experience in, and resources for, launching, marketing, distributing and selling products, including strong sales forces and established distribution networks;
- existing relationships with spine and joint reconstruction surgeons;
- extensive intellectual property portfolios and greater resources for patent protection;
- greater financial and other resources for product research and development;
- greater experience in obtaining and maintaining FDA and other regulatory clearances and approvals for products and product enhancements;
- established manufacturing operations and contract manufacturing relationships;
- significantly greater name recognition and widely recognized trademarks; and
- established relationships with healthcare providers and payors.

Our products and any product candidates that we may introduce into the market may not enable us to overcome the competitive advantages of these large and dominant orthopedic companies. In addition, even if we successfully introduce additional product candidates incorporating our silicon nitride biomaterial into the market, emerging and small innovative companies may seek to increase their market share and they may eventually possess competitive advantages, which could adversely impact our business. Our competitors may also employ pricing strategies that could adversely affect the pricing of our products and pricing in the spinal fusion and total joint replacement market generally.

Moreover, many other companies are seeking to develop new biomaterials and products which may compete effectively against our products in terms of performance and price. For example, Smith & Nephew has developed a ceramic-coated metal, known as Oxinium, that may overcome certain of the limitations of metal joint replacement products and could directly compete with our silicon nitride and silicon nitride-coated product candidates.

We have significant customer concentration, so that economic difficulties or changes in the purchasing policies or patterns of our key customers could have a significant impact on our business and operating results.

A small number of customers account for a substantial portion of our product revenues. Our customers are primarily hospitals and surgical centers. At September 30, 2013, our largest customer, Bon Secours St. Mary's Hospital, or St. Mary's, had a receivable balance of approximately 11% of our total trade accounts receivable. In addition, St. Mary's accounted for 17% and 14% of our product revenues for the years ended December 31, 2011

and 2012, respectively, and 15% of our product revenues for the nine months ended September 30, 2013. Sales of our products to our customers, including St. Mary's, are not based on long-term, committed-volume purchase contracts, and we may not continue to receive significant revenues from St. Mary's or any customer. Because of our significant customer concentration, our revenue could fluctuate significantly due to changes in economic conditions, the use of competitive products, or the loss of, reduction of business with, or less favorable terms with St. Mary's or any of our other significant customers. A significant portion of St. Mary's' purchases have been of our non-silicon nitride products, so it may be able to purchase competitive similar products from others. A reduction or delay in orders from St. Mary's or any of our other significant customers, or a delay or default in payment by any significant customer, could materially harm our business and results of operations.

The manufacturing process for our silicon nitride products is complex and requires sophisticated state-of-the-art equipment, experienced manufacturing personnel and highly specialized knowledge. If we are unable to manufacture our silicon nitride products on a timely basis consistent with our quality standards, our results of operation will be adversely impacted.

In order to control the quality, cost and availability of our silicon nitride products, we developed our own manufacturing capabilities. We operate a 30,000 square foot manufacturing facility which is certified under the ISO 13485 medical device manufacturing standard for medical devices and operates under the FDA's quality systems regulations, or QSRs. All operations with the exceptions of raw material production, cleaning, packaging and sterilization are performed at this facility.

We currently do not have a secondary source for the manufacture of our silicon nitride products. Our reliance solely on our internal resources to manufacture our silicon nitride products entails risks to which we would not be subject if we had secondary suppliers for their manufacture, including:

- the inability to meet our product specifications and quality requirements consistently;
- a delay or inability to procure or expand sufficient manufacturing capacity to meet additional demand for our products;
- manufacturing and product quality issues related to the scale-up of manufacturing;
- the inability to produce a sufficient supply of our products to meet product demands;
- the disruption of our manufacturing facility due to equipment failure, natural disaster or failure to retain key personnel; and
- our inability to ensure our compliance with regulations and standards of the FDA including QSRs and corresponding state and international regulatory authorities.

Any of these events could lead to a reduction in our product sales, product launch delays, failure to obtain regulatory clearance or approval or impact our ability to successfully sell our products and commercialize our products candidates. While we currently are experiencing an equipment repair and have been able to obtain product from a supplier in the interim, we may be unable to do so in the future. Some of these events could be the basis for adverse actions by regulatory authorities, including injunctions, recalls, seizures, or total or partial suspension of production. In November 2013, we entered into a cooperative research and development agreement with Kyocera Industrial Ceramics Corporation, or Kyocera, under which we will work with Kyocera to determine its ability to become a second qualified manufacturer of our silicon nitride-based spinal fusion products and product candidates. Although we expect this arrangement will lead to Kyocera becoming a secondary qualified manufacturer, if Kyocera fails to become a qualified manufacturer or if we cannot come to an agreement with Kyocera for the further manufacture of our silicon nitride-based spinal fusion products and product candidates, we will continue to be the sole manufacturer of these products and will need to seek other potential secondary manufacturers.

We depend on a limited number of third-party suppliers for key raw materials used in the manufacturing of our silicon nitride products, and the loss of these third-party suppliers or their inability to supply us with adequate raw materials could harm our business.

We rely on a limited number of third-party suppliers for the raw materials required for the production of our silicon nitride products and product candidates. Our dependence on a limited number of third-party suppliers involves several risks, including limited control over pricing, availability, quality, and delivery schedules for raw

materials. We have no supply agreements in place with any of our suppliers and cannot be certain that our current suppliers will continue to provide us with the quantities of raw materials that we require or that satisfy our anticipated specifications and quality requirements. Any supply interruption in limited or single sourced raw materials could materially harm our ability to manufacture our products until a new source of supply, if any, could be identified and qualified. We may be unable to find a sufficient alternative supply channel within a reasonable time or on commercially reasonable terms. Any performance failure on the part of our suppliers could delay the production of our silicon nitride products and product candidates and delay the development and commercialization of our product candidates, including limiting supplies necessary for commercial sale, clinical trials and regulatory approvals, which could have a material adverse effect on our business.

Use of third-party manufacturers increases the risk that we will not have adequate supplies of our non-silicon nitride products or instrumentation sets.

The majority of our product revenue is currently generated by sales of non-silicon nitride products. Our reliance on a limited number of third-party manufacturers to supply us with our non-silicon nitride products and instruments exposes us to risks that could delay our sales, or result in higher costs or lost product revenues. In particular, our manufacturers could:

- encounter difficulties in achieving volume production, quality control and quality assurance or suffer shortages of qualified personnel, which could result in their inability to manufacture sufficient quantities of our commercially available non-silicon nitride products to meet market demand for those products, or they could experience similar problems that result in the manufacture of insufficient quantities of our non-silicon nitride product candidates; and
- fail to follow and remain in compliance with the FDA-mandated QSRs, compliance which is required for all medical devices, or fail to document their compliance to QSRs, either of which could lead to significant delays in the availability of materials for our non-silicon nitride products or instrumentation sets.

If we are unable to obtain adequate supplies of our non-silicon nitride products and related instrumentation sets that meet our specifications and quality standards, it will be difficult for us to compete effectively. We have no supply agreements in place with our manufacturers and they may change the terms of our future orders or choose not to supply us with products or instrumentation sets in the future. Furthermore, if a third-party manufacturer from whom we purchase fails to perform its obligations, we may be forced to purchase products or related instrumentation from other third-party manufacturers, which we may not be able to do on reasonable terms, if at all. In addition, if we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer or the re-verification of an existing manufacturer could negatively affect our ability to produce and distribute our non-silicon nitride products or instruments in a timely manner.

In order to be successful, we must expand our available product lines of silicon nitride-based medical devices by commercializing new product candidates, but we may not be able to do so in a timely fashion and at expected costs, or at all.

Although we are currently marketing our silicon nitride interbody spinal fusion implants, in order to be successful, we will need to expand our product lines to include other silicon nitride devices. Therefore, we are developing silicon nitride product candidates for total hip and knee replacement procedures and are exploring the application of our silicon nitride technology for other potential applications. However, we have yet to commercialize any silicon nitride products beyond our spinal fusion products. To succeed in our commercialization efforts, we must effectively continue product development and testing, obtain regulatory clearances and approvals, and enhance our sales and marketing capabilities. We may also have to write down significant inventory if existing products are replaced by new products. Because of these uncertainties, there is no assurance that we will succeed in bringing any of our current or future product candidates to market. If we fail in bringing our product candidates to market, or experience delays in doing so, we will not generate revenues as planned and will need to curtail operations or seek additional financing earlier than otherwise anticipated.

We will depend on one or more strategic partners to develop and commercialize our total joint replacement product candidates, and if our strategic partners are unable to execute effectively on our agreements with them, we may never become profitable.

Pursuant to a joint development and license agreement with Orthopaedic Synergy, Inc., or OSI, we are dependent on OSI's ability to execute product development plans, obtain regulatory approvals, and sell, distribute and market our jointly developed product candidate for total hip and total knee joint replacement implants that use our *MC²* silicon nitride technology. We would similarly be reliant on other strategic partners to develop and commercialize a total hip or knee joint replacement product candidate that utilizes silicon nitride-coated components, although we have not yet entered into an agreement with any strategic partner to develop products with these silicon nitride-coated components and may be unable to do so on agreeable terms. In order to succeed in our joint commercialization efforts, we and OSI, and any future partners must execute effectively on all elements of a combined business plan, including continuing to establish sales and marketing capabilities, manage certified, validated and effective commercial-scale manufacturing operations, conduct product development and testing, and obtain regulatory clearances and approvals for our product candidate. If we or any of our strategic partners fail in any of these endeavors, or experience delays in pursuing them, we will not generate revenues as planned and will need to curtail operations or seek additional financing earlier than otherwise anticipated.

The use of physician-owned distributorships could result in increased pricing pressure on our products or harm our ability to sell our products to physicians who own or are affiliated with those distributorships and the sale of our products through such distributorships may expose us to regulatory enforcement risk.

Physician-owned distributorships, or PODs, are medical device distributors that are owned, directly or indirectly, by physicians. These physicians derive a proportion of their revenue from selling or arranging for the sale of medical devices for use in procedures they perform on their own patients at hospitals that agree to purchase from or through the POD, or that otherwise furnish ordering physicians with income that is based directly or indirectly on those orders of medical devices.

We may sell and distribute our products through a limited number of PODs. The number of PODs in the orthopedic industry may continue to grow as physicians search for ways to increase their incomes. These companies and the physicians who own, or partially own, them have significant market knowledge and access to the surgeons and hospitals that may potentially purchase our products and the physicians who own these PODs will have financial incentives to purchase from these distributorships. As a result, growth in this area may reduce our ability to compete effectively for business.

On March 26, 2013, the Department of Health and Human Services Office of Inspector General issued a Special Fraud Alert on Physician-Owned Entities and identified PODs as "inherently suspect" under the federal Anti-Kickback Statute. While the PODs themselves may be the target of any government enforcement efforts in this area, it is possible that regulatory scrutiny may extend to other entities that have relationships with PODs, including us. We are not aware that we are currently subject to any such scrutiny. However, the cost of defending such enforcement actions, if brought (even without merit), as well as any sanctions, if imposed, could have a material adverse effect on our business.

If hospitals and other healthcare providers are unable to obtain coverage or adequate reimbursement for procedures performed with our products, it is unlikely our products will be widely used.

In the United States, the commercial success of our existing products and any future products will depend, in part, on the extent to which governmental payors at the federal and state levels, including Medicare and Medicaid, private health insurers and other third-party payors provide coverage for and establish adequate reimbursement levels for procedures utilizing our products. Because we typically receive payment directly from hospitals and surgical centers, we do not anticipate relying directly on payment from third-party payors for our products. However, hospitals and other healthcare providers that purchase our orthopedic products for treatment of their patients generally rely on third-party payors to pay for all or part of the costs and fees associated with our products as part of a "bundled" rate for the associated procedures. The existence of coverage and adequate reimbursement for our products and the procedures performed with them by government and private payors is

critical to market acceptance of our existing and future products. Neither hospitals nor surgeons are likely to use our products if they do not receive adequate reimbursement for the procedures utilizing our products.

Many private payors currently base their reimbursement policies on the coverage decisions and payment amounts determined by the Centers for Medicare and Medicaid Services, or CMS, which administers the Medicare program. Others may adopt different coverage or reimbursement policies for procedures performed with our products, while some governmental programs, such as Medicaid, have reimbursement policies that vary from state to state, some of which may not pay for the procedures performed with our products in an adequate amount, if at all. A Medicare national or local coverage decision denying coverage for one or more of our products could result in private and other third-party payors also denying coverage for our products. Third-party payors also may deny reimbursement for our products if they determine that a product used in a procedure was not medically necessary, was not used in accordance with cost-effective treatment methods, as determined by the third-party payor, or was used for an unapproved use. Unfavorable coverage or reimbursement decisions by government programs or private payors underscore the uncertainty that our products face in the market and could have a material adverse effect on our business.

Many hospitals and clinics in the United States belong to group purchasing organizations, which typically incentivize their hospital members to make a relatively large proportion of purchases from a limited number of vendors of similar products that have contracted to offer discounted prices. Such contracts often include exceptions for purchasing certain innovative new technologies, however. Accordingly, the commercial success of our products may also depend to some extent on our ability to either negotiate favorable purchase contracts with key group purchasing organizations and/or persuade hospitals and clinics to purchase our product "off contract."

The healthcare industry in the United States has experienced a trend toward cost containment as government and private payors seek to control healthcare costs by paying service providers lower rates. While it is expected that hospitals will be able to obtain coverage for procedures using our products, the level of payment available to them for such procedures may change over time. State and federal healthcare programs, such as Medicare and Medicaid, closely regulate provider payment levels and have sought to contain, and sometimes reduce, payment levels. Private payors frequently follow government payment policies and are likewise interested in controlling increases in the cost of medical care. In addition, some payors are adopting pay-for-performance programs that differentiate payments to healthcare providers based on the achievement of documented quality-of-care metrics, cost efficiencies, or patient outcomes. These programs are intended to provide incentives to providers to deliver the same or better results while consuming fewer resources. As a result of these programs, and related payor efforts to reduce payment levels, hospitals and other providers are seeking ways to reduce their costs, including the amounts they pay to medical device manufacturers. We may not be able to sell our implants profitably if third-party payors deny or discontinue coverage or reduce their levels of payment below that which we project, or if our production costs increase at a greater rate than payment levels. Adverse changes in payment rates by payors to hospitals could adversely impact our ability to market and sell our products and negatively affect our financial performance.

In international markets, medical device regulatory requirements and healthcare payment systems vary significantly from country to country, and many countries have instituted price ceilings on specific product lines. We cannot assure you that our products will be considered cost-effective by international third-party payors, that reimbursement will be available or, if available, that the third-party payors' reimbursement policies will not adversely affect our ability to sell our products profitably. Any failure to receive regulatory or reimbursement approvals would negatively impact market acceptance of our products in any international markets in which those approvals are sought.

Prolonged negative economic conditions in domestic and international markets may adversely affect us, our suppliers, partners and consumers, and the global orthopedic market which could harm our financial position.

Global credit and financial markets have been experiencing extreme disruptions over the past several years, including severely diminished liquidity and availability of credit, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. Credit and financial markets and confidence in economic conditions might deteriorate further. Our business may be adversely affected by the recent economic downturn and volatile business environment and continued unpredictable and unstable market conditions. In addition, there is a risk that one or more of our current suppliers

may not continue to operate. Any lender that is obligated to provide funding to us under any future credit agreement with us may not be able to provide funding in a timely manner, or at all, when we require it. The cost of, or lack of, available credit or equity financing could impact our ability to develop sufficient liquidity to maintain or grow our company. These negative changes in domestic and international economic conditions or additional disruptions of either or both of the financial and credit markets may also affect third-party payors and may have a material adverse effect on our business, results of operations, financial condition and liquidity.

In addition, we believe that various demographics and industry-specific trends will help drive growth in the orthopedics markets, but these demographics and trends are uncertain. Actual demand for orthopedic products generally, and our products in particular, could be significantly less than expected if our assumptions regarding these factors prove to be incorrect or do not materialize, or if alternative treatments gain widespread acceptance.

We have a new senior management team and are dependent on our senior management team, engineering team, sales and marketing team and surgeon advisors, and the loss of any of them could harm our business.

We have recently assembled a new senior management team. They have worked together in their new positions with us for a limited time and may not be able to successfully implement our strategy. In addition, we have not entered into employment agreements, other than severance agreements, with any of the members of our senior management team. There are no assurances that the services of any of these individuals will be available to us for any specified period of time. The successful integration of our new senior management team, the loss of members of our senior management team, sales and marketing team, engineering team and key surgeon advisors, or our inability to attract or retain other qualified personnel or advisors could have a material adverse effect on our business, financial condition and results of operations.

If we experience significant disruptions in our information technology systems, our business, results of operations and financial condition could be adversely affected.

The efficient operation of our business depends on our information technology systems. We rely on our information technology systems to effectively manage our sales and marketing, accounting and financial functions; manufacturing processes; inventory; engineering and product development functions; and our research and development functions. As such, our information technology systems are vulnerable to damage or interruption including from earthquakes, fires, floods and other natural disasters; terrorist attacks and attacks by computer viruses or hackers; power losses; and computer systems, or Internet, telecommunications or data network failures. The failure of our information technology systems to perform as we anticipate or our failure to effectively implement new systems could disrupt our entire operation and could result in decreased sales, increased overhead costs, excess inventory and product shortages, all of which could have a material adverse effect on our reputation, business, results of operations and financial condition.

Risks Related to Our Capital Resources and Impairments

We may require additional financing and our failure to obtain additional funding when needed could force us to delay, reduce or eliminate our product development programs or commercialization efforts.

We may require substantial future capital in order to continue to conduct the research and development and regulatory clearance and approval activities necessary to bring our products to market and to establish effective marketing and sales capabilities. Our existing capital resources and the net proceeds from this offering may not be sufficient to enable us to fund the completion of the development and commercialization of all of our product candidates. We cannot determine with certainty the duration and completion costs of the current or future development and commercialization of our product candidates for spinal fusion procedures, joint replacement and coated metals or if, when, or to what extent we will generate revenues from the commercialization and sale of any of these product candidates for which we obtain regulatory approval. We may never succeed in achieving regulatory approval for certain of these product candidates. The duration, costs and timing of clinical trials and development of our spinal fusion, joint replacement and coated metal product candidates will depend on a variety of factors, including:

- the scope, rate of progress, and expense of our ongoing, as well as any additional, clinical trials and other research and development activities;

- future clinical trial results we may have to conduct;
- potential changes in government regulation; and
- the timing and receipt of any regulatory approvals.

A change in the outcome of any of these variables with respect to the development of spinal fusion, joint replacement or coated metal product candidates could mean a significant change in the costs and timing associated with the development of these product candidates. We believe that our existing capital resources, expected product revenues, and the net proceeds from this offering will enable us to maintain currently planned activities associated with the research, development, regulatory approval and commercialization activities for these product candidates over the next 18 months, which we expect will approximate $3.4 million of the expected $8.0 million of such expenses for all of our products and product candidates over this period.

We currently have limited committed sources of capital and we have limited liquidity. Our cash and cash equivalents as of September 30, 2013 were $7.6 million and as of December 31, 2012 were $2.7 million. In December 2012, we entered into a senior secured credit facility with General Electric Capital Corporation, or GE Capital, as agent and lender, and Zions First National Bank, as lender, which is described in more detail in the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus and which we refer to as the GE Secured Lending Facility. The GE Secured Lending Facility consists of a $18.0 million 30-month term loan and a $3.5 million revolving credit facility. The revolving line of credit is secured by our accounts receivable, based on certain defined criteria. We began monthly repayment of the principal amount due under the term loan in January 2014. Due to the amortization of our term loan, we expect to use a substantial amount of our monthly cash flow to repay the GE Secured Lending Facility.

The GE Secured Lending Facility contains certain financial covenants related to monthly cash burn, as defined in the revolving credit facility, minimum liquidity, days sales outstanding of accounts receivable balances, annual payment restrictions to certain company affiliates and other financial reporting requirements. Specifically, under the liquidity covenant in the revolving credit facility, we are required to maintain cash and cash equivalents and availability under the GE Secured Lending Facility of equal to the greater of $1.5 million (exclusive of availability under the revolving credit facility) or six times our monthly cash burn. We were in default of this liquidity covenant in November 2013 and, in December 2013, we obtained a waiver of this liquidity covenant from November 1, 2013 through January 31, 2014 and agreed to increase the credit reserve under this facility from $0.5 million to $1.0 million. On January 28, 2014, we obtained an additional waiver of the liquidity covenant from GE Capital through February 28, 2014 and agreed to increase the credit reserve under this facility by an additional $0.5 million, bringing the total reserve to $1.5 million. In addition, the repayment of the GE Secured Lending Facility and the liquidity covenant limit our ability to use our cash and cash equivalents to fund our operations and may restrict our ability to continue development of our product candidates. Additionally, our GE Secured Lending Facility restricts our ability to incur additional pari passu indebtedness, which may reduce our ability to seek additional financing. Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available on a timely basis, we may terminate or delay the development of one or more of our product candidates, or delay activities necessary to commercialize our product candidates.

We expect that our existing capital resources, expected product revenue and the net proceeds from this offering will enable us to maintain currently planned operations at least through the next 18 months. However, our operating plan may change, and we may need additional funds sooner than anticipated to meet our operational needs and capital requirements for product development, clinical trials and commercialization. Our future capital requirements will depend on many factors, including:

- the level of sales of our current products and the cost of revenue and sales and marketing;
- the extent of any clinical trials that we will be required to conduct in support of the regulatory clearance of our total hip and knee replacement product candidates;
- the scope, progress, results and cost of our product development efforts;
- the costs, timing and outcomes of regulatory reviews of our product candidates;
- the number and types of products we develop and commercialize;

- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims; and
- the extent and scope of our general and administrative expenses.

Raising additional capital by issuing securities or through debt financings or licensing arrangements may cause dilution to existing stockholders, restrict our operations or require us to relinquish proprietary rights.

To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through collaboration and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or products or grant licenses on terms that are not favorable to us. Any of these events could adversely affect our ability to achieve our product development and commercialization goals and have a material adverse effect on our business, financial condition and results of operations.

Our independent registered public accounting firm has included an explanatory paragraph relating to our ability to continue as a going concern in its report on our audited financial statements. We may be unable to continue to operate without the threat of liquidation for the foreseeable future.

Our report from our independent registered public accounting firm for the year ended December 31, 2012 includes an explanatory paragraph stating that our recurring losses from operations and net capital deficiency raise substantial doubt about our ability to continue as a going concern. If we are unable to obtain sufficient funding, our business, prospects, financial condition and results of operations will be materially and adversely affected and we may be unable to continue as a going concern. For example, without the expected proceeds from this offering, our existing capital resources will be insufficient to fund our operations through the end of February 2014. If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our consolidated financial statements, and it is likely that investors will lose all or a part of their investment. Future reports from our independent registered public accounting firm may also contain statements expressing doubt about our ability to continue as a going concern. If we seek additional financing to fund our business activities in the future and there remains doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding on commercially reasonable terms or at all.

An impairment charge could have a material adverse effect on our financial condition and results of operations.

We are required to test acquired goodwill for impairment on an annual basis. Goodwill represents the excess of the amount paid over the fair value of the net assets at the date of the acquisition. We have chosen to complete our annual impairment reviews of goodwill at the end of each calendar year. We also are required to test goodwill for impairment between annual tests if events occur or circumstances change that would more likely than not reduce our enterprise fair value below its book value. In addition, we are required to test our finite-lived intangible assets for impairment if events occur or circumstances change that would indicate the remaining net book value of the finite-lived intangible assets might not be recoverable. These events or circumstances could include a significant change in the business climate, including a significant sustained decline in our market value, legal factors, operating performance indicators, competition, sale or disposition of a significant portion of our business and other factors.

If the fair market value of our reporting unit is less than its book value, we could be required to record an impairment charge. The valuation of a reporting unit requires judgment in estimating future cash flows, discount rates and other factors. In making these judgments, we evaluate the financial health of our business, including such factors as industry performance, changes in technology and operating cash flows. Changes in our forecasts or decreases in the value of our common stock could cause book values of our reporting unit to exceed its fair value, which may result in goodwill impairment charges. The amount of any impairment could be significant and could have a material adverse effect on our reported financial results for the period in which the charge is taken.

Risks Related to Regulatory Approval of Our Products and Other Government Regulations

Our long-term success depends substantially on our ability to obtain regulatory clearance or approval and thereafter commercialize our product candidates; we cannot be certain that we will be able to do so in a timely manner or at all.

The process of obtaining regulatory clearances or approvals to market a medical device from the FDA or similar regulatory authorities outside of the United States can be costly and time consuming, and there can be no assurance that such clearances or approvals will be granted on a timely basis, or at all. The FDA's 510(k) clearance process generally takes one to six months from the date of submission, depending on whether a special or traditional 510(k) premarket notification has been submitted, but can take significantly longer. An application for premarket approval, or PMA, must be submitted to the FDA if the device cannot be cleared through the 510(k) clearance process or is not exempt from premarket review by the FDA. The PMA process almost always requires one or more clinical trials and can take two to three years from the date of filing, or even longer. In some cases, including in the case of our interbody spinal fusion devices which incorporate our *C*^{S}*C* technology and our *MC*^{2} silicon nitride femoral head component, the FDA requires clinical data as part of the 510(k) clearance process.

It is possible that the FDA could raise questions about our spinal fusion products, our spinal fusion product candidates and our total hip and knee joint replacement product candidates and could require us to perform additional studies on our products and product candidates. Even if the FDA permits us to use the 510(k) clearance process, we cannot assure you that the FDA will not require either supporting data from laboratory tests or studies that we have not conducted, or substantial supporting clinical data. If we are unable to use the 510(k) clearance process for any of our product candidates, are required to provide clinical data or laboratory data that we do not possess to support our 510(k) premarket notifications for any of these product candidates, or otherwise experience delays in obtaining or fail to obtain regulatory clearances, the commercialization of our product candidates in the United States will be delayed or prevented, which will adversely affect our ability to generate additional revenues. It also may result in the loss of potential competitive advantages that we might otherwise attain by bringing our products to market earlier than our competitors. Additionally, although the FDA allows modifications to be made to devices that have received 510(k) clearance with supporting documentation, the FDA may disagree with our decision to modify our cleared devices without submission of a new 510(k) premarket notification, subjecting us to potential product recall, field alerts and corrective actions. Any of these contingencies could adversely affect our business.

Similar to our compliance with U.S. regulatory requirements, we must obtain and comply with international clearances and approvals in order to market and sell our products outside of the United States and we may only promote and market our products, if approved, as permitted by the applicable regulatory body.

The safety of our products is not yet supported by long-term clinical data, and they may prove to be less safe and effective than our laboratory data indicate.

We obtained FDA clearance for each of our products that we currently market, and we have sought and intend to seek CE Marking and FDA clearance or approval through the FDA's 510(k) or PMA process for our product candidates. The 510(k) clearance process is based on the FDA's agreement that a new product candidate is substantially equivalent to an already marketed product for which a PMA was not required. While most 510(k) premarket notifications do not require clinical data for clearance, the FDA may request that such data be provided. Long-term clinical data or marketing experience obtained after clearance may indicate that our products cause unexpected complications or other unforeseen negative effects. If this happens, we could be subject to the withdrawal of our marketing clearance and other enforcement sanctions by the FDA or other regulatory authority, product recalls, significant legal liability, significant negative publicity, damage to our reputation and a dramatic reduction in our ability to sell our products, any one of which would have a material adverse effect on our business, financial condition and results of operations.

We expect to be required to conduct clinical trials to support regulatory approval of some of our product candidates. We have no experience conducting clinical trials, they may proceed more slowly than anticipated, and we cannot be certain that our product candidates will be shown to be safe and effective for human use.

In order to commercialize our product candidates in the United States, we must submit a PMA for some of these product candidates, which will require us to conduct clinical trials. We also plan to provide the FDA with clinical trial data to support some of our 510(k) premarket notifications. We will receive approval or clearance from the FDA to commercialize products requiring a clinical trial only if we can demonstrate to the satisfaction of the FDA, through well-designed and properly conducted clinical trials, that our product candidates are safe and effective and otherwise meet the appropriate standards required for approval or clearance for specified indications. Clinical trials are complex, expensive, time consuming, uncertain and subject to substantial and unanticipated delays. Before we may begin clinical trials, we must submit and obtain approval for an investigational device exemption, or IDE, that describes, among other things, the manufacture of, and controls for, the device and a complete investigational plan. Clinical trials generally involve a substantial number of patients in a multi-year study. Because we do not have the experience or the infrastructure necessary to conduct clinical trials, we will have to hire one or more contract research organizations, or CROs, to conduct trials on our behalf. CRO contract negotiations may be costly and time consuming and we will rely heavily on the CRO to ensure that our trials are conducted in accordance with regulatory and industry standards. We may encounter problems with our clinical trials and any of those problems could cause us or the FDA to suspend those trials, or delay the analysis of the data derived from them.

A number of events or factors, including any of the following, could delay the completion of our clinical trials in the future and negatively impact our ability to obtain FDA approval for, and to introduce our product candidates:

- failure to obtain financing necessary to bear the cost of designing and conducting clinical trials;
- failure to obtain approval from the FDA or foreign regulatory authorities to commence investigational studies;
- conditions imposed on us by the FDA or foreign regulatory authorities regarding the scope or design of our clinical trials;
- failure to find a qualified CRO to conduct our clinical trials or to negotiate a CRO services agreement on favorable terms;
- delays in obtaining or in our maintaining required approvals from institutional review boards or other reviewing entities at clinical sites selected for participation in our clinical trials;
- insufficient supply of our product candidates or other materials necessary to conduct our clinical trials;
- difficulties in enrolling patients in our clinical trials;
- negative or inconclusive results from clinical trials, or results that are inconsistent with earlier results, that necessitate additional clinical studies;
- failure on the part of the CRO to conduct the clinical trial in accordance with regulatory requirements;
- our failure to maintain a successful relationship with the CRO or termination of our contractual relationship with the CRO before completion of the clinical trials;
- serious or unexpected side effects experienced by patients in whom our product candidates are implanted; or
- failure by any of our third-party contractors or investigators to comply with regulatory requirements or meet other contractual obligations in a timely manner.

Our clinical trials may need to be redesigned or may not be completed on schedule, if at all. Delays in our clinical trials may result in increased development costs for our product candidates, which could cause our stock price to decline and limit our ability to obtain additional financing. In addition, if one or more of our clinical trials are delayed, competitors may be able to bring products to market before we do, and the commercial viability of our product candidates could be significantly reduced.

Our current and future relationships with third-party payors and current and potential customers in the United States and elsewhere may be subject, directly or indirectly, to applicable anti-kickback, fraud and abuse, false claims, transparency, health information privacy and security and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm administrative burdens and diminished profits and future earnings.

Our current and future arrangements with third-party payors and current and potential customers, including providers and physicians, as well as PODs, as discussed above, may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations, including, without limitation, the federal Anti-Kickback Statute and the federal False Claims Act, which may constrain the business or financial arrangements and relationships through which we sell, market and distribute our products. In addition, we may be subject to transparency laws and patient privacy regulations by U.S. federal and state governments and by governments in foreign jurisdictions in which we conduct our business. The applicable federal, state and foreign healthcare laws and regulations that may affect our ability to operate include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federal healthcare programs, such as Medicare and Medicaid;
- federal civil and criminal false claims laws and civil monetary penalty laws, including the federal False Claims Act, which impose criminal and civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, including the Medicare and Medicaid programs, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their respective implementing regulations, which impose obligations on covered healthcare providers, health plans, and healthcare clearinghouses, as well as their business associates that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;
- the Physician Payments Sunshine Act, which requires (i) manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to CMS information related to certain "payments or other transfers of value" made to physicians, which is defined to include doctors, dentists, optometrists, podiatrists and chiropractors, and teaching hospitals, with data collection beginning on August 1, 2013, (ii) applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held in such entities by physicians and their immediate family members, with data collection beginning on August 1, 2013, (iii) manufacturers to submit reports to CMS by March 31, 2014 and the 90th day of each subsequent calendar year, and (iv) disclosure of such information by CMS on a publicly available website beginning in September 2014; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; state and foreign laws that require medical device companies to comply with the medical device industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government or otherwise restrict payments that may be made to healthcare providers; state and foreign laws that require medical device manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state and foreign laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations may involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, including, without limitation, damages, fines, imprisonment, exclusion from participation in government healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations, which could have a material adverse effect on our business. If any of the physicians or other healthcare providers or entities with whom we expect to do business, including our collaborators, are found not to be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from participation in government healthcare programs, which could also materially affect our business.

In July 2012, we received a subpoena from the Department of Justice seeking the production of documents, including documents related to our relationship with a particular customer and various entities, including a company distributor, and individuals associated with that distributor. In April 2013, we received a second subpoena requesting similar records. We cooperated with the Department of Justice's requests and provided the records requested by the two subpoenas. We have had no further communications with the Department of Justice since responding to its second request in June 2013. While we do not believe that we are the target of the government's investigation, if we are found to have violated one or more applicable laws, we could be subject to the risks and consequences discussed above. In addition, responding to any additional requests or actions of the Department of Justice in connection with this investigation may be expensive and time-consuming.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain regulatory approval or clearance of our product candidates and affect the prices we may obtain for our products.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay clearance and/or approval of our product candidates, restrict or regulate post-clearance and post-approval activities and affect our ability to profitably sell our products and any product candidates for which we obtain marketing approval or clearance.

In addition, FDA regulations and guidance are often revised or reinterpreted by the FDA in ways that may significantly affect our business and our products. Any new regulations or revisions or reinterpretations of existing regulations may impose additional costs or lengthen review times of our products. Delays in receipt of or failure to receive regulatory clearances or approvals for our new products would have a material adverse effect on our business, results of operations and financial condition. In addition, the FDA is currently evaluating the 510(k) process and may make substantial changes to industry requirements, including which devices are eligible for 510(k) clearance, the ability to rescind previously granted 510(k) clearances and additional requirements that may significantly impact the process.

Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and expanding access. In the United States, the medical device industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives. In March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively the ACA, a sweeping law intended, among other things, to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Among the provisions of the ACA of importance to our products and product candidates are:

- a 2.3% medical device excise tax on certain transactions, including many U.S. sales of medical devices, which currently includes and we expect will continue to include U.S. sales of our products and products candidates that receive clearance or approval;

- expansion of healthcare fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, and new government investigative powers and enhanced penalties for non-compliance;
- new requirements under the federal Open Payments program and its implementing regulations;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research; and
- creation of an independent payment advisory board that will submit recommendations to reduce Medicare spending if projected Medicare spending exceeds a specified growth rate.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, on August 2, 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, or ATRA, which, among other things, reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. On March 1, 2013, the President signed an executive order implementing the Budget Control Act's 2% Medicare payment reductions, and on April 1, 2013, these reductions went into effect. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our financial operations.

We expect that the ACA, as well as other healthcare reform measures that have been and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for our products. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may affect our ability to generate revenue and profits or commercialize our product candidates.

In the European Union and some other international markets, the government provides health care at a low cost to consumers and regulates prices of healthcare products, patient eligibility or reimbursement levels to control costs for the government-sponsored health care system. Many countries are reducing their public expenditures and we expect to see strong efforts to reduce healthcare costs in international markets, including patient access restrictions, suspensions on price increases, prospective and possibly retroactive price reductions and other recoupments and increased mandatory discounts or rebates and recoveries of past price increases. These cost control measures could reduce our revenues. In addition, certain countries set prices by reference to the prices in other countries where our products are marketed. Thus, our inability to secure adequate prices in a particular country may not only limit the marketing of our products within that country, but may also adversely affect our ability to obtain acceptable prices in other markets. This may create the opportunity for third-party cross border trade or influence our decision to sell or not to sell a product, thus adversely affecting our geographic expansion plans and revenues.

The U.S. federal medical device excise tax may materially adversely affect our business and results of operations, and we may be subject to increased taxes in other jurisdictions.

The ACA imposed a 2.3% federal medical device excise tax on the sales in the United States of most medical devices. Most if not all of our products will be subject to this tax. This excise tax became effective in 2013 and has forced, and will continue to force us to identify ways to reduce spending in other areas to offset the expected earnings impact due to the tax. We do not expect to be able to pass along the cost of this tax to hospitals, which continue to face cuts to their Medicare reimbursement due to the ACA and the recently enacted ATRA. Nor do we expect to be able to offset the cost of the tax through higher sales volumes resulting from the expansion of health insurance coverage because of the demographics of the current uninsured population in the United States. While it is still too early to fully understand and predict the ultimate impact of the medical device tax on our business, ongoing implementation of this legislation and any similar taxes imposed in other jurisdictions could have a material adverse effect on our results of operations and cash flows.

Risks Related to Our Intellectual Property and Litigation

If the combination of patents, trade secrets and contractual provisions that we rely on to protect our intellectual property is inadequate, our ability to commercialize our orthopedic products successfully will be harmed, and we may not be able to operate our business profitably.

Our success depends significantly on our ability to protect our proprietary rights to the technologies incorporated in our products. We currently have 34 issued U.S. patents, 38 pending U.S. patent applications, 11 granted foreign patents and 18 pending foreign patent applications. Our issued patents begin to expire in 2014, with the last of these patents expiring in 2031. We rely on a combination of patent protection, trade secret laws and nondisclosure, confidentiality and other contractual restrictions to protect our proprietary technology. However, these may not adequately protect our rights or permit us to gain or keep any competitive advantage.

The issuance of a patent is not conclusive as to its scope, validity or enforceability. The scope, validity or enforceability of our issued patents can be challenged in litigation or proceedings before the U.S. Patent and Trademark Office, or the USPTO, or foreign patent offices. In addition, our pending patent applications include claims to numerous important aspects of our products under development that are not currently protected by any of our issued patents. We cannot assure you that any of our pending patent applications will result in the issuance of patents to us. The USPTO or foreign patent offices may deny or require significant narrowing of claims in our pending patent applications. Patents issued as a result of the pending patent applications, if any, may not provide us with significant commercial protection or be issued in a form that is advantageous to us. Proceedings before the USPTO or foreign patent offices could result in adverse decisions as to the priority of our inventions and the narrowing or invalidation of claims in issued patents. The laws of some foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States, if at all.

Our competitors may successfully challenge and invalidate or render unenforceable our issued patents, including any patents that may issue in the future, which could prevent or limit our ability to market our products and could limit our ability to stop competitors from marketing products that are substantially equivalent to ours. In addition, competitors may be able to design around our patents or develop products that provide outcomes that are comparable to our products but that are not covered by our patents.

We have also entered into confidentiality and assignment of intellectual property agreements with all of our employees, consultants and advisors as one of the ways we seek to protect our intellectual property and other proprietary technology. However, these agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements.

In the event a competitor infringes upon any of our patents or other intellectual property rights, enforcing our rights may be difficult, time consuming and expensive, and would divert management's attention from managing our business. There can be no assurance that we will be successful on the merits in any enforcement effort. In addition, we may not have sufficient resources to litigate, enforce or defend our intellectual property rights.

We have no patent protection covering the composition of matter for our solid *MC²* silicon nitride or the process we use for manufacturing our *MC²* silicon nitride, and competitors may create silicon nitride formulations substantially similar to ours.

Although we have a number of U.S. and foreign patents and pending applications relating to our *MC²* silicon nitride products or product candidates, we have no patent protection either for the composition of matter for our silicon nitride or for the processes of manufacturing *MC²* silicon nitride. As a result, competitors may create silicon nitride formulations substantially similar to ours, and use their formulations in products that may compete with our silicon nitride products, provided they do not violate our issued product patents. Although we have, and will continue to develop, significant know-how related to these processes, there can be no assurance that we will be able to maintain this know-how as trade secrets, and competitors may develop or acquire equally valuable or more valuable know-how related to the manufacture of silicon nitride.

We could become subject to intellectual property litigation that could be costly, result in the diversion of management's time and efforts, require us to pay damages, prevent us from marketing our commercially available products or product candidates and/or reduce the margins we may realize from our products that we may commercialize.

The medical devices industry is characterized by extensive litigation and administrative proceedings over patent and other intellectual property rights. Whether a product infringes a patent involves complex legal and factual issues, and the determination is often uncertain. There may be existing patents of which we are unaware that our products under development may inadvertently infringe. The likelihood that patent infringement claims may be brought against us increases as the number of participants in the orthopedic market increases and as we achieve more visibility in the market place and introduce products to market.

Any infringement claim against us, even if without merit, may cause us to incur substantial costs, and would place a significant strain on our financial resources, divert the attention of management from our core business, and harm our reputation. In some cases, litigation may be threatened or brought by a patent holding company or other adverse patent owner who has no relevant product revenues and against whom our patents may provide little or no deterrence. If we were found to infringe any patents, we could be required to pay substantial damages, including triple damages if an infringement is found to be willful, and royalties and could be prevented from selling our products unless we obtain a license or are able to redesign our products to avoid infringement. We may not be able to obtain a license enabling us to sell our products on reasonable terms, or at all, and there can be no assurance that we would be able to redesign our products in a way that would not infringe those patents. If we fail to obtain any required licenses or make any necessary changes to our technologies or the products that incorporate them, we may be unable to commercialize one or more of our products or may have to withdraw products from the market, all of which would have a material adverse effect on our business, financial condition and results of operations.

In addition, in order to further our product development efforts, we have entered into agreements with orthopedic surgeons to help us design and develop new products, and we expect to enter into similar agreements in the future. In certain instances, we have agreed to pay such surgeons royalties on sales of products which incorporate their product development contributions. There can be no assurance that surgeons with whom we have entered into such arrangements will not claim to be entitled to a royalty even if we do not believe that such products were developed by cooperative involvement between us and such surgeons. In addition, some of our surgeon advisors are employed by academic or medical institutions or have agreements with other orthopedic companies pursuant to which they have agreed to assign or are under an obligation to assign to those other companies or institutions their rights in inventions which they conceive or develop, or help conceive or develop.

There can be no assurance that one or more of these orthopedic companies or institutions will not claim ownership rights to an invention we develop in collaboration with our surgeon advisors or consultants on the basis that an agreement with such orthopedic company or institution gives it ownership rights in the invention or that our surgeon advisors on consultants otherwise have an obligation to assign such inventions to such company or institution. Any such claim against us, even without merit, may cause us to incur substantial costs, and would place a significant strain on our financial resources, divert the attention of management from our core business and harm our reputation.

We may be subject to damages resulting from claims that we, our employees, or our independent sales agencies have wrongfully used or disclosed alleged trade secrets of our competitors or are in breach of non-competition agreements with our competitors or non-solicitation agreements.

Many of our employees were previously employed at other orthopedic companies, including our competitors and potential competitors. Many of our distributors and potential distributors sell, or in the past have sold, products of our competitors. We may be subject to claims that either we, or these employees or distributors, have inadvertently or otherwise used or disclosed the trade secrets or other proprietary information of our competitors. In addition, we have been and may in the future be subject to claims that we caused an employee or sales agent to break the terms of his or her non-competition agreement or non-solicitation agreement. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management. If we fail in defending such claims, in

addition to paying money damages, we may lose valuable intellectual property rights or personnel. A loss of key personnel or their work product could hamper or prevent our ability to commercialize products, which could have an adverse effect on our business, financial condition and results of operations.

If our silicon nitride products or our product candidates conflict with the rights of others, we may not be able to manufacture or market our products or product candidates, which could have a material and adverse effect on us.

Our commercial success will depend in part on not infringing the patents or violating the other proprietary rights of third parties. Issued patents held by others may limit our ability to develop commercial products. All issued patents are entitled to a presumption of validity under the laws of the United States. If we need suitable licenses to such patents to permit us to develop or market our product candidates, we may be required to pay significant fees or royalties and we cannot be certain that we would even be able to obtain such licenses. Competitors or third parties may obtain patents that may cover subject matter we use in developing the technology required to bring our products to market, that we use in producing our products, or that we use in treating patients with our products. We know that others have filed patent applications in various jurisdictions that relate to several areas in which we are developing products. Some of these patent applications have already resulted in patents and some are still pending. If we were found to infringe any of these issued patents or any of the pending patent applications, when and if issued, we may be required to alter our processes or product candidates, pay licensing fees or cease activities. If use of technology incorporated into or used to produce our product candidates is challenged, or if our processes or product candidates conflict with patent rights of others, third parties could bring legal actions against us, in Europe, the United States and elsewhere, claiming damages and seeking to enjoin manufacturing and marketing of the affected products. Additionally, it is not possible to predict with certainty what patent claims may issue from pending applications. In the United States, for example, patent prosecution can proceed in secret prior to issuance of a patent, provided such application is not filed in foreign jurisdiction. For U.S. patent applications that are also filed in foreign jurisdictions, such patent applications will not publish until 18 months from the filing date of the application. As a result, third parties may be able to obtain patents with claims relating to our product candidates which they could attempt to assert against us. Further, as we develop our products, third parties may assert that we infringe the patents currently held or licensed by them, and we cannot predict the outcome of any such action.

There has been extensive litigation in the medical devices industry over patents and other proprietary rights. If we become involved in any litigation, it could consume a substantial portion of our resources, regardless of the outcome of the litigation. If these legal actions are successful, in addition to any potential liability for damages, we could be required to obtain a license, grant cross-licenses and pay substantial royalties in order to continue to manufacture or market the affected products.

We cannot assure you that we would prevail in any legal action or that any license required under a third party patent would be made available on acceptable terms, or at all. Ultimately, we could be prevented from commercializing a product, or forced to cease some aspect of our business operations, as a result of claims of patent infringement or violation of other intellectual property rights, which could have a material and adverse effect on our business, financial condition and results of operations.

Risks Related to Potential Litigation from Operating Our Business

We may become subject to potential product liability claims, and we may be required to pay damages that exceed our insurance coverage.

Our business exposes us to potential product liability claims that are inherent in the design, testing, manufacture, sale and distribution of our currently marketed products and each of our product candidates that we are seeking to introduce to the market. The use of orthopedic medical devices can involve significant risks of serious complications, including bleeding, nerve injury, paralysis, infection, and even death. Any product liability claim brought against us, with or without merit, could result in the increase of our product liability insurance rates or in our inability to secure coverage in the future on commercially reasonable terms, if at all. In addition, if our product liability insurance proves to be inadequate to pay a damage award, we may have to pay the excess of this award out of our cash reserves, which could significantly harm our financial condition. If longer-term patient results and experience indicate that our products or any component of a product causes tissue

damage, motor impairment or other adverse effects, we could be subject to significant liability. A product liability claim, even one without merit, could harm our reputation in the industry, lead to significant legal fees, and result in the diversion of management's attention from managing our business.

Any claims relating to our improper handling, storage or disposal of biological or hazardous materials could be time consuming and costly.

Although we do not believe that the manufacture of our silicon nitride or non-silicon nitride products will involve the use of hazardous materials, it is possible that regulatory authorities may disagree or that changes to our manufacturing processes may result in such use. Our business and facilities and those of our suppliers and future suppliers may therefore be subject to foreign, federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of hazardous materials and waste products. We may incur significant expenses in the future relating to any failure to comply with environmental laws. Any such future expenses or liability could have a significant negative impact on our business, financial condition and results of operations.

Risks Related to Our GE Secured Lending Facility

If we do not adhere to the financial covenants set forth in our GE Secured Lending Facility, we will be in default of our GE Secured Lending Facility.

The GE Secured Lending Facility includes certain financial covenants including a requirement that the average time that it takes us to collect on any amounts due to us from any customers not exceed 85 days for any calendar month, as well as a liquidity covenant. We were in compliance with all of the financial covenants as of September 30, 2013, however, we have in the past not been in compliance. The liquidity covenant may significantly limit our ability to use our cash as cash equivalents to fund our operations as it requires us to maintain cash and cash equivalents and availability under the revolving credit facility equal to the greater of $1.5 million (exclusive of availability under the revolving credit facility) or six times our monthly cash burn, as defined in the facility. As of September 30, 2013, six times our monthly cash burn equaled $7.1 million. We were in default of this liquidity covenant in November 2013 and, in December 2013, we obtained a waiver of this liquidity covenant from November 1, 2013 through January 31, 2014 and agreed to increase the credit reserve under this facility from $0.5 million to $1.0 million. On January 28, 2014, we obtained an additional waiver of the liquidity covenant from GE Capital through February 28, 2014 and agreed to increase the credit reserve under this facility by an additional $0.5 million, bringing the total reserve to $1.5 million.

We may seek to refinance the GE Secured Lending Facility or obtain additional financing. However, we may have difficulty obtaining additional debt financing, due to the restrictions in the GE Secured Lending Facility and may have difficulty in refinancing the facility. There is no guarantee we will be successful in entering into any such lending arrangement on commercially reasonable terms, or at all. Moreover, even if we are able to enter into a new lending arrangement sufficient to repay the GE Secured Lending Facility, such new facility will likely contain liquidity, financial and operational covenants, which could be as restrictive or more restrictive than those in the GE Secured Lending Facility. In addition, even if we are successful in obtaining additional financing, the terms of such additional debt could further restrict our operating and financial flexibility. Further, if we are liquidated, the lenders' right to repayment would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation. The agent could declare a default under the GE Secured Lending Facility upon the occurrence of a material adverse effect, as defined under the loan agreement, thereby requiring us to either repay the outstanding indebtedness immediately or attempt to reverse the declaration of default through negotiation or litigation. Any declaration by the agent of an event of default could significantly harm our business and prospects and could cause the price of our common shares to decline.

Risks Related to Our Common Stock and this Offering

There has been no prior public market for our common stock and an active trading market may not develop.

Prior to this offering, there has been no public market for our common stock. We cannot predict the extent to which investor interest in our company will lead to the development of an active trading market on The NASDAQ Global Market or otherwise or how liquid that market might become. The lack of an active market

may impair the value of your shares and your ability to sell your shares at the time you wish to sell them. An inactive market may also impair our ability to raise capital by selling our common stock and may impair our ability to acquire other companies, products or technologies by using our common stock as consideration.

We expect that the price of our common stock will fluctuate substantially and you may not be able to sell your shares at or above the offering price.

You should consider an investment in our common stock risky and invest only if you can withstand a significant loss and wide fluctuations in the market value of your investment. The initial public offering price for the shares of our common stock sold in this offering will be determined by negotiation between us and the underwriters and will be based on several factors. This price may not reflect the market price of our common stock following this offering. You may be unable to sell your shares of common stock at or above the initial public offering price due to fluctuations in the market price of our common stock arising from changes in our operating performance or prospects. In addition, the volatility of orthopedic company stocks often does not correlate to the operating performance of the companies represented by such stocks. Some of the factors that may cause the market price of our common stock to fluctuate include:

- our ability to sell our current products and the cost of revenue;
- our ability to develop, obtain regulatory clearances or approvals for, and market new and enhanced product candidates on a timely basis;
- changes in governmental regulations or in the status of our regulatory approvals, clearances or future applications;
- our announcements or our competitors' announcements regarding new products, product enhancements, significant contracts, number and productivity of distributors, number of hospitals and surgeons using products, acquisitions or strategic investments;
- announcements of technological or medical innovations for the treatment of orthopedic pathology;
- delays or other problems with the manufacturing of our products, product candidates and related instrumentation;
- volume and timing of orders for our products and our product candidates, if and when commercialized;
- changes in the availability of third-party reimbursement in the United States and other countries;
- quarterly variations in our or our competitors' results of operations;
- changes in earnings estimates or recommendations by securities analysts, if any, who cover our common stock;
- failure to meet estimates or recommendations by securities analysts, if any, who cover our stock;
- changes in the fair value of our common stock warrant liability resulting from changes in the market price of our common stock, which may result in significant fluctuations in our quarterly and annual operating results;
- changes in healthcare policy in the United States and internationally;
- product liability claims or other litigation involving us;
- sales of large blocks of our common stock, including sales by our executive officers, directors and significant stockholders;
- disputes or other developments with respect to intellectual property rights;
- changes in accounting principles;
- changes to tax policy; and
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the company that issued the stock. If our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit regardless of the merits of the case or the eventual outcome. Such a lawsuit also would divert the time and attention of our management.

Securities analysts may not initiate coverage of our common stock or may issue negative reports, which may have a negative impact on the market price of our common stock.

Securities analysts may elect not to provide research coverage of our common stock after the completion of this offering. If securities analysts do not cover our common stock after the completion of this offering, the lack of research coverage may cause the market price of our common stock to decline. The trading market for our common stock may be affected in part by the research and reports that industry or financial analysts publish about our business. If one or more of the analysts who elect to cover us downgrade our stock, our stock price would likely decline rapidly. If one or more of these analysts cease coverage of us, we could lose visibility in the market, which in turn could cause our stock price to decline. In addition, under the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, and a global settlement among the Securities and Exchange Commission, or the SEC, other regulatory agencies and a number of investment banks, which was reached in 2003, many investment banking firms are required to contract with independent financial analysts for their stock research. It may be difficult for a company such as ours, with a smaller market capitalization, to attract independent financial analysts that will cover our common stock. This could have a negative effect on the market price of our stock.

If our executive officers, directors and principal stockholders choose to act together, they will be able to exert significant influence over us and our significant corporate decisions and may act in a manner that advances their best interests and not necessarily those of other stockholders.

Upon completion of this offering, our executive officers, directors, and beneficial owners of 5% or more of our outstanding common stock and their affiliates will beneficially own approximately 25.6% of our outstanding common stock, or approximately 24.6% if the underwriters' option to purchase additional shares is exercised in full. As a result, these persons, acting together, will have the ability to significantly influence the outcome of all matters requiring stockholder approval, including the election and removal of directors and any merger, consolidation, or sale of all or substantially all of our assets, and they may act in a manner that advances their best interests and not necessarily those of other stockholders, including investors in this offering, by among other things:

- delaying, deferring or preventing a change in control of us;
- entrenching our management and/or our board of directors;
- impeding a merger, consolidation, takeover or other business combination involving us;
- discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of us; or
- causing us to enter into transactions or agreements that are not in the best interests of all stockholders.

Future sales of our common stock in the public market after this offering may cause our stock price to decline and impair our ability to raise future capital through the sale of our equity securities.

Upon completion of this offering, our current stockholders will hold a substantial number of shares of our common stock that they will be able to sell in the public market in the near future. Sales by our current stockholders of a substantial number of shares after this offering could significantly reduce the market price of our common stock. Moreover, following the completion of this offering, the holders of 2,581,941 shares of common stock, assuming the conversion of our convertible preferred stock, and holders of warrants to purchase 72,939 shares of common stock, assuming the conversion of preferred stock warrants into common stock warrants, and holders of 12,363 shares of common stock, assuming the exercise of common stock warrants, will have rights, subject to some conditions, to require us to include their shares in registration statements that we may file for ourselves or other stockholders. These shares of common stock, totaling 2,667,243 shares, assuming the exercise of the common stock warrants, represent approximately 23.5% of the total number of shares of our common stock to be outstanding immediately after this offering, assuming conversion of the preferred stock warrants but no exercise of the underwriters' option to purchase additional shares. Please see the "Description of Capital Stock—Registration Rights" section of this prospectus for a description of the registration rights of these stockholders. In addition, immediately upon completion of this offering, warrants to acquire approximately 627,672 shares of our common stock and 8,181,818 shares of our outstanding common stock then held by existing stockholders which are deemed to be "restricted securities" pursuant to Rule 144 under the Securities Act of 1933, as amended, or the Securities Act, will be eligible for sale in reliance on Rule 144, subject to the lock-up agreements covering substantially all of our securities as described in the "Underwriting" section of this

prospectus. Upon completion of this offering, a holder of warrants to acquire shares of our common stock will be able to net exercise such warrants by surrendering a portion of that holder's warrants as payment of the exercise price rather than paying the exercise price in cash. As of September 30, 2013, holders of warrants to acquire approximately 627,672 shares of our common stock would be eligible to rely on Rule 144 for the resale of such shares if the warrants are net exercised, subject to the lock-up agreements described in the "Underwriting" section of this prospectus. Additionally, all of our outstanding RSUs will vest upon the expiration of the lock-up agreements, resulting in an additional 188,270 shares eligible to be sold in the public market.

Following the completion of this offering, we also intend to register all shares of our common stock that we may issue pursuant to the 2003 Plan and the Amended and Restated 2012 Equity Incentive Plan, or the 2012 Plan. Shares issued by us upon exercise of options granted under our stock plans would be eligible for sale in the public market upon the effective date of the registration statement for those shares, subject to the lock-up agreements described in the "Underwriting" section of this prospectus. If any of these holders cause a large number of securities to be sold in the public market, the sales could reduce the trading price of our common stock. These sales also could impede our ability to raise future capital. Please see the "Shares Eligible for Future Sale" section of this prospectus for a description of sales that may occur in the future.

Our management team may allocate the proceeds of this offering in ways in which you may not agree.

We intend to use the net proceeds from this offering to continue to increase market awareness of our silicon nitride spinal products, continue to implement our sales and marketing strategy, enhance our commercial infrastructure and commercialize our silicon nitride joint replacement components and other products. For a further description of our intended use of net proceeds of this offering, please see the "Use of Proceeds" section of this prospectus.

Because of the number and variability of factors that will determine our use of the net proceeds from this offering, our ultimate use of these proceeds may vary substantially from their currently intended use. Our management will have considerable discretion over the use of the net proceeds of this offering. Stockholders may not agree with such uses, and our use of the net proceeds may be used in a manner that does not increase our operating results or market value.

Anti-takeover provisions in our organizational documents and Delaware law may discourage or prevent a change in control, even if an acquisition would be beneficial to our stockholders, which could affect our stock price adversely and prevent attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering contain provisions that could discourage, delay or prevent a merger, acquisition or other change in control of our company or changes in our board of directors that our stockholders might consider favorable, including transactions in which you might receive a premium for your shares. These provisions also could limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. Stockholders who wish to participate in these transactions may not have the opportunity to do so. Furthermore, these provisions could prevent or frustrate attempts by our stockholders to replace or remove management. These provisions:

- allow the authorized number of directors to be changed only by resolution of our board of directors;
- provide for a classified board of directors, such that not all members of our board will be elected at one time;
- prohibit our stockholders from filling board vacancies, limit who may call stockholder meetings, and prohibit the taking of stockholder action by written consent;
- prohibit our stockholders from making certain changes to our amended and restated certificate of incorporation or amended and restated bylaws except with the approval of holders of 75% of the outstanding shares of our capital stock entitled to vote;
- require advance written notice of stockholder proposals that can be acted upon at stockholders meetings and of director nominations to our board of directors; and
- authorize our board of directors to create and issue, without prior stockholder approval, preferred stock that may have rights senior to those of our common stock and that, if issued, could operate as a "poison pill" to dilute the stock ownership of a potential hostile acquirer to prevent an acquisition that is not approved by our board of directors.

In addition, we are subject to the provisions of Section 203 of the Delaware General Corporation Law, which may prohibit certain business combinations with stockholders owning 15% or more of our outstanding voting stock. Any delay or prevention of a change in control transaction or changes in our board of directors could cause the market price of our common stock to decline.

Investors in this offering will pay a much higher price than the book value of our common stock and, therefore, you will incur immediate and substantial dilution of your investment.

If you purchase common stock in this offering, you will pay more for your shares than the amounts paid by existing stockholders for their shares. You will incur immediate and substantial dilution of $8.77 per share, representing the difference between the initial public offering price per share of our common stock and our pro forma net tangible book value per share after giving effect to this offering based on an assumed initial public offering price of $11.00 per share of our common stock, which is the midpoint of the price range set forth on the cover of this prospectus. In the past, we have also issued RSUs that will vest in the future and options and warrants to acquire common stock at prices significantly below the assumed initial public offering price. To the extent these outstanding RSUs vest and these outstanding options and warrants are ultimately exercised, you will sustain further dilution. For a further description of the dilution you will incur in this offering, see the "Dilution" section of this prospectus.

We do not intend to pay cash dividends.

We have never declared or paid cash dividends on our capital stock and we do not anticipate paying any cash dividends in the foreseeable future. We currently intend to retain all available funds and any future earnings for debt service and use in the operation and expansion of our business. The GE Secured Lending Facility also contains a negative covenant which prohibits us from paying dividends to our stockholders without the prior written consent of the lenders. In addition, the terms of any future debt or credit facility may preclude us from paying any dividends.

Risks Related to Public Companies

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including (1) not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, (2) reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements and (3) exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. In addition, as an emerging growth company, we have only included two years, rather than the customary three, of audited financial statements and two years, rather than the customary five, of selected financial data in this prospectus. Additionally, under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We are electing to delay such adoption of new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. As a result of this election, our financial statements may not be comparable to the financial statements of other public companies.

We may take advantage of these exemptions until we are no longer an emerging growth company. Under the JOBS Act, we may be able to maintain emerging growth company status for up to five years, although circumstances could cause us to lose that status earlier, including if the market value of our common stock held by non-affiliates exceeds $700 million as of any June 30 before the end of such five-year period or if we have total annual gross revenue of $1.0 billion or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31. Additionally, if we issue more than $1.0 billion in non-convertible debt during any three-year period before that time, we would cease to

be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company," which would allow us to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements. We cannot predict whether investors will find our common stock less attractive because of our reliance on any of these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will incur increased costs as a result of being a public company and our management expects to devote substantial time to public company compliance programs.

As a public company, we will incur significant legal, insurance, accounting and other expenses that we did not incur as a private company. In addition, our administrative staff will be required to perform additional tasks. For example, in anticipation of becoming a public company, we will need to adopt additional internal controls and disclosure controls and procedures, broaden the scope of services provided to us by our transfer agent, adopt an insider trading policy and bear all of the internal and external costs of preparing and distributing periodic public reports in compliance with our obligations under the securities laws. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment will result in increased general and administrative expenses and may divert management's time and attention from product development and commercialization activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory authorities may initiate legal proceedings against us, and our business may be harmed. In addition, if we are unable to continue to meet these requirements, we may not be able to maintain the listing of our common stock on The NASDAQ Global Market, which would likely have a material adverse effect on the trading price of our common stock.

In connection with this offering, we are increasing our directors' and officers' insurance coverage, which will increase our insurance cost. In the future, it will be more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified executive officers and qualified members of our board of directors, particularly to serve on our audit and compensation committees.

Our internal control over financial reporting does not currently meet the standards required by Section 404 of the Sarbanes-Oxley Act, and failure to achieve and maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could result in material misstatements of our annual or interim financial statements and have a material adverse effect on our business and share price.

We are not currently required to comply with the SEC's rules that implement Section 404 of the Sarbanes-Oxley Act, and are therefore not yet required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose. Upon becoming a public company, we will however be required to comply with certain of these rules, which will require management to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report. This assessment will need to include the disclosure of any material weaknesses or significant deficiencies in our internal control over financial reporting identified by our management or our independent registered public accounting firm. A "material weakness" is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. A "significant deficiency" is a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for oversight of our financial reporting, including the audit committee of the board of directors.

Our independent registered public accounting firm will not be required to formally attest to the effectiveness of our internal control over financial reporting until the later of our second annual report or the first annual report

required to be filed with the Commission following the date we are no longer an "emerging growth company" as defined in the JOBS Act. However, in connection with our audit for the year ended December 31, 2012 and their review of our interim financial statements, our independent registered public accounting firm noted four material weaknesses and one significant deficiency in our internal control over financial reporting.

One material weakness related to our improper recording and disclosure of non-routine transactions due to deficiencies in the design and operation of our controls to account for non-routine transactions as part of the financial close process. We plan to remedy this by increasing the size and expertise of our internal accounting team.

Another material weakness was identified related to the deficiency in the design and operation of our controls to account for inventory. In addition to increasing the size and expertise of our accounting team, we plan to address this deficiency by physically counting inventory held by certain of our distributors on a more frequent basis and monitoring more closely the movement of inventory between locations.

The third material weakness related to deficiencies in our income tax accounting. We intend to implement a formal process for accounting for income taxes, including evaluating the tax treatment of certain transactions on permanent and temporary book/tax differences, and the effect on the income tax provision and related deferred tax accounting balances.

The fourth material weakness relates to deficiencies in the design and operation of our controls to appropriately identify and evaluate transactions for appropriate cut-off at the end of the financial reporting period and the level of precision and timeliness of our financial close process. We plan to remedy this by implementing a formal financial close process related to financial reporting.

Additionally, our independent registered public accounting firm identified a significant deficiency related to the design and operation of our controls to manage the safeguarding of assets, particularly our instruments that we provide to surgeons and hospitals on consignment. We plan to implement a formal process for tracking and monitoring fixed assets as they are deployed for use at various locations.

We cannot assure you that our plans will sufficiently address the identified deficiencies, nor can we assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future. Additionally, in the event that our internal control over financial reporting is perceived as inadequate, or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the trading price of our common stock could decline.

Finally, as a private company, we have not previously been required to prepare quarterly financial statements, nor have we been required to generate financial statements in the time periods mandated for public companies by the Commission's reporting requirements. We believe that we will need to expand our accounting resources, including the size and expertise of our internal accounting team, to effectively execute a quarterly close process and on an appropriate time frame for a public company. If we are unsuccessful or unable to sufficiently expand these resources, we may not be able to produce U.S. GAAP-compliant financial statements on a time frame required to comply with our reporting requirements under the Exchange Act, and the financial statements we produce may contain material misstatements, either of which could cause investors to lose confidence in our financial reports and our financial reporting generally, which could lead to a material decline in the trading price of our common stock.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that are based on our management's beliefs and assumptions and on information currently available to us. The forward-looking statements are contained principally in, but not limited to, the sections entitled "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business." These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- our ability to achieve sufficient market acceptance of any of our products or product candidates;
- our perception of the growth in the size of the potential market for our products and product candidates;
- our estimate of the advantages of our silicon nitride technology platform;
- our ability to become a profitable biomaterial technology company;
- our ability to satisfy or receive waivers from compliance with the covenants made in the GE Secured Lending Facility;
- our ability to succeed in obtaining FDA clearance or approvals for our product candidates;
- our ability to receive CE Marks for our product candidates;
- the timing, costs and other limitations involved in obtaining regulatory clearance or approval for any of our product candidates and product candidates and, thereafter, continued compliance with governmental regulation of our existing products and activities;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others;
- our ability to obtain sufficient quantities and satisfactory quality of raw materials to meet our manufacturing needs;
- the availability of adequate coverage reimbursement from third-party payors in the United States;
- our estimates regarding anticipated operating losses, future product revenue, expenses, capital requirements and liquidity;
- our ability to refinance the GE Secured Lending Facility;
- our estimates regarding our needs for additional financing and our ability to obtain such additional financing on suitable terms;
- our ability to maintain and continue to develop our sales and marketing infrastructure;
- our ability to enter into and maintain suitable arrangements with an adequate number of distributors;
- our manufacturing capacity to meet future demand;
- our ability to establish a secondary manufacturing source for our silicon nitride products;
- our ability to develop effective and cost efficient manufacturing processes for our products;
- our reliance on third parties to supply us with raw materials and our non-silicon nitride products and instruments;
- the safety and efficacy of products and product candidates;
- the timing of and our ability to conduct clinical trials;
- the use of the proceeds of this offering;
- potential changes to the healthcare delivery systems and payment methods in the United States or internationally;
- any potential requirement by regulatory agencies that we restructure our relationships with referring surgeons;
- our ability to develop and maintain relationships with surgeons, hospitals and marketers of our products; and
- our ability to attract and retain a qualified management team, engineering team, sales and marketing team, distribution team, design surgeons, surgeon advisors and other qualified personnel and advisors.

In some cases, you can identify forward-looking statements by terms such as “may,” “could,” “will,” “should,” “would,” “expect,” “plan,” “intend,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “project” or “continue” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the heading “Risk Factors” and elsewhere in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements.

Any forward-looking statement in this prospectus reflects our current views with respect to future events and is subject to these and other risks, uncertainties and assumptions relating to our operations, results of operations, industry and future growth. Except as required by law, we assume no obligation to publicly update or revise any forward-looking statements contained in this prospectus, whether as a result of new information, future events or otherwise. The Private Securities Litigation Reform Act of 1995 and Section 27A of the Securities Act of 1933, as amended, or the Securities Act, do not protect any forward-looking statements that we make in connection with this offering.

USE OF PROCEEDS

We estimate that we will receive approximately $28.3 million in net proceeds from the sale of 3,181,818 shares of common stock that we are offering, or approximately $33.2 million if the underwriters exercise their option to purchase additional shares in full, based upon the assumed initial public offering price of $11.00 per share, the midpoint of the range on the front cover of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. A $1.00 per share increase (decrease) in the assumed initial public offering price of $11.00 per share would increase (decrease) the net proceeds to us from this offering by $3.0 million, or approximately $3.4 million if the underwriters exercise their option to purchase additional shares in full, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The primary purposes of this offering are to create a public market for our common stock and thereby enable future access to the public equity markets by us and our stockholders and to obtain additional capital. We currently intend to use the net proceeds received by us from this offering in the following manner:

- up to $14.1 million to fund research and development and commercialization activities of our product candidates, including the funding of clinical trials we plan to conduct for our product candidates;
- up to $8.7 million to support working capital needs and other general corporate purposes, including debt service under our existing GE Secured Lending Facility; and
- up to $5.5 million to continue to build sales, marketing and distribution capabilities for our silicon nitride technology platform, including the costs of inventory and instruments.

The GE Secured Lending Facility consists of an $18.0 million term loan and up to a $3.5 million revolving credit facility with General Electric Capital Corporation, or GE Capital, as agent and lender, and Zions First National Bank, as lender. As of September 30, 2013, the total outstanding principal and accrued interest under the GE Secured Lending Facility was $18.0 million although the financial statements reflect a carrying value of $17.9 million due to the bifurcated value of warrants issued in connection with the debt. The term loan due in 2016 consisted of interest only payments until January 1, 2014. Beginning in January 2014, interest payments as well as monthly principal payments of approximately $600,000 each are required for a period of 30 months with an additional $720,000 repayment fee due upon prepayment in full or upon scheduled maturity and bears an interest rate of 7.5% annually. We amended the terms of our term loan and credit facility in December 2013 and agreed to pay the lenders a fee of $860,000 in connection with the execution of this amendment payable no later than March 1, 2014, provided that the fee is reduced to $645,000 if we repay all obligations under this facility on or before February 28, 2014. We further amended the terms of our term loan and credit facility on January 28, 2014 and agreed to pay the lenders a fee of $200,000 on March 31, 2014, if the facility is not repaid on or before March 31, 2014. This fee is in addition to the fee required in connection with the prior amendment. The revolving note due in 2016 bears an interest rate of 5.5% plus the higher of (i) 1.5% and (ii) the three-month LIBOR, determined as of two London business days divided by a number equal to 1.0 minus the aggregate of the rates of reserve requirements on the day that is two London business days prior to the beginning of the interest period for Eurocurrency funding that are required to be maintained by a member bank of the Federal Reserve System which resulted in an interest rate of 7.0% at September 30, 2013. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Indebtedness” for a further description of these financing arrangements.

We cannot specify with certainty all of the particular uses for the net proceeds to be received upon the completion of the offering. The amount and timing of our actual expenditures may vary significantly depending upon numerous factors, including the ultimate resolution of our FDA submissions for clearances or approvals of our product candidates, the specific clinical trial requirements imposed for market approval of our product candidates, our revenues, operating costs and capital expenditures. and other factors described under “Risk Factors.” We may find it necessary or advisable to use the net proceeds for other purposes, and our management will retain broad discretion in the allocation of the net proceeds from this offering.

Pending use of our net proceeds from this offering, we plan to invest the proceeds in a variety of capital preservation investments, including investment-grade, interest-bearing instruments. We cannot predict whether the net proceeds will yield a favorable return.

DIVIDEND POLICY

We have never paid or declared any cash dividends on our common stock, and we do not anticipate paying any cash dividends on our common stock in the foreseeable future. We intend to retain all available funds and any future earnings to fund the development and expansion of our business. In addition, the credit facility we intend to repay with the net proceeds of the offering prohibits us from paying cash dividends on our common stock. Additionally, in connection with the GE Secured Lending Facility, we issued certain warrants to the lenders which are further described under "Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources." Pursuant to the terms of the warrants, if we issue dividends to our stockholders which are payable in shares of our preferred stock, we will be required to lower the exercise price of the warrants or pay a proportionate share of any dividend distribution to the warrant holders upon exercise.

CAPITALIZATION

The table below reflects our unaudited capitalization as of September 30, 2013:

- on an actual basis;
- on a pro forma basis giving effect to (a) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 7,584,073 shares of our common stock upon the completion of this offering, and (b) the conversion of all outstanding warrants exercisable for shares of our convertible preferred stock into warrants exercisable for a total of 153,720 shares of common stock (but not assuming the exercise of these common stock warrants), upon completion of this offering and the related reclassification of the preferred stock warrant liability to additional paid in capital; and
- on a pro forma basis, as adjusted to give effect to the sale of 3,181,818 shares of common stock in this offering at an assumed initial public offering price of $11.00 per share (the midpoint of the price range on the front cover of this prospectus) after deducting estimated underwriting discounts and commissions and estimated offering expenses.

You should read this table together with "Selected Consolidated Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the related notes appearing elsewhere in this prospectus.

	As of September 30, 2013 (unaudited) (in thousands, except share and per share data)		
	Actual	Pro Forma	Pro Forma as Adjusted
Debt	$ 17,917	$ 17,917	$ 17,917
Common stock warrant liability	3,877	3,877	3,877
Preferred stock warrant liability	452	—	—
Convertible preferred stock (consisting of Series A and A-1, Series B and B-1, Series C and C-1, Series D and D-1, Series E and Series F convertible preferred stock on an aggregated basis), $0.01 par value; 100,000,000 shares authorized, 7,584,073 shares issued and outstanding actual, and no shares issued and outstanding, pro forma and pro forma as adjusted	161,456	—	—
Stockholders' equity (deficit):			
Common stock, $0.01 par value; 150,000,000 shares authorized, 597,745 shares issued and outstanding actual, 8,181,818 shares issued and outstanding pro forma; 11,363,636 shares issued and outstanding pro forma as adjusted	6	82	114
Additional paid-in-capital	(13,317)	148,515	176,813
Accumulated deficit	(140,585)	(140,585)	(140,585)
Total stockholders' equity (deficit)	(153,896)	8,012	36,342
Total capitalization(1)	$ 29,806	$ 29,806	$ 58,136

(1) As of September 30, 2013, our cash, cash equivalents and restricted cash on an actual basis, pro forma basis and pro forma as adjusted basis were $7.9 million, $7.9 million and $35.9 million, respectively. Cash and cash equivalents are indications of liquidity and do not constitute capitalization. Restricted cash consists of cash we receive from payments of our accounts receivables held in a segregated account that must be applied to pay amounts owed under our revolving credit facility.

A $1.00 per share increase (decrease) in the assumed initial public offering price of $11.00 per share (the mid-point of the price range on the front cover of this prospectus) would increase (decrease) each of additional paid-in-capital, total stockholders' equity (deficit) and total capitalization by approximately $3.0 million, assuming

that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma information discussed above is illustrative only and following the completion of this offering will be adjusted based on the actual initial public offering price and other terms of this offering as of September 30, 2013, and excludes:

- 94,161 shares of common stock issuable upon the exercise of outstanding options to purchase common stock as of September 30, 2013 under the 2003 Plan, at a weighted-average exercise price of $29.38 per share;
- 153,720 shares of common stock issuable upon the exercise of outstanding warrants for shares of Series C, Series D, Series E and Series F convertible preferred stock, on an as converted basis as of September 30, 2013, at a weighted average exercise price of $59.28 per share;
- 473,952 shares of common stock issuable upon the exercise of warrants for shares of our common stock outstanding as of September 30, 2013, at a weighted-average exercise price of $28.09 per share;
- 188,251 shares of common stock issuable upon the vesting of outstanding RSUs as of January 15, 2014 issued under the 2012 Plan;
- 1,405,919 shares of our common stock issuable upon the vesting of RSUs to be issued under our 2012 Plan in connection with this offering; and
- 1,405,830 additional shares of common stock reserved for issuance under the 2012 Plan, which reflects November 2013 and January 2014 amendments to the 2012 Plan, subject to shareholder approval and the completion of this offering.

CONVERSION OF CONVERTIBLE PREFERRED STOCK

Pursuant to the terms of our restated certificate of incorporation, as it will be amended prior to the completion of this offering, if the gross proceeds of this offering are greater than $20 million, the outstanding shares of each series of our convertible preferred stock will automatically convert into a number of shares of our common stock in connection with this offering based on a ratio determined by dividing the original issue price of such series of convertible preferred stock by the applicable conversion price of such series of convertible preferred stock. The following table sets forth the original issue price per share, the current conversion price and the current conversion ratio of each series of our convertible preferred stock:

Series of Convertible Preferred Stock	Original Issue Price Per Share ($)	Conversion Price ($)	Conversion Ratio
Series A	0.60	0.6000	0.0388
Series A-1	0.60	0.4000	0.0582
Series B	1.20	1.1259	0.0414
Series B-1	1.20	0.7872	0.0591
Series C	2.00	1.7848	0.0435
Series C-1	2.00	1.2289	0.0631
Series D	3.00	2.3052	0.0505
Series D-1	3.00	1.7821	0.0653
Series E	2.00	1.7601	0.0441
Series F(1)	2.00	2.0000	0.0388

(1) If the initial public offering price in this offering is below $64.44 per share, the conversion ratio of our Series F convertible preferred stock is determined by dividing (a) the original issue price of the Series F convertible preferred stock of $2.00 by (b) 80% of the initial public offering price.

Based on an assumed initial public offering price of $11.00 per share (the midpoint of the price range set forth on the front cover of this prospectus), the outstanding shares of our convertible preferred stock will convert into 7,584,073 shares of common stock in connection with this offering and there will be 8,181,818 total shares of common stock outstanding before this offering.

Because the number of shares of common stock into which each share of our Series F convertible preferred stock is convertible will be determined by reference to the initial public offering price in this offering, a change in the assumed initial public offering price in the offering would have a corresponding impact on the number of shares of common stock issuable upon conversion of our Series F convertible preferred stock and, therefore, the total number of shares of common stock outstanding before this offering. The following table shows the number of shares of common stock that would be issued upon conversion of our Series F convertible preferred stock and the total number of shares of common stock outstanding before this offering assuming the following initial public offering prices for our common stock:

	Assumed Initial Public Offering Price			
	$8.00	$10.00	$12.00	$14.00
Common Stock Issued Upon Conversion of Series F	6,133,594	4,906,875	4,089,063	3,504,911
Total Common Stock Outstanding Before this Offering	9,854,622	8,627,903	7,810,090	7,225,939

DILUTION

If you invest in our common stock, your ownership interest will be diluted to the extent of the difference between the initial public offering price per share of our common stock and the pro forma net tangible book value per share of our common stock after this offering. We calculate net tangible book value per share by dividing the net tangible book value, or tangible assets less total liabilities and preferred shares, by the number of outstanding shares of common stock.

Our historical net tangible book deficit as of September 30, 2013 was $(164.9) million or $(275.82) per share of common stock. Our pro forma net tangible book deficit at September 30, 2013 was $(3.0) million, or $(0.36) per share, based on 8,181,818 shares of our common stock outstanding after giving effect to the conversion of all outstanding shares of our preferred stock into 7,584,073 shares of common stock.

After giving effect to the sale of 3,181,818 shares of common stock by us at an assumed initial public offering price of $11.00 per share (the midpoint of the price range set forth on the front cover page of this prospectus), less the estimated underwriting discounts and commissions and our estimated offering expenses, our pro forma as adjusted net tangible book value at September 30, 2013 would be $25.4 million, or $2.23 per share. This amount represents an immediate increase in the pro forma net tangible book value of $2.59 per share to existing stockholders and an immediate dilution of $8.77 per share to new investors purchasing shares at an assumed initial public offering price of $11.00 per share. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$11.00
Actual net tangible book deficit per share as of September 30, 2013	$(275.82)	
Pro forma increase per share attributable to conversion of preferred stock to common stock and preferred stock warrants to common stock warrants and the related reclassification of the preferred stock warrant liability to additional paid in capital	(275.46)	
Pro forma net tangible book deficit per share as of September 30, 2013, before this offering	(0.36)	
Increase in pro forma net tangible book value per share attributable to new investors	2.59	
Pro forma as adjusted net tangible book value per share after this offering		2.23
Dilution in pro forma net tangible book value per share to new investors		$ 8.77

A $1.00 increase (decrease) in the assumed initial public offering price of $11.00 per share would increase (decrease) the pro forma net tangible book value by $3.0 million, the pro forma as adjusted net tangible book value per share after this offering by $0.26 per share and the dilution in pro forma net tangible book value per share to investors participating in this offering by $0.26 per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise in full their option to purchase 477,273 additional shares of our common stock in this offering, the pro forma as adjusted net tangible book value per share after the offering would be $2.55 per share, the increase in the pro forma net tangible book value per share to existing stockholders would be $0.32 per share and the dilution to new investors purchasing common stock in this offering would be $8.45 per share.

The following table shows on an adjusted pro forma basis at September 30, 2013, after giving effect to the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 7,584,073 shares of common stock upon the closing of this offering, the difference between the number of shares of common stock purchased from us, the total consideration paid to us and the average price paid per share by existing stockholders and by new public investors purchasing common stock in this offering:

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
	(in thousands except per share data)				
Existing stockholders	8,182	72%	$152,879	81%	$ 18.69
New investors participating in this offering	3,182	28%	35,000	19%	$ 11.00
Total	11,364	100%	$187,879	100%	$ 16.53

A $1.00 increase (decrease) in the assumed initial public offering price of $11.00 per share (the midpoint of the price range set forth on the front cover page of this prospectus) would increase (decrease) the total consideration paid by new investors by $3.2 million, or increase (decrease) the percent of total consideration paid by new investors by 1%, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same.

If the underwriters exercise in full their option to purchase additional shares, sales by us in this offering will reduce the percentage of shares held by existing stockholders to 69% and will increase the number of shares held by new investors to 3,659,091, or 31%.

This information is based on 597,745 shares of common stock outstanding as of September 30, 2013, and assumes the conversion of all of our shares of convertible preferred stock outstanding as of September 30, 2013 into 7,584,073 shares of common stock upon the completion of this offering and excludes:

- 94,161 shares of common stock issuable upon the exercise of outstanding options to purchase common stock as of September 30, 2013, under the 2003 Plan, at a weighted-average exercise price of $29.38 per share;
- 153,720 shares of common stock issuable upon the exercise of warrants for shares of Series C, Series D, Series E and Series F convertible preferred stock, on an as converted basis as of September 30, 2013 at a weighted average exercise price of $59.28 per share;
- 473,952 shares of common stock issuable upon the exercise of warrants for shares of our common stock, outstanding as of September 30, 2013, at a weighted-average exercise price of $28.09 per share;
- 188,251 shares of common stock issuable upon the vesting of outstanding RSUs as of January 15, 2014 issued under the 2012 Plan;
- 1,405,919 shares of our common stock issuable upon the vesting of RSUs to be issued under our 2012 Plan in connection with this offering; and
- 1,405,830 additional shares of common stock reserved for issuance under the 2012 Plan, which reflects November 2013 and January 2014 amendments to the 2012 Plan, subject to shareholder approval and the completion of this offering.

To the extent these outstanding options or warrants are exercised, or the RSUs vest, there will be further dilution to the new investors.

Furthermore, we may need to obtain additional capital which may be through the sale of equity or convertible debt securities to fund our current and future operating plans. To the extent we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

If all our outstanding options and warrants noted above had been exercised and the RSUs vested, the pro forma net tangible book value as of September 30, 2013 would have been $22.1 million, or $2.45 per share, and the as adjusted pro forma net tangible book value after this offering would have been $50.4 million, or $4.13 per share, causing dilution to new investors of $6.87 per share. Additionally, assuming all outstanding options and warrants noted above had been exercised and all outstanding RSUs noted above had vested, the difference between the number of shares of common stock purchased from us, the total consideration paid to us, and the average price paid per share by existing stockholders and by new investors purchasing common stock in this offering would be as follows:

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders	9,027	74%	$177,954	84%	$ 19.71
New investors participating in this offering	3,182	26%	35,000	16%	$ 11.00
Total	12,209	100%	$212,954	100%	$ 17.44

SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the related notes included elsewhere in this prospectus. The selected consolidated statement of comprehensive loss data for the years ended December 31, 2011 and 2012 and selected consolidated balance sheet data as of December 31, 2011 and 2012 were derived from our audited consolidated financial statements that are included elsewhere in this prospectus. The selected consolidated statement of comprehensive loss data for the nine months ended September 30, 2012 and 2013 and selected consolidated balance sheet data as of September 30, 2013 were derived from our unaudited consolidated financial statements that are included elsewhere in this prospectus. In the opinion of management, the unaudited consolidated financial statements were prepared on a basis consistent with our audited consolidated financial statements contained in this prospectus and include all adjustments necessary for the fair presentation of the financial information contained in those statements. The historical results presented below are not necessarily indicative of financial results to be achieved in future periods, and the results for the nine months ended September 30, 2013 are not necessarily indicative of results to be expected for the full year.

	Years Ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
			(unaudited)	
	(in thousands, except per share amounts)			
Consolidated Statement of Comprehensive Loss Data:				
Product revenue	$ 20,261	$ 23,065	$ 17,126	$ 16,604
Cost of revenue				
Product revenue	4,088	5,423	3,363	4,235
Write-down of excess and obsolete inventory	—	1,043	—	778
Total cost of revenue	4,088	6,466	3,363	5,013
Gross profit	16,173	16,599	13,763	11,591
Operating expenses				
Research and development	7,789	6,013	4,488	2,866
General and administrative	7,263	7,313	5,458	4,067
Sales and marketing	17,145	17,094	11,944	12,123
Impairment loss on intangible assets	—	15,281	—	—
Change in fair value of contingent consideration	4,832	—	—	—
Total operating expenses	37,029	45,701	21,890	19,056
Loss from operations	(20,856)	(29,102)	(8,127)	(7,465)
Other income (expense)				
Interest income	72	57	45	13
Interest expense	(3,456)	(5,611)	(3,864)	(1,345)
Loss on extinguishment of debt	—	(251)	—	—
Change in fair value of preferred stock warrants	308	(85)	(110)	73
Change in fair value of common stock warrants	172	(618)	1,348	(224)
Other income/(expense)	9	(151)	(4)	—
Total other expense	(2,895)	(6,659)	(2,585)	(1,483)
Net loss before income taxes	(23,751)	(35,761)	(10,712)	(8,948)
Income tax benefit	—	726	—	—
Net loss	$ (23,751)	$ (35,035)	$ (10,712)	$ (8,948)
Other comprehensive loss, net of tax:				
Unrealized gain/(loss) of marketable securities	(23)	25	35	(2)
Total comprehensive loss	$ (23,774)	$ (35,010)	$ (10,677)	$ (8,950)
Net loss per share attributable to common stockholders				
Basic and diluted(1)	$ (68.28)	$ (100.52)	$ (30.74)	$ (17.64)
Shares used to calculate net loss attributable to common stockholders				
Basic and diluted	348	349	348	507
Pro forma net loss per share attributable to common stockholders (unaudited)				
Basic and diluted(1)		$ (9.90)		$ (1.27)
Weighted-average shares used to calculate pro forma net loss per share attributable to common stockholders (unaudited)				
Basic and diluted(1)		3,532		7,120

(1) See Note 1 to our consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma net loss per share, basic and diluted, and the number of shares used in the computation of the per share amounts.

	As of December 31,		As of September 30,
	2011	2012	2013
			(unaudited)
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash, restricted cash, cash equivalents and marketable securities(1)	$ 11,140	$ 5,682	$ 7,861
Working capital	12,742	(5,171)	(1,708)
Total assets	61,220	33,455	35,569
Long-term debt, including current portion	41,986	17,893	17,917
Convertible preferred stock	117,501	153,474	161,456
Total stockholders' equity (deficit)	(114,279)	(148,282)	(153,896)

(1) Restricted cash consists of cash we receive from payments of our accounts receivables held in a segregated account that must be applied to pay amounts owed under our revolving credit facility.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with "Selected Consolidated Financial Data," our consolidated financial statements and related notes appearing elsewhere in this prospectus. This discussion and analysis contains forward-looking statements based upon current beliefs, plans, expectations, intentions and projections that involve risks, uncertainties and assumptions, such as statements regarding our plans, objectives, expectations, intentions and projections. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this prospectus.

Overview

We are a commercial biomaterial company focused on using our silicon nitride technology platform to develop, manufacture and sell a broad range of medical devices. We currently market spinal fusion products and are developing products for use in total hip and knee joint replacements. We believe our silicon nitride technology platform enables us to offer new and transformative products in the orthopedic and other medical device markets. We believe we are the first and only company to use silicon nitride in medical applications and over 14,000 of our intervertebral fusion devices have been implanted in patients.

We currently market our *Valeo MC²* silicon nitride interbody spinal fusion devices in the United States and Europe for use in the cervical and thoracolumbar areas of the spine. We believe our *Valeo* devices have a number of advantages over existing products due to silicon nitride's key characteristics, resulting in faster and more effective fusion and reduced risk of infection. Our first generation *Valeo* silicon nitride device received 510(k) regulatory clearance and a CE Mark in 2008. Based on surgeon feedback, we developed a second generation of *Valeo* products with design enhancements that improve surgeon control during implantation and stability post procedure. Earlier this year, we initiated a targeted launch of our second generation *Valeo* interbody fusion devices and expect to complete the full launch in the first half of 2014. We also market our *Valeo* composite interbody spinal fusion device made from both our solid *MC²* and porous *CˢC* silicon nitride in the Netherlands, Spain and Germany. We are currently conducting a prospective clinical trial in Europe, named CASCADE, comparing our *Valeo* composite silicon nitride interbody devices to PEEK interbody devices to obtain additional data to support 510(k) clearance in the United States. The trial is 100% enrolled. We expect results to be available in the second half of 2014. If this trial is successful, we plan to file a 510(k) submission with the FDA by mid-2015. In addition, in the first half of 2013, we initiated a Design and Build Program focused on collaborating with influential surgeons to develop customized silicon nitride spinal fusion products and instruments and the first products designed under this program were sold in the third quarter of 2013.

In addition to our silicon nitride-based spinal fusion products, we market a complementary line of non-silicon nitride spinal fusion products which allows us to provide surgeons and hospitals with a broader range of products. These products include three lines of spinal fusion devices and five types of orthobiologics, which are used by surgeons to help promote bone growth and fusion in spinal fusion procedures. Although our non-silicon nitride products have accounted for approximately 70% or more of our product revenues for the years ended December 31, 2012 and 2011 and the nine months ended September 30, 2013, we believe the continued promotion and potential for adoption of our silicon nitride products and product candidates, if approved, provides us the greatest opportunity to grow our business in new and existing markets and achieve our goal to become a leading biomaterial company.

We market and sell our products to surgeons and hospitals in the United States and select markets in Europe and South America through our established network of more than 50 independent sales distributors. A substantial portion of our product revenue has historically been derived from sales in the United States. Our largest customer, Bon Secours St. Mary's Hospital, accounted for 17% and 14% of our product revenues for the years ended December 31, 2011 and 2012, respectively, and 15% of our product revenues for the nine months ended September 30, 2013. A significant portion of this hospital group's purchases from us are non-silicon nitride products and its accounts receivable balance was approximately 11% of our total trade accounts receivable at September 30, 2013.

We plan to use our silicon nitride technology platform to expand our product offerings. We are incorporating our silicon nitride technology into components for use in total hip and knee replacement product candidates that we are, or plan on, developing in collaboration with a strategic partner. In addition, we believe our silicon nitride technology platform can be used for developing products in other markets and have developed prototypes for use in the dental, sports medicine and trauma markets. We believe our coating technology may be used to enhance our metal products as well as commercially-available metals, such as those used in spinal fusion, joint replacement and other medical products.

Components of our Results of Operations

We manage our business within one reportable segment, which is consistent with how our management reviews our business, makes investment and resource allocation decisions and assesses operating performance.

Product Revenue

We derive our product revenue primarily from the sale of spinal fusion devices and related products used in the treatment of spine disorders. Our product revenue is generated from sales to two types of customers: (1) surgeons and hospitals; and (2) stocking distributors. Most of our products are sold on a consignment basis through a network of independent sales distributors; however, we also sell our products to independent stocking distributors. Product revenue is recognized when all four of the following criteria are met: (1) persuasive evidence that an arrangement exists; (2) delivery of the products has occurred; (3) the selling price of the product is fixed or determinable; and (4) collectability is reasonably assured. We generate the majority of our revenue from the sale of inventory that is consigned to independent sales distributors that sell our products to surgeons and hospitals. For these products, we recognize revenue at the time we are notified the product has been used or implanted and a valid purchase order has been received. For all other transactions, we recognize revenue when title and risk of loss transfer to the stocking distributor, and all other revenue recognition criteria have been met. We generally recognize revenue from sales to stocking distributors at the time the product is shipped to the distributor. Stocking distributors, who sell the products to their customers, take title to the products and assume all risks of ownership at time of shipment. Our stocking distributors are obligated to pay within specified terms regardless of when, if ever, they sell the products. Our policy is to classify shipping and handling costs billed to customers as an offset to total shipping expense in the statement of operations, primarily within sales and marketing. In general, our customers do not have any rights of return or exchange.

We believe our product revenue from the sale of our silicon nitride based products and our non-silicon nitride products will increase due to our sales and marketing efforts and as we introduce new silicon nitride based products into the market, such as our second generation *Valeo* interbody spinal fusion products in the United States. We expect that our product revenue will continue to be primarily attributable to sales of our products in the United States, though, as we expand our sales and marketing efforts and market additional products abroad, such as our spinal fusion device incorporating our *CsC*, we expect international sales will increase.

Cost of Revenue

The expenses that are included in cost of revenue include all direct product costs if we obtained the product from third-party manufacturers and our in-house manufacturing costs for the products we manufacture. We obtain our non-silicon nitride products, including our metal and orthobiologic products, from third-party manufacturers, while we manufacture our silicon-nitride products in-house.

Specific provisions for excess or obsolete inventory and, beginning in 2013, the 2.3% excise tax on the sale of medical devices in the United States, are also included in cost of revenue. In addition, we pay royalties based on a percentage of our net after-tax profits attributable to the sale of specific products to some of our surgeon advisors that assisted us in the design, clearance or commercialization of a particular product, and these payments are recorded as cost of revenue.

Gross Profit

Our gross profit measures our product revenue relative to our cost of revenue. While we expect our cost of revenue to increase in absolute terms as our sales volume increases, we believe our gross profit will be higher as as we realize manufacturing efficiencies associated with our silicon nitride-based products.

Research and Development Expenses

Our net research and development costs are expensed as incurred. Research and development costs consist of engineering, product development, clinical trials, test-part manufacturing, testing, developing and validating the manufacturing process, manufacturing, facility and regulatory-related costs. Research and development expenses also include employee compensation, employee and non-employee stock-based compensation, supplies and materials, consultant services, and travel and facilities expenses related to research activities. To the extent that certain research and development expenses are directly related to our manufactured products, such expenses and related overhead costs are allocated to inventory.

We expect to incur additional research and development costs as we continue to develop new spinal fusion products such as our second generation *Valeo* products, our product candidates for total joint replacements, such as our total hip replacement product candidate, and our silicon nitride-coated metals which may increase our research and development expenses.

Sales and Marketing Expenses

Sales and marketing expenses primarily consist of salaries, benefits and other related costs, including stock-based compensation, for personnel employed in sales, marketing, medical education and training. In addition, our sales and marketing expenses include commissions and bonuses, generally based on a percentage of sales, to our sales managers and independent sales distributors. We provide our products in kits or banks that consist of a range of device sizes and separate instruments necessary to complete the surgical procedure. We generally consign our instruments to our distributors or our hospital customers that purchase the device used in spinal fusion surgery. Our sales and marketing expenses include depreciation of the surgical instruments.

We expect our sales and marketing expenses to continue to increase, including instrument set depreciation, as we introduce new products, such as our second generation *Valeo* spinal fusion products into the United States, and seek to enhance our commercial infrastructure, including increasing our marketing efforts and further educating our distributors. Additionally, we expect our commissions to continue to increase in absolute terms over time but remain approximately the same or decrease as a percentage of product revenue.

General and Administrative Expenses

General and administrative expenses primarily consist of salaries, benefits and other related costs, including stock-based compensation, for certain members of our executive team and other personnel employed in finance, legal, compliance, administrative, information technology, customer service, executive and human resource departments. General and administrative expenses include allocated facility expenses, related travel expenses and professional fees for accounting and legal services.

We expect our general and administrative expenses will increase due to costs associated with transitioning from a private to a public company and as we continue to grow our business.

Results of Operations

Nine Months Ended September 30, 2012 Compared to the Nine Months Ended September 30, 2013

The following table sets forth, for the periods indicated, our results of operations for the nine months ended September 30, 2012 and September 30, 2013 (in thousands):

	Nine Months Ended September 30,		Change	
	2012	2013	$	% Change
	(unaudited)			
Product revenue	$ 17,126	$ 16,604	$ (522)	(3.0)%
Cost of revenue	3,363	5,013	1,650	49.1%
Gross profit	13,763	11,591	(2,172)	(15.8)%
Operating expenses:				
Research and development	4,488	2,866	(1,622)	(36.1)%
General and administrative	5,458	4,067	(1,391)	(25.5)%
Sales and marketing	11,944	12,123	179	1.5%
Total operating expenses	21,890	19,056	(2,834)	(12.9)%
Loss from operations	(8,127)	(7,465)	662	(8.1)%
Other expense, net	(2,585)	(1,483)	1,102	(42.6)%
Net loss	$ (10,712)	$ (8,948)	$ 1,764	(16.5)%

Product Revenue

The following table sets forth, for the periods indicated, our product revenue from sales of the indicated product category (in thousands):

	Nine Months Ended September 30,		Change	
	2012	2013	$	% Change
	(unaudited)			
Silicon Nitride	$ 4,656	$ 5,331	$ 675	14.5%
Non-Silicon Nitride	12,470	11,273	(1,197)	(9.6)%
Total Product Revenue	$ 17,126	$ 16,604	$ (522)	(3.0)%

Total product revenue was $16.6 million in the nine months ended September 30, 2013 as compared to $17.1 million in the nine months ended September 30, 2012, a decrease of $0.5 million or 3.0%. This decrease in total product revenue was primarily attributable to our restructuring of our sales and marketing teams during the first quarter of this period, resulting from changes in our distribution network, the timing of the launch of our second generation *Valeo* products and a one-time sale of non-silicon nitride products to an international customer in the 2012 period with no corresponding sale in 2013. Sales of our silicon nitride products increased by $0.7 million, or 14.5%, in the nine months ended September 30, 2013 as compared to the same period of 2012. Non-silicon nitride sales decreased $1.2 million, or 9.6%, for the first nine months of 2013 compared to the same period of 2012, as the focus of the new sales team was primarily on silicon nitride product sales versus non-silicon nitride product sales.

The following table sets forth, for the periods indicated, our product revenue by geographic area (in thousands):

	Nine Months Ended September 30,		Change	
	2012	2013	$	% Change
	(unaudited)			
Domestic	$ 16,050	$ 16,516	$ 466	2.9%
International	1,076	88	(988)	(91.8)%
Total Product Revenue	$ 17,126	$ 16,604	$(522)	(3.0)%

Product revenue attributable to sales in the United States was $16.5 million in the nine months ended September 30, 2013, an increase of $0.5 million, or 2.9%, over the same period in 2012. Product revenue attributable to international sales was $0.1 million in the nine months ended September 30, 2013, a decrease of $1.0 million, or 91.8%, as compared to the same period in 2012. The decrease was primarily attributable to a one-time sale of non-silicon nitride products to an international customer in the 2012 period.

Cost of Revenue

Cost of revenue was $5.0 million in the nine months ended September 30, 2013 as compared to $3.4 million in the nine months ended September 30, 2012, an increase of $1.7 million, or 49.1%. This increase was primarily related to an increase in excess and obsolete inventory costs of $0.8 million related to our first generation *Valeo* products, the new 2.3% medical device excise tax in the United States, which totaled $0.3 million during the nine months ended September 30, 2013, and a volume increase in sales of our orthobiologic products resulting in additional costs of $0.1 million.

Gross Profit

Gross profit as a percentage of product revenue decreased by 10.6% to 69.8% for the nine months ended September 30, 2013 from 80.4% for the same period in 2012, primarily as a result of an increase in excess and obsolete inventory costs of $0.8 million related to our first generation *Valeo* products, the U.S. medical device excise tax of 2.3% on product revenue which became effective in January 2013 and a lower selling price per unit for our orthobiologic products in the nine months ended September 30, 2013 period as compared to the same period in 2012.

Research and Development Expenses

Research and development expenses were $2.9 million in the nine months ended September 30, 2013 as compared to $4.5 million in the nine months ended September 30, 2012, a decrease of $1.6 million, or 36.1%. This decrease was primarily due to our allocation, in the nine months ended September 30, 2013, of an additional $1.2 million of overhead costs to inventory as a result of the ramp-up phase for our second generation *Valeo* products, which overhead costs had been allocated to research and development expenses in the prior comparable period. The decrease in research and development expenses also reflected a decrease of $0.2 million in employee compensation including taxes, benefits and stock compensation and a $0.3 million decrease in depreciation expense.

General and Administrative Expenses

General and administrative expenses were $4.1 million in the nine months ended September 30, 2013 as compared to $5.5 million in the nine months ended September 30, 2012, a decrease of $1.4 million, or 25.5%. This decrease was primarily due to decreases of $1.0 million in amortization expense and $0.7 million in legal and patent expense, partially offset by a $0.2 million increase of employee compensation, a $0.2 million increase in accounting and consulting services, and a $0.1 million increase in recruiting expense.

Sales and Marketing Expenses

Sales and marketing expenses were $12.1 million in the nine months ended September 30, 2013 as compared to $11.9 million in the nine months ended September 30, 2012, an increase of $0.2 million, or 1.5%. This increase was primarily due to an increase of $0.8 million in commission expense to our sales distributors to support increased silicon nitride sales volume, partially offset by decreases of $0.2 million in depreciation expense, $0.2 million in trade show expense and $0.2 million in instrument maintenance expense.

Other Expense, Net

We incurred other expense of $1.5 million in the nine months ended September 30, 2013 as compared to $2.6 million in the nine months ended September 30, 2012, a decrease of $1.1 million, or 42.6%. This decrease in other expense was primarily due to a $2.5 million reduction in interest expense, partially offset by a net change of $1.4 million in fair value of our common and preferred stock warrants.

Year Ended December 31, 2011 Compared to the Year Ended December 31, 2012

The following table sets forth our results of operations for the years ended December 31, 2011 and December 31, 2012 (in thousands):

	Year ended December 31,		Change	
	2011	2012	$	% Change
Product revenue	$ 20,261	$ 23,065	$ 2,804	13.8%
Cost of revenue	4,088	6,466	2,378	58.2%
Gross profit	16,173	16,599	426	2.6%
Operating expenses:				
Research and development	7,789	6,013	(1,776)	(22.8)%
General and administrative	7,263	7,313	50	0.1%
Sales and marketing	17,145	17,094	(51)	(0.0)%
Impairment loss on intangible assets	—	15,281	15,281	N/A
Change in fair value of contingent consideration	4,832	—	(4,832)	N/A
Total operating expenses	37,029	45,701	8,672	23.4%
Loss from operations	(20,856)	(29,102)	(8,246)	39.5%
Other expense, net	(2,895)	(6,659)	(3,763)	130.0%
Net loss before income taxes	(23,751)	(35,761)	(12,010)	50.6%
Income tax benefit	—	726	726	N/A
Net loss	$ (23,751)	$ (35,035)	$(11,283)	47.5%

Product Revenue

The following table sets forth, for the periods indicated, our product revenue by product category (in thousands):

	Year Ended December 31,		Change	
	2011	2012	$	% Change
Silicon Nitride	$ 6,221	$ 6,578	$ 357	5.7%
Non-Silicon Nitride	14,040	16,487	2,447	17.4%
Total Product Revenue	$ 20,261	$ 23,065	$2,804	13.8%

Total product revenue was $23.1 million in 2012 as compared to $20.3 million in 2011, an increase of $2.8 million or 13.8%. The increase in total product revenue was primarily attributable to higher sales of our non-silicon nitride products, which increased by $2.4 million, or 17.4%, in the year ended December 31, 2012 as compared to 2011. Product revenues in 2012 were favorably impacted by a one-time sale of non-silicon nitride products to an international customer. Sales of our silicon nitride products increased $0.4 million, or 5.7%, for the year ended December 31, 2012 compared to 2011.

The following table sets forth, for the periods indicated, our product revenue from by geographic area (in thousands):

	Year Ended December 31,		Change	
	2011	2012	$	% Change
Domestic	$ 19,826	$ 21,847	$2,021	10.2%
International	435	1,218	783	180.0%
Total Product Revenue	$ 20,261	$ 23,065	$2,804	13.8%

Product revenue attributable to sales in the United States was $21.8 million in the year ended December 31, 2012, an increase of $2.0 million, or 10.2%, over 2011. Product revenue attributable to international sales was $1.2 million in the year ended December 31, 2012, an increase of $0.8 million, or 180%, as compared to 2011, which was primarily attributable to a one-time sale of non-silicon nitride products to an international customer in 2012.

Cost of Revenue

Cost of revenue was $6.5 million in 2012 as compared to $4.1 million in 2011, an increase of $2.4 million, or 58.2%. This increase was primarily the result of a $1.0 million charge related to excess and obsolete inventory, a $0.6 million charge to inventory scrap adjustments and a $0.6 million charge resulting from a volume increase in sales of our orthobiologic products in 2012.

Gross Profit

Gross profit as a percentage of product revenue decreased by 7.8%, to 72.0%, for the year ended December 31, 2012, from 79.8% for the year ended December 31, 2011. This decrease was primarily as a result of a $1.0 million charge related to excess and obsolete inventory, higher than normal inventory scrap adjustments and increased acquisition costs for our orthobiologic products, partially offset by increased sales in 2011.

Research and Development Expenses

Research and development expenses were $6.0 million in 2012 as compared to $7.8 million in 2011, a decrease of $1.8 million or 22.8%. This decrease was primarily due to a decrease of $0.9 million in employee compensation including taxes, benefits and stock compensation, $0.4 million in depreciation expense and $0.4 million in overhead allocation expense related to the manufacture of our silicon nitride products.

General and Administrative Expenses

General and administrative expenses were $7.3 million in both 2012 and 2011.

Sales and Marketing Expenses

Sales and marketing expenses were $17.1 million in both 2012 and 2011.

Impairment Loss on Intangible Assets

Impairment loss on intangible assets was $15.3 million in 2012 relating to assets we obtained in our acquisition of US Spine, Inc., or US Spine. The amount of the impairment loss was determined during management's annual impairment review and resulted from lower sales of certain products and customers we acquired in the US Spine transaction than originally expected. There was not an impairment loss on intangible assets during 2011 and we do not expect to incur similar impairment losses in 2013.

Change in Fair Value of Contingent Consideration

Change in fair value of contingent consideration was $4.8 million in 2011. There was no change in fair value of contingent consideration in 2012.

Other Expense, Net

Other expense was $6.7 million in 2012 and $2.9 million in 2011, an increase of $3.8 million, or 130.0%. The increase was primarily attributable to an increase of interest expense of $2.2 million, a change in fair value of stock warrants of $1.2 million and a loss on extinguishment of debt of $0.3 million during 2012.

Liquidity and Capital Resources

For the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 and 2013, we incurred a net loss of $23.8 million, $35.0 million, $10.7 million and $8.9 million, respectively, and used cash in operations of $14.9 million, $9.7 million, $6.4 million and $5.5 million, respectively. We have an accumulated deficit of $131.6 million as of December 31, 2012 and $140.6 million as of September 30, 2013. With the exception of a small net income for the years ended December 31, 2002 and 1999, we have incurred net losses in each year

since inception. To date, our operations have been principally financed from proceeds from the issuance of convertible preferred stock and common stock, convertible debt and bank debt and, to a lesser extent, cash generated from product sales. Since January 2011, we issued the following securities to help fund our operations:

- between March 2011 and February 2012, we issued aggregate principal amount of $29.8 million of Senior Secured Subordinated 6%/8% Convertible Promissory Notes, or the Senior Secured Notes, and warrants to purchase an aggregate of 288,802 shares of our common stock at an exercise price of $51.55 per share. All outstanding Senior Secured Notes were converted into 14,887,500 shares of our Series F convertible preferred stock in December 2012 contemporaneously with our entering into a new term loan and a revolving credit facility with General Electric Capital Corporation, or GE Capital, and Zions First National Bank, or the GE Secured Lending Facility;
- in February 2013, we issued an aggregate of 178,516 shares of our common stock upon exercise of warrants and the sale of additional shares of our common stock at $17.53 per share for an aggregate purchase price of $3.1 million. We also issued each investor purchasing shares of our common stock through the exercise of warrants new warrants to purchase shares of our common stock at an exercise price of $17.53 per share; and
- in August and September 2013, we issued an aggregate of 94.8 units, each unit consisting of 50,000 shares of our Series F convertible preferred stock and a warrant to acquire 970 shares of our common stock at an exercise price of $25.77 per share, for gross proceeds of $9.5 million.

As of December 31, 2012 and September 30, 2013, we had approximately $5.7 million and $7.9 million, respectively, in cash, cash equivalents, restricted cash and marketable securities. Restricted cash, which was $260,459 and $298,493 at December 31, 2012 and September 30, 2013, respectively, consists of cash balances in transit from a segregated account that must first be applied to pay down any outstanding balance on the revolving credit facility portion of the GE Secured Lending Facility. In order to finance the continued growth in product sales, to invest in further product development and to otherwise satisfy obligations as they mature, we may need to seek additional financing through the issuance of common stock, preferred stock, convertible or non-convertible debt financing. Additional funding, however, may not be available to us on acceptable terms, or at all. If we are unable to access additional funds when needed, we may not be able to continue the development of our silicon nitride technology, our products or our product candidates or we could be required to delay, scale back or eliminate some or all of our development programs and other operations. Any additional equity financing, if available to us, may not be available on favorable terms, will most likely be dilutive to our current stockholders, and debt financing, if available, may involve restrictive covenants. We expect our existing cash and cash equivalents, our expected product revenue and the net proceeds of this offering to support our operations through at least the next 18 months.

Pursuant to its terms, we must repay our $18.0 million term loan with GE Capital over a period of 30 months, which began in January 2014. We have been in covenant default under the agreement in the past, but we were not in default at September 30, 2013. However, because we may have been in default on or before December 31, 2013 if we did not receive additional funding, we classified the entire obligation as a current liability. We expect to use a portion of the net proceeds of this offering to service the outstanding borrowings on the GE Secured Lending Facility. We must pay GE Capital a repayment fee of $720,000 upon prepayment in full or at scheduled maturity of the term loan. The GE Secured Lending Facility also has minimum liquidity covenants that require us to maintain minimum levels of cash, cash equivalents and availability under the revolving credit facility, which can restrict our ability to use our cash and cash equivalents. We were in default of this liquidity covenant in November 2013, and, in December 2013, we amended the terms of the GE Secured Lending Facility to allow for a temporary waiver effective from November 1, 2013 through January 31, 2014 of the liquidity covenant under the agreement for a fee of $860,000, payable by March 1, 2014, provided that the fee is reduced to $645,000 if the facility is repaid on or before February 28, 2014. In addition, we agreed to an additional credit reserve in the amount of $0.5 million, bringing the total reserve to $1.0 million. On January 28, 2014, we obtained an additional waiver of the liquidity covenant from GE Capital through February 28, 2014 and agreed to increase the credit reserve under this facility by an additional $0.5 million, bringing the total reserve to $1.5 million. We also agreed to pay the lenders a fee of $200,000 on March 31, 2014 in connection with the additional waiver if the facility is not repaid on or before March 31, 2014. This fee is in addition to the fee required in connection with the prior waiver.

Going Concern

Our ability to access capital when needed is not assured and, if not achieved on a timely basis, will materially harm our business, financial condition and results of operations. These uncertainties create substantial doubt about our ability to continue as a going concern. Without the expected proceeds from this offering, our existing capital resources will be insufficient to fund our operations through the end of February 2014. Our independent registered public accounting firm included an explanatory paragraph regarding substantial doubt about our ability to continue as a going concern in their report on our annual financial statements for the fiscal year ended December 31, 2012 included elsewhere in this prospectus. The financial information throughout this prospectus and the financial statements included elsewhere in this prospectus have been prepared on a basis which assumes that we will continue as a going concern, which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. This financial information and statements do not include any adjustments that may result from the outcome of this uncertainty.

Cash Flows

The following table summarizes, for the periods indicated, cash flows from operating, investing and financing activities (in thousands):

	Year ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
			(unaudited)	
Net cash used in operating activities	$ (14,908)	$ (9,730)	$ (6,392)	$ (5,485)
Net cash provided by (used in) investing activities	(9,170)	4,275	5,815	1,072
Net cash provided by financing activities	23,750	4,866	5,293	9,234
Net change in cash and cash equivalents	$ (328)	$ (589)	$ 4,716	$ 4,821

Net Cash Used in Operating Activities

Net cash used in operating activities was $5.5 million in the nine months ended September 30, 2013, compared to $6.4 million used in the nine months ended September 30, 2012, a decrease of $0.9 million, or 14.2%. The decrease in net cash used in operating activities was primarily attributable to a $1.8 million decrease in net loss, a $1.6 million decrease in trade accounts receivable mostly due to improved collection and cash management efforts, a $1.6 million increase in the change in fair value of common stock warrant liability, and $1.3 million increase in accounts payable and accrued liabilities. These amounts were partially offset by a $1.8 million increase in prepaid expenses and other current assets, a $1.3 million decrease in non-cash interest expense on convertible debt during the nine months ended September 30, 2012, a $1.0 million decrease in amortization of intangible assets, a $0.9 million increase in inventory, and a $0.4 million decrease in stock-based compensation.

Net cash used in operating activities was $9.7 million in 2012, compared to $14.9 million used in 2011, a decrease of $5.2 million, or 34.7%. This decrease in net cash used in operating activities was primarily attributable to a $11.3 million decrease in net loss, a $4.8 million decrease in the change in fair value of contingent consideration, a $1.4 million decrease in depreciation expense, a $1.0 million decrease in prepaid expense and other current assets, a $0.3 million decrease in bad debt expense, a $0.1 million decrease in amortization of interest expense on a promissory note we issued in connection with our acquisition of US Spine and a $0.1 million decrease in accounts payable and accrued liabilities during the year ended December 31, 2012. These amounts were partially offset by a $15.3 million increase in write-down of intangible assets, a $4.4 million increase in inventories, a $1.3 million increase in non-cash interest expense on convertible debt, a $1.0 million increase in write-down of excess and obsolete inventory, a $0.8 million increase in change in fair value of common stock warrant liability, a $0.4 million increase in change in fair value of preferred stock warrant liability, a $0.3 million increase in loss on extinguishment of debt, a $0.2 million increase in stock based compensation, a $0.2 million increase on the loss on the sale of equipment and $0.1 million increase in trade accounts receivable during the year ended December 31, 2012.

Net Cash Provided by (Used in) Investing Activities

Net cash provided by investing activities was $1.1 million in the nine months ended September 30, 2013, compared to $5.8 million provided in the nine months ended September 30, 2012, a decrease of $4.7 million, or

81.6%. This decrease in net cash provided by investing activities was primarily attributable to a $3.6 million decrease in the proceeds from maturities of marketable securities and a $1.1 million increase in the purchase of property and equipment.

Net cash provided by investing activities was $4.3 million in 2012, compared to cash used in investing activities of $9.2 million in 2011, an increase of $13.5 million. This increase in net cash provided in investing activities was primarily attributable to a $10.1 million reduction in the purchase of marketable securities, a $2.9 million increase in proceeds from maturities of marketable securities and a $0.8 million decrease in the purchase of property and equipment, partially offset by a $0.3 million increase in restricted cash during the year ended December 31, 2012.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $9.2 million in the nine months ended September 30, 2013, compared to $5.3 million provided in the nine months ended September 30, 2012, an increase of $3.9 million, or 74.5%. This increase in net cash provided by financing activities was primarily attributable to an $8.9 million increase in net proceeds from the issuance of convertible preferred stock and a $2.9 million increase in proceeds from the exercise of common stock warrants and options, partially offset by a $4.8 million decrease in net proceeds from the issuance of convertible debt and a $3.1 million increase in net payments on our line of credit.

Net cash provided by financing activities was $4.9 million in 2012, compared to $23.7 million provided in 2011, a decrease of $18.9 million, or 79.5%. This decrease in net cash provided by financing activities was primarily attributable to a $15.5 million payment to extinguish our old bank debt in December 2012 and an $18.8 million decrease in the proceeds from issuance of convertible debt and warrants, net of issuance, partially offset by a $14.9 million increase in the proceeds from issuance of long-term debt and a $0.6 million increase in the proceeds from our line of credit during the year ended December 31, 2012.

Indebtedness

In December 2012, we entered into the GE Secured Lending Facility, which consists of a $18.0 million term loan and up to $3.5 million revolving credit facility with GE Capital, as agent and lender, and Zions First National Bank, as lender. We pledged all of our assets as collateral for the loans. The revolving line of credit is secured by our accounts receivable, based on certain defined criteria. The term loan consisted of interest only payments until January 1, 2014. Beginning in January 2014, monthly interest payments as well as principal payments of approximately $600,000 each are required for a period of 30 months. We were in default of the liquidity covenant under the GE Secured Lending Facility in November 2013, and, in December 2013, we amended the terms of the GE Secured Lending Facility to allow for a temporary waiver effective from November 1, 2013 through January 31, 2014 of the liquidity covenant under the agreement discussed below. In addition, we agreed to increase the credit reserve from $0.5 million to $1.0 million. On January 28, 2014, we obtained an additional waiver of the liquidity covenant from GE Capital through February 28, 2014 and agreed to increase the credit reserve under this facility by an additional $0.5 million, bringing the total reserve to $1.5 million.

The term loan bears interest at the fixed rate of 7.5% per annum, while the line of credit had an interest rate of 7.0% at September 30, 2013, which is based on the variable rate of 5.5% plus the higher of (i) 1.5% and (ii) the three-month LIBOR, determined as of two London business days divided by a number equal to 1.0 minus the aggregate of the rates of reserve requirements on the day that is two London business days prior to the beginning of the interest period for Eurocurrency funding that are required to be maintained by a member bank of the Federal Reserve System. The agreement includes a non-refundable final payment fee equal to 4% of the original principal amount of the term loan, or $720,000, upon prepayment in full or scheduled maturity of the term loan, as well as an annual management fee equal to $15,000 per year.

The loan agreement includes certain financial covenants related to monthly cash burn and minimum liquidity, days sales outstanding of accounts receivable balances, annual payment restrictions to our directors and other financial reporting requirements. The liquidity covenant requires us to maintain cash and cash equivalents and availability under the revolving credit facility equal to the greater of $1.5 million (exclusive of availability under the revolving credit facility) or six times our monthly cash burn, as defined in the revolving credit facility. As of September 30, 2013, six times our monthly cash burn equaled $7.1 million. This covenant may significantly limit

our ability to use our cash and cash equivalents to fund our operations. We were obligated to raise additional equity financing under the loan agreement which we satisfied upon the closing of the $7.5 million financing in August 2013. The loan agreement provides for an unused credit facility fee of 0.75% per annum of the unused portion of the line of credit, payable monthly in arrears. We paid a total of approximately $333,000 in fees and commissions associated with entering into this facility, of which approximately $264,000 was capitalized as debt issuance costs and the remaining $69,000 was recorded as interest expense in 2012.

In connection with entering into the new term loan and revolving credit facility with GE Capital in December 2012, we repaid all amounts outstanding under our term loans and line of credit facility with a previous lender, which totaled $18.0 million in principal and approximately $36,000 in accrued interest. We paid $107,500 in commissions related to this repayment, of which approximately $70,000 was capitalized as debt issuance costs and the remaining $37,500 was recorded as interest expense in 2012. We expect to use a portion of the net proceeds of this offering to service the outstanding debt under the term loan as well as our revolving credit facility with GE Capital.

Contractual Obligations and Commitments

The following table summarizes our outstanding contractual obligations as of September 30, 2013. There have been no material changes in our remaining contractual obligations since that time (in thousands).

	Payments Due By Period				
	Total	Less than 1 Year(1)(2)	1-3 Years(2)	3-5 Years	After 5 Years
Long Term Debt Obligations	$18,000	$ —	$18,000	$ —	$ —
Operating Lease Obligations	5,752	210	1,752	1,848	1,942
Total	$23,752	$ 210	$19,752	$1,848	$1,942

(1) Less than 1 year refers to the remaining three months of 2013.

(2) Does not include the $720,000 final payment fee we must pay upon prepayment in full or scheduled maturity of the term loan, the $15,000 per year annual management fee, or the amendment fee of up to $860,000, which is due by March 1, 2014.

The information above reflects only payment obligations that are fixed and determinable. Our commitments for long-term debt relate to our term loans with GE Capital and our commitment to our operating lease for our corporate headquarters and manufacturing facility in Salt Lake City, Utah. The above table does not include any of the contractual obligations with respect to royalties payable upon sales of certain of our products as none of our arrangements contain minimum royalty payments. We also do not have contractually minimum purchase commitments for the supply of any of our raw materials, products or instruments.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, as defined in Item 303(a)(4) of Regulation S-K.

Related-Party Transactions

For a description of our related-party transactions, see “Certain Relationships and Related Party Transactions.”

Seasonality and Backlog

Our business is generally not seasonal in nature. However, our sales may be influenced by summer vacation and winter holiday periods during which we believe fewer spinal fusion surgeries are conducted. Our sales generally consist of products that are in stock with us or maintained at hospitals or with our sales distributors. Accordingly, we do not have a backlog of sales orders.

Critical Accounting Policies and Estimates

The preparation of the consolidated financial statements requires us to make assumptions, estimates and judgments that affect the reported amounts of assets and liabilities, the disclosures of contingent assets and liabilities as of the date of the consolidated financial statements, and the reported amounts of product revenues

and expenses during the reporting periods. Certain of our more critical accounting policies require the application of significant judgment by management in selecting the appropriate assumptions for calculating financial estimates. By their nature, these judgments are subject to an inherent degree of uncertainty. On an ongoing basis, we evaluate our judgments, including those related to inventories, recoverability of long-lived assets and the fair value of our common stock. We use historical experience and other assumptions as the basis for our judgments and making these estimates. Because future events and their effects cannot be determined with precision, actual results could differ significantly from these estimates. Any changes in those estimates will be reflected in our consolidated financial statements as they occur. As an "emerging growth company," we have elected to delay the adoption of new or revised accounting standards until those standards would otherwise apply to private companies. As a result, our financial statements may not be comparable to those of other public companies. While our significant accounting policies are more fully described in the footnotes to our consolidated financial statements included elsewhere in this prospectus, we believe that the following accounting policies and estimates are most critical to a full understanding and evaluation of our reported financial results. The critical accounting policies addressed below reflect our most significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue Recognition

We derive our product revenue primarily from the sale of spinal fusion devices and related products used in the treatment of spine disorders. Our product revenue is generated from sales to two types of customers: (1) surgeons and hospitals; and (2) stocking distributors. Most of our products are sold on a consignment basis through a network of independent sales distributors; however, we also sell our products to independent stocking distributors. Product revenue is recognized when all four of the following criteria are met: (1) persuasive evidence that an arrangement exists; (2) delivery of the products has occurred; (3) the selling price of the product is fixed or determinable; and (4) collectability is reasonably assured. We generate the majority of our revenue from the sale of inventory that is consigned to independent sales distributors that sell our products to surgeons and hospitals. For these products, we recognize revenue at the time we are notified the product has been used or implanted and a valid purchase order has been received. For all other transactions, we recognize revenue when title and risk of loss transfer to the stocking distributor, and all other revenue recognition criteria have been met. We generally recognize revenue from sales to stocking distributors at the time the product is shipped to the distributor. Stocking distributors, who sell the products to their customers, take title to the products and assume all risks of ownership at time of shipment. Our stocking distributors are obligated to pay within specified terms regardless of when, if ever, they sell the products. Our policy is to classify shipping and handling costs billed to customers as an offset to total shipping expense in the statement of operations, primarily within sales and marketing. In general, our customers do not have any rights of return or exchange.

Accounts Receivable and Allowance for Doubtful Accounts

The majority of our accounts receivable is composed of amounts due from hospitals or surgical centers. Accounts receivable are carried at cost less an allowance for doubtful accounts. On a regular basis, we evaluate accounts receivable and estimate an allowance for doubtful accounts, as needed, based on various factors such as customers' current credit conditions, length of time past due, and the general economy as a whole. Receivables are written off against the allowance when they are deemed uncollectible.

Inventories

Inventories are stated at the lower of cost or market, with cost for manufactured inventory determined under the standard cost method which approximates the first-in first-out method. Manufactured inventory consists of raw material, direct labor and manufacturing overhead cost components. Inventories purchased from third-party manufacturers are stated at the lower of cost or market using the first-in, first out method. We review the carrying value of inventory on a periodic basis for excess or obsolete items and record an expense for the identified items as necessary. We have made adjustments to, and it is reasonably possible that we may be required to make further adjustments to, the carrying value of inventory in future periods. We hold some consigned inventory at distributors and other customer locations where revenue recognition criteria have not yet been met.

Long-Lived Assets and Goodwill

Periodically we assess potential impairment of our long-lived assets, which include property, equipment, and acquired intangible assets. We perform an impairment review whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors we consider important which could trigger an impairment review include, but are not limited to, significant under-performance relative to historical or projected future operating results, significant changes in the manner of use of the acquired assets or our overall business strategy, and significant industry or economic trends. When we determine that the carrying value of a long-lived asset may not be recoverable based upon the existence of one or more of the above indicators, we determine the recoverability by comparing the carrying amount of the asset to net future undiscounted cash flows that the asset is expected to generate and recognize an impairment charge equal to the amount by which the carrying amount exceeds the fair market value of the asset. We amortize intangible assets on a straight-line basis over their estimated useful lives.

For indefinite lived intangible assets that are not subject to amortization, the impairment test consists of a comparison of the fair value of an intangible asset with its carrying amount. If the carrying amount of an intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess.

Our management noted that certain US Spine product sales and sales to certain acquired US Spine customers during the one-year period ended December 31, 2012 had been less than expected relative to the forecasted revenues at the time of our acquisition of US Spine. This indicator prompted us to question whether the carrying value of our long-lived and indefinite lived intangible assets would be recoverable. We compared the carrying amount of the assets to net future undiscounted cash flows that the intangible assets are expected to generate, and concluded that an impairment existed. We estimated the fair values of the intangible assets and recognized an impairment loss of approximately $15.3 million in the year ended December 31, 2012.

As of December 31, 2012, we had indefinite lived intangible assets of $0.4 million and $4.8 million of long-lived intangible assets which are subject to our impairment analysis. Should conditions change such that our estimates of associated undiscounted cash flows would not support the unamortized carrying value of specific assets, we could have further impairments. The risk of future impairment of amortizable intangible assets is mitigated by the excess of the undiscounted cash flows over the net carrying value (after impairment was recorded) of approximately 150%.

The income approach used in our impairment analysis considered management's business plans and projections as the basis for expected cash flows for the next ten years and a 5% residual growth rate thereafter. We also used a weighted average discount rate of 17%, a weighted average revenue growth rate ranging from (58)% to 10% and an EBITDA margin ranging from approximately 9% to 12.4% for the analysis.

Our long-lived assets include surgical instruments used by spine surgeons during surgical procedures to facilitate the implantation of our products. There are no contractual terms with respect to the usage of our instruments by our customers. Surgeons are under no contractual commitment to use our instruments. We maintain ownership of these instruments and, when requested, we allow the surgeons to use the instruments to facilitate implantation of our related products. We do not currently charge for the use of our instruments and there are no minimum purchase commitments of our products. As our surgical instrumentation is used numerous times over several years, often by many different customers, instruments are capitalized as property and equipment once they have been placed in service. Once placed in service, instruments are carried at cost, less accumulated depreciation. Depreciation is computed using the straight-line method based on average estimated useful lives. Estimated useful lives of surgical instruments are determined based on a variety of factors including in reference to associated product life cycles, and average three years. As instruments are used as tools to assist surgeons, depreciation of instruments is recognized as a sales and marketing expense. Instrument depreciation expense was $2.3 million, $1.2 million, $0.9 million and $0.7 million for the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 and 2013, respectively.

We review our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of the assets may not be recoverable. An impairment loss would be recognized when estimated future undiscounted cash flows relating to the assets are less than the assets' carrying amount. An impairment loss is measured as the amount by which the carrying amount of an asset exceeds its fair value.

We test goodwill for impairment annually as of December 31, or whenever events or changes in circumstances indicate that goodwill may be impaired. We initially assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. For goodwill impairment testing purposes, we consider the value of our equity, including the value of our convertible preferred stock, in the total carrying value of our single reporting unit. If, after assessing the totality of events or circumstances, we determine it is more-likely-than-not that the fair value of our reporting unit is less than its carrying amount, then we perform a first step analysis by comparing the carrying amount of net assets to the fair value of our single reporting unit. If the fair value is determined to be less than the carrying amount, a second step analysis is performed to compute the amount of impairment as the difference between the implied estimated fair value of goodwill and the carrying amount.

At December 31, 2012, the balance of goodwill resulting from the US Spine acquisition was $6.2 million. We measure the fair value of our reporting unit for purposes of our impairment test utilizing the income approach. The income approach is calculated based on management's best estimates of future cash flows which depend primarily upon revenue growth, discount rate, terminal value and long-term growth rate and total operating expenses. There is a certain degree of uncertainty associated with these key assumptions and there are potential events and circumstances that could reasonably be expected to affect these key assumptions, such as (i) significant decline in product revenue or failure to increase revenue in future years, (ii) failure of the new Design and Build Program to increase revenue as expected, (iii) significant increases in the manufacturing costs or acquisition costs of our inventory and (iv) lack of clearance or approval from the FDA for any of our future product candidates.

The income approach considered management's business plans and projections, with revenue growth rates ranging from 45.1% to 5%, as the basis for expected cash flows for the next six years and a 5% residual growth rate thereafter. We also used a weighted average discount rate of 17% for the analysis. Other significant estimates used in the analysis include gross profit margins and working capital changes. We noted the fair value of the reporting unit exceeded its carrying amount by more than $50.0 million using these assumptions.

A hypothetical increase in the weighted average discount rate of 0.5% would decrease the calculated fair value as a percentage of carrying amount by 5.1%. A hypothetical decrease in the residual growth rate of 0.5% would decrease the calculated fair value as a percent of carrying amount by 3.3%.

Income Taxes

We recognize deferred tax assets and liabilities for the future tax consequences attributable to the differences between the financial statement carrying value of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the fiscal year in which those temporary differences are expected to be recovered or settled. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

We operate in various tax jurisdictions and are subject to audit by various tax authorities. We provide for tax contingencies whenever it is deemed probable that a tax asset has been impaired or a tax liability has been incurred for events such as tax claims or changes in tax laws. Tax contingencies are based upon their technical merits relative tax law and the specific facts and circumstances as of each reporting period. Changes in facts and circumstances could result in material changes to the amounts recorded for such tax contingencies.

We recognize uncertain income tax positions taken on income tax returns at the largest amount that is more-likely than-not to be sustained upon audit by the relevant taxing authority. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained.

Our policy for recording interest and penalties associated with uncertain tax positions is to record such items as a component of our income tax provision. For the years ended December 31, 2011 and 2012 and for the nine months ended September 30, 2012 and 2013, we did not record any material interest income, interest expense or penalties related to uncertain tax positions or the settlement of audits for prior periods.

Stock-Based Compensation Expense

Common Stock Valuation

Historically, our board of directors has determined the fair value of the common stock with assistance from management and based upon information available at the time of grant. The valuation of our common stock requires us to make complex and subjective judgments. We considered a combination of valuation methodologies, including income, market and transaction approaches. The most significant factors considered by our board of directors when determining the fair value of our common stock were as follows:

- external market and economic conditions affecting the medical device industry;
- prices at which we sold shares of our convertible preferred stock to third-party investors;
- the superior rights and preferences of securities senior to our common stock, such as our preferred stock, at the time of each grant;
- our need for future financing to fund commercial operations;
- the lack of marketability of our common stock;
- third-party valuations of our common stock;
- our historical operating and financial performance;
- the status of our research and development efforts;
- the status of our new product releases to the spine market;
- the likelihood of achieving a liquidity event, such as an initial public offering or sale of our company; and
- estimates and analysis provided by management.

We have regularly obtained third-party valuations to assist our board of directors in determining the fair value of our common stock for each stock option grant and other stock-based awards, on an annual basis since 2007.

Significant Factors and Assumptions Used in Determining Fair Value of Common Stock

For the periods presented, valuations of our common stock were determined in accordance with the guidelines outlined in the American Institute of Certified Public Accountants Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation.*

The significant assumptions used in determining the estimated fair value of our common shares are updated on an annual basis and include the following:

Valuation technique	As of and for the year ended December 31,	
	2011	2012
	Hybrid of discounted cash flow method and guideline public company methodology	Hybrid of discounted cash flow method and guideline public company methodology
Weighted-average cost of capital (WACC)	18%	17%
Revenue growth rate (range)	159.4% to 5.7%	32.5% to 5.0%
Compounded average revenue growth rate	17.5%	17.7%
EBITDA margin (range)	(25.0)% to 28.8%	(23.8)% to 32.7%

The two components of our hybrid model are the income approach, which is a discounted cash flow method, and the market approach, which is a guideline public company method. We weighted the results of these two methods as follows: discounted cash flow method was weighed 60% and the guideline public company method was weighed 40%. We selected these two component methods due to their applicability to private companies and weighted each method based on the likelihood we would complete a public offering at the time of the valuation.

A discussion of the determination of the fair value of our common stock on our option grant dates from January 1, 2011 to June 19, 2012, the last day on which we granted options to purchase our common stock, is provided below:

January 1, 2011 through June 16, 2011

From January 1, 2011 through June 16, 2011, our board of directors granted options to purchase an aggregate of 9,354 shares of our common stock all with an exercise price of $25.77 per share. In estimating the fair value of our common stock to set the exercise price of such options as of each date of grant in this period, our board of directors reviewed and considered an independent valuation report for our common stock as of September 30, 2010 delivered to us in December 2010, which reflected a fair value for our common stock of $25.52 per share. On each grant date, our board of directors considered whether changes in the business or other circumstances had impacted the analysis and assumptions associated with the September 2010 third-party valuation. In particular, our board of directors noted that we had just closed the acquisition of US Spine on September 20, 2010 which influenced the September 2010 valuation. The board of directors also noted that a long-term liquidity event, including a private sale, merger or acquisition, was our most likely liquidity scenario on each grant date. As a result of these analyses, the board of directors determined the fair value of our common stock on January 1, 2011, March 3, 2011 and June 16, 2011 was $25.77 per share consistent with the valuation as of September 30, 2010. In granting options at $25.77 per share, the primary valuation factors considered by our board of directors on each grant date were:

- the independent third-party valuation as of September 30, 2010;
- the continued growth of our business and revenues and anticipated increase in growth resulting from the acquisition of US Spine;
- the fact that we continued to operate at a loss, partially as a result of our continued investment in research and development and our sales organization;
- a discount rate, based on our estimated weighted average cost of capital;
- a lack of marketability discount;
- the exit value multiples set by our comparable companies; and
- management's expectation that we would achieve forecasted revenue for the year ended December 31, 2011.

December 8, 2011 through June 19, 2012

From December 8, 2011 through June 19, 2012, our board of directors granted options to purchase an aggregate of 129,306 shares of our common stock all with an exercise price of $25.77 per share. In estimating the fair value of our common stock to set the exercise price of such options as of each date of grant in this period, our board of directors reviewed and considered an independent valuation report for our common stock as of September 30, 2011 delivered to us in October 2011, which reflected a fair value for our common stock of $24.49 per share. On each grant date, our board of directors considered whether changes in the business or other circumstances had impacted the analysis and assumptions associated with the September 2011 third-party valuation. In particular, the board of directors noted that we had begun to assimilate the US Spine products and acquired technology and to operate our business in the ordinary course, and that a long-term liquidity event, including a private sale, merger or acquisition, was still our most likely liquidity scenario on each grant date. As a result, the board of directors determined that the fair value of our common stock remained unchanged from the previous determinations and was $25.77 per share on the dates of the option grants in December 2011, March 2012 and June 2012. The board of directors also noted on each grant date that the $25.77 per share valuation determination was higher than the value reflected in the September 2011 third-party valuation. In granting options at $25.77 per share, the primary valuation factors considered by our board of directors on each grant date were:

- the independent third-party valuation as of September 30, 2011;
- the continued growth of our business and revenues;
- the fact that we continued to operate at a loss, partially as a result of our continued investment in research and development and our sales organization;
- a discount rate, based on our estimated weighted average cost of capital;
- a lack of marketability discount;
- the exit value multiples set by our comparable companies; and
- management's expectation that we would achieve forecasted revenue for the year ended December 31, 2012.

On March 15, 2012, the board of directors, in an effort to incentivize employees, approved the cancellation of all stock option grants to current employees and board members issued with exercise prices greater than $25.77 per share. The board of directors approved new grants for the same number of options to current employees and directors with an exercise price of $25.77 per share, immediate vesting, and which all expire in March 2022 or upon termination of employment.

Stock-Based Compensation

We apply the fair value recognition provisions of Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718, *Compensation-Stock Compensation*, or ASC 718. Determining the amount of stock-based compensation to be recorded requires us to develop estimates of the fair value of stock options and other equity awards as of their grant date. Stock-based compensation expense is recognized ratably over the requisite service period, which in most cases is the vesting period of the award. Calculating the fair value of stock-based awards requires that we make highly subjective assumptions. Use of this valuation methodology requires that we make assumptions as to the volatility of our common stock, the expected term of our stock options, the risk free rate of return for a period that approximates the expected term of our stock options and our expected dividend yield. Because we are a privately-held company with no trading history, we utilize the historical stock price volatility from a representative group of public companies to estimate expected stock price volatility. We selected companies from the medical device industry, specifically those who are focused on the design, development and commercialization of products for the treatment of spine disorders, and who have similar characteristics to us, such as stage of life cycle and size. We intend to continue to utilize the historical volatility of the same or similar public companies to estimate expected volatility until a sufficient amount of historical information regarding the price of our publically traded stock becomes available. We use the simplified method as prescribed by the Securities and Exchange Commission Staff Accounting Bulletin No. 107, *Share-based Payment*, to calculate the expected term of stock option grants to employees as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term of stock options granted to employees. We utilize a dividend yield of zero because we have never paid cash dividends and have no current intention to pay cash dividends. The risk-free rate of return used for each grant is based on the U.S. Treasury yield curve in effect at the time of grant for instruments with a similar expected life. We estimated the fair value of options granted using a Black-Scholes-Merton option pricing model with the following assumptions:

	Year ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
Weighted-average risk-free interest rate	1.32	1.14	1.14	*
Weighted-average expected life (in years)	6.30	5.34	5.34	*
Expected dividend yield	0%	0%	0%	*
Weighted-average expected volatility	70%	72%	72%	*
Weighted-average fair value of options granted	$16.50	$14.18	$ 14.18	*

* There were no stock option grants in the nine months ended September 30, 2013.

The estimated fair value of stock-based awards for employee and non-employee director services are expensed over the requisite service period. Option awards issued to non-employees, excluding non-employee directors, are recorded at their fair value as determined in accordance with authoritative guidance, are periodically revalued as the options vest and are recognized as expense over the related service period. As a result, the charge to operations for non-employee awards with vesting conditions is affected each reporting period by changes in the fair value of our common stock.

Stock-based compensation expense associated with stock options granted to employees totaled $0.8 million, $1.0 million, $0.8 million and $0.2 million for fiscal years 2011 and 2012, and the nine months ended September 30, 2012 and 2013, respectively. As of September 30, 2013, we had approximately $383,000 of total unrecognized stock-based compensation expense, which we expect to recognize over a weighted-average remaining vesting period of approximately 1.96 years. While our stock-based compensation for stock options

granted to employees to date has not been material to our financial results, we expect the impact to grow in future periods due to the issuance of RSUs in 2013 and 2014 for which no expense has been recorded to date, and the potential increases in the value of our common stock and headcount.

We are required to estimate the level of forfeitures expected to occur and record stock-based compensation expense only for those awards that we ultimately expect will vest. We estimate our forfeiture rate based on the type of award, employee class and historical experience. Through September 30, 2013, actual forfeitures have not been material.

In February 2013, our employees elected to exchange 93,968 options to purchase our common stock for restricted stock units, or RSUs, pursuant to a one-time tender offer authorized by our board of directors. The RSUs were issued under the 2012 Plan and have three-year terms and vest upon the earlier of a change in control or expiration of the lock-up period for our initial public offering. The fair value that will be recognized when vesting conditions for these RSUs are satisfied is expected to be approximately $1.7 million.

The following table sets forth information with respect to stock options granted to employees and directors from January 1, 2011 through September 30, 2013:

Date	Number of Options Granted	Exercise Price Per Share	Common Stock Fair Value per Share at Grant Date
1/1/2011	582	$ 25.77	$ 25.77
3/3/2011	1,207	$ 25.77	$ 25.77
6/16/2011	7,566	$ 25.77	$ 25.77
12/8/2011	38,856	$ 25.77	$ 25.77
3/15/2012	88,355	$ 25.77	$ 25.77
6/19/2012	2,095	$ 25.77	$ 25.77

We have not granted any options to purchase our common stock since June 2012. The aggregate intrinsic value of all outstanding options as of September 30, 2013 was approximately $43,000, based on an assumed initial public offering price of $11.00 per share (the midpoint of the price range set forth on the front cover of this prospectus). At September 30, 2013, we had 123,721 RSUs outstanding that will vest upon the earlier of a change in control or expiration of the lock-up period for our initial public offering. We granted an aggregate of 64,530 RSUs after September 30, 2013, all of which are outstanding. Of these additional RSUs, 58,197 RSUs held by Mr. Moyes will vest according to Mr. Moyes's employment arrangement (see "Executive and Director Compensation—2013 Compensation") and the remainder will vest upon the earlier of a change in control or the expiration of the lock-up period for our initial public offering. In addition on January 27, 2014, our board approved grants totaling 1,405,919 RSUs, subject to stockholder approval of an amendment to the 2012 Plan, to be issued on effectiveness of the filing of a registration statement on Form S-8. We will take compensation charges upon vesting of RSUs based upon their grant date fair value. The aggregate fair market value to be recognized as compensation expense when vesting conditions for these RSUs are satisfied is expected to be approximately $2.8 million, including the $1.7 million expense as a result of the exchange described above.

Common Stock Warrant Liability and Preferred Stock Warrant Liability

As of September 30, 2013, we had warrants outstanding to purchase shares of our Series C, Series D, Series E and Series F convertible preferred stock and common stock. Freestanding warrants that are related to the purchase of redeemable preferred stock are classified as liabilities and recorded at fair value regardless of the timing of the redemption feature or the redemption price or the likelihood of redemption. The warrants are subject to re-measurement at each balance sheet date and any change in fair value is recognized as a component of other income (expense), net in our statement of comprehensive loss. We measure the fair value of our warrants to purchase our convertible preferred stock using a Black-Scholes-Merton option pricing model. The warrants to purchase shares of our common stock contain a provision requiring a reduction to the exercise price in the event we issue common stock, or securities convertible into or exercisable for common stock, at a price per share lower than the warrant exercise price. The anti-dilution feature requires the warrants to be classified as liabilities and

re-measured at fair value at each balance sheet date. The fair value of the warrants to purchase common stock on the date of issuance and on each re-measurement date is classified as a liability and is estimated using the Black-Scholes-Merton valuation model. Any modifications to the warrant liabilities are recorded in earnings during the period of the modification. The significant assumptions used in estimating the fair value of our warrant liabilities include the exercise price, volatility of the stock underlying the warrant, risk-free interest rate, estimated fair value of the stock underlying the warrant, and the estimated life of the warrant.

The consummation of this offering will result in the conversion of all classes of our convertible preferred stock into common stock. Upon such conversion of the underlying classes of convertible preferred stock, pursuant to the terms of the preferred stock warrants, the remaining warrants to purchase our Series C, Series D, Series E and Series F convertible preferred stock will be classified as a component of equity and no longer be subject to re-measurement. However, the common stock warrant liability will continue to be required to be re-measured at each balance sheet date, until such time that the common stock warrants are exercised or expire.

Recently Issued Accounting Pronouncements

In February 2013, the FASB issued an update to improve the transparency of reporting reclassifications out of accumulated other comprehensive income. The amendments in the update did not change the current requirements for reporting net income or other comprehensive income in financial statements. The new amendments require an organization to present (either on the face of the statement where net income is presented or in the notes) the effects on the line items of net income of significant amounts reclassified out of accumulated other comprehensive income if the item reclassified is required under generally accepted accounting principles in the United States, or U.S. GAAP, to be reclassified to net income in its entirety in the same reporting period. Additionally, for other amounts that are not required under U.S. GAAP to be reclassified in their entirety to net income in the same reporting period, an entity is required to cross-reference other disclosures required under U.S. GAAP to provide additional detail about those amounts. The amendments are effective for reporting periods beginning after December 15, 2012. We do not expect that the adoption of this guidance will have a material impact on the consolidated financial statements.

Jumpstart Our Business Startups Act of 2012

On April 5, 2012, the Jumpstart Our Business Startups Act of 2012, or JOBS Act, was enacted. Section 107 of the JOBS Act, provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, for complying with new or revised accounting standards. In other words, an "emerging growth company" can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We are electing to delay such adoption of new or revised accounting standards, and as a result, we may not comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. As a result of this election, our financial statements may not be comparable to the financial statements of other public companies. We may take advantage of these reporting exemptions until we are no longer an "emerging growth company.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements provided by the JOBS Act. Subject to certain conditions set forth in the JOBS Act, as an "emerging growth company," we intend to rely on certain of these exemptions, including without limitation, (1) providing an auditor's attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and (2) complying with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the consolidated financial statements, known as the auditor discussion and analysis. We may be able to remain an "emerging growth company" until the earliest of (a) the last day of the fiscal year in which we have total annual gross revenues of $1 billion or more, (b) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering, (c) the date on which we have issued more than $1 billion in non-convertible debt during the previous three years or (d) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk in the ordinary course of our business. We do not hold or issue financial instruments for trading purposes. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market exposure is primarily a result of fluctuations in interest rates, however, we do not believe there is material exposure to interest rate risk. We also do not believe we are exposed to material risk resulting from fluctuations in foreign currency exchange rates due to the level of our international sales.

Controls and Procedures

Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with U.S. GAAP. We are currently in the process of reviewing, documenting and testing our internal control over financial reporting. We have not performed an evaluation of our internal control over financial reporting, such as required by Section 404 of the Sarbanes-Oxley Act, nor have we engaged an independent registered public accounting firm to perform an audit of our internal control over financial reporting as of any balance sheet date or for any period reported in our financial statements. Presently, we are not an accelerated filer, as such term is defined by Rule 12b-2 of the Securities Exchange Act of 1934, as amended, and therefore, our management is not presently required to perform an annual assessment of the effectiveness of our internal control over financial reporting. This requirement will first apply to our Annual Report on Form 10-K for the year ending December 31, 2014. Our independent public registered accounting firm will first be required to attest to the effectiveness of our internal control over financial reporting for our Annual Report on Form 10-K for the first year we are no longer an "emerging growth company" under the JOBS Act. However, in connection with our audit for the year ended December 31, 2012 and the review of our interim financial statements, our independent registered public accounting firm noted four material weaknesses and one significant deficiency in our internal control over financial reporting. See "Risk Factors—Our internal control over financial reporting does not currently meet the standards required by Section 404 in the Sarbanes-Oxley Act, and failure to achieve and maintain effective internal control over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act could result in material misstatements of our annual or interim financial statements and have a material adverse effect on our business and share price," for a discussion of these matters.

BUSINESS

Overview

We are a commercial biomaterial company focused on using our silicon nitride technology platform to develop, manufacture and sell a broad range of medical devices. We currently market spinal fusion products and are developing products for use in total hip and knee joint replacements. We believe our silicon nitride, an advanced ceramic, technology platform enables us to offer new and transformative products in the orthopedic and other medical device markets. We believe we are the first and only company to use silicon nitride in medical applications and over 14,000 of our silicon nitride spine products have been implanted in patients.

Biomaterials are synthetic or natural materials available in a variety of forms that are used in virtually every medical specialty. We believe our silicon nitride biomaterial has superior characteristics compared to commonly used biomaterials in the markets we are targeting, including polyetheretherketone, or PEEK, which is the most common biomaterial used for interbody spinal fusion products. Specifically, we believe our silicon nitride has the following key attributes: promotion of bone growth; hardness, strength and resistance to fracture; resistance to wear; non-corrosive; anti-infective properties; and superior diagnostic imaging compatibility.

We produce our silicon nitride advanced ceramic in four forms: (1) a fully dense, load-bearing solid, referred to as *MC^2*; (2) a porous bone-like cancellous structured form, referred to as *C^sC*; (3) a composite incorporating both our solid *MC^2* material and our porous *C^sC* material intended to promote an ideal environment for bone growth; and (4) a coating for application onto other biomaterials. This capability provides us with the ability to utilize our silicon nitride in distinct ways depending on its intended application, which, together with our silicon nitride's key characteristics, distinguishes us from manufacturers of other biomaterials and our products from products using other biomaterials.

According to iData Research, Inc., or iData, in 2012, the markets for spinal implants in the United States and in combined major European markets were $5.2 billion and $1.0 billion, respectively. Interbody spinal fusions accounted for over $1.2 billion and $172.2 million of these markets, respectively. Additionally, Orthopedic Network News reported that the U.S. markets for the components of total hip and knee replacement product candidates that we are initially developing were $455.0 million and $1.5 billion, respectively.

We currently market our *Valeo MC^2* silicon nitride interbody spinal fusion devices in the United States and Europe for use in the cervical and thoracolumbar areas of the spine. We believe our *Valeo* devices have a number of advantages over existing products due to silicon nitride's key characteristics, resulting in faster and more effective fusion and reduced risk of infection. Our first generation *Valeo* silicon nitride device received 510(k) regulatory clearance and a CE Mark in 2008. Based on surgeon feedback, we developed a second generation of *Valeo* products with design enhancements that improve surgeon control during implantation and stability post procedure. Earlier this year, we initiated a targeted launch of our second generation *Valeo* interbody fusion devices and expect to complete the full launch in the first half of 2014. We also market our *Valeo* composite interbody spinal fusion device made from both our solid *MC^2* and porous *C^sC* silicon nitride in the Netherlands, Spain and Germany. This device may reduce or eliminate the need for allograft bone, which is taken from human cadavers, and other biomaterials to act as a scaffold to support bone growth as part of the surgical procedure. We are currently conducting a prospective clinical trial in Europe, named CASCADE, comparing our *Valeo* composite silicon nitride interbody devices to PEEK interbody devices to obtain additional data to support 510(k) clearance of this product in the United States. The trial is 100% enrolled. We expect results to be available in the second half of 2014. If this trial is successful, we plan to file a 510(k) submission with the U.S. Food and Drug Administration, or FDA, by mid-2015. In addition, in the first half of 2013, we initiated a Design and Build Program focused on collaborating with influential surgeons to develop customized silicon nitride spinal fusion products and instruments and the first products designed under this program were sold in the third quarter of 2013. To date, the rate of adverse events reported to the FDA for our implanted *Valeo* interbody spinal fusion devices is 0.1%.

In addition to our silicon nitride-based spinal fusion products, we market a complementary line of non-silicon nitride spinal fusion products which allows us to provide surgeons and hospitals with a broader range of products.

These products include three lines of spinal fusion devices and five types of orthobiologics, which are used by surgeons to help promote bone growth and fusion in spinal fusion procedures. Although our non-silicon nitride products have accounted for approximately 70% or more of our product revenues for the years ended December 31, 2012 and 2011 and the nine months ended September 30, 2013, we believe the continued promotion and potential for adoption of our silicon nitride products and product candidates, if approved, provides us the greatest opportunity to grow our business in new and existing markets and achieve our goal to become a leading biomaterial company.

We are also incorporating our silicon nitride technology into components for use in total hip and knee replacement product candidates that we are, or plan on, developing in collaboration with a strategic partner. If approved by the FDA, we believe that our silicon nitride total hip and knee product candidates will provide competitive advantages over current products made with traditional biomaterials. We also believe our silicon nitride technology platform can be used for developing products in other markets and have developed prototypes for use in the dental, sports medicine and trauma markets. In addition, as a result of some of the key characteristics of our silicon nitride, including the promotion of bone growth, resistance to wear, non-corrosiveness and anti-infective properties, we believe our silicon nitride coating may be used to enhance our metal products as well as commercially available metal spinal fusion, joint replacement and other medical products.

We have recently put in place a senior management team with over 150 years of collective experience in the healthcare industry. Members of our management team have experience in product development, launching new products into the orthopedics market and selling to hospitals through direct sales organizations, distributors, manufacturers and other companies in the orthopedic space. We operate a 30,000 square foot manufacturing facility located at our corporate headquarters in Salt Lake City, Utah, and we are the only vertically integrated silicon nitride orthopedic medical device manufacturer in the world. We market and sell our products to surgeons and hospitals in the United States and select markets in Europe and South America through our established network of more than 50 independent sales distributors who are managed by our in-house sales and marketing management team.

Biomaterials

Biomaterials are synthetic or natural biocompatible materials that are used in virtually every medical specialty to improve or preserve body functionality. Various types of biomaterials are used as essential components in medical devices, drug delivery systems, replacement and tissue repair technologies, prostheses and diagnostic technologies.

There are four general categories of biomaterials:

- *Metals.* Metals commonly used as biomaterials include titanium, stainless steel, cobalt, chrome, gold, silver and platinum, and alloys of these metals. Examples of medical uses of metals include the repair or stabilization of fractured bones, stents, surgical instruments, bone and joint replacements, spinal fusion devices, dental implants and restorations and heart valves. According to MarketsandMarkets, a global market research firm, metals represented approximately 31% of the worldwide sales of all biomaterials in 2012.
- *Polymers*. Polymers are synthetic compounds consisting of similar molecules linked together that can be created to have specific properties. Polymers commonly used as biomaterials include nylon, silicon rubber, polyester, polyethylene, cross-linked polyethylene (a stronger version), polymethylmethacrylate, polyvinyl chloride and polyetheretherketone, which is commonly referred to as PEEK. Examples of medical uses of polymers include soft-tissue replacement, sutures, drug delivery systems, joint replacements, spinal fusion devices and dental restorations. Polymers represented approximately 29% of the worldwide sales of all biomaterials in 2012.
- *Ceramics*. Ceramics are hard, non-metallic, non-corrosive, heat-resistant materials made by shaping and then applying high temperatures. Traditional ceramics commonly used as biomaterials include carbon, oxides of aluminum, zirconium and titanium, calcium phosphate and zirconia-toughened alumina. Examples of medical uses of ceramics include repair, augmentation or stabilization of fractured bones, bone and joint

replacements, spinal fusion devices, dental implants and restorations, heart valves and surgical instruments. Ceramics represented approximately 26% of the worldwide sales of all biomaterials in 2012.

- *Natural biomaterials*. Natural biomaterials are derived from human donors, animal or plant sources and include human bone, collagen, gelatin, cellulose, chitin, alginate and hyaluronic acid. Examples of medical uses of natural biomaterials include the addition or substitution of hard and soft tissue, cornea protectors, vascular grafts, repair and replacement of tendons and ligaments, bone and joint replacements, spinal fusion devices, dental restorations and heart valves. Natural biomaterials represented approximately 14% of the worldwide sales of all biomaterials in 2012.

According to MarketsandMarkets, orthopedics accounted for approximately $15.0 billion, or 34%, of the $44.0 billion total biomaterials market in 2012. Within orthopedics, biomaterials are extensively used in spinal fusion procedures, hip and knee replacements and the repair or stabilization of fractured bones.

Market Opportunity

Overview

We believe our silicon nitride technology platform provides us with numerous competitive advantages in the orthopedic biomaterials market. We market interbody spinal fusion devices and related products and are developing products for use as components in total hip and knee joint replacements. We believe we can also utilize our silicon nitride technology platform to develop future products in additional markets, such as the dental, sports medicine and trauma markets.

According to iData, in 2012, the markets for spinal implants in the United States and in combined major European markets were $5.3 billion and $1.0 billion, respectively. Interbody spinal fusion products accounted for over $1.2 billion and $172.2 million of these markets, respectively. In 2012, there were approximately 300,000 interbody spinal fusion procedures conducted in the United States, of which the significant majority utilized interbody devices comprised of PEEK and bone, with occasional use of metals and other materials including ceramics. The market for interbody spinal fusion devices has shifted over time as new biomaterials with superior characteristics have been incorporated into these devices and have launched into the market. For example, in the 1990s, metals quickly penetrated the interbody spinal fusion market because of the limitations of devices available at that time made from allograft bone and, more recently, products made of PEEK rapidly penetrated the market because of the limitations of devices available at that time made from metal or allograft bone. Similarly, we believe our silicon nitride interbody spinal fusion products address the key limitations of other biomaterials currently used in interbody spinal fusion devices and demonstrate superior characteristics needed to improve clinical outcomes.

Additionally, Orthopedic Network News reported that the U.S. markets for total hip and knee replacements in 2012 were $2.7 billion and $4.0 billion, respectively. According to Orthopedic Network News, in 2012, there were more than 470,000 total hip replacement procedures and 734,000 total knee replacement procedures conducted in the United States. Orthopedic Network News also reported that in 2012, the U.S. markets for the components of total hip and knee replacement product candidates that we are initially developing were $455.0 million and $1.5 billion, respectively. The combinations of biomaterials most commonly used in joint replacement implants are metal-on-cross-linked polyethylene and traditional ceramic-on-cross-linked polyethylene.

We believe that the main drivers for the growth of the orthopedic biomaterials market, and, in particular, the spinal fusion and joint replacement markets, are the following:

- *Favorable and Changing Demographics*. With the growing number of elderly people, age-related ailments are expected to rise sharply, which we believe will increase the demand and need for biomaterials and devices with improved performance capabilities. Also, middle-aged and older patients increasingly expect to enjoy active lifestyles, and consequently demand effective treatments for painful spine and joint conditions, including better performing and longer-lasting interbody spinal fusion devices and joint replacements.
- *Introduction of New Technologies*. Better performing and longer-lasting biomaterials, improved diagnostics, and advances in surgical procedures allow for surgical intervention earlier in the continuum of care and

better outcomes for patients. We believe surgical options using better performing and longer-lasting biomaterials will gain acceptance among surgeons and younger patients and drive accelerated growth and increase the size of the spinal fusion and joint replacement markets.

- *Market Expansion into New Geographic Areas*. MarketsandMarkets anticipates that demand for biomaterials and the associated medical devices will increase as the applications in which biomaterials are used are introduced to and become more widely accepted in underserved countries, such as China.

The Interbody Spinal Fusion Market

The human spinal canal is made up of 33 interlocking bones, referred to as vertebrae, separated by 23 intervertebral discs comprised of a hard outer ring made of collagen with a soft inner core, that act as shock absorbers between vertebrae. Disorders of the spine can result from degenerative conditions, deformities and trauma or tumor-related damage. Spinal fusion is the standard of care used to treat most spinal disorders and typically involves the placement of an interbody device between vertebrae to reestablish spacing between vertebrae and alignment of the spine. Generally, the interbody device is stabilized by screws and, in some procedures, plates or rods. To enhance bone attachment, surgeons often pack the interbody device with a biomaterial that induces bone growth. Following successful treatment, new bone tissue grows in and around the interbody device over time, which helps fuse the vertebrae and create long-term stability of the interbody device, leading to the alleviation of pain and increase in mobility.

We selected this market as the first application for our silicon nitride technology because of its size, the limitations of currently available products and the key characteristics silicon nitride possesses which are critical for a superior interbody spinal fusion device.

- *Promotion of Bone Growth*. The biomaterial should be both osteoconductive and create an osteoinductive environment to promote bone growth in and around the interbody device to further support fusion and stability. Osteoconduction occurs when material serves as a scaffold to support the growth of new bone in and around the material. Osteoinduction involves the stimulation of osteoprogenitor cells to develop, or differentiate, into osteoblasts, which are cells that are needed for bone growth.
- *Strength and Resistance to Fracture*. The biomaterial should be strong and resistant to fracture during implantation of the device and to successfully restore intervertebral disc space and spinal alignment during the fusion process. The biomaterial should have high flexural strength, which is the ability to resist breakage during bending, and high compressive strength, which is the ability to resist compression under pressure, to withstand the static and dynamic forces exerted on the spine during daily activities over the long term.
- *Anti-Infective*. Spinal fusion devices can become colonized with bacteria, which may limit fusion to adjacent vertebrae or cause serious infection. Treating device-related infection is costly and generally requires repeat surgery, including surgery to replace the device, referred to as revision surgery, which may extend hospital stays, suffering and disability for patients. A biomaterial that has anti-infective properties can reduce the incidence of bacteria colonization in and around the interbody device that can lead to infection, revision surgery and associated increased costs. Publicly available articles report infection rates following implantation of traditional spinal fusion devices ranging from 3% to 18%.
- *Imaging Compatibility*. The biomaterial should be visible through, and not inhibit the effective use of, common surgical and diagnostic imaging techniques, such as x-ray, CT and MRI. These imaging techniques are used by surgeons during and after spinal fusion procedures to assist in the proper placement of interbody devices and to assess the quality of post-operative bone fusion.

Limitations of Biomaterials used in Interbody Spinal Fusion Devices

The three biomaterials most commonly used in interbody spinal fusion devices are PEEK, human cadaver bone, also referred to as allograft bone, and metals. We believe these materials do not possess the key characteristics required to form the optimal interbody spinal fusion device and are susceptible to potential fracture, implant-related infection, pain, limited fusion and instability, which have resulted in revision surgeries.

PEEK (polyetheretherketone)

PEEK is the most frequently used biomaterial for interbody spinal fusion devices and accounted for almost half of the devices implanted in the United States in 2012. We believe that the rate of revision surgery for PEEK interbody spinal fusion devices is approximately 6%. We believe this is caused by the following limitations of PEEK:

- *Restricts Bone Growth*. Due to PEEK's hydrophobic nature, the human body may recognize PEEK as a foreign substance and, therefore, may encapsulate the device with fibrous tissue. Although it is still possible for bone to grow through the device, bone may not adhere to the surface of the device if this tissue develops.
- *Lacks Strength and Resistance to Fracture*. PEEK lacks sufficient flexural strength, compressive strength and resistance to fracture necessary to reduce the risk of deformity or fracture during the fusion process. In addition, PEEK devices may fracture during implantation in certain interbody spinal fusion procedures. For example, in December 2012, Zimmer Spine recalled its PEEK Ardis® Interbody System Inserter, a surgical instrument used to implant a PEEK interbody spinal fusion device, because it resulted in the PEEK implants being susceptible to breakage when too much lateral force was applied to the inserter during implantation.
- *Lacks Anti-Infective Properties*. PEEK does not have any inherent anti-infective properties. In fact, a biofilm may form around a PEEK device that allows the colonization of bacteria, which can lead to infection.
- *Lacks Imaging Compatibility*. PEEK is invisible on x-rays. As a result, manufacturers of PEEK devices add metal markers to their devices so surgeons can see the location of the devices by x-ray. These markers, however, do not show the full outline of the device, which makes it difficult to assess the accuracy of the placement of the device. In addition, the metal markers cause artifacts on CT and MRI that can compromise the quality of the image.

Allograft Bone

Allograft bone is the second most frequently used biomaterial in interbody spinal fusion devices and accounted for over 40% of the devices implanted in the United States in 2012. Allograft bone has the following limitations:

- *Limited Promotion of Bone Growth*. Allograft bone has limited osteoinductive characteristics and therefore may not effectively promote bone growth in and around the interbody device.
- *Lacks Strength and Resistance to Fracture*. Generally, allograft bone is not as strong as live bone within the body or other materials used in interbody devices. In addition, techniques used to sterilize allograft bone, like gamma irradiation, can cause the allograft to become brittle and more likely to fracture.
- *Lacks Anti-Infective Properties and Risk of Disease Transmission.* In addition to not having inherent anti-infective properties, allograft bone exposes patients to a greater risk of disease transmission and auto-immune response.

In addition, allograft bone is subject to inconsistent quality and size, which may require surgeons to make compromises on the fit of the device during surgery.

Metals

We believe metal interbody devices accounted for less than 10% of the devices implanted in the United States in 2012. Metals have the following limitations:

- *Limited Promotion of Bone Growth*. Metals have limited osteoinductive characteristics and therefore do not effectively promote bone growth in and around the interbody device.
- *Lack Anti-Infective Properties*. Metals do not have inherent anti-infective properties and do not suppress the colonization of bacteria in and around the device which can lead to infection.
- *Lack Imaging Compatibility.* Metals are opaque in x-rays and can cause significant imaging artifacts in CTs and MRIs. This can make it difficult for surgeons to detect the extent and quality of bone growth in and around the device in post-operative diagnostic imaging procedures.

The Hip and Knee Joint Replacement Market

Total joint replacement involves removing the diseased or damaged joint and replacing it with an artificial implant consisting of components made from several different types of biomaterials. The key components of a total hip implant include an artificial femoral head, consisting of a ball mounted on an artificial stem attached to the femur, and a liner, which is placed inside a cup affixed into the pelvic bone. The femoral head and liner move against each other to replicate natural motion in what is known as an articulating implant. Total knee replacement implants also use articulating components and are comprised of the following four main components: a femoral condyle, which is a specially shaped bearing that is affixed to the lower end of the femur; a tibial tray that is affixed to the upper end of the tibia; a tibial insert that is rigidly fixed to the tibial tray and serves as the surface against which the femoral condyle articulates; and a patella, or knee cap, which also articulates against the femoral condyle.

Implants for total hip and knee replacements are primarily differentiated by the biomaterials used in the components that articulate against one another. The combinations of biomaterials most commonly used in hip and knee replacement implants in the United States are metal-on-cross-linked polyethylene and traditional ceramic-on-cross-linked polyethylene. The use of hip replacement implants incorporating metal-on-metal and traditional ceramic-on-traditional ceramic biomaterials experienced a steep decline in the United States over the last several years due to their significant limitations. We believe that the most common currently used biomaterials in joint replacement implants also have limitations, and do not possess all of the following key characteristics required for optimal total joint replacement implants:

- *Resistance to Wear*. The biomaterials should have sufficient hardness and toughness, as well as extremely smooth surfaces, to effectively resist wear. Because the articulating implants move against each other, they are subject to friction, which frequently lead to abrasive wear and the release of small wear particles. This may cause an inflammatory response which results in osteolysis, or bone loss. Surgeons have identified osteolysis as a leading cause of joint implant failure, resulting in the need for revision surgery to replace the failed implant. One of the most commonly used combinations of biomaterials, metal-on-cross-linked polyethylene, as well as metal-on-metal implants tend to generate a large number of metal wear particles, which can cause osteolysis and a moderate to severe allergic reaction to the metal, referred to as metal sensitivity. While less common, metal implants may also cause a serious condition called metallosis. Both metal sensitivity and metallosis can result in revision surgery.
- *Non-Corrosive*. The biomaterials should be non-corrosive and should not cause adverse patient reactions. Metal placed in the human body corrodes over time and also results in the formation of metal ions, which leads to metal sensitivity in approximately 10% to 15% of the population and, less commonly, metallosis. As a result, there are significant increased risks from using metal-on-cross-linked polyethylene and metal-on-metal implants.
- *Hardness, Strength and Resistance to Fracture*. The biomaterials should be hard, strong and resistant to fracture to adequately bear the significant loads placed on joints like the hip and knee during daily activities. We believe there are strength limitations associated with traditional ceramic-on-cross-linked polyethylene and traditional ceramic-on-traditional ceramic implants.
- *Anti-Infective*. The biomaterials should have anti-infective properties to reduce the risk of bacteria colonization in and around the components that can lead to infection, revision surgeries and associated increased costs. Anti-infective properties reduce the risk of bacteria colonization in and around the components and reduce the likelihood of infection, revision surgeries and associated increased costs. None of the most commonly used biomaterials in joint replacement implants have anti-infective properties.

Our Silicon Nitride Technology Platform

We believe we are the first and only company to use silicon nitride in medical applications. Silicon nitride is a chemical compound comprised of the elements silicon and nitrogen, with the chemical formula Si_3N_4. Silicon nitride, an advanced ceramic, is lightweight, resistant to fracture and strong, and is used in many demanding mechanical, thermal and wear applications, such as in space shuttle bearings, jet engine components and body armor.

We believe our silicon nitride is ideally suited for use in many medical applications and has the following characteristics that make it superior to other biomaterials, including PEEK, bone, metal and traditional ceramics, which do not possess all of these characteristics:

- *Promotes Bone Growth*. Our silicon nitride is osteoconductive through its inherent surface topography that provides support for new bone growth. We also believe our silicon nitride promotes an ideal environment for osteoinduction. As a hydrophilic material, silicon nitride attracts protein cells and nutrients that stimulate osteoprogenitor cells to differentiate into osteoblasts, which are needed for bone growth. Our silicon nitride also has an inherent surface chemistry that is more similar to bone than PEEK and metals are. As a result, we believe our silicon nitride has superior osteoconductive and osteoinductive properties when compared to other biomaterials, including those commonly used in interbody spinal fusion devices, such as PEEK, allograft bone and metal. These properties are highlighted in an *in vivo* study, where we measured the force required to separate devices from the spine after being implanted for three months, which indicates the level of osteointegration. In the absence of bacteria, the force required to separate our silicon nitride from its surrounding bone was approximately three times that of PEEK, and nearly two times that of titanium. In the presence of bacteria, the force required to separate our silicon nitride from its surrounding bone was over five times that of titanium, while there was effectively no separation force required for PEEK, indicating essentially no osteointegration.
- *Hard, Strong and Resistant to Fracture.* Our silicon nitride is hard, strong and possesses superior resistance to fracture over traditional ceramics and greater strength than polymers currently on the market. For example, our silicon nitride's flexural strength is more than five times that of PEEK and our silicon nitride's compressive strength is over twenty times that of PEEK. Unlike PEEK interbody spinal fusion devices, we believe our silicon nitride inbody spinal fusion devices can withstand the forces exerted during implantation and daily activities over the long term.
- *Anti-Infective.* We have demonstrated in *in vitro* and *in vivo* studies that silicon nitride has inherent anti-infective properties, which reduce the risk of infection in and around a silicon nitride device. PEEK, traditional ceramics, metals and bone do not have inherent anti-infective characteristics. These properties were highlighted in an *in vitro* study, where live bacteria counts were between 8 and 30 times lower on our silicon nitride than PEEK and up to 8 times lower on our silicon nitride than titanium. In addition to improving patient outcomes, we believe the anti-infective properties of our silicon nitride should make it an attractive biomaterial to hospitals and surgeons who are not reimbursed by third-party payors for the treatment of hospital-acquired infections. Additionally, silicon nitride is synthetic and, therefore, there is a lower risk of disease transmission through cross-contamination or of an adverse auto-immune response, sometimes associated with the use of allograft bone.
- *Imaging Compatible.* Our silicon nitride interbody spinal fusion devices are semi-radiolucent and clearly visible in x-rays, and produce no distortion under MRI and no scattering under CT. These characteristics enable an exact view of the device for precise intra-operative placement and post-operative bone fusion assessment in spinal fusion procedures. We believe these qualities provide surgeons with greater certainty of outcomes with our silicon nitride devices than with other biomaterials, such as PEEK and metals.
- *Resistant to Wear*. We believe our silicon nitride joint implant product candidates will have comparable or higher resistance to wear than metal-on-cross-linked polyethylene and traditional ceramic-on-cross-linked polyethylene joint implants, the two most commonly used total hip replacement implants. Also, debris associated with metal implants increases the risk of metal sensitivity and metallosis. Wear debris is a primary reason for early failures of metal and polymer articulating joint components.
- *Non-Corrosive*. Our silicon nitride does not have the drawbacks associated with the corrosive nature of metal within the body, including metal sensitivity and metallosis, nor does it result in the release of metal ions into the body. As a result, we believe our silicon nitride products will have lower revision rates and fewer complications than comparable metal products.

Our Forms of Silicon Nitride

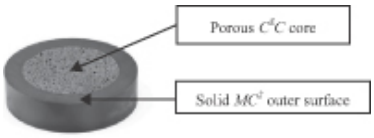
The chemical composition of our in-house formulation of silicon nitride, processing and manufacturing experience allow us to produce silicon nitride in four distinct forms. This capability provides us with the ability to utilize our silicon nitride in a variety ways depending on its intended application, which, together with our silicon nitride's key characteristics, distinguishes us from manufacturers of products using other biomaterials.

We currently produce silicon nitride for use in our commercial products and product candidates in the following forms:

- *Solid Silicon Nitride, or MC^2*. This form of silicon nitride is a fully dense, load-bearing solid, and is used for devices that require high strength, toughness, fracture resistance and low wear, including for interbody spinal fusion devices, hip and knee replacement implants and dental implants.

- *Porous Silicon Nitride, or C^sC*. While this form of silicon nitride has a chemical composition that is identical to that of MC^2, the C^sC form of silicon nitride has a porous structure, which is engineered to mimic cancellous bone, the spongy like bone tissue that typically makes up the interior of human bones. Our porous silicon nitride has interconnected pores ranging in size between about 90 and 600 microns, which is similar to that of cancellous bone. This form of silicon nitride can be used for the promotion of bone in-growth and attachment. Our porous silicon nitride is used as a substitute for the orthobiologics currently used to fill interbody devices in an effort to stimulate fusion and as a bone void filler, and as a porous scaffold for medical devices.

- *Composite Silicon Nitride.* This form of silicon nitride is a combination, or composite, of MC^2 and C^sC forms of silicon nitride. This composite may be used to manufacture devices and implants that mimic the structure of natural bone by incorporating both a fully dense, load-bearing solid MC^2 component on the outside and a porous C^sC component intended to promote bone in-growth on the inside. This composite form of silicon nitride is used in interbody spinal fusion devices and can be used in components for total hip and knee replacement implants.



- *Silicon Nitride Coating*. With a similar chemical composition as our other forms of silicon nitride, this form of silicon nitride can be applied as an adherent coating to metallic substrates, including cobalt-chromium, titanium and steel alloys. We believe applying silicon nitride as a coating may provide a highly wear-resistant articulation surface, such as on femoral heads, which may reduce problems associated with metal or polymer wear debris. We also believe that the silicon nitride coating can be applied to devices that require firm fixation and functional connections between the device or implant and the surrounding tissue, such as hip stems and screws. The use of silicon nitride coating may also create an anti-infective barrier between the device and the adjacent bone or tissue.

Our Competitive Strengths

We believe we can use our silicon nitride technology platform to become a leading biomaterial company and have the following principal strengths:

- *Sole Provider of Silicon Nitride Medical Devices*. We believe we are the only company that designs, develops, manufactures and sells medical grade silicon nitride-based products. Due to its key characteristics, we believe our silicon nitride enables us to offer new and transformative products across multiple medical specialties. In addition, with the FDA clearance of our silicon nitride *Valeo* products, we are one of only three companies that have developed and manufacture a ceramic for use in FDA cleared orthopedic medical devices in the United States.
- *In-House Manufacturing Capabilities.* We operate a 30,000 square foot manufacturing facility located at our corporate headquarters in Salt Lake City, Utah. This operation complies with the FDA's quality system regulation, or QSR, and is certified under the International Organization for Standardization's, or ISO, standard 13485 for medical devices. This state-of-the-art facility allows us to rapidly design and produce silicon nitride products and control the entire manufacturing process from raw material to finished goods. We have also entered into a cooperative research and development agreement with Kyocera Industrial Ceramics Corporation, or Kyocera, under which we will work with Kyocera to determine its ability to become a second qualified manufacturer of our silicon nitride-based spinal fusion products and product candidates.
- *Established Commercial Infrastructure.* We market and sell our products to surgeons and hospitals in the United States, and select markets in Europe and South America through our established network of more than 50 independent sales distributors who are managed by our experienced in-house sales and marketing management team. As a result, our product revenue is driven by end-user prices, unlike other biomaterial companies that sell their products at lower prices to OEMs who then sell their products to the end user. Our control over the sales and marketing processes also allows us greater flexibility to selectively collaborate with distributors when we believe their experience or geographic reach can be beneficial to us.
- *Portfolio of Non-Silicon Nitride Products.* In addition to designing, developing, manufacturing and commercializing silicon nitride interbody spinal fusion devices, we sell a complementary line of non-silicon nitride spinal fusion products. We offer a full suite of spinal fusion products, which increases our access to surgeons and hospitals, and allows us to more effectively market our silicon nitride spinal fusion products to our customers. Product revenue from the sale of these non-silicon nitride products also supports further development of our silicon nitride products and product candidates.
- *Highly Experienced Management and Surgeon Advisory Team* . We have recently assembled a senior management team with over 150 years of collective experience in the healthcare industry. Members of our management team have experience in product development, launching new products into the orthopedics

market and selling to hospitals through direct sales organizations, distributors, manufacturers and other orthopedic companies. We also collaborate with a network of leading surgeon advisors in the design and use of our products and product candidates.

Our Strategy

Our goal is to become a leading biomaterial company focused on using our silicon nitride technology platform to develop, manufacture and commercialize a broad range of medical devices. Key elements of our strategy to achieve this goal are the following:

- *Drive Further Adoption of our Silicon Nitride Interbody Spinal Fusion Devices*. We believe that increasing the awareness of our silicon nitride technology by educating surgeons about its key benefits, and design improvements to our silicon nitride products and related instruments, will accelerate the adoption of our products and ultimately help improve patient outcomes. We continue to innovate with further design enhancements in the introduction of our second-generation interbody spinal fusion devices. We are currently selling this new line to select surgeons and expect to complete the full launch of the line in the United States in the first half of 2014. To drive further awareness of our products and the associated benefits offered by our silicon nitride technologies, we will continue to educate surgeons through multiple channels including industry conferences and meetings, media outlets and through our sales and marketing efforts. We also plan to facilitate the publication of data from bench testing and clinical outcome case studies.
- *Continue to Implement our Design and Build Program*. In the first half of 2013, we initiated a commercialization strategy, referred to as our Design and Build Program, in which we collaborate with influential surgeons to develop customized silicon nitride spinal fusion products and instruments. We first sell these products for use by the designing surgeons and a team of evaluating surgeons for their review based on their individual preferences focused on ease of use of the product and instrumentation and patient outcomes as compared to the previous products and instruments used by the surgeon. After the enhanced products are sold and evaluated and, if accepted by these surgeons, we plan to introduce these products more broadly into the market. The first products designed under this program were sold for initial evaluation in 2013.
- *Enhance our Commercial Infrastructure*. We expect to increase the productivity of our sales and marketing infrastructure to help us further penetrate the interbody spinal fusion market by continuing to engage experienced independent sales distributors with strong orthopedic surgeon relationships. For example, in October 2013, we entered into a new European sales agent agreement with K2M, Inc., one of the largest privately held spinal device companies in the world. We also periodically conduct programs to ensure that our distributors are knowledgeable about how the characteristics of our silicon nitride devices meet the demands of a range of spinal fusion procedures, and we regularly update our distributors about studies, test results, reviews and other developments that demonstrate the competitive advantages of our silicon nitride devices. We may also establish distribution collaborations in the United States and abroad when access to large or well-established sales and marketing organizations may help us gain access to new markets, increase sales in our existing markets, or accelerate market penetration for selected products.
- *Develop Silicon Nitride for Total Joint Components*. We are incorporating our silicon nitride technology into silicon nitride-coated components for use in total hip and knee replacement product candidates that we plan on developing in collaboration with a strategic partner. We also have designs for solid silicon nitride components and we will make a decision in the future about whether to pursue the development of these components. In December 2013, we participated in a pre-submission meeting with the FDA to finalize the regulatory strategy for a 510(k) clearance of our silicon nitride-coated total joint components in the United States. The FDA reviewers confirmed that the regulatory pathway would be a standard 510(k) clearance with supporting biomechanical testing. In response, we intend to develop silicon nitride-coated metal joint replacement components and then, together with a strategic partner, initiate biomechanical testing with our silicon nitride-coated metal components for use in total hip and knee replacement procedures to support a 510(k) submission to the FDA. We intend to pursue clearance of a total hip replacement product first, and if clearance is obtained, we intend to commercially launch products for use in total hip replacement by the second half of 2015.

- *Apply our Silicon Nitride Technology Platform to Other Opportunities.* Our silicon nitride technology platform is adaptable and we believe it may be used to develop products to address other significant opportunities, such as in the dental, sports medicine and trauma markets. We have manufactured prototypes of dental implants, sports medicine and trauma products, and we have developed a process to coat metals with our silicon nitride to enhance current medical devices and instruments. We plan to collaborate with other companies to develop and commercialize any future products in those areas or we may develop any one of them by ourselves if sufficient resources should become available.

Our Products and Product Candidates

We currently market a family of silicon nitride interbody spinal fusion devices and other non-silicon nitride spinal fusion products for use in cervical and lumbar spinal fusion surgical procedures to treat patients who suffer from degenerative, diseased and traumatic spine conditions. We are also developing multiple silicon nitride components for use in our total hip and knee replacement product candidates.

Spinal Fusion Products and Product Candidates

Our Valeo Silicon Nitride Products and Product Candidates

Our first generation *Valeo* silicon nitride spinal fusion device received 510(k) regulatory clearance and a CE mark in 2008. Based on surgeon feedback, we developed a second generation of *Valeo* products. In 2012, we received 510(k) clearance to market this second generation family of *Valeo* interbody spinal fusion devices, and we launched them with a select number of surgeons in 2013. Our second generation *Valeo* interbody spinal fusion devices offer distinct improvements over the first generation. The instrumentation of the second generation devices allow for better control of the device during implantation. The device allows for improved stability and potentially improved fusion after implantation and is offered in a broader selection of sizes. We expect to complete the full launch of our second generation *Valeo* interbody spinal fusion devices in the United States in the first half of 2014.

Our current products are:

***Valeo* Interbody Fusion Devices**	**Generation**
AL: Anterior Lumbar	1st and 2nd
PL: Posterior Lumbar	1st and 2nd
OL: Oblique Lumbar	1st and 2nd
C: Cervical	1st
TL: Transformal Lumbar	1st
CORP: Corpectomy	1st

We are also in the process of finishing the development of a *Valeo* stand-alone anterior lumbar intervertebral fusion device made from our *MC²* silicon nitride. The *Valeo* stand-alone product candidate, which incorporates fixation screws, will allow surgeons to perform less invasive procedures. We believe this may result in better patient outcomes compared to other spinal fusion procedures. We anticipate seeking 510(k) clearance for this product candidate in the first half of 2014, and, if cleared by the FDA, we anticipate launching our *Valeo* stand-alone product candidate in the United States in the second half of 2014.

In 2009, we received a CE Mark to commercialize our *Valeo* interbody spinal fusion devices made from our composite silicon nitride. The porous C^SC center structure of these devices is designed to facilitate bone growth into the device, which we believe will allow surgeons to reduce or eliminate the use of allograft bone and other osteoconductive biomaterials. We are currently marketing these devices in the Netherlands, Spain and Germany. Additionally, we are conducting a prospective clinical trial in Europe, named CASCADE, comparing our *Valeo* composite silicon nitride interbody devices to PEEK interbody devices to obtain additional safety and efficacy data to support the 510(k) clearance in the United States. The trial is 100% enrolled. We expect results to be available in the second half of 2014. If this trial is successful, we plan to file a 510(k) submission with the FDA by mid-2015.

***Valeo* Composite (*MC*^{2} + *C*^{2}*C*)**

Our Non-Silicon Nitride Spinal Fusion Products

We sell a line of complementary non-silicon nitride spinal fusion products to provide surgeons and hospitals with a broader range of products. Product revenue from the sale of our non-silicon nitride spinal fusion products further supports development of our silicon nitride products and product candidates. We plan to enhance our metal spinal fusion products with a silicon nitride coating. The following table lists our marketed non-silicon nitride spinal products.

CATEGORY	PRODUCT NAME	BIOMATERIAL
Facet Fixation System	Facet Gun Max/Facet Bolt	Metal
	Javelin: MIS Locking Facet System	
Lumbar Spine Fixation	Preference Classic Spine System	Metal
	Preference 2 Spine System	
	Preference 2 Complex Spine System	
Orthobiologics	Preference Element Bone Graft Substitute	Allograft
	BioDefense: Human Amnion Stem Cell Wound Covering Patch	
	BioDlogics: Human Amnion Stem Cell Liquid Wound Covering	
	Valeo BP: Synthetic Bone Putty	
	PROCET: Facet Fusion Allograft Implant	
Interbody Spinal Fusion Device	Phantom Plus PLIF/TLIF IBFD	PEEK
	Phantom Plus Cervical Spacer	

Our Total Hip and Knee Joint Replacement Product Candidates

Our Total Hip Implant Product Candidates

We have developed two designs of femoral heads for use in our total hip replacement product candidates. Our first design is a silicon nitride-coated metal femoral head, for total joint replacement, which we plan to develop with a medical device partner. The second design is a femoral head that is made from our solid *MC²* silicon nitride and we are collaborating with Orthopaedic Synergy, Inc. to develop a total hip replacement product candidate using this design. These femoral heads are expected to articulate against a cross-linked polyethylene liner, fixed into a metal acetabular cup. We intend to initially advance our process to develop silicon nitride-coated femoral heads and then, together with a strategic partner, initiate biomechanical testing with our silicon nitride-coated femoral head for use in total hip replacement procedures to support a 510(k) submission to the FDA. If clearance is obtained, we intend to commercially launch products for use in total hip replacement by the second half of 2015. Although we have designs for solid silicon nitride components, we have not yet determined if we will pursue the development of these components.

Our Total Knee Implant Product Candidates

We have developed two designs of femoral condyle components for use in our total knee replacement product candidates. The first design utilizes our silicon nitride coating and we plan to partner with a medical device company to incorporate this design into a total knee replacement product candidate. The second design is made from our solid *MC²* silicon nitride and we are collaborating with Orthopaedic Synergy Inc. to develop a total knee joint replacement for this design. The femoral condyle component will attach to the lower end of the femur. The femoral condyle is expected to articulate against a cross-linked polyethylene tibial insert that will attach to the tibial tray at the upper end of the tibia, which we expect will be made from metal. We have successfully made prototypes of both designs. We intend to develop silicon nitride-coated femoral condyle components and then, together with a strategic partner, initiate biomechanical testing with our components for use in knee replacement procedures to support a 510(k) submission to the FDA. If clearance is obtained we intend to commercialize our products for use in total knee replacement surgeries post-FDA clearance. Although we have designs for solid silicon nitride components, we have not yet determined if we will pursue the development of these components.

Other Product Opportunities

Our silicon nitride technology platform is adaptable and we believe it may be used to develop products to address other significant opportunities, such as in the dental, sports medicine and trauma markets.

We also believe our coating technology may be used to enhance our marketed metal products as well as other commercially available metal spinal fusion and joint replacement products. We have produced feasibility prototypes of dental implants, other components for use in total hip implants in addition to our total hip and knee implant product candidates discussed above, a suture anchor for sports medicine and prototypes of silicon nitride-coated plates for potential trauma applications. We have also developed a process to apply our silicon nitride as a coating on other biomaterials.

The FDA has not evaluated any of these potential products and we are not currently advancing the development of any of these product candidates. We plan to collaborate with medical device companies to complete the development of and commercialize any product candidates we advance in these areas or develop any one of them ourself if sufficient resources should become available. We do not intend to use the proceeds from this offering to develop any of these product candidates.

Supporting Data

We and a number of independent third parties have conducted extensive biocompatibility, biomechanical, *in vivo* and *in vitro* testing on our silicon nitride to establish its safety and efficacy in support of regulatory clearance of our biomaterial, products and product candidates. We have also completed additional testing of our silicon nitride products and product candidates. The results of this testing have been published in peer review publications. Additionally, we have initiated prospective randomized clinical trials in humans *in vivo* and *in vitro* to support and expand our understanding of our silicon nitride's performance relative to other biomaterials and

medical devices. We believe our product development strategy is consistent with the manner in which other biomaterials have been successfully introduced into the market and adopted as the standard of care. Listed below is an overview of some of the key testing completed on our silicon nitride biomaterial, products and product candidates to date, as well as other information about our silicon nitride and other biomaterials.

Biocompatibility

Before our silicon nitride was first used in commercial products in 2008, we conducted a series of biocompatibility tests following the guidelines of the FDA and ISO and submitted the results to the FDA as part of the regulatory clearance process. These tests confirmed that our silicon nitride products meet required biocompatibility standards for human use.

Promotion of Bone Growth

In 2012, we conducted two separate studies at Brown University, the results of which suggest that the chemistry and inherent surface topography of our solid *MC²* silicon nitride provides an optimal environment for bone growth onto and around the device.

The first study was a series of *in vitro* analyses of protein adsorption, or presence on the surface of the biomaterial, onto silicon nitride, PEEK and titanium. The results of this study indicated that adsorption of two key proteins necessary for bone growth (fibronectin and vitronectin) were up to eight times greater on our silicon nitride than on PEEK, and up to four times greater than on titanium. A third important protein (laminin) had up to two times greater adsorption on our silicon nitride than on PEEK, and up to two-and-one-half times greater adsorption than on titanium.

The second study was an *in vivo* investigation of the osteointegration characteristics of these same three biomaterials after they had been surgically implanted into the skulls of laboratory rats. This study included an examination of the effect of *Staphylococcus epidermidis* bacteria on osteointegration. At time intervals of up to three months after implantation of the biomaterial, the amount of new bone growth within the surgical site and in direct contact with the implanted biomaterial was evaluated. In the absence of bacteria, new bone formation within the surgical site surrounding our silicon nitride was approximately 69%, compared with 36% and 24% for titanium and PEEK, respectively. Similarly, bone in direct contact, or apposition, with our silicon nitride, titanium and PEEK was 59%, 19% and 8%, respectively. As is common, in the presence of bacteria, new bone formation within the surgical site was suppressed, but still significantly greater for our silicon nitride than for the other two biomaterials. Observed new bone growth within the surgical site surrounding our silicon nitride was 41%, compared with 26% and 21% for titanium and PEEK, respectively. At the implant interface, the bone apposition for our silicon nitride, titanium and PEEK was 23%, 9% and 5%, respectively. To further characterize the extent of osteointegration, the force needed to separate each implant from its surrounding bone was measured. A larger force needed to separate the implant is an indication of improved osteointegration. At three months after implantation, in the absence of bacteria, the force required to separate our silicon nitride from its surrounding bone was approximately three times that of PEEK, and nearly two times that of titanium. In the presence of bacteria, there was effectively no separation force required for PEEK, indicating essentially no osteointegration. Our silicon nitride required over five times the force to separate it from its surrounding bone in the presence of bacteria in comparison to titanium.

In 2008, we conducted an animal study in which we evaluated the level of osteointegration of our porous *CˢC* silicon nitride with a knee-defect model in adult sheep. At three months after implantation, three out of five of the silicon nitride implants had extensive new bone formation at and into the implant surface, showing that the bone had grown into our *CˢC* silicon nitride to a depth of 3 millimeters, or mm. This animal study demonstrated the rapid osteointegration potential of our *CˢC* silicon nitride.

Hardness, Strength and Resistance to Fracture

Comparative Information

As shown in the table of comparative information publicly available about various biomaterials below:

- the hardness, or a material's resistance to deformity, of silicon nitride is comparable to traditional ceramics, but is substantially higher than either polymers or metals;

- the strength of silicon nitride is comparable or higher than metals and traditional ceramics, and is about sixteen to fifty-five times stronger than highly-cross-linked polyethylene, and four to eight times stronger than PEEK; and
- silicon nitride has the highest fracture resistance of any medical ceramic material and is three to eleven times more resistant to fracture than PEEK or highly-cross-linked polyethylene. This is due to the interwoven microstructure of silicon nitride. Metals have the highest fracture resistance.

Comparison of Mechanical Properties Among Orthopedic Biomaterials

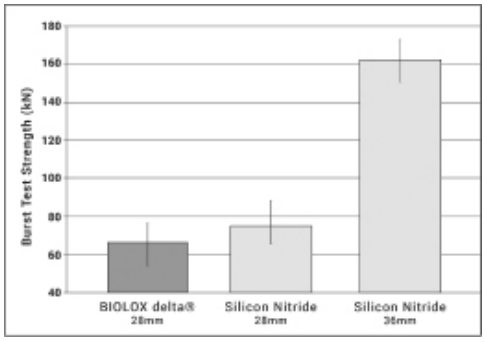
Material	Hardness (GPa)(1)	Strength (MPa)(1)	Fracture Resistance ($MPa \cdot m^{1/2}$)(1)
Silicon Nitride	**13 – 16**	**800 – 1200**	**8 – 11**
Aluminum Oxide Ceramic	14 – 19	300 – 500	3 – 5
Zirconia-Toughened Alumina Ceramic	12 – 19	700 – 1150	5 – 10
PEEK	0.09 – 0.28	160 – 180	2 – 3
Highly-Cross-Linked Polyethylene Polymer	0.03 – 0.07	22 – 48	1 – 2
Cobalt-Chromium Metal	3 – 4	700 – 1000	50 – 100
Titanium Alloy Metal	3 – 4	920 – 980	75

(1) GPa is a giga-pascal. MPa is a mega-pascal. Pascals are a measure of pressure. $MPa \cdot m^{1/2}$ is mega-pascal times a square root meter and is a measure related to the energy required to initiate fracture of a material.

We believe that the combination of high hardness, strength and fracture resistance positions our silicon nitride as an ideal biomaterial for many medical applications.

Burst Strength

In 2006, we conducted in-house comparative "burst strength" tests on femoral heads made from our silicon nitride produced by a contract manufacturer to our specifications and femoral heads made from one of the strongest commercially available ceramics, BIOLOX® *delta* (zirconia-toughened alumina). These tests were performed on three designs of 28 mm femoral heads using accepted testing protocols. The tests involved applying a load to each femoral head while mounted on a cobalt-chromium simulated hip implant stem, until the head burst. This enabled us to directly compare the strength of the femoral heads made of the two biomaterials. The results also provided an indication of each biomaterial's resistance to fracture. The results of these tests are shown in the chart below.



The average burst test strength for the silicon nitride femoral heads in these tests was 75 kilonewtons, or kNs, compared with 65 kN for BIOLOX® *delta*, or about a 15% improvement. The burst strengths observed in our tests for BIOLOX® *delta* femoral heads are comparable to those observed by an independent party testing the same design BIOLOX® *delta* femoral heads as we did. We also conducted burst strength tests of 36 mm femoral heads made from our silicon nitride which showed those femoral heads had burst strengths that averaged 164 kN.

Resistance to Wear

In 2011, we commissioned an independent laboratory to conduct a wear study using our silicon nitride femoral heads. We tested our 28 mm silicon nitride femoral heads articulated against cross-linked polyethylene acetabular liners and our 40 mm silicon nitride femoral heads articulated against cross-linked polyethylene acetabular liners using well-established protocols in a hip simulator for their wear performance over 5 million cycles. We then compared the results for our silicon nitride product candidates to the results for the cobalt chrome femoral head and publicly available data from other commonly paired products. The results and comparison showed that:

- our silicon nitride-on-cross-linked polyethylene had approximately half the wear rate of that publicly reported for cobalt chrome-on-cross-linked polyethylene articulating hip components; and
- our silicon nitride-on-cross-linked polyethylene had comparable wear to that publicly reported for traditional ceramic-on-cross-linked polyethylene articulating hip components.

Anti-Infective Properties

The results of the two studies at Brown University in 2012, demonstrate that our solid *MC*^{2} silicon nitride has anti-infective properties. The objective of the *in vitro* study was to determine how our silicon nitride, PEEK and titanium interact with bacteria, protein and bone cells without the use of antibiotics and compared the growth of five different types of bacteria on silicon nitride, PEEK and titanium over time. Live bacteria counts were between 8 to 30 times lower on silicon nitride than PEEK and up to 8 times lower on silicon nitride than titanium.

In the *in vivo* study, bacteria were applied to the biomaterials before implantation. Three months after implantation, no infection was observed with silicon nitride, whereas both PEEK and titanium showed infection. The data demonstrate that our silicon nitride inhibits biofilm formation and bacterial colonization around the biomaterial.

Imaging Compatibility

In 2007, we conducted a study to compare the imaging characteristics of test blanks made of PEEK, the metals titanium and tantalum, and silicon nitride using a cadaver human vertebral body. Images of the vertebral body and the blanks were obtained using x-ray, CT and MRI under identical conditions. We assessed the radiolucent characteristics of the blanks in x-ray images quantitatively, assessed the presence of scatter in CT qualitatively and assessed distortion in MRI quantitatively. In x-ray, the metal blanks did not permit visualization of the underlying bone of the vertebral body, while PEEK was transparent, rendering its location difficult to determine. The silicon nitride blank had an intermediate radiolucency that rendered it visible and allowed a visual assessment of the underlying bone of the vertebral body. CT and MRI of the metal blanks indicated the presence of distortion while silicon nitride and PEEK exhibited no scattering.

Sales and Marketing

We market and sell our products to surgeons and hospitals through our established network of more than 50 independent sales distributors who are managed by our experienced 14 person in-house sales and marketing management team. Our sales efforts to date have been in the United States and selected markets in Europe and South America. To supplement our independent sales distributors, in select international markets, such as Europe, Japan, Australia and Canada, we may also seek to establish collaborations with leading orthopedic companies where we believe that a large, well-established partner may provide better access to those markets. For example, in October 2013, we entered into a European sales agent agreement with K2M, Inc., one of the largest privately held spinal device companies in the world. In addition, we may establish collaborations in the United States under circumstances where access to a larger sales and marketing organization may help to expand the market or accelerate penetration for selected products.

In the first quarter of 2013, we restructured the leadership of our sales and marketing team and hired a Senior Vice President of Global Sales, a Vice President of Marketing and a Senior Vice President, Strategic Marketing. This new leadership team has reviewed our entire sales and marketing practices and are implementing steps to improve the performance of these departments.

In addition to leveraging the strong existing surgeon relationships of our distribution network, we market our products through a combination of initiatives that are designed to establish and increase awareness of our silicon

nitride products and their benefits over alternative products. We attend and make presentations at major industry events, including society meetings sponsored by the North American Spine Society, the America Academy of Orthopaedic Surgeons and the Congress of Neurological Surgeons, to educate surgeons and distributors about our products and product candidates. We advertise in trade journals and publications, and offer unique pricing strategies, including product bundling and incentivizing our distribution network to create and maintain long-term relationships with surgeons and hospitals. We also use surgeon advisors to assist in product development and to help implement awareness campaigns aimed at educating surgeons about our products. As part of these campaigns, we provide educational materials for hospitals and surgeons. We also conduct regional training seminars where our product managers, trainers, engineers, sales and marketing staff members work together with our surgeon advisors to educate surgeons and our distribution network in the use of our products.

Manufacturing

Silicon Nitride Manufacturing

To control the quality, cost and availability of our silicon nitride products and product candidates, we operate our own manufacturing facility. Our 54,000 square foot corporate building includes a 30,000 square foot ISO 13485 certified medical device manufacturing space. It is equipped with state-of-the-art, powder processing, spray drying, pressing and computerized machining equipment, sintering furnaces, and other testing equipment that enables us to control the entire manufacturing process for our silicon nitride products and product candidates. To our knowledge, we are the only vertically integrated silicon nitride orthopedic medical device manufacturer in the world. All operations with the exceptions of raw material production, cleaning, packaging and sterilization are performed in-house. We purchase raw materials, consisting of silicon nitride ceramic powder and dopant chemical compounds, from several vendors which are ISO registered and approved by us. These raw materials are characterized and tested in our facility in accordance with our specifications and then blended to formulate our silicon nitride. We believe that there are multiple vendors that can supply us these raw materials and we continually monitor the quality and pricing offered by our vendors to ensure high quality and cost-effective supply of these materials. A flowchart of the silicon nitride manufacturing process is shown below.

In November 2013, we entered into a cooperative research and development agreement with Kyocera under which we will work with Kyocera to determine its ability to become a second qualified manufacturer of our silicon nitride-based spinal fusion products and product candidates.

Non-Silicon Nitride and Instruments Manufacturing

We obtain our non-silicon nitride spinal fusion products and instruments from third-party manufacturers. We also plan to rely on third-party manufacturers for the supply of the metal components of our silicon nitride hip and knee joint replacement product candidates. We only use manufacturers that operate under QSR and are ISO 13485 certified. Our in-house quality control group examines subcontracted components to ensure that they meet our required specifications. We believe that the use of third-party sources for non-silicon nitride spinal fusion products and instruments will reduce our capital investment requirements and allow us to strategically focus our resources on the manufacture of our silicon nitride products and product candidates.

Intellectual Property

We rely on a combination of patents, trademarks, trade secrets and other forms of intellectual property, nondisclosure agreements, proprietary information ownership agreements and other measures to protect our intellectual property rights. We believe that in order to have a competitive advantage, we must continue to develop and maintain the proprietary aspects of our technologies.

We currently have 34 issued U.S. patents, 38 pending U.S. patent applications, 11 granted foreign patents and 18 pending foreign patent applications. Our issued patents begin to expire in 2014, with the last of these patents expiring in 2031. The first core patents do not expire until 2022; these include US 6,881,229 and US 6,790,233.

We have seven U.S patents, one European patent, and related pending applications, directed to articulating implants using our high-strength, high toughness doped silicon nitride *MC²* ceramic. The issued patents, which include US 6,881,229; US 7,666,229; US 8,123,812; US 7,780,738; US 7,695,521; US 7,776,085; US 8,133,284; and EP 1408874, begin to expire in 2022. We also have two U.S. patents, two European patents, and related pending applications, related to our *CˢC* technology that are directed to implants that have both a dense load-bearing, or cortical, component and a porous, or cancellous, component, together with a surface coating. The issued patents, which include US 6,790,233; US 6,846,327; EP 1389978; and EP 2055267, begin to expire in 2022.

We also have three U.S. patents and related foreign counterparts that we acquired in July 2012 from Dytech Corporation Ltd., or Dytech, directed to manufacturing processes for the production of porous ceramics for use in our orthopedic implants. These patents, which include US 5,563,106; US 5,705,448; and US 6,617,270, expire between 2014 and 2019. Under our acquisition agreement with Dytech, Dytech granted to us a perpetual, irrevocable and exclusive license, including the right to grant sublicenses, to certain improvements and know-how related to the acquired patents. In return, we are required to pay Dytech a low single-digit royalty on net sales of products sold by us, our affiliates, or our licensees that are covered by one or more valid claims of these patents, and a percentage of any non-royalty licensing income we may receive in the event we grant a license to others.

Our remaining issued patents and pending applications are directed to additional aspects of our products and technologies including, among other things:

- designs for cervical plates;
- designs for pedicle screws;
- designs for cervical disc implants;
- designs for intervertebral fusion devices;
- designs for facet fixation devices;
- designs for hip implants; and
- designs for knee implants.

We also expect to rely on trade secrets, know-how, continuing technological innovation and in-licensing opportunities to develop and maintain our intellectual property position. However, trade secrets are difficult to protect. We seek to protect the trade secrets in our proprietary technology and processes, in part, by entering into confidentiality agreements with commercial partners, collaborators, employees, consultants, scientific advisors and other contractors and into invention assignment agreements with our employees and some of our commercial partners and consultants. These agreements are designed to protect our proprietary information and, in the case of the invention assignment agreements, to grant us ownership of the technologies that are developed.

Competition

The main alternatives to our silicon nitride biomaterial include: PEEK, which is predominantly manufactured by Invibio, BIOLOX® *delta*, which is a traditional ceramic manufactured by CeramTec, allograft bone, metals and coated metals.

We believe our main competitors in the orthopedic implant market, which utilize a variety of competitive biomaterials, include: Medtronic, Inc.; DePuy Synthes Companies, a group of Johnson & Johnson companies; Stryker Corporation; Biomet, Inc.; Zimmer Holdings, Inc.; Smith & Nephew plc; and Aesculap Inc. Presently, these companies buy ceramic components on an OEM basis from manufacturers such as CeramTec, Kyocera and CoorTek, Inc., among others. We anticipate that these and other orthopedic companies and OEMs will seek to introduce new biomaterials and products that compete with ours.

Competition within the industry is primarily based on technology, innovation, product quality, and product awareness and acceptance by surgeons. Our principal competitors have substantially greater financial, technical and marketing resources, as well as significantly greater manufacturing capabilities than we do, and they may

succeed in developing products that render our implants and product candidates non-competitive. Our ability to compete successfully will depend upon our ability to develop innovative products with advanced performance features based on our silicon nitride technologies.

Government Regulation of Medical Devices

Governmental authorities in the United States, at the federal, state and local levels, and other countries extensively regulate, among other things, the research, development, testing, manufacture, labeling, promotion, advertising, distribution, marketing and export and import of products such as those we are commercializing and developing. Failure to obtain approval or clearance to market our products and products under development and to meet the ongoing requirements of these regulatory authorities could prevent us from continuing to market or develop our products and product candidates.

United States

Pre-Marketing Regulation

In the United States, medical devices are regulated by the FDA. Unless an exemption applies, a new medical device will require either prior 510(k) clearance or approval of a premarket approval application, or PMA, before it can be marketed in the United States. The information that must be submitted to the FDA in order to obtain clearance or approval to market a new medical device varies depending on how the medical device is classified by the FDA. Medical devices are classified into one of three classes on the basis of the controls deemed by the FDA to be necessary to reasonably ensure their safety and effectiveness. Class I devices, which are those that have the lowest level or risk associated with them, are subject to general controls, including labeling, premarket notification and adherence to the QSR. Class II devices are subject to general controls and special controls, including performance standards. Class III devices, which have the highest level of risk associated with them, are subject to most of the previously identified requirements as well as to premarket approval. Most Class I devices and some Class II devices are exempt from the 510(k) requirement, although manufacturers of these devices are still subject to registration, listing, labeling and QSR requirements.

A 510(k) premarket notification must demonstrate that the device in question is substantially equivalent to another legally marketed device, or predicate device, that did not require premarket approval. In evaluating the 510(k), the FDA will determine whether the device has the same intended use as the predicate device, and (a) has the same technological characteristics as the predicate device, or (b) has different technological characteristics, and (i) the data supporting the substantial equivalence contains information, including appropriate clinical or scientific data, if deemed necessary by the FDA, that demonstrates that the device is as safe and as effective as a legally marketed device, and (ii) does not raise different questions of safety and effectiveness than the predicate device. Most 510(k)s do not require clinical data for clearance, but the FDA may request such data. The FDA's goal is to review and act on each 510(k) within 90 days of submission, but it may take longer based on requests for additional information. In addition, requests for additional data, including clinical data, will increase the time necessary to review the notice. If the FDA does not agree that the new device is substantially equivalent to the predicate device, the new device will be classified in Class III, and the manufacturer must submit a PMA. Since July 2012, however, with the enactment of the Food and Drug Administration Safety and Innovation Act, or FDASIA, a *de novo* pathway is directly available for certain low to moderate risk devices that do not qualify for the 510(k) pathway due to lack of a predicate device. Modifications to a 510(k)-cleared medical device may require the submission of another 510(k) or a PMA if the changes could significantly affect the safety or effectiveness or constitute a major change in the intended use of the device.

Modifications to a 510(k)-cleared device frequently require the submission of a traditional 510(k), but modifications meeting certain conditions may be candidates for FDA review under a Special 510(k). If a device modification requires the submission of a 510(k), but the modification does not affect the intended use of the device or alter the fundamental scientific technology of the device, then summary information that results from the design control process associated with the cleared device can serve as the basis for clearing the application. A Special 510(k) allows a manufacturer to declare conformance to design controls without providing new data. When the modification involves a change in material, the nature of the "new" material will determine whether a traditional or Special 510(k) is necessary. For example, in its Device Advice on How to Prepare a Special 510(k),

the FDA uses the example of a change in a material in a finger joint prosthesis from a known metal alloy to a ceramic that has not been used in a legally marketed predicate device as a type of change that should not be submitted as a Special 510(k). However, if the "new" material is a type that has been used in other legally marketed devices within the same classification for the same intended use, a Special 510(k) is appropriate. The FDA gives as an example a manufacturer of a hip implant who changes from one alloy to another that has been used in another legally marketed predicate. Special 510(k)s are typically processed within 30 days of receipt.

The PMA process is more complex, costly and time consuming than the 510(k) clearance procedure. A PMA must be supported by extensive data including, but not limited to, technical, preclinical, clinical, manufacturing, control and labeling information to demonstrate to the FDA's satisfaction the safety and effectiveness of the device for its intended use. After a PMA is submitted, the FDA has 45 days to determine whether it is sufficiently complete to permit a substantive review. If the PMA is complete, the FDA will file the PMA. The FDA is subject to performance goal review times for PMAs and may issue a decision letter as a first action on a PMA within 180 days of filing, but if it has questions, it will likely issue a first major deficiency letter within 150 days of filing. It may also refer the PMA to an FDA advisory panel for additional review, and will conduct a preapproval inspection of the manufacturing facility to ensure compliance with the QSR, either of which could extend the 180-day response target. While the FDA's ability to meet its performance goals has generally improved during the past few years, it may not meet these goals in the future. A PMA can take several years to complete and there is no assurance that any submitted PMA will ever be approved. Even when approved, the FDA may limit the indication for which the medical device may be marketed or to whom it may be sold. In addition, the FDA may request additional information or request the performance of additional clinical trials before it will reconsider the approval of the PMA or as a condition of approval, in which case the trials must be completed after the PMA is approved. Changes to the device, including changes to its manufacturing process, may require the approval of a supplemental PMA.

If a medical device is determined to present a "significant risk," the manufacturer may not begin a clinical trial until it submits an investigational device exemption, or IDE, to the FDA and obtains approval of the IDE from the FDA. The IDE must be supported by appropriate data, such as animal and laboratory testing results and include a proposed clinical protocol. These clinical trials are also subject to the review, approval and oversight of an institutional review board, or IRB, which is an independent and multi-disciplinary committee of volunteers who review and approve research proposals, and the reporting of adverse events and experiences, at each institution at which the clinical trial will be performed. The clinical trials must be conducted in accordance with applicable regulations, including but not limited to the FDA's IDE regulations and current good clinical practices. A clinical trial may be suspended by the FDA, the IRB or the sponsor at any time for various reasons, including a belief that the risks to the study participants outweigh the benefits of participation in the trial. Even if a clinical trial is completed, the results may not demonstrate the safety and efficacy of a device, or may be equivocal or otherwise not be sufficient to obtain approval.

Post-Marketing Regulation

After a device is placed on the market, numerous regulatory requirements apply. These include:

- compliance with the QSR, which require manufacturers to follow stringent design, testing, control, documentation, record maintenance, including maintenance of complaint and related investigation files, and other quality assurance controls during the manufacturing process;
- labeling regulations, which prohibit the promotion of products for uncleared or unapproved or "off-label" uses and impose other restrictions on labeling; and
- medical device reporting obligations, which require that manufacturers investigate and report to the FDA adverse events, including deaths, or serious injuries that may have been or were caused by a medical device and malfunctions in the device that would likely cause or contribute to a death or serious injury if it were to recur.

Failure to comply with applicable regulatory requirements can result in enforcement action by the FDA, which may include any of the following sanctions:

- warning letters;
- fines, injunctions, and civil penalties;

- recall or seizure of our products;
- operating restrictions, partial suspension or total shutdown of production;
- refusal to grant 510(k) clearance or PMA approvals of new products;
- withdrawal of 510(k) clearance or PMA approvals; and
- criminal prosecution.

To ensure compliance with regulatory requirements, medical device manufacturers are subject to market surveillance and periodic, pre-scheduled and unannounced inspections by the FDA, and these inspections may include the manufacturing facilities of our subcontractors.

International Regulation

International sales of medical devices are subject to foreign government regulations, which vary substantially from country to country. The time required to obtain approval by a foreign country may be longer or shorter than that required for FDA approval, and the requirements may differ. For example, the primary regulatory authority with respect to medical devices in Europe is that of the European Union. The European Union consists of 28 countries and has a total population of over 500 million people. The unification of these countries into a common market has resulted in the unification of laws, standards and procedures across these countries, which may expedite the introduction of medical devices like those we are offering and developing. Norway, Iceland, Lichtenstein and Switzerland are not members of the European Union, but have transposed applicable European medical device laws into their national legislation. Thus, a device that is marketed in the European Union may also be recognized and accepted in those four non-member European countries as well.

The European Union has adopted numerous directives and standards regulating the design, manufacture, clinical trials, labeling and adverse event reporting for medical devices. Devices that comply with the requirements of relevant directives will be entitled to bear CE Conformity Marking, indicating that the device conforms to the essential requirements of the applicable directives and, accordingly, can be commercially distributed throughout the European Union. Actual implementation of these directives, however, may vary on a country-by-country basis. The CE Mark is a mandatory conformity mark on medical devices distributed and sold in the European Union and certifies that a medical device has met applicable requirements.

The method of assessing conformity varies, but normally involves a combination of self-assessment by the manufacturer and a third-party assessment by a “Notified Body.” Notified Bodies are independent testing houses, laboratories, or product certifiers authorized by the E.U. member states to perform the required conformity assessment tasks, such as quality system audits and device compliance testing. An assessment by a Notified Body based within the European Union is required in order for a manufacturer to distribute the product commercially throughout the European Union. Medium and higher risk devices require the intervention of a Notified Body which will be responsible for auditing the manufacturer’s quality system. The Notified Body will also determine whether or not the product conforms to the requirements of the applicable directives. Devices that meet the applicable requirements of E.U. law and have undergone the appropriate conformity assessment routes will be granted CE “certification.”

The CE Mark is mandatory for medical devices sold not only within the countries of the European Union but more generally within all countries in western Europe. As many of the European standards are converging with international standards, the CE Mark is often used on medical devices manufactured and sold outside of Europe (notably in Asia that exports many manufactured products to Europe). CE Marking gives companies easier access into not only the European market but also to Asian and Latin American markets, most of whom recognize the CE Mark on medical device as a mark of quality and adhering to international standards of consumer safety, health or environmental requirements.

In September 2012, the European Commission adopted a proposal for a regulation which, if adopted, will change the way that most medical devices are regulated in the European Union, and may subject our products to additional requirements.

Compliance with Healthcare Laws

We must comply with various U.S. federal and state laws, rules and regulations pertaining to healthcare fraud and abuse, including anti-kickback and false claims laws, rules, and regulations, as well as other healthcare laws in connection with the commercialization of our products. Fraud and abuse laws are interpreted broadly and enforced aggressively by various state and federal agencies, including the U.S. Department of Justice, the U.S. Office of Inspector General for the Department of Health and Human Services and various state agencies.

We have entered into agreements with certain surgeons for assistance with the design of our products, some of whom we anticipate may make referrals to us or order our products. A majority of these agreements contain provisions for the payments of royalties and/or stock options. In addition, some surgeons currently own shares of our stock. We have structured these transactions with the intention of complying with all applicable laws, including fraud and abuse, data privacy and security, and transparency laws. Despite this intention, there can be no assurance that a particular government agency or court would determine our practices to be in full compliance with such laws. We could be materially impacted if regulatory or enforcement agencies or courts interpret our financial arrangements with surgeons to be in violation of healthcare laws, including, without limitation, fraud and abuse, data privacy and security, or transparency laws.

The U.S. federal Anti-Kickback Statute prohibits persons, including a medical device manufacturer (or a party acting on its behalf), from knowingly or willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce either the referral of an individual for a service or product or the purchasing, ordering, arranging for, or recommending the ordering of, any service or product for which payment may be made by Medicare, Medicaid or any other federal healthcare program. This statute has been interpreted to apply to arrangements between medical device manufacturers on one hand and healthcare providers on the other. The term "remuneration" is not defined in the federal Anti-Kickback Statute and has been broadly interpreted to include anything of value, such as cash payments, gifts or gift certificates, discounts, waiver of payments, credit arrangements, ownership interests, the furnishing of services, supplies or equipment, and the provision of anything at less than its fair market value. Courts have broadly interpreted the scope of the law, holding that it may be violated if merely "one purpose" of an arrangement is to induce referrals, irrespective of the existence of other legitimate purposes. The Anti-Kickback Statute prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Although there are a number of statutory exemptions and regulatory safe harbors protecting certain business arrangements from prosecution, the exemptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Our practices may not in all cases meet all of the criteria for safe harbor protection from federal Anti-Kickback Statute liability. The reach of the Anti-Kickback Statute was broadened by the recently enacted Patient Protection and Affordable Care Act of 2010 and the Health Care and Education Affordability Reconciliation Act of 2010, collectively, the Affordable Care Act or ACA, which, among other things, amends the intent requirement of the federal Anti-Kickback Statute such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act (discussed below) or the civil monetary penalties statute, which imposes fines against any person who is determined to have presented or caused to be presented claims to a federal healthcare program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent. In addition to the federal Anti-Kickback Statute, many states have their own anti-kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states, these anti-kickback laws apply not only to payments made by government healthcare programs but also to payments made by other third-party payors, including commercial insurance companies.

Sales, marketing, consulting, and advisory arrangements between medical device manufacturers and sales agents and physicians are subject to the Anti-Kickback Statute and other fraud and abuse laws. Government officials have focused recent enforcement efforts on, among other things, the sales and marketing activities of healthcare companies, including medical device manufacturers, and have brought cases against individuals or entities whose

personnel allegedly offered unlawful inducements to potential or existing customers in an attempt to procure their business. We expect these activities to continue to be a focus of government enforcement efforts. Settlements of these cases by healthcare companies have involved significant fines and penalties and in some instances criminal plea agreements. We are also aware of governmental investigations of some of the largest orthopedic device companies reportedly focusing on consulting and service agreements between these companies and orthopedic surgeons. These developments are ongoing and we cannot predict the effects they will have on our business.

The federal False Claims Act imposes liability on any person that, among other things, knowingly presents, or causes to be presented, a false or fraudulent claim for payment by a federal healthcare program. The *qui tam* provisions of the False Claims Act allow a private individual to bring civil actions on behalf of the federal government alleging that the defendant has submitted a false claim, or has caused such a claim to be submitted, to the federal government, and to share in any monetary recovery. There are many potential bases for liability under the False Claims Act. Liability arises, primarily, when a person knowingly submits, or causes another to submit, a false claim for reimbursement to the federal government. The False Claims Act has been used to assert liability on the basis of inadequate care, kickbacks, and other improper referrals, and allegations as to misrepresentations with respect to the services rendered. *Qui tam* actions have increased significantly in recent years, causing greater numbers of healthcare companies, including medical device manufacturers, to defend false claim actions, pay damages and penalties, or be excluded from participation in Medicare, Medicaid or other federal or state healthcare programs as a result of investigations arising out of such actions. In addition, various states have enacted similar laws analogous to the False Claims Act. Many of these state laws apply where a claim is submitted to any third-party payor and not merely a federal healthcare program. We are unable to predict whether we would be subject to actions under the False Claims Act or a similar state law, or the impact of such actions. However, the cost of defending such claims, as well as any sanctions imposed, could adversely affect our financial performance. The Health Insurance Portability and Accountability Act of 1996, or HIPAA, also created several new federal crimes, including healthcare fraud and false statements relating to healthcare matters. The healthcare fraud statute prohibits knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third party payors. The false statements statute prohibits knowingly and willfully falsifying, concealing, or covering up a material fact or making any materially false, fictitious, or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items, or services.

In addition, we may be subject to, or our marketing or research activities may be limited by, data privacy and security regulation by both the federal government and the states in which we conduct our business. For example, HIPAA and its implementing regulations established uniform federal standards for certain "covered entities" (healthcare providers, health plans and healthcare clearinghouses) governing the conduct of certain electronic healthcare transactions and protecting the security and privacy of protected health information. The American Recovery and Reinvestment Act of 2009, commonly referred to as the economic stimulus package, included expansion of HIPAA's privacy and security standards called the Health Information Technology for Economic and Clinical Health Act, or HITECH, which became effective on February 17, 2010. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to "business associates"—independent contractors or agents of covered entities that create, receive, maintain, or transmit protected health information in connection with providing a service for or on behalf of a covered entity. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. These laws also require the reporting of breaches of protected health information to affected individuals, regulators and in some cases, local or national media. HIPAA and HITECH impose strict limits on our physician collaborators' ability to use and disclose patient information on our behalf.

There are also an increasing number of state "sunshine" laws that require manufacturers to provide reports to state governments on pricing and marketing information. Several states have enacted legislation requiring medical device companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales and marketing activities, and to prohibit or limit certain other sales and marketing practices. In addition, a federal law known as the Physician Payments Sunshine Act,

now requires medical device manufacturers to track and report to the federal government certain payments and other transfers of value made to physicians and teaching hospitals and ownership or investment interests held by physicians and their immediate family members. The federal government will disclose the reported information on a publicly available website beginning in 2014. These laws may adversely affect our sales, marketing, and other activities by imposing administrative and compliance burdens on us. If we fail to track and report as required by these laws or to otherwise comply with these laws, we could be subject to the penalty provisions of the pertinent state and federal authorities.

Clinical research is heavily regulated by FDA regulations for the protection of human subjects (21 C.F.R. 50 and 56) and also the regulations of the U.S Department of Health and Human Services, or the Common Rule (45 C.F.R 46). Both FDA human subject regulations and the Common Rule impose restrictions on the involvement of human subjects in clinical research and require, among other things, the balancing of the risks and benefits of research, the documented informed consent of research participants, initial and ongoing review of research by an IRB. Similar regulations govern research conducted in foreign countries. Compliance with human subject protection regulations is costly and time consuming. Failure to comply could substantially and adversely impact our research program and the development of our products.

Because of the breadth of these laws and the narrowness of available statutory and regulatory exemptions, it is possible that some of our business activities could be subject to challenge under one or more of such laws. If our operations are found to be in violation of any of the federal and state laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including criminal and significant civil monetary penalties, damages, fines, imprisonment, exclusion from participation in government healthcare programs, injunctions, recall or seizure of products, total or partial suspension of production, denial or withdrawal of pre-marketing product clearances and approvals, private “qui tam” actions brought by individual whistleblowers in the name of the government or refusal to allow us to enter into supply contracts, including government contracts, and the curtailment or restructuring of our operations. Public disclosure of privacy and data security violations could cause significant reputational harm. Any of these events could adversely affect our ability to operate our business and our results of operations. To the extent that any of our products are sold in a foreign country, we may be subject to similar foreign laws and regulations, which may include, for instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws, implementation of corporate compliance programs, as well as laws and regulations requiring transparency of pricing and marketing information and governing the privacy and security of health information, such as the E.U.’s Directive 95/46 on the Protection of Individuals with regard to the Processing of Personal Data, or the Data Directive, and the wide variety of national laws implementing the Data Directive.

Healthcare Reform

In the United States and foreign jurisdictions, there have been a number of legislative and regulatory changes to the healthcare system that could affect our future results of operations. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs.

In March 2010, President Obama signed into law the ACA, a sweeping law intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against healthcare fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on pharmaceutical and medical device manufacturers and impose additional health policy reforms. Among other things, the ACA imposes a 2.3% medical device excise tax on sales of many medical devices in the United States which became effective on January 1, 2013. Substantial new provisions affecting compliance have also been enacted, which may affect our business practices with healthcare practitioners and a significant number of provisions are not yet, or have only recently become, effective. Although it is too early to determine the full effect of the ACA, the new law appears likely to place downward pressure on pricing of medical devices, especially under the Medicare program, and may also increase our regulatory burdens and operating costs.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, on August 2, 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend to Congress proposals in spending

reductions. The Joint Select Committee on Deficit Reduction did not achieve a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, or ATRA, which, among other things, reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. On March 1, 2013, the President signed an executive order implementing the Budget Control Act's 2% Medicare payment reductions, and on April 1, 2013, these reductions went into effect. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our financial operations.

We expect that the ACA, as well as other healthcare reform measures that have been and may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for our products. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may affect our ability to generate revenue and profits or commercialize our product candidates.

Third-Party Reimbursement

Because we typically receive payment directly from hospitals and surgical centers, we do not anticipate relying directly on payment for any of our products from third-party payors, such as Medicare, Medicaid, private insurers, and managed care companies. However, our business will be affected by policies administered by federal and state healthcare programs, such as Medicare and Medicaid, as well as private third-party payors, which often follow the policies of the state and federal healthcare programs. For example, our business will be indirectly impacted by the ability of a hospital or medical facility to obtain coverage and third-party reimbursement for procedures performed using our products. Many hospitals and clinics in the United States belong to group purchasing organizations (that typically incentivize their hospital members to make a relatively large proportion of purchases from a limited number of vendors of similar products that have contracted to offer discounted prices). Such contracts often include exceptions for purchasing certain innovative new technologies, however. Accordingly, the commercial success of our products may also depend to some extent on our ability to either negotiate favorable purchase contracts with key group purchasing organizations or persuade hospitals and clinics to purchase our product "off contract." These third-party payors may deny reimbursement if they determine that a device used in a procedure was not medically necessary; was not used in accordance with cost-effective treatment methods, as determined by the third-party payor; or was used for an unapproved use. A national or local coverage decision denying Medicare coverage for one or more of our products could result in private insurers and other third party payors also denying coverage. Even if favorable coverage and reimbursement status is attained for our products, less favorable coverage policies and reimbursement rates may be implemented in the future. The cost containment measures that third-party payors and providers are instituting, both within the United States and abroad, could significantly reduce our potential revenues from the sale of our products and any product candidates. We cannot provide any assurances that we will be able to obtain and maintain third party coverage or adequate reimbursement for our products and product candidates in whole or in part.

For inpatient and outpatient procedures, including those that will involve use of our products, Medicare and many other third-party payors in the United States reimburse hospitals at a prospectively determined amount. This amount is generally based on one or more diagnosis related groups, or DRGs, associated with the patient's condition for inpatient treatment and generally based on ambulatory payment classifications, or APCs, associated with the procedures performed as an outpatient at an ambulation surgicenter. Each DRG or APC is associated with a level of payment and may be adjusted from time to time, usually annually. Prospective payments are intended to cover most of the non-physician hospital costs incurred in connection with the applicable diagnosis and related procedures. Implant products, such as those we plan to sell, represent part of the total procedure costs while labor, hospital room and board, and other supplies and services represent the balance of those costs. However, the prospective payment amounts are typically set independently of a particular hospital's actual costs associated with treating a particular patient and implanting a device. Therefore, the payment that a hospital would receive for a particular hospital visit would not typically take into account the cost of our products.

Medicare has established a number of DRGs for inpatient procedures that involve the use of products similar to ours. Although Medicare has authority to create special DRGs for hospital services that more properly reflect the actual costs of expensive or new-technology devices implanted as part of a procedure, it has declined to do so in the past, and we do not expect that it will do so with respect to our current products and product candidates. Medicare's DRG and APC classifications may have implications outside of Medicare, as many other U.S. third-party payors often use Medicare DRGs and APCs for purposes of determining reimbursement.

We believe that orthopedic implants generally have been well received by third-party payors because of the ability of these implants to greatly reduce long-term healthcare costs for patients with degenerative joint disease. However, coverage and reimbursement policies vary from payor to payor and are subject to change. As discussed above, hospitals that purchase medical devices for treatment of their patients generally rely on third-party payors to reimburse all or part of the costs and fees associated with the procedures performed with these devices. Both government and private third-party coverage and reimbursement levels are critical to new product acceptance. Neither hospitals nor surgeons are likely to use our products if they do not receive reimbursement for the procedures adequate to cover the cost of our products.

While it is expected that hospitals will be able to obtain coverage for procedures using our products, the level of payment available to them for such procedures may change over time. State and federal healthcare programs, such as Medicare and Medicaid, closely regulate provider payment levels and have sought to contain, and sometimes reduce, payment levels. Commercial insurers and managed care plans frequently follow government payment policies, and are likewise interested in controlling increases in the cost of medical care. These third-party payors may deny payment if they determine that a procedure was not medically necessary, a device used in a procedure was not used in accordance with cost-effective treatment methods, as determined by the third-party payor, or was used for an unapproved use.

In addition, some payors are adopting pay-for-performance programs that differentiate payments to healthcare providers based on the achievement of documented quality-of-care metrics, cost efficiencies, or patient outcomes. These programs are intended to provide incentives to providers to find ways to deliver the same or better results while consuming fewer resources. As a result of these programs, and related payor efforts to reduce payment levels, hospitals and other providers are seeking ways to reduce their costs, including the amounts they pay to medical device suppliers. Adverse changes in payment rates by payors to hospitals could adversely impact our ability to market and sell our products and negatively affect our financial performance.

In international markets, healthcare payment systems vary significantly by country and many countries have instituted price ceilings on specific product lines. There can be no assurance that our products will be considered cost-effective by third-party payors, that reimbursement will be available or, if available, that the third-party payors' reimbursement policies will not adversely affect our ability to sell our products profitably.

Member countries of the European Union offer various combinations of centrally financed healthcare systems and private health insurance systems. The relative importance of government and private systems varies from country to country. Governments may influence the price of medical devices through their pricing and reimbursement rules and control of national healthcare systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may be marketed only once a reimbursement price has been agreed upon. Some of these countries may require, as condition of obtaining reimbursement or pricing approval, the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Some E.U. member states allow companies to fix their own prices for devices, but monitor and control company profits. The choice of devices is subject to constraints imposed by the availability of funds within the purchasing institution. Medical devices are most commonly sold to hospitals or healthcare facilities at a price set by negotiation between the buyer and the seller. A contract to purchase products may result from an individual initiative or as a result of a competitive bidding process. In either case, the purchaser pays the supplier, and payment terms vary widely throughout the European Union. Failure to obtain favorable negotiated prices with hospitals or healthcare facilities could adversely affect sales of our products.

Employees

As of January 15, 2014, we had 79 employees, including 5 part-time temporary employees, of which 15 are employed in administration, 18 in operations, 35 in manufacturing and research and development, and 11 in sales and marketing. We believe that our success will depend, in part, on our ability to attract and retain qualified personnel. We have never experienced a work stoppage due to labor difficulties and believe that our relations with our employees are good. None of our employees are represented by labor unions.

Facilities

Our 54,000 square foot corporate office and manufacturing facilities are located in Salt Lake City, Utah. We occupy these facilities pursuant to a lease that expires in January 2020. We may extend the lease for two additional periods of five years each. We believe that our existing facilities are adequate for our current and projected needs for the foreseeable future.

Legal Matters

We are currently not a party to any material legal proceedings. However, our industry is characterized by frequent claims and litigation, including claims regarding intellectual property and product liability. As a result, we may be subject to various legal proceedings in the future.

MANAGEMENT

Directors and Executive Officers

Our current directors and executive officers and their respective ages and positions are as follows:

Name	Age	Position
Max E. Link, Ph.D.	73	Chairman of the Board of Directors
Eric K. Olson	50	Director, President and Chief Executive Officer
Jay M. Moyes	59	Director and Chief Financial Officer
B. Sonny Bal, M.D.	51	Director
David W. Truetzel	56	Director
Jeffrey S. White	60	Director
James P. Abraham	54	Senior Vice President, Global Sales
Kevin Davis	48	Chief Operating Officer
Bryan J. McEntire	62	Chief Technology Officer
Kevin Ontiveros	53	Chief Legal Officer, Chief Compliance Officer and Corporate Secretary
Vytas Rupinskas	61	Vice President, Marketing
Christopher R. Whitfield	46	Chief Commercial Officer

The following is a brief summary of the background of each of our current directors and executive officers.

Max E. Link, Ph.D. has served as the chairman of our board of directors since October 2003. Dr. Link was chairman of the board of directors and Chief Executive Officer of Centerpulse AG, a medical implant company from March 2002 to October 2003. Prior to joining Centerpulse, Dr. Link was Chief Executive Officer of Corange (Bermuda), the parent company of Boehringer Mannheim Corporation and chairman of the board of directors and chief executive officer of Sandoz Pharma, Ltd., now part of Novartis Corporation, a manufacturer of pharmaceutical products. Dr. Link is chairman of the boards of directors of three publicly listed biopharmaceutical companies, Alexion Pharmaceuticals, Inc., Celsion Corporation and CytRx Corporation. Dr. Link holds a Ph.D. in Economics from University of St. Gallen (Switzerland).

We believe that Dr. Link is qualified to serve as a member of our board of directors because of his significant experience leading companies in our industry as well as the depth of his institutional knowledge of our company.

Eric K. Olson has served as our Chief Executive Officer and President and as a director since February 2012. Prior to serving us in this capacity, Mr. Olson served as our Senior Vice President of Global Marketing from June 2011 through February 2012. From December 2007 to June 2011, Mr. Olson was the Executive Vice President of Sales & Marketing for Axial Biotech, Inc., a molecular diagnostics company. Mr. Olson has also held senior sales and marketing positions with Medtronic, Inc. and Smith & Nephew. Mr. Olson holds a B.S. in Behavioral Science and Health Administration from the University of Utah, and has also completed a master's-level internship program at the same institution.

We believe that Mr. Olson's position as the Chief Executive Officer and President of our Company uniquely qualifies him to serve on our board of directors due to his intimate knowledge of our day-to-day operations. Additionally, Mr. Olson possesses a wealth of industry experience related to our business.

Jay M. Moyes has served on our board of directors since November 2012 and as our Chief Financial Officer since October 2013. Since November 2007 Mr. Moyes has been the managing member of Drayton Investments, LLC, a partnership focused on investing in private healthcare related companies and real estate financing. In April 2012, he joined the board of directors of Puma Biotechnology Inc., a biopharmaceutical company. Since May 2006, he has been a member of the board of directors and chairman of the audit committee of Osiris Therapeutics, Inc., a publicly held stem cell therapeutics company. Mr. Moyes is also a director of BioCardia, Inc., a medical device company, and Integrated Diagnostics Inc., a molecular diagnostics company. From May 2008 through July 2009, Mr. Moyes served as the Chief Financial Officer of XDx, Inc., a privately held molecular diagnostics company. Prior to that, he served as the Chief Financial Officer of Myriad Genetics, Inc., a publicly held healthcare diagnostics company, from June 1996 until his retirement in November 2007, and as its

Vice President of Finance from July 1993 until July 2005. From 1991 to 1993, Mr. Moyes served as Vice President of Finance and Chief Financial Officer of Genmark, Inc., a privately held genetics company. He held various positions with the accounting firm of KPMG LLP from 1979 through 1991, most recently as a Senior Manager. He also served as a member of the Board of Trustees of the Utah Life Science Association from 1999 through 2006. He holds an M.B.A from the University of Utah and received his B.A. in Economics from Weber State University.

In addition to serving as our Chief Financial Officer, we believe that Mr. Moyes' experience working with biotechnology companies through their transformation from emerging growth to established, publicly-traded companies qualify him to serve on our board of directors.

B. Sonny Bal, M.D. has served on our board of directors since February 2012. Dr. Bal is Professor & Chief of Adult Reconstruction at the University of Missouri, Columbia, specializing in hip and knee replacement surgery. He also is an Adjunct Professor of Material Sciences at the University of Missouri at Rolla. Dr. Bal is a member of the American Academy of Orthopaedic Surgeons and the American Association of Hip and Knee Surgeons. Dr. Bal received his M.D. degree from Cornell University and an M.B.A. from Northwestern University, and a J.D. from the University of Missouri. Dr. Bal is a licensed attorney and co-founder of the Bal Brenner law firm in North Carolina.

We believe that Dr. Bal's expertise in orthopedic surgery and his specialty in hip and knee replacement surgery qualifies him to serve on our board of directors.

David W. Truetzel has served on our board of directors since our acquisition of US Spine, Inc. in September 2010. Mr. Truetzel has been the general partner of Augury Capital Partners a private equity fund that invests in life sciences and information technology companies, which he co-founded in 2006. Mr. Truetzel is a director of Enterprise Bank, Inc., Verifi, Inc., a provider of electronic payment solutions, Clearent, LLC, a credit card processing provider, and Paranet, LLC, an IT services provider. Mr. Truetzel holds a B.S. in Business Administration from Saint Louis University, an M.B.A. from The Wharton School and is a licensed C.P.A.

We believe that Mr. Truetzel's financial and managerial expertise qualify him to serve on our board of directors.

Jeffrey S. White has served on our board of directors since January 2014. Since January 2013, Mr. White has served as Principal at Medtech Advisory Group LLC, a firm he founded that advises early and mid-stage medical technology firms. Mr. White is currently a director of Residency Select LLC, a company which offers psychometric assessment, training and compliance products to medical and surgical residency programs. From May 2006 to December 2012 he served as Global Director of Business Development for Synthes Inc., a global orthopedic firm that was acquired by Johnson and Johnson in 2012. Mr. White has served as Chief Executive Officer and co-founder of several start-up surgical device firms and has previously held executive level positions at Richard-Allan Medical Industries Inc., a medical device manufacturer, which was acquired by Urohealth Systems Inc. and United States Surgical Corporation, unit of Covidien plc. Mr. White holds a B.S. in Biology from Union College in Schenectady NY.

We believe that Mr. White's experience as an executive and founder of medical device companies qualifies him to serve on our board of directors.

James P. Abraham joined us as Senior Vice President, Global Sales, in January 2013. From January 2007 to December 2013 Mr. Abraham worked in various capacities at Stryker Corporation, a medical equipment company including as Senior Director of Sales. He also previously served as Senior Vice President of Sales and Marketing for IsoTis Orthobiologics, Inc., a company which specializes in human tissue and synthetic grafting and injectable bone growth stimulation. Mr. Abraham holds a B.S. in Business Administration from Creighton University.

Kevin Davis has served as our Chief Operating Officer since June 2012. From December 2011 to June 2012, he served as our President of Manufacturing. From March 2011 to December 2011, he served as our Vice President of Strategy and Business Development. From March 2009 to March 2011, he served as our Cost Accountant, Financial Systems. Mr. Davis was the Chief Financial Officer, from April 2007 to March 2009, of Nevada Chemicals, Inc., a sodium cyanide chemical company and served as one of its directors. Mr. Davis graduated from the University of Utah with a B.S. in Accounting.

Bryan J. McEntire has served as our Chief Technology Officer since May 2012. From June 2004 to May 2012 he served as our Vice President of Manufacturing and as our Vice President of Research from December 2006 to May 2012. Mr. McEntire has worked in various advanced ceramic product development, quality engineering and manufacturing roles at Applied Materials, Inc., Norton Advanced Ceramics, a division of Saint-Gobain Industrial Ceramics Corporation, Norton/TRW Ceramics and Ceramatec, Inc., a small producer of ionic-conducting and structural ceramic components located in Salt Lake City, Utah. Mr. McEntire holds a B.S. degree in Materials Science and Engineering and an M.B.A. from the University of Utah.

Kevin Ontiveros has served as our Chief Legal Officer and Chief Compliance Officer since December 2012. Mr. Ontiveros was previously a practicing attorney at Life Science Law PC from February 2011 to December 2012 and Stoel Rives LLP from January 2009 to January 2011, where he provided legal and business counsel on a wide range of matters, including technology licensing transactions, corporate financing opportunities (including public and private equity and debt offerings), public company SEC reporting compliance, and clinical trial, manufacturing, distribution, and research and development agreements. Mr. Ontiveros served as the Vice President-Legal Affairs, General Counsel and Corporate Secretary for ImaRx Therapeutics, Inc. from March 2007 to December 2008 and as the Vice President-Corporate Law and Assistant Corporate Secretary for NPS Pharmaceuticals, Inc. from April 1996 to March 2007. Mr. Ontiveros earned his B.A. from the University of Arizona, his J.D. from the University of Utah School of Law and his L.L.M. in Taxation from the University of Florida.

Vytas Rupinskas is our Vice President of Marketing, a position he has held since December 2012. From September 2005 to March 2012, Mr. Rupinskas served as the Director of Product Management for Leads & Accessories for the Neuromodulation Division of St. Jude Medical, Inc., and Marketing Manager for St. Jude Medical, a provider of implantable medical devices. Prior to his tenure at St. Jude Medical, Mr. Rupinskas served as Senior Product Manager at Exactech, Inc., a provider of implant devices and surgical instruments and held various senior global marketing and international sales management positions at DePuy Orthopaedics, Inc., a medical device company, and its affiliates DePuy International Ltd. and DePuy Spine, Inc. Mr. Rupinskas is a graduate of the University of Illinois with a B.S. degree in Liberal Arts and Sciences and an M.S. in Mechanical Engineering.

Christopher R. Whitfield has served as our Chief Commercial Officer since November 2013. From March 2012 to September 2012, Mr. Whitfield served as the Executive Vice President, Sales and Marketing of Pioneer Surgical Technologies and from October 2009 to March 2012 as its Vice President, Marketing. From October 2008 to September 2009, he served as the West Area Vice President, Sales for Zimmer Spine, a division of Zimmer, Inc. From September 2007 to October 2008, he served as the Senior Director, Marketing of Abbot Spine, Inc., from January 2007 to September 2007 as its Director, Product Management and from June 2005 to January 2007 he served as its Group Manager, Product Marketing. Mr. Whitfield received a B.S. degree in Business Administration, Marketing and Management from the University of Texas at Austin.

Board Composition

Our amended and restated certificate of incorporation and amended and restated bylaws provide that the authorized number of directors may be changed only by resolution of the board of directors. Seven directors are currently authorized. In accordance with our amended and restated certificate of incorporation, immediately upon the closing of this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders following this offering, the successors to the directors whose terms then expire will be elected to serve until the third annual meeting following the election. At the closing of this offering, our directors will be divided among the three classes as follows:

- The Class I directors will be Max E. Link, Ph.D. and Jay M. Moyes and their terms will expire at the first annual meeting of stockholders to be held after the completion of this offering;
- The Class II directors will be Eric K. Olson and David W. Truetzel, and their terms will expire at the second annual meeting of stockholders to be held after the completion of this offering; and
- The Class III directors will be B. Sonny Bal, M.D. and Jeffrey S. White, and their terms will expire at the third annual meeting of stockholders to be held after the completion of this offering.

Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors.

Director Independence

Our board of directors has reviewed the materiality of any relationship between us and each of our directors, either directly or indirectly. Based on this review, the board of directors has determined that Max E. Link, Ph.D., David W. Truetzel, Jeffrey S. White and B. Sonny Bal, M.D. are "independent directors" as defined by the SEC and NASDAQ. The rules of The NASDAQ Global Market require that a majority of the board of directors of a listed company consist of independent directors, as defined by the rules of The NASDAQ Global Market. We currently have a board of directors consisting of a majority of independent directors.

Committees of the Board of Directors

Our board of directors has an audit committee, a compensation committee and, immediately upon the closing of this offering, a nominating and corporate governance committee, each of which has the composition and responsibilities described below. The rules of The NASDAQ Global Market require that the audit committee consist of at least three members of our board of directors, each of whom must be independent, as established under the rules of The NASDAQ Global Market and the SEC.

Audit Committee

At the closing of this offering, our audit committee will be composed of David W. Truetzel (Chairman), B. Sonny Bal, M.D. and Max E. Link, Ph.D., each of whom is independent within the meaning of the rules of the SEC and the listing standards of The NASDAQ Global Market. Our board of directors has determined Mr. Truetzel qualifies as a financial expert as defined in SEC rules. Our independent auditors and management periodically meet privately with our audit committee. Our audit committee is authorized to:

- approve and retain the independent auditors to conduct the annual audit of our books and records;
- review the proposed scope and results of the audit;
- review and pre-approve the independent auditor's audit and non-audit services rendered;
- approve the audit fees to be paid;
- review accounting and financial controls with the independent auditors and our financial and accounting staff;
- review and approve transactions between us and our directors, officers and affiliates;
- recognize and prevent prohibited non-audit services;
- establish procedures for complaints received by us regarding accounting matters;
- oversee internal audit functions; and
- prepare the report of the audit committee that SEC rules require to be included in our annual meeting proxy statement.

Compensation Committee

The rules of The NASDAQ Global Market require that the compensation committee consist of at least two members of our board of directors, each of whom must be independent, as established under the rules of The NASDAQ Global Market and the SEC. At the closing of this offering, our compensation committee will be composed of Max E. Link, Ph.D. (Chairman), David W. Truetzel and B. Sonny Bal, M.D., each of whom is independent within the meaning of the rules of the SEC and The NASDAQ Global Market.

Our compensation committee is authorized to:

- annually evaluate the performance of and review and recommend to our board of directors the compensation arrangements for management, including the compensation for our president and chief executive officer;
- establish and review general compensation policies with the objective to attract and retain superior talent, to reward individual performance and to achieve our financial goals;
- determine or review and make recommendations to our board of directors with respect to director compensation;

- evaluate and assess potential compensation advisors and retain and approve their compensation; and
- administer our stock incentive plans.

Nominating and Governance Committee

At the closing of this offering, our nominating and governance committee will be composed of Max E. Link, Ph.D. (Chairman) and B. Sonny Bal, M.D., each of whom is independent within the meaning of the rules of the SEC and The NASDAQ Global Market. Our nominating and governance committee is authorized to:

- develop and recommend to the board of directors criteria for board and committee membership;
- establish procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- identify individuals qualified to become members of the board of directors and recommend such persons to the board of directors to be nominated for election as directors and/or to each of the board of directors' committees;
- develop and recommend to the board of directors a set of corporate governance principles applicable to our company; and
- oversee the evaluation of the board of directors and management.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee has at any time been an employee of ours. None of our executive officers serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving as a member of our board of directors or compensation committee.

Code of Business Conduct and Ethics

We have adopted a code of business ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. Upon the closing of this offering, our code of business conduct and ethics will be available on our website. We intend to disclose any amendments to the code, or any waivers of its requirements on our website.

EXECUTIVE AND DIRECTOR COMPENSATION

The following discussion relates to the compensation of our "named executive officers," including our Chief Executive Officer and President, Eric K. Olson, and our two most highly compensated executive officers (other than our chief executive officer), Jay M. Moyes, our Chief Financial Officer, and Bryan J. McEntire, our Chief Technology Officer.

Summary Compensation Table

The following table sets forth information about certain compensation awarded or paid to our named executive officers for the 2012 and 2013 fiscal years.

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)(1)	Option Awards ($)(2)	All Other Compensation ($)(3)	Total ($)
Eric K. Olson	2013	315,192	—	442,000(4)	—	34,075(5)	791,267
Chief Executive Officer and President	2012	240,423	20,000	—	325,000	—(6)	585,423
Jay M. Moyes	2013	50,000(7)	100,000(8)	1,030,200(9)	—	30,288(10)	1,210,488
Chief Financial Officer	2012	—	—	—	—	8,043(11)	8,043
Bryan J. McEntire	2013	228,543	—	299,200(12)	—	33,246	560,989
Chief Technology Officer	2012	217,995	5,000	—	94,550	8,680	326,225

(1) Amounts shown reflect the aggregate grant date fair value of restricted stock units, or RSUs, granted to the named executive officer computed in accordance with the Financial Accounting Standards Board, Accounting Standards Codification Topic 718, *Compensation — Stock Compensation*, or FASB ASC Topic 718. These amounts may not correspond to the actual value that will be recognized by the named executive officers. The grant date fair value of performance-based RSUs is determined based on the probable outcome of such performance conditions as of the grant date. The grant date fair value of the performance-based RSUs assuming the maximum potential value that can be achieved is $442,000 for Mr. Olson, $1,030,200 for Mr. Moyes and $299,200 for Mr. McEntire. Assumptions used in the calculations of these amounts are included in Note 8 to our financial statements included elsewhere in this prospectus.

(2) Amount shown for Mr. Olson reflects the grant date fair value of options awarded in 2012 determined in accordance with FASB ASC Topic 718. The amount shown for Mr. McEntire reflects the incremental fair value of stock options issued in exchange for outstanding stock options with exercise prices over $25.77 in March 2012. These amounts exclude the value of estimated forfeitures. Assumptions used in the calculations of these amounts are included in Note 8 to our financial statements included elsewhere in this prospectus.

(3) Amount reflects the aggregation of any matching of 401(k) contributions, group term life premiums paid by us and accrued vacation in instances where each such amount is less than $10,000, unless otherwise noted.

(4) Amount includes the grant date fair value of (i) 23,279 RSUs issued to Mr. Olson in exchange for the cancellation of options to purchase 23,279 shares of our common stock held by Mr. Olson and (ii) 1,940 RSUs that were issued to Mr. Olson in June 2013.

(5) Includes $26,923 of accrued vacation.

(6) Mr. Olson did not contribute money to our 401(k) plan in 2012. Therefore we paid no matching 401(k) amounts nor did we provide him with any other additional compensation in 2012.

(7) Amount reflects the pro-rated amount of Mr. Moyes's annual salary of $325,000 that was paid to Mr. Moyes since the beginning of his employment with us through the end of the 2013 fiscal year.

(8) Amount reflects the signing bonus that was paid to Mr. Moyes upon the commencement of his employment.

(9) Amount reflects the grant date fair value of (i) 58,197 RSUs that were issued to Mr. Moyes upon the commencement of his employment and (ii) 582 RSUs that were issued to Mr. Moyes as a non-employee director prior to the commencement of his employment.

(10) Amount includes the $27,185 of board member attendance fees paid to Mr. Moyes for his service as a member of our board of directors prior to the commencement of his employment with us.

(11) Amount reflects fees paid to Mr. Moyes for service on our board of directors in the 2012 fiscal year.

(12) Amount reflects the grant date fair value of (i) 16,101 RSUs that were issued to Mr. McEntire in February 2013 in exchange for the cancellation of options to purchase 16,101 shares of our common stock held by him and (ii) 970 RSUs that were issued to Mr. McEntire in June 2013.

Narrative Disclosure to Summary Compensation Table

Base Salaries. The base salaries for our named executive officers were determined by our compensation committee after reviewing a number of factors, including:

- the responsibilities associated with the position held by each of our executive officers and where that position fits within our overall corporate structure;
- the seniority of the individual executive's position;
- the base salary level of each executive officer in prior years;
- our overall financial position; and
- for executive officers other than our Chief Executive Officer, recommendations made by our Chief Executive Officer.

Our board of directors approved a salary of $250,000 for Mr. Olson and $228,545 for Mr. McEntire, effective as of January 1, 2012. Mr. Moyes was not employed by us at this time and as such received no compensation from us in 2012 other than fees for serving as a non-employee director. Our board of directors reduced the salaries of our named executive officers by ten percent effective as of May 31, 2012 in order to conserve cash. On December 12, 2012, Mr. McEntire's salary was restored to its original 2012 amount and Mr. Olson's salary was increased to $300,000. Our board, on the recommendation of our compensation committee decided to give this base salary increase to Mr. Olson in recognition of his significant contributions to our company, including helping to increase our revenue above $23.0 million, aligning our sales and marketing team's salaries with our revenues and our receipt of 510(k) clearance for our second generation *Valeo* products while under his leadership. As a result of these salary changes in 2012, Messrs. Olson and McEntire received the following salary amounts:

Name	Initial Base Salary (1)($)	10% Reduced Base Salary (2)	Restored/New Base Salary (3)
Eric K. Olson Chief Executive Officer and President	250,000	225,000	300,000
Bryan J. McEntire Chief Technology Officer	228,545	205,691	228,545

(1) Base salary from January 1, 2012 to May 31, 2012
(2) Base salary from June 1, 2012 to December 12, 2012
(3) Base salary as of December 12, 2012.

Our board authorized salary increases for each of our named executive officers effective as of October 30, 2013. Accordingly, Mr. Olson's salary was increased from $300,000 to $350,000, and Mr. McEntire's salary was increased from $228,545 to $235,000. Mr. Moyes did not receive a salary increase as he had just began his employment with us at the time of salary increases.

Annual Cash Bonuses. We have historically awarded discretionary cash bonuses to our executive officers. These bonuses are intended to reward our executive officers for the achievement of key strategic and business outcomes. Accordingly, each of Messrs. Olson and McEntire was awarded a cash bonus for 2012 equal to $20,000 and $5,000, respectively. Mr. Moyes was not employed with us in 2012 and as such did not receive a cash bonus for 2012. Our compensation committee has established a set of corporate objectives pursuant to which they may award our executive officers cash bonuses for their performance during 2013. These cash bonuses are discretionary and the compensation committee has not yet decided whether or not cash bonuses will be awarded for 2013 performance.

Long-Term Incentives. All options granted to our executive officers have been granted under the 2003 Stock Option Plan, or the 2003 Plan. These options vest over a period of time, generally four years. Upon termination of employment for any reason other than cause, our vested stock options granted to our named executive officers do not terminate and instead remain outstanding for their full-term of ten years. In the future, our compensation committee, with the approval of our board and stockholders, may grant to our named executive officers under the Amended and Restated 2012 Equity Incentive Plan, or the 2012 Plan, incentive stock options, non-qualified stock options, restricted and unrestricted stock awards, or stock-based awards, including RSUs and other stock based awards. See "—Equity Incentive Plans—2012 Plan" below for additional details about the 2012 Plan.

In March 2012, our board approved the cancellation of stock options held by current employees and members of our board with exercise prices above $25.77 per share and replaced such options with new options for an equivalent number of shares with exercise prices of $25.77 per share and ten-year terms to expiration, which were fully vested as of the date of grant. Mr. McEntire exchanged 8,147 options for an equal number of options at this time. None of Mr. Olson's options were cancelled because he held no options that had exercise prices over $25.77. Mr. Moyes was not a member of our board of directors or our employee at that time.

2013 Compensation.

In January 2013, we offered to each employee and director that held options to acquire shares of our common stock awarded under the 2003 Plan the opportunity to exchange such options for RSUs to be issued under the 2012 Plan on a one-for-one basis. As a result of the exchange offer, 93,968 RSUs were issued under the 2012 Plan in February 2013. Messrs. Olson and McEntire exchanged stock options and received 23,279 and 16,101 RSUs, respectively. Mr. Moyes did not have options eligible for conversion. The RSUs expire three years from the date of grant and will only vest upon (i) the date of expiration of the lock-up period imposed on the employees and directors after completion of the closing of an underwritten initial public offering of the shares of our common stock or (ii) the date of closing of a change in control provided, in each case, that the individual is providing services to us on such date.

In June 2013, in lieu of granting stock options, our board approved a grant of RSUs under the 2012 Plan to our named executive officers. Messrs. Olson and McEntire received 1,940 and 970 RSUs, respectively. The RSUs, which were awarded based on our 2012 performance, will vest upon (i) the date of expiration of the lock-up period imposed in connection with the closing of an underwritten initial public offering of shares of our common stock or (ii) the date of a closing of a change in control, in each case, provided that the executive officer is providing services to us on such date and such event occurs within three years from the grant date.

On October 27, 2013, our board approved the hiring of Mr. Moyes as our Chief Financial Officer at an annual base salary of $325,000 and provided Mr. Moyes with a signing bonus of $100,000 which was paid on his first day of employment. In addition, if Mr. Moyes's employment is terminated by us for any reason other than cause, he shall be entitled to receive a pro-rated portion of his annual bonus for the year in which the termination occurs. In connection with his hiring, our board approved a grant of 58,197 RSUs to Mr. Moyes under the 2012 Plan, of which (i) 19,399 RSUs vested on his first day of employment, (ii) 19,399 RSUs will vest upon a restructuring, refinancing, or replacement of the GE Capital Senior Secured Credit Facility if such event occurs prior to January 31, 2014, and (iii) 19,399 RSUs will vest upon the pricing of an initial public offering of the shares of our common stock if such event occurs prior to June 30, 2014 provided, in each case, that Mr. Moyes is providing services to us on such date. In addition, all of the RSUs shall fully vest upon the first to occur of a change in control, or a termination of Mr. Moyes upon disability or death. In addition, the release date of the shares for any vested RSUs will be postponed until the first to occur of (i) a change in control or (ii) a separation of Mr. Moyes's service with us for any reason in compliance with Section 409A of the Internal Revenue Code.

2014 Compensation

On January 27, 2014, our board approved grants of RSUs to our named executive officers in the aggregate amount of 807,965 shares, as detailed below, subject to stockholder approval of an amendment to the 2012 Plan to increase the number of shares authorized for issuance under the 2012 Plan, to be issued on the earlier of (i) a change in control and (ii) the effectiveness of a registration statement on Form S-8 which registers the shares underlying the RSUs:

Name and Title	Grant Amount
Eric K. Olson Chief Executive Officer and President	417,077
Jay M. Moyes Chief Financial Officer	299,713
Bryan J. McEntire Chief Technology Officer	91,175

Outstanding Equity Awards at Fiscal Year-End

The following table shows information regarding equity awards held by our named executive officers as of December 31, 2013.

	Option Awards				Stock Awards	
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date	Equity Incentive Plan Awards: Number of Unearned Shares, Units, or Other Rights That Have Not Vested (#) (1)	Equity Incentive Value of Unearned Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($) (2)
Eric K. Olson Chief Executive Officer and President	—	—	—	—	25,219	442,000
Jay M. Moyes Chief Financial Officer	—	—	—	—	39,380	690,200
Bryan J. McEntire Chief Technology Officer	7,760	—	6.44	6/8/2014	17,071	299,200

(1) RSUs vest upon the earlier to occur of (i) date of expiration of the lock-up imposed on the employees and directors after completion of the closing of an underwritten initial public offering of the shares of our common stock or (ii) the date of a closing of a change in control provided, in each case, that the individual providing services to us on such date, and expire three years after the date of grant.

(2) Reflects the value calculated by multiplying the number of unvested RSUs by the value of our common stock on December 31, 2013, which we estimate was approximately $17.53.

Retirement Benefits

401(k) Plan

Our employee savings plan is a tax-qualified profit sharing plan that includes a “cash-or-deferred” (or 401(k)) feature. The plan is intended to satisfy the requirements of Section 401 of the Internal Revenue Code. Our employees may elect to reduce their current compensation by up to the statutorily prescribed annual limit and have a like amount contributed to the plan. In addition, we may make discretionary and/or matching contributions to the plan in amounts determined annually by our board. We currently elect to match the contributions of our employees who participate in our 401(k) plan as follows: a match of 100% on the first 3% of compensation contributed by a plan participant and a match of 50% on amounts above 3%, up to 5%, of compensation contributed by a plan participant. In 2013, our employer contribution to the plan was $158,419.

Potential Payments Upon Termination or Change in Control

We have entered into certain agreements and maintain certain plans that may require us to make certain payments and/or provide certain benefits to the executive officers named in the Summary Compensation Table in the event of a termination of employment or change in control.

Pursuant to severance agreements that we have entered into with each of our named executive officers (other than Mr. Moyes, who would receive severance payments pursuant to the terms of his employment agreement as more fully described below), upon the consummation of a change in control, all outstanding options, restricted stock and other such rights held by the executives will fully vest. Additionally, if a change in control occurs and at any time during the one-year period following the change in control (i) we or our successor terminate the executive’s employment other than for cause (but not including termination due to the executive’s death or disability) or (ii) the executive terminates his employment for good reason, then such executive has the right to receive payment consisting of a lump sum payment equal to two times his highest annual salary with us during the preceding three-year period, including the year

of such termination and including bonus payments (measured on a fiscal year basis), but not including any reimbursements and amounts attributable to stock options and other non-cash compensation. “Change in control” is defined in the severance agreements as occurring upon: (i) any “person” (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becoming the “beneficial owner” (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities representing 50% or more of the total voting power represented by our then outstanding voting securities (excluding securities held by us or our affiliates or any of our employee benefit plans) pursuant to a transaction or a series of related transactions which our board did not approve; (ii) a merger or consolidation of our company, other than a merger or consolidation which would result in our voting securities outstanding immediately prior thereto continuing to represent at least 50% of the total voting securities or such surviving entity or parent of such corporation outstanding immediately after such merger or consolidation; or (iii) the approval by our stockholders of an agreement for the sale or disposition of all or substantially all of our assets. As defined in the severance agreements, “cause” means: (i) the executive’s commission of a felony (other than through vicarious liability or through a motor vehicle offense); (ii) the executive’s material disloyalty or dishonesty to us; (iii) the commission by the executive of an act of fraud, embezzlement or misappropriation of funds; (iv) a material breach by the executive of any material provision of any agreement to which the executive and we are party, which breach is not cured within 30 days after our delivery to the executive of written notice of such breach; or (v) the executive’s refusal to carry out a lawful written directive from our board. “Good reason” as defined in the severance agreements means, without the executive’s consent: (i) a change in the principal location at which the executive performs his duties to a new work location that is at least 50 miles from the prior location; or (ii) a material change in the executive’s compensation, authority, functions, duties or responsibilities, which would cause his position with us to become of less responsibility, importance or scope than his prior position, provided, however, that such material change is not in connection with the termination of the executive’s employment with us for any reason.

In the event that an officer entitled to receive or receives payment or benefit under the severance agreements described above, or under any other plan, agreement or arrangement with us, or any person whose action results in a change in control or any other person affiliated with us and it is determined that the total amount of payments will be subject to excise tax under Section 4999 of the Internal Revenue Code, or any similar successor provisions, we will be obligated to pay such officer a “gross up” payment to cover all taxes, including any excise tax and any interest or penalties imposed with respect to such taxes due to such payment.

Pursuant to the terms of Mr. Moyes’s employment arrangement, upon the occurrence of a change in control, all RSUs granted to Mr. Moyes at the time of his employment will fully vest. Pursuant to the employment arrangement, if: (i) Mr. Moyes is terminated by us without cause, (ii) he terminates his employment for good reason, or (iii) in the event a change in control occurs and Mr. Moyes is not offered continuing employment by the acquiring company or if such continuing employment is terminated without cause or if he terminates such continuing employment with good reason at any time during the twelve months following the change in control, we will be required to pay Mr. Moyes a lump sum equal to the sum of: (i) two times his annual salary in effect on the date of termination, (ii) any unpaid bonus through the end of his employment for the prior year that had been earned by Mr. Moyes but not paid plus a pro rata portion of his performance bonus and (iii) two times his sign on bonus. In addition, provided Mr. Moyes properly elects for continuation coverage, we will pay health insurance premiums for Mr. Moyes, his spouse and any covered dependents for a period of 24 months following the termination of his employment. Pursuant to the terms of the employment arrangement, “good reason” means, without Mr. Moyes’s consent, the occurrence of any one or more of the following events: (i) a material diminution of Mr. Moyes’s authority, functions, duties or responsibilities; (ii) a relocation of Mr. Moyes’s principal workplace to a new location more than 50 miles from the prior location; (iii) the material diminution of Mr. Moyes’s annual base salary, other than in the event of a reduction in compensation of all of our executive officers, generally, so long as the reduction to Mr. Moyes’s base salary is no more than the average reduction; or (iv) a material breach by us of the terms of the employment agreement. “Change in control” has the same meaning as previously described under the severance agreements for the other executive officers.

In connection with a change in control, if Mr. Moyes will be required to pay any excise tax pursuant to Section 4999 of the Internal Revenue Code or any similar successor provisions then we will make an additional “gross up” payment to Mr. Moyes in an amount to cover such excise tax and the taxes associated with each payment.

Equity Incentive Plans

2003 Plan

The 2003 Plan was approved by our board and our stockholders on August 3, 2003 and terminated in September 2012. As such, no additional awards may be made under the 2003 Plan. The 2003 Plan provided for the granting of incentive stock options and NQSOs to our employees, officers, directors and consultants. As of September 30, 2013, there were options to purchase 94,161 shares of our common stock outstanding under the 2003 Plan.

Plan Administration. Our board is the administrator of the 2003 Plan, except that it may also delegate such authority to a committee of the board, in which case the committee shall be the administrator. Our board has delegated authority to administer the 2003 Plan to the compensation committee.

Termination of Service. Unless otherwise provided in an award agreement, upon a termination of a participant's service for cause (as defined in the 2003 Plan), all options then held by the participant will terminate. Upon termination, vested options remain outstanding for their full ten year term.

Transferability. Generally, awards under the 2003 Plan may not be transferred except by will or by the laws of descent and distribution. However, NQSOs may be transferred for no consideration for the benefit of a participant's immediate family.

Adjustment. In the event of a stock dividend, stock split, recapitalization or reorganization or other change in capital structure, the 2003 Plan administrator will make appropriate adjustments to the number and kind of shares of stock or securities subject to outstanding options.

Corporate Transaction. Unless otherwise provided in a participant's award agreement, if we are acquired, the administrator of the 2003 Plan may provide for the substitution of all the outstanding option awards by the acquiring or surviving entity. If the awards are not so assumed or substituted, each stock option may, upon written notice to the participants, vest (either to the extent exercisable or at the discretion of the administrator, or upon a change in control, in full) and become fully exercisable. Otherwise, the administrator may terminate all outstanding options in exchange for cash payment equal to the excess of the fair market value of the shares subject to such options (either to the extent exercisable or at the discretion of our compensation committee, or upon a change in control, in full) over the exercise price of such options.

Amendment of Outstanding Options. The administrator may amend any term or condition of an outstanding option provided that any such amendment shall be made only with the consent of the participant if the amendment is adverse to the participant.

2012 Plan

In September 2012, our board adopted the 2012 Plan and reserved for issuance under the 2012 Plan the aggregate sum of (i) 155,192 shares of our common stock and (ii) any shares of our common stock represented by awards granted under the 2003 Plan that are forfeited, expire or are cancelled without delivery of shares of our common stock after September 6, 2012. Subject to adjustment, as of September 30, 2013, the maximum number of shares that could be delivered in satisfaction of awards under the 2012 Plan was 292,274 shares. The 2012 Plan is intended to encourage ownership of common stock by our employees and directors and certain of our consultants in order to attract and retain such people, to induce them to work for the benefit of us and to provide additional incentive for them to promote our success. In November 2013 and January 2014, our board approved amendments to the 2012 Plan, subject to stockholder approval, to become effective upon the completion of the initial public offering of shares of our common stock. Pursuant to the amendments, the number of shares of our common stock reserved for issuance under the 2012 Plan will be 3,000,000, which number shall be automatically increased on January 1 of each of year by the lesser of (i) 5% of the number of outstanding shares of our common stock on such date, (ii) 5% of the number of outstanding shares upon the completion of our initial public offering of shares our common stock, and (iii) such other amount determined by the board through the termination of the 2012 Plan. Upon the completion of this offering, 1,594,170 shares of common stock issuable upon the vesting of RSUs will be outstanding under the 2012 Plan.

Types of Awards. The 2012 Plan provides for the granting of incentive stock options, NQSOs, stock grants and other stock-based awards, including RSUs.

- *Incentive and Nonqualified Stock Options*. The plan administrator determines the exercise price of each stock option. The exercise price of an NQSO may not be less than the fair market value of our common stock on the date of grant. The exercise price of an incentive stock option may not be less than the fair market value of our common stock on the date of grant if the recipient holds 10% or less of the combined voting power of our securities, or 110% of the fair market value of a share of our common stock on the date of grant otherwise.
- *Stock Grants*. The plan administrator may grant or sell stock, including restricted stock, to any participant, which purchase price, if any, may not be less than the par value of shares of our common stock. The stock grant will be subject to the conditions and restrictions determined by the administrator. The recipient of a stock grant shall have the rights of a stockholder with respect to the shares of stock issued to the holder under the 2012 Plan.
- *Stock-Based Awards*. The administrator of the 2012 Plan may grant other stock-based awards, including stock appreciation rights, phantom stock awards and RSUs, with terms approved by the administrator, including restrictions related to the awards. The holder of a stock-based award shall not have the rights of a stockholder until shares of our common stock are issued pursuant to such award.

Plan Administration. Our board is the administrator of the 2012 Plan, except to the extent it delegates its authority to a committee, in which case the committee shall be the administrator. Our board has delegated this authority to our compensation committee. The administrator has the authority to determine the terms of awards, including exercise and purchase price, the number of shares subject to awards, the value of our common stock, the vesting schedule applicable to awards, the form of consideration, if any, payable upon exercise or settlement of an award and the terms of award agreements for use under the 2012 Plan.

Eligibility. Our board will determine the participants in the 2012 Plan from among our employees, directors and consultants. A grant may be approved in advance with the effectiveness of the grant contingent and effective upon such person's commencement of service within a specified period.

Termination of Service. Unless otherwise provided by our board or in an award agreement, upon a termination of a participant's service, all unvested options then held by the participant will terminate and all other unvested awards will be forfeited.

Transferability. Awards under the 2012 Plan may not be transferred except by will or by the laws of descent and distribution, unless otherwise provided by our board in its discretion and set forth in the applicable agreement, provided that no award may be transferred for value.

Adjustment. In the event of a stock dividend, stock split, recapitalization or reorganization or other change in change in capital structure, our board will make appropriate adjustments to the number and kind of shares of stock or securities subject to awards.

Corporate Transaction. If we are acquired, our board of directors (or compensation committee) will: (i) arrange for the surviving entity or acquiring entity (or the surviving or acquiring entity's parent company) to assume or continue the award or to substitute a similar award for the award; (ii) cancel or arrange for cancellation of the award, to the extent not vested or not exercised prior to the effective time of the transaction, in exchange for such cash consideration, if any, as our board of directors in its sole discretion, may consider appropriate; or (iii) make a payment, in such form as may be determined by our board of directors equal to the excess, if any, of (A) the value of the property the holder would have received upon the exercise of the award immediately prior to the effective time of the transaction, over (B) any exercise price payable by such holder in connection with such exercise. In addition in connection with such transaction, our board of directors may accelerate the vesting, in whole or in part, of the award (and, if applicable, the time at which the award may be exercised) to a date prior to the effective time of such transaction and may arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us with respect to an award.

Amendment and Termination. The 2012 Plan will terminate on September 6, 2022 or at an earlier date by vote of the stockholders or our board; provided, however, that any such earlier termination shall not affect any awards granted under the 2012 Plan prior to the date of such termination. The 2012 Plan may be amended by our board, except that our board may not alter the terms of the 2012 Plan if it would adversely affect a participant's rights under an outstanding stock right without the participant's consent. Stockholder approval will be required for any amendment to the 2012 Plan to the extent such approval is required by law, include the Internal Revenue Code or applicable stock exchange requirements.

Amendment of Outstanding Awards. The administrator may amend any term or condition of any outstanding award including, without limitation, to reduce or increase the exercise price or purchase price, accelerate the vesting schedule or extend the expiration date, provided that no such amendment shall impair the rights of a participant without such participant's consent.

2013 Employee Stock Purchase Plan

Our board of directors approved our 2013 Employee Stock Purchase Plan, or our 2013 ESPP, in November 2013. Our 2013 ESPP will become effective on a date to be determined by our board of directors following the date on which this registration statement is declared effective. On January 27, 2014, our board voted to increase the number of shares of our common stock reserved for issuance under the 2013 ESPP.

A total of 170,000 shares of our common stock will be initially authorized and reserved for sale under our 2013 ESPP. In addition, our 2013 ESPP provides for an automatic annual increase in the number of shares available for issuance under the plan on January 1 of each year beginning in 2015 and continuing through and including January 1, 2023 equal to the lesser of (i) 170,000 shares, (ii) 1.5% of our then issued and outstanding shares of our common stock on the immediately preceding December 31, or (iii) a number of shares as our board of directors may determine.

Plan Administration. Our board of directors will administer our 2013 ESPP and will have the authority to construe and interpret the terms of our 2013 ESPP and any awards granted under it.

Eligibility. Our employees and employees of any subsidiary corporation designated by our board of directors are eligible to participate in our 2013 ESPP if they are customarily employed by us for more than 20 hours per week and more than five months in any calendar year. However, an employee may not be granted a right to purchase stock under our 2013 ESPP if: (i) the employee immediately after such grant would own stock possessing 5% or more of the total combined voting power or value of all classes of our capital stock or of any subsidiary corporation, (ii) the employee's rights to purchase stock under all of our employee stock purchase plans would accrue at a rate that exceeds $25,000 in value for each calendar year of participation in such plans, or (iii) the employee right to purchase shares of our common stock in a single offering period exceeds the number of shares calculated by dividing $50,000 by the fair market value of shares of our common stock on the first day of the offering period.

Plan Structure. Our 2013 ESPP is generally designed to comply with the provisions of Section 423 of the Internal Revenue Code and will typically be implemented through a series of sequential offering periods, generally six months in duration, as established by our board of directors. In addition, our board of directors may establish an offering period to commence on the effective date of our 2013 ESPP of such duration as our board of directors may determine (subject to restrictions imposed by applicable law).

Amounts accumulated for each participant, generally through payroll deductions, are credited toward the purchase of shares of our common stock at the end of each offering period at a price generally equal to 85% of the lower of the fair market value of our common stock at the beginning of the offering period or on the purchase date (which will typically be at the end of an offering period).

If insufficient shares remain available under the plan to permit all participants to purchase the number of shares to which they would otherwise be entitled, our compensation committee will make a pro rata allocation of the available shares. Any amounts withheld from participants' compensation in excess of the amounts used to purchase shares will be refunded.

Corporate Transaction. In the event of any merger, consolidation, sale of substantially all of our assets or capital reorganization with or into another corporation, an acquiring or successor corporation shall, unless otherwise determined by our board of directors, assume or substitute the shares issuable pursuant under our 2013 ESPP into equivalent shares issuable of the capital stock of the acquiring corporation, its parent or subsidiary. Alternatively, our board of directors may, in its sole discretion and in lieu of such assumption or substitution, shorten the offering period then in progress and set a new exercise date to a date prior to the change in control as specified by our board of directors.

Amendment and Termination. Our board of directors has the authority to amend, suspend or terminate our 2013 ESPP, except that, subject to certain exceptions described in the 2013 ESPP, no such action may adversely affect any outstanding rights to purchase stock under our 2013 ESPP.

Director Compensation

The following table shows the total compensation paid or accrued during the fiscal year ended December 31, 2013 to each of our non-employee directors except Mr. Jeffrey S. White who was not a member of our board of directors in 2013. Fees paid to Mr. Moyes for his service as a director prior to his employment with us are included in the Summary Compensation Table.

Name	Fees Earned or Paid in Cash($)	Stock Awards ($)(1)(2)	Option Grants ($)(3)	All Other Compensation ($)	Total ($)
Max E. Link, Ph.D.	38,500	10,200	—	—	48,700
B. Sonny Bal, M.D.	26,000	10,200	—	—	36,200
Gregg R. Honigblum(4)	24,151	10,200	—	—	34,351
Rohit Patel(5)	30,909	10,200	—	12,250(6)	53,359
George Singer(7)	17,522	10,200	—	—	27,722
David Truetzel	43,751	10,200	—	—	53,951

(1) As part of the annual grant to directors, each director received 582 RSUs. These RSUs expire three years from the date of grant and will only vest upon (a) the earlier of the date of expiration of the lock-up period imposed in connection with the closing of an underwritten initial public offering of shares of our common stock or (b) the date of a closing of a change of control provided, in either case, that the applicable vesting event occurs prior to June 30, 2014.

(2) Amount shown reflects the grant date fair value of the RSUs awarded in 2013 determined in accordance with the Financial Accounting Standards Board, Accounting Standards Codification Topic 718, *Compensation-Stock Compensation.* Assumptions used in the calculation of these amounts are included in Note 8 to our financial statements included elsewhere in this prospectus.

(3) No stock options were granted to directors during 2013. However, as of December 31, 2013, our directors held the following aggregate number of stock options: Dr. Link, 3,783; Dr. Bal, 2,813; Mr. Honigblum, 4,171; Mr. Patel, 9,021; and Mr. Truetzel, 2,716. Mr. Singer did not hold any stock options as of December 31, 2013. All stock options are fully vested.

(4) Mr. Honigblum resigned from our board of directors in September 2013.

(5) Mr. Patel resigned from our board of directors in September 2013.

(6) We paid Mr. Patel $12,250 in consulting fees related to a litigation matter against our former Chief Executive Officer, Ben Shappley, in 2013.

(7) Mr. Singer resigned from our board of directors in September 2013.

We compensate each of the non-employee members of our Board in accordance with the following annual retainer and meeting fees (paid on a quarterly basis):

• Board member Annual Retainer	$20,000
• Board Chair Annual Additional Retainer	$10,000
• Committee Chair Annual Retainer	$ 7,500
• Committee member Annual Retainer	$ 3,750
• Board meeting-in person attendance	$ 1,500
• Board meeting-telephonic attendance	$ 1,000
• Committee meeting attendance	$ 1,500
• Committee meeting-telephonic attendance	$ 1,000

In addition to cash compensation, the non-employee members of our Board have historically been awarded an annual stock option grant in the amount of 582 shares of our common stock. In 2013, in lieu of stock options, non-employee members of the board were each granted 582 RSUs. In January 2013, we offered to each director that held options to acquire shares awarded under the 2003 Plan the opportunity to exchange such options for an

equal number of RSUs. Messrs. Patel and Truetzel each exchanged stock options and received 9,021 RSUs and 2,716 RSUs, respectively, under the 2012 Plan. These RSUs expire three years from the date of grant and will only vest upon continued service with us and if either of the following events occurs prior to the expiration date: (i) the date of the expiration of the lock-up period imposed on the directors after completion of the closing of an underwritten initial public offering of the shares of our commons stock or (ii) upon a change in control (as defined in the 2012 Restricted Stock Unit Agreement).

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since January 1, 2010 to which we have been a party, in which the amount involved in the transaction exceeded $120,000, and in which any of our directors, executive officers or, to our knowledge, beneficial owners of more than 5% of our common stock, on an as converted basis, or any member of the immediate family of any of the foregoing persons had or will have a direct or indirect material interest, other than equity and other compensation, termination, change in control and other arrangements, which are described under "Executive and Director Compensation." With the approval of our board of directors, we have engaged in the transactions described below with our directors, executive officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and affiliates of our directors, executive officers and 5% stockholders.

Acquisition of US Spine, Inc. and Transactions with MSK Investments, LLC and its Affiliates

Acquisition of US Spine, Inc.

In September 2010, we acquired US Spine, Inc., or US Spine. In this transaction, US Spine became our wholly owned subsidiary as we acquired all of the outstanding capital stock of US Spine for up to $42.6 million payable by the following:

- the issuance of 7,150,000 shares of our Series E convertible preferred stock, of which 333,750 shares were paid to Spinal Management LLC an advisor of US Spine as a transaction fee payment and 1,806,250 shares were placed in an escrow to cover indemnification claims under the acquisition agreement;
- the issuance of up to 6,250,000 shares of our Series E convertible preferred stock upon the achievement of certain earnout milestones, which we refer to as the US Spine Earnout;
- the issuance of up to 350,000 shares of our Series E convertible preferred stock if we did not issue certain US Spine sales agents a specified number of warrants to purchase our common stock within three years after the closing of the acquisition; and
- the payment of $15.1 million in cash to certain debt holders of US Spine, including $9.1 million paid at closing and $6.0 million payable pursuant to a promissory note, or the US Spine Note, issued in favor of MSK Investments, LLC, or MSK. The US Spine Note was payable in two installments of $3.0 million payable in September 2011 and September 2012, provided, that $1.0 million of the first installment was payable if we raised $20.0 million or more in equity financing before September 2011.

As a result of this transaction, MSK, a company controlled by James G. Koman, together with its affiliates, became a beneficial owner of more than 5% of our common stock, on an as converted basis, and David Truetzel, a 50% co-owner of Spinal Management LLC, became a member of our board of directors. MSK and its affiliates received 5,127,353 shares of our Series E convertible preferred stock, $244,000 in cash and the US Spine Note. Mr. Truetzel received $90,000 for past services to US Spine and 50% interest in the shares of our Series E convertible preferred stock issued to, and a $667,500 cash payment made to Spinal Management LLC.

Settlement Agreement with MSK Investments, LLC

In May 2012, we entered into a settlement agreement with Mr. Koman and MSK, on its own behalf and acting in its capacity as stockholders' representative for the former stockholders of US Spine, to resolve certain disputes. Pursuant to the settlement agreement, in lieu of the US Spine Earnout, we issued (a) 842,443 shares of our Series E convertible preferred stock to the former stockholders of US Spine, of which 39,249 shares were issued to MSK and its affiliates, and (b) 2,557,562 shares of our Series C convertible preferred stock to MSK. We also agreed to release the 1,806,250 shares of our Series E convertible preferred stock from escrow, of which 1,380,654 were received by MSK and its affiliates. MSK and Mr. Koman also agreed to certain standstill covenants in our favor that expire on May 10, 2015. Spinal Management LLC also received a commission that was paid in 42,122 and 127,878 of the shares of our Series E convertible preferred stock and Series C convertible preferred stock, respectively, issued under the settlement agreement.

Restructuring and Payment of the US Spine Note

In October 2012, we restructured the terms of the US Spine Note to extend the maturity date of the second $3.0 million installment from September 2012 to December 2012. We made payments to MSK of $500,000 on October 31, 2012 and $2,500,000 on December 17, 2012 in connection with this restructuring.

Private Placement of Series E Convertible Preferred Stock

Between March 2010 and July 2010, we issued an aggregate of 7,209,273 shares of our Series E convertible preferred stock at a purchase price of $2.00 per share to 147 accredited investors, including an aggregate of 1,706,396 shares to the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates:

Name	Number of Shares of Series E Convertible Preferred Stock	Aggregate Purchase Price
Max E. Link, Ph.D.	25,000	$ 50,000
B. Sonny Bal, M.D.(1)	115,000	$ 230,000
Rohit Patel(2)	13,125	$ 26,250
Gregg R. Honigblum(3)	56,250	$ 112,500
George A. Singer(4)	125,062	$ 250,125
Karl Kipke(5)	319,542	$ 639,084
Kevin Murphy	112,500	$ 225,000
Allan R. Lyons(6)	939,917	$ 1,879,834

(1) Includes 90,000 shares that were jointly issued to Dr. Bal and his spouse, as well as 12,500 shares that were issued to Dr. Bal's father, and 12,500 shares that were issued to Dr. Bal's brother.

(2) Shares are held by The Patel Family Trust U/A/D November 7, 1996, of which Mr. Patel and his spouse are the sole beneficiaries. Mr. Patel resigned from our board of directors in September 2013.

(3) Includes 50,000 shares that were issued to Mr. Honigblum and 50% of the 12,500 shares that were issued to Creation Capital, LLC ("Creation Capital"), of which Mr. Honigblum is a 50% owner. Mr. Honigblum is a managing member of Creation Capital. Mr. Honigblum resigned from our board of directors in September 2013.

(4) Consists of 50% of the 250,125 shares issued to Singer Bros. LLC, of which Mr. Singer is a 50% owner. Mr. Singer is a managing member of Singer Bros. LLC. Mr. Singer resigned from our board of directors in September 2013.

(5) Shares were issued to Hampshire Healthcare Partners, LP. Hampshire Special Opportunities, LLC ("Special Opportunities") is the general partner of Hampshire Healthcare Partners, LP. Mr. Kipke is the managing member of Special Opportunities.

(6) Includes 879,357 shares that were issued to Vestal Venture Capital, LP ("Vestal") and 60,560 shares that were issued to Lyonshare Venture Capital LP ("Lyonshare"). Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of both Vestal and Lyonshare.

Investors participating in the February 2010 closing that purchased at least 12,500 shares of our Series E convertible preferred stock had the right to convert, on a one-for-one basis, shares of our previously issued Series A convertible preferred stock, Series B convertible preferred stock, Series C convertible preferred stock and Series D convertible preferred stock already owned by the investor into a corresponding new series of our convertible preferred stock with a more favorable conversion rate. Directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates participated in this conversion right as follows:

Name	Number of Shares of Series A-1 Convertible Preferred Stock	Number of Shares of Series B-1 Convertible Preferred Stock	Number of Shares of Series C-1 Convertible Preferred Stock	Number of Shares of Series D-1 Convertible Preferred Stock
Max E. Link, Ph.D.	333,334	—	—	—
B. Sonny Bal, M.D.(1)	—	300,000	100,000	120,000
Rohit Patel(2)	—	—	—	35,000
Gregg R. Honigblum(3)	530,500	92,890	—	—
George A. Singer(4)	—	—	—	333,500
Karl Kipke(5)	—	—	—	181,000
Kevin Murphy	—	—	150,000	290,500
Allan R. Lyons(6)	1,403,854	851,251	1,112,500	1,110,000

(1) Includes 300,000 Series B-1 shares and 120,000 Series D-1 shares that were jointly issued to Dr. Bal and his spouse and 50,000 Series C-1 shares that were issued to each of Dr. Bal's father and brother.

(2) Shares were issued to The Patel Family Trust U/A/D November 7, 1996, of which Mr. Patel and his spouse are the sole beneficiaries. Mr. Patel resigned from our board of directors in September 2013.

(3) Includes 468,000 Series A-1 shares and 92,980 Series B-1 shares issued to Mr. Honigblum and 50% of the 125,000 Series A-1 shares that were issued to Creation Capital. Mr. Honigblum is a 50% owner and a managing member of Creation Capital. Mr. Honigblum resigned from our board of directors in September 2013.

(4) Includes 50% of the 667,000 shares issued to Singer Bros. LLC. Mr. Singer is a 50% owner and a managing member of Singer Bros. LLC. Mr. Singer resigned from our board of directors in September 2013.

(5) Shares were issued to Hampshire Healthcare Partners, LP. Special Opportunities is the general partner of Hampshire Healthcare Partners, LP. Mr. Kipke is the managing member of Special Opportunities.

(6) Includes 898,491 Series A-1 shares that were issued to Vestal and 505,363 Series A-1 shares that were issued to Lyonshare; 705,238 Series B-1 shares that were issued to Vestal and 146,013 Series B-1 shares held by Lyonshare; and 1,122,500 shares of Series C-1 shares and 1,110,000 shares of Series D-1 shares that were issued to Vestal. Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of both Vestal and Lyonshare.

Private Placement of Senior Secured Subordinated 6%/8% Convertible Promissory Notes

Between March 2011 and May 2011, we issued an aggregate principal amount of $24.8 million of Senior Secured Subordinated 6%/8% Convertible Promissory Notes, or the Senior Secured Notes, and warrants to purchase 288,802 shares of our common stock at an exercise price of $51.55 per share to 85 accredited investors. In connection with the initial closing of this offering, we received a commitment from Hampshire Med Tech Partners, LP to purchase an additional $5.0 million Senior Secured Note by no later than the first anniversary of the initial closing (upon 30 days written notice to fund). Pursuant to this commitment, we issued an additional $5 million Senior Secured Note in February 2012. We issued an aggregate principal amount of $12,262,500 of our Senior Secured Notes and warrants to purchase up to 118,936 shares of our common stock to the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis and their affiliates:

Name	Principal Amount of Senior Secured Notes	Common Stock Warrants
Max E. Link Ph.D.	$50,000	484
David Truetzel(1)	$25,000	242
Allan R. Lyons(2)	$950,000	9,214
Gregg R. Honigblum(3)	$12,500	121
Karl Kipke(4)	$10,000,000	96,994
B. Sonny Bal, M.D.(5)	$25,000	242
Kevin Murphy	$1,200,000	11,639

(1) Includes a Senior Secured Note and common stock warrant issued to Truetzel Revocable Trust, of which Mr. Truetzel and his spouse are the sole beneficiaries.

(2) Senior Secured Note and common stock warrant issued to Vestal. Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of Vestal.

(3) Consists of 50% of the principal amount of a Senior Secured Note and common stock warrant issued to Creation Capital. Mr. Honigblum is a 50% owner and a managing member of Creation Capital. Mr. Honigblum resigned from our board of directors in September 2013.

(4) Senior Secured Notes and common stock warrants issued to Hampshire Med Tech Partners, LP, in which Mr. Kipke has an ownership interest. Mr. Kipke is the managing member of Hampshire Med Tech Partners, GP, LLC (“Hampshire Med Tech”), its general partner.

(5) Senior Secured Note and common stock warrant issued to Dr. Bal’s father.

Restructuring and Conversion of Senior Secured Subordinated 6%/8% Convertible Promissory Notes

In December 2012, we amended the terms of our Senior Secured Notes and the holders thereof converted all of their Senior Secured Notes into an aggregate of 14,887,500 shares of our Series F convertible preferred stock. We also amended the terms of the warrants issued in connection with the issuance of the Senior Secured Notes to lower the exercise prices thereof from $2.00 per share to $1.00 per share. As a result, we issued an aggregate of 6,131,250 shares of our Series F convertible preferred stock to the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates:

Name	Number of Shares of Series F Convertible Preferred Stock
Max E. Link, Ph.D.	25,000
David Truetzel(1)	12,500
Allan R. Lyons(2)	475,000
Gregg R. Honigblum(3)	6,250
Karl Kipke(4)	5,000,000
B. Sonny Bal, M.D.(5)	12,500
Kevin Murphy	600,000

(1) Includes 12,500 shares that were issued to Truetzel Revocable Trust, of which Mr. Truetzel and his spouse are the sole beneficiaries.
(2) Shares were issued to Vestal. Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of Vestal.
(3) Represents 50% of the 12,500 shares that were issued to Creation Capital. Mr. Honigblum is a 50% owner and a managing member of Creation Capital. Mr. Honigblum resigned from our board of directors in September 2013.
(4) Shares were issued to Hampshire Med Tech Partners, LP. Mr. Kipke is the managing member of Hampshire Med Tech, its general partner.
(5) Shares were issued to Dr. Bal's father.

Warrant Restructuring and Private Placement of Common Stock

In March 2013, we amended the terms of certain of the common stock warrants issued in connection with the issuance of the Senior Secured Notes to further lower the exercise prices thereof from $25.77 per share to $17.53 per share. We then issued an aggregate of 178,516 shares of our common stock to 33 accredited investors upon exercise of the amended common stock warrants and the sale of additional shares of our common stock to other investors in the offering at $17.53 per share. We also issued to investors who exercised their common stock warrants new warrants to purchase an aggregate of 76,455 shares of our common stock at an exercise price of $17.53 per share. We issued an aggregate of 53,347 shares of our common stock and new warrants to purchase up to 17,773 shares of our common stock at an exercise price of $17.53 per share to the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates:

Name	Common Stock upon Exercise of Warrants	New Common Stock	New Common Stock Warrants
Allan R. Lyons(1)	9,214	—	9,214
Kevin Murphy	8,558	—	8,558
Karl Kipke(2)	—	53,347	—

(1) Represents the exercise of common stock warrants by, and issuance of common stock warrants to, Vestal. Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of Vestal.
(2) Represents 53,347 shares of common stock purchased by Hampshire Med Tech Partners, LP. Mr. Kipke is the managing member of Hampshire Med Tech, its general partner.

Private Placement of Series F Convertible Preferred Stock

In August 2013 and September 2013, we issued an aggregate of 94.8 units, each unit consisting of 50,000 shares of our Series F convertible preferred stock and a warrant to acquire 970 shares of our common stock at an exercise price of $25.77 per share, to 45 accredited investors at $100,000 per unit. This resulted in our issuance of an aggregate of 4,740,000 shares of our Series F convertible preferred stock and warrants to purchase an aggregate of 91,951 shares of our common stock, including an aggregate of 1,125,000 shares of our Series F convertible preferred stock and warrants to purchase an aggregate of 21,824 shares of our common stock to the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates:

Name	Number of Units	Purchase Price	Number of Shares of Series F Convertible Preferred Stock	Common Stock Warrants
Max E. Link, Ph.D.	2.0	$ 200,000	100,000	1,940
B. Sonny Bal, M.D.	1.5	$ 150,000	75,000	1,455
David W. Truetzel(1)	1.0	$ 100,000	50,000	970
Jay M. Moyes(2)	0.5	$ 50,000	25,000	485
George Singer(3)	1.0	$ 100,000	50,000	970
Allan R. Lyons(4)	3.5	$ 350,000	175,000	3,395
James G. Koman(5)	1.0	$ 100,000	50,000	970
Kevin Murphy(6)	12.0	$ 1,200,000	600,000	11,639

(1) Investment made by Truetzel Revocable Trust, of which Mr. Truetzel and his spouse are the sole beneficiaries.
(2) Investment made by Drayton Investments, LLC, of which Mr. Moyes is a managing member.
(3) Consists of 50% of the investment made by Singer Bros. LLC. Mr. Singer is a 50% owner and a managing member of Singer Bros. LLC. Mr. Singer resigned from our board of directors in September 2013.
(4) Investment made by Vestal. Mr. Lyons is the managing member and sole owner of 21 st Century Strategic Investment Planning, LLC, the general partner Vestal.
(5) Investment made by MSK, of which Mr. Koman is the managing member.
(6) In connection with the sale and issuance of certain of the units in this financing, we also issued to TGP Securities, Inc., an entity controlled by Mr. Murphy, warrants to purchase 9,311 shares of our common stock at an exercise price of $56.70 per share and paid a cash commission of $480,000 to TGP Securities, Inc., neither of which are reflected in the table.

Transactions with Creation Capital, LLC and Creation Capital Advisors, LLC

Mr. Gregg R. Honigblum, the Chief Executive Officer and a 50% co-owner of each of Creation Capital and Creation Capital Advisors, LLC, or Creation Advisors, served on our board of directors from 2006 until September 2013. We completed the offering of shares of our Series E convertible preferred stock between March 2010 and July 2010 through Creation Capital, which served as our placement agent. We paid Creation Capital approximately $1,135,000 and issued it a warrant to purchase 567,691 shares of Series E convertible preferred stock at an exercise price of $2.20 per share as commissions.

In connection with the private placement of our Senior Secured Notes between March 2011 and May 2011, Creation Capital served as our placement agent and received $1,049,000 and a warrant exercisable for 57,557 shares of common stock at an exercise price of $56.70 per share as commissions. In February 2012, when we issued an additional $5.0 million Senior Secured Note to Hampshire Med Tech Partners, LP, we paid Creation Capital an additional $212,500.

In June 2012, we entered into a financial advisor consulting agreement with Creation Advisors, pursuant to which we agreed to extend the termination date of the Series C convertible preferred stock warrants previously issued to Creation Capital from February 2013 to February 2018.

In connection with the conversion of our Senior Secured Notes in December 2012, we agreed to pay Creation Advisors a strategic financial advisory fee in the amount of approximately $447,000. We agreed to pay half of the advisory fee, approximately $223,000 in December 2012 and the remaining half within 24 months, which we paid in

September 2013. Karl Kipke, who beneficially owns more than 5% of our common stock, received $60,000 from Creation Advisors in 2012, as a consultant for Creation Advisors, for advising us at this time on our financing options.

In connection with the warrant restructuring and private placement of common stock in March 2013, we paid Creation Advisors a strategic financial advisory fee of approximately $250,000. In October 2013, we entered into a one-year consulting agreement for financial advisory services with Creation Advisors in which Creation Advisors will receive compensation of up to $180,000 in cash (payable $15,000 per month).

Registration Rights

The holders of 2,581,941 shares of common stock, assuming the conversion of our convertible preferred stock, holders of 72,939 shares of common stock, assuming the exercise of preferred stock warrants and further assuming the conversion of such shares of convertible preferred stock, and holders of 12,363 shares of common stock, assuming the exercise of common stock warrants, have entered into an agreement with us that provides certain registration rights to these holders and certain future transferees of their securities. See "Description of Capital Stock—Registration Rights" for a description of these rights. Such holders include the following directors, officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and their affiliates:

Name	Common Stock	Warrants
Allan R. Lyons(1)	298,907	—
Kevin Murphy(2)	258,803	—
Gregg R. Honigblum	40,484	36,988(3)
Karl Kipke(4)	42,829	—
B. Sonny Bal, M.D.(5)	33,894	—
Max E. Link, Ph.D.	26,614	—
George Singer(6)	24,539	—
Rohit Patel(7)	3,949	—
Jay M. Moyes	1,534	—

(1) Consists of 263,138 shares held by Vestal and 35,769 shares held by Lyonshare. Mr. Lyons is the managing member and sole owner of 21st Century Strategic Investment Planning, LLC, the general partner of each of Vestal and Lyonshare.

(2) Includes 231,311 shares held by KM Healthcare Holdings, LP. No Footprints, LLC ("No Footprints") is the general partner of KM Healthcare Holdings, LP. Mr. Murphy is a managing member of No Footprints.

(3) Includes 50% of the 9,254 shares underlying a warrant to purchase shares of our common stock held by Creation Capital, of which Mr. Honigblum is a 50% owner. Mr. Honigblum is a managing member of Creation Capital.

(4) Consists of 16,914 shares held by Hampshire Asset Management, LLC and 25,915 shares held by Hampshire Healthcare Partners, LP. Special Opportunities is the general partner of Hampshire Healthcare Partners, LP. Mr. Kipke is the managing member of Special Opportunities and the president of Hampshire Asset Management, LLC.

(5) Consists of shares held jointly by Mr. Bal and his spouse.

(6) Consists of 50% of the shares held by Singer Bros. LLC. Mr. Singer is a 50% owner and a managing member of Singer Bros. LLC.

(7) Consists of shares held by the Patel Family Trust U/A/D November 7, 1996 of which Mr. Patel and his spouse are the sole beneficiaries.

Equity Grants

We have granted options to purchase shares of our common stock and RSUs to our executive officers and directors. See "Executive and Director Compensation."

Change in Control Agreements

We have entered into severance agreements with our executive officers as described in the section of this prospectus entitled "Executive and Director Compensation—Potential Payments Upon Termination or Change in Control."

Indemnification Arrangements

Our restated certificate of incorporation and restated bylaws to be effective upon completion of this offering provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. In addition, we expect to enter into indemnification agreements with each of our directors and executive officers prior to completion of the offering. A stockholder's investment in our common stock may decline in value to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to any indemnification provisions

Policy for Approval of Related Person Transactions

We believe that all the transactions described above were made on terms no less favorable to us than those that could have been obtained from unaffiliated third parties. With the exception of transactions in which related parties participated on the same terms as those of other participants who were not related parties, our board of directors reviewed and approved the transactions with each related party, namely our directors, executive officers and beneficial owners of more than 5% of our common stock, on an as converted basis, and affiliates of our directors, executive officers and 5% stockholders, and reviewed the material facts as to a related party's relationship or interest in a transaction that were disclosed to our board of directors prior to our board of directors' consideration of a transaction with a related party. The transactions involving related parties were approved by our board of directors, including all of our directors who were not interested in these transactions.

Following this offering, all future related party transactions will be approved by our audit committee. Pursuant to the written charter of our audit committee, the audit committee is responsible for reviewing and approving, prior to our entry into any transaction involving related parties, all transactions in which we are a participant and in which any parties related to us has or will have a direct or indirect material interest.

In reviewing and approving these transactions, the audit committee shall obtain, or shall direct our management to obtain on its behalf, all information that the committee believes to be relevant and important to a review of the transaction prior to its approval. Following receipt of the necessary information, a discussion shall be held of the relevant factors, if deemed to be necessary by the committee, prior to approval. If a discussion is not deemed to be necessary, approval may be given by written consent of the committee. No related party transaction shall be entered into prior to the completion of these procedures.

The audit committee or its chairman, as the case may be, shall approve only those related party transactions that are determined to be in, or not inconsistent with, the best interests of us and our stockholders, taking into account all available facts and circumstances as the committee or the chairman determines in good faith to be necessary. No member of the audit committee shall participate in any review, consideration or approval of any related party transaction with respect to which the member or any of his or her immediate family members is the related party.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information regarding the beneficial ownership of our common stock as of January 15, 2014 by:

- each of our current directors;
- the executive officers named in the summary compensation table;
- all of our directors and executive officers as a group; and
- each stockholder known by us to own beneficially more than 5% of our common stock.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to the securities. Shares of common stock that may be acquired by an individual or group within 60 days of January 15, 2014, pursuant to the exercise of options or warrants, are deemed to be outstanding for the purpose of computing the percentage ownership of such individual or group, but are not deemed to be outstanding for the purpose of computing the percentage ownership of any other person shown in the table. The percentage ownership information under the column entitled "Before Offering" is based on 8,181,818 shares of common stock outstanding on January 15, 2014, which assumes the conversion of all outstanding shares of preferred stock into 7,584,073 shares of common stock. The percentage ownership information under the column entitled "After Offering" is based on the sale of 3,181,818 shares of common stock in this offering.

Except as indicated in footnotes to this table, we believe that the stockholders named in this table have sole voting and investment power with respect to all shares of common stock shown to be beneficially owned by them, based on information provided to us by such stockholders. The address for each director and executive officer listed is: c/o Amedica Corporation, 1885 West 2100 South, Salt Lake City, Utah 84119.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Directors and Named Executive Officers:			
Max E. Link, Ph.D.(1)	73,569	*%	*%
B. Sonny Bal, M.D.(2)	55,664	*	*
David W. Truetzel(3)	26,877	*	*
Jeffrey S. White	—	*	*
Jay M. Moyes(4)	7,723	*	*
Eric K. Olson(5)	—	*	*
Bryan J. McEntire(6)	7,759	*	*
All directors and executive officers as a group (12 individuals)(7)	171,592	2.1	1.5
Five Percent Stockholders:			
Karl Kipke(8) Hampshire Group, LLC 500 Plaza on the Lake, Suite #103 Austin, TX 78746	1,466,125	17.7	12.8
Allan R. Lyons(9) 92 Hawley Street, P. O. Box 1330 Binghamton, NY 13902	494,883	6.0	4.3
Kevin Murphy(10) c/o TGP Securities, Inc. 75 Varick St., Suite 1510 New York, NY 10013	479,764	5.8	4.2

* Represents beneficial ownership of less than 1% of the shares of our common stock.

(1) Consists of 67,363 shares of our common stock, options to acquire 3,782 shares of our common stock currently exercisable or exercisable within 60 days of January 15, 2014. Also includes 2,424 common stock warrants that are currently exercisable. Does not include 581 RSUs.

(2) Consists of 17,116 shares of our common stock held by Dr. Bal, 33,894 shares of our common stock held by Dr. Bal and his spouse, options to acquire 3,200 shares of our common stock currently exercisable or exercisable within 60 days of January 15, 2014. Also includes 1,454 common stock warrants that are currently exercisable. Does not include 581 RSUs.

(3) Consists of 337 shares of our common stock held by Mr. Truetzel, 50% of 22,129 shares of our common stock held by Spinal Management, LLC, of which Mr. Truetzel is a 50% member, 14,264 shares of our common stock held by Truetzel Revocable Trust of which Mr. Truetzel and his spouse are the sole beneficiaries. Also includes 1,212 common stock warrants that are currently exercisable. Does not include 3,297 RSUs.

(4) Consists of 1,534 shares of our common stock, 5,705 shares of our common stock that are beneficially owned by Drayton Investments, LLC, and 484 common stock warrants that are immediately exercisable and beneficially owned by Drayton Investments, LLC. Mr. Moyes is a managing member of Drayton Investments, LLC. Does not include 58,778 RSUs.

(5) Does not include 25,218 RSUs.

(6) Consists of options to acquire 7,759 shares of our common stock currently exercisable or exercisable within 60 days of January 15, 2014, and does not include 17,071 RSUs.

(7) Consists of 171,592 shares of our common stock, options to acquire 14,741 shares of our common stock, and 5,574 common stock warrants that are currently exercisable. Does not include 105,526 RSUs.

(8) Consists of: (i) 16,179 warrants that are currently exercisable held by Mr. Kipke; (ii) 1,194,470 shares and 96,994 common stock warrants that are currently exercisable held by Hampshire Med Tech Partners, LP; (iii) 25,908 shares held by Hampshire Healthcare Partners, LP; and (iv) 16,919 shares held by Hampshire Asset Management, LLC. Hampshire Med Tech is the general partner of Hampshire Med Tech Partners, LP and Special Opportunities is the general partner of Hampshire Healthcare Partners, LP. Mr. Kipke is the managing member of each of Hampshire Med Tech and Special Opportunities and the president of Hampshire Asset Management, LLC. Also includes 115,655 shares held by KM Healthcare Holdings, LP. No Footprints is the general partner of KM Healthcare Holdings, LP. Mr. Kipke is a managing member of No Footprints and shares voting and dispositive power with Mr. Murphy with respect to the shares held by KM Healthcare Holdings, LP.

(9) Consists of: (i) 433,069 shares and 17,789 warrants that are currently exercisable held by Vestal; and (ii) 40,714 shares held by Lyonshare. 21st Century Strategic Investment Planning, LLC is the general partner of each of Vestal and Lyonshare. Mr. Lyons is the managing member of 21st Century Strategic Investment Planning, LLC and, accordingly, has voting and dispositive power with respect to the shares held by Vestal and Lyonshare. Also includes 800 shares of common stock and 2,511 shares of common stock issuable upon exercise of warrants held by Mr. Lyons.

(10) Consists of: (i) 115,656 shares held by KM Healthcare Holdings, LP; (ii) 24,761 shares and 1,939 common stock warrants that are currently exercisable held in an individual retirement account for Mr. Murphy's benefit; and (iii) 285,157 shares and 42,941 warrants that are currently exercisable held directly by Mr. Murphy. No Footprints is the general partner of KM Healthcare Holdings, LP. Mr. Murphy is a managing member of No Footprints and shares voting and dispositive power with Mr. Kipke with respect to the shares held by KM Healthcare Holdings, LP. Also includes warrants to purchase 9,311 shares of our common stock warrants that are currently exercisable and that are held by TGP Securities, Inc., an entity controlled by Mr. Murphy.

DESCRIPTION OF CAPITAL STOCK

Upon completion of this offering, we will be authorized to issue 250,000,000 shares of common stock, $0.01 par value per share, and 130,000,000 shares of preferred stock, $0.01 par value per share, and there will be 11,363,636 shares of common stock and no shares of preferred stock outstanding. Assuming the conversion of our preferred stock as of September 30, 2013, we had 8,181,818 shares of common stock outstanding held of record by 584 separate stockholders, there were outstanding options to purchase 94,161 shares of common stock, 123,721 shares of common stock issuable upon the vesting of outstanding RSUs issued under the 2012 Stock Plan and outstanding warrants to acquire 627,672 shares of common stock, assuming the conversion of our preferred stock warrants into common stock warrants. The following description summarizes the most important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description you should refer to our amended and restated certificate of incorporation and amended and restated bylaws, to be effective upon completion of this offering, copies of which have been filed as exhibits to the registration statement, and to the applicable provisions of the Delaware General Corporation Law.

Common Stock

As of September 30, 2013, we had outstanding an aggregate of 597,745 shares of common stock held of record by 92 stockholders. Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, and do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of our common stock entitled to vote can elect all of the directors standing for election. Subject to preferences that may be applicable to any outstanding shares of preferred stock, holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared from time to time by our board of directors out of funds legally available for dividend payments. All outstanding shares of our common stock are fully paid and nonassessable, and the shares of our common stock to be issued upon completion of this offering will be fully paid and nonassessable. The holders of common stock have no preferences or rights of conversion, exchange, pre-emption or other subscription rights. There are no redemption or sinking fund provisions applicable to our common stock. In the event of any liquidation, dissolution or winding-up of our affairs, holders of our common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

Preferred Stock

As of September 30, 2013, we had outstanding an aggregate of 80,910,394 shares of preferred stock held of record by 523 stockholders. Upon the closing of this offering, all outstanding shares of our preferred stock will have been converted into shares of our common stock. Following this offering, our amended and restated certificate of incorporation will be amended and restated to delete all reference to such shares of preferred stock. The preferred stock, if issued, would have priority over our common stock with respect to dividends and other distributions, including the distribution of assets upon liquidation. Our board of directors has the authority, without further stockholder authorization, to issue from time to time shares of preferred stock in one or more series and to fix the terms, limitations, relative rights and preferences and variations of each series. Although we have no present plans to issue any shares of preferred stock, the issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could decrease the amount of earnings and assets available for distribution to the holders of common stock, could adversely affect the rights and powers, including voting rights, of the common stock, and could have the effect of delaying, deterring or preventing a change in control of us or an unsolicited acquisition proposal.

Warrants

As of September 30, 2013 we had the following warrants outstanding to purchase a total of 2,344,731 shares of our preferred stock and a total of 473,952 shares of our common stock:

- warrants purchase in the aggregate 1,203,750 shares of Series C convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 52,335 shares of our common stock at an exercise price of $56.70 per share, terminating in February 2018;

- warrants to purchase in the aggregate 253,290 shares of Series D convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 12,789 shares of common stock at an exercise price of $85.06 per share, terminating in April 2014;
- warrants to purchase in the aggregate 567,691 shares of Series E convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 25,028 shares of our common stock at an exercise price of $56.70 per share, terminating in September 2015;
- a warrant to purchase 50,000 shares of Series E convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase 2,204 shares of our common stock at an exercise price of $56.70 per share, terminating in April 2015;
- warrants to purchase in the aggregate 270,000 shares of Series F convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 61,634 shares of common stock at an exercise price of $51.55 per share, terminating in December 2022;
- warrants to purchase in the aggregate 22,064 shares of common stock at an exercise price of $85.06 per share, issued in June and August 2008, and terminating seven years from the date of issuance;
- a warrant to purchase 2,910 shares of common stock at an exercise price of $45.11 per share, issued in February 2010 and terminating on February 17, 2017;
- warrants to purchase in the aggregate 288,802 shares of common stock at an exercise price of $17.53 per share, originally issued between March and May 2011, and terminating seven years from the date of issuance;
- warrants to purchase in the aggregate 388 shares of common stock at an exercise price of $51.55 per share, issued on April 18, 2011 and November 15, 2011, and terminating three years from date of issuance;
- warrants to purchase in the aggregate 57,557 shares of common stock at an exercise price of $56.70 per share, issued on May 9, 2011, and terminating five years from the date of issuance;
- a warrant to purchase 970 shares of common stock at an exercise price of $51.55 issued on March 17, 2011;
- warrants to purchase in the aggregate 91,951 shares of common stock at an exercise price of $25.77 per share, issued in August and September 2013, and terminating five years from the date of issuance, which have a price protection provision for any securities issued by us at a price below $25.77 per share (excluding shares sold in connection with this offering and shares granted to our employees or consultants); and
- warrants to purchase 9,311 shares of common stock at an exercise price of $56.70 per share, issued in August and September 2013, and terminating five years from the date of issuance.

These warrants provide for adjustments of the exercise price and the number of shares underlying the warrants upon the occurrence of certain events, including stock dividends, stock splits, reclassifications or other changes in our corporate structure. The holders of these warrants have registration rights that are outlined below under the heading "—Registration Rights."

Registration Rights

Holders of 2,581,941 shares of our Series A and A-1, Series B and B-1, Series C and C-1 (other than those who received shares of Series C convertible preferred stock as a result of the settlement in 2012), Series D and D-1 and Series E convertible preferred stock (other than those who received shares of Series E convertible preferred stock as a result of the 2010 merger with US Spine and the related settlement in 2012) and holders of 85,302 of our Series C, D and E warrants and common stock warrants have entered into an agreement with us that provides certain registration rights to such holders and certain future transferees of their securities. These registration rights are subject to certain conditions and limitations, including our right, based on advice of the lead managing underwriter of a future offering, to limit the number of shares included in any such registration under certain circumstances. We are generally required to pay all expenses incurred in connection with registrations effected in connection with the registration rights below, excluding underwriting discounts and commissions. The registration rights described below with respect to these

securities terminate upon the earlier to occur of (i) the effectiveness of a registration statement with respect to the sale of such securities under the Securities Act and the disposal of such securities in accordance with the registration statement; (ii) the owner of such securities is able to sell all of such securities in a three-month period pursuant to Rule 144 under the Securities Act; (iii) such securities shall become eligible for sale pursuant to Rule 144 under the Securities Act; or (iv) such securities shall have been otherwise transferred pursuant to the Securities Act or an available exemption and new certificates not bearing a legend restricting further transfer shall have been delivered by us, and subsequent disposition of such securities shall not require the registration or qualification of such securities under the Securities Act or any similar state law then in effect. The registration rights may be transferred to any purchaser or recipient of at least 50% of the shares purchased by such stockholders and holders of warrants to the extent they were original purchasers in the preferred stock offerings.

Demand Rights. At any time after 180 days following the completion of our initial public offering, subject to specified limitations, holders of not less than a majority of then existing registrable securities may require that we use commercially reasonable efforts to effect the registration on Form S-1 or Form S-3 (or any other form we are qualified to use) of securities owned by such holders having an aggregate anticipated price to the public of at least $10,000,000 (before selling expenses), or at least $5,000,000 (before selling expenses) in the case of a Form S-3 registration, for sale under the Securities Act. We may be required to effect up to four such registrations in total. We may be required to effect up to two such registrations during the one-year period following the date holders initially notify us of their request that we effect such a registration. Holders of registrable securities who are not among the holders who initially request that we effect a registration are entitled to notice and are entitled to include their shares of common stock in the registration.

Shelf Registration Rights. At any time after we become eligible to file a registration statement on Form S-3, holders of not less than a majority of registrable securities may request, in writing, that we effect the registration on Form S-3, or any successor or similar short form, of securities having an aggregate anticipated offering price to the public of at least $10,000,000 (before selling expenses). We may be required to effect up to two such registrations during the one-year period following the date holders initially notify us of their request that we effect such a registration. Holders with these registration rights who are not among the holders who initially requested that we effect a registration are entitled to notice and are entitled to include their shares of common stock in the registration.

Piggyback Rights. If, at any time commencing 180 days following the completion of our initial public offering, we propose to register shares of our common stock under the Securities Act in connection with a public offering of common stock solely for cash, we will, prior to such filing, give written notice to all holders having registration rights of our intention to do so. Upon the written request of any holder or holders of registrable securities given to us in a timely manner, we shall cause all securities which we have been requested by such holder or holders to register to be registered under the Securities Act to the extent necessary to permit their sale or other disposition in accordance with the intended methods of distribution specified in the request of the holder or holders. We shall have the right to withdraw any such registration without obligation to any stockholder, except for our obligation to pay all registration expenses related to such withdrawn registration. In addition, under certain circumstances, the underwriters, if any, may limit the number of shares included in any such registration. These piggyback registration rights do not apply to registrations of our securities that we initiate that are (i) incidental to any of our stock option plans or other employee benefit plans or a dividend reinvestment plan, (ii) incidental to a business combination or any other similar transaction, the purpose of which is not to raise capital, or (iii) pursuant to a so-called “unallocated” or “universal” shelf registration statement.

Effects of Anti-Takeover Provisions of Our Amended and Restated Certificate of Incorporation, Our Amended and Restated Bylaws and Delaware Law

The provisions of (1) Delaware law, (2) our amended and restated certificate of incorporation to be effective upon completion of this offering and (3) our amended and restated bylaws to be effective upon completion of this offering discussed below could discourage or make it more difficult to prevail in a proxy contest or effect other change in our management or the acquisition of control by a holder of a substantial amount of our voting stock. It is possible that these provisions could make it more difficult to accomplish, or could deter, transactions that

stockholders may otherwise consider to be in their best interests or our best interests. These provisions are intended to enhance the likelihood of continuity and stability in the composition of our board of directors and in the policies formulated by the board of directors and to discourage certain types of transactions that may involve an actual or threatened change in control of our company. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. These provisions also are intended to discourage certain tactics that may be used in proxy fights. These provisions also may have the effect of preventing changes in our management.

Delaware Statutory Business Combinations Provision. We are subject to the anti-takeover provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. For purposes of Section 203, a "business combination" is defined broadly to include a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholder, and, subject to certain exceptions, an "interested stockholder" is a person who, together with his or her affiliates and associates, owns (or within three years prior, did own) 15% or more of the corporation's voting stock.

Classified Board of Directors; Appointment of Directors to Fill Vacancies; Removal of Directors for Cause. Our amended and restated certificate of incorporation provides that our board of directors will be divided into three classes as nearly equal in number as possible. Each year the stockholders will elect the members of one of the three classes to a three-year term of office. All directors elected to our classified board of directors will serve until the election and qualification of their respective successors or their earlier resignation or removal. The board of directors is authorized to create new directorships and to fill any positions so created and is permitted to specify the class to which any new position is assigned. The person filling any of these positions would serve for the term applicable to that class. The board of directors (or its remaining members, even if less than a quorum) is also empowered to fill vacancies on the board of directors occurring for any reason for the remainder of the term of the class of directors in which the vacancy occurred. Members of the board of directors may only be removed for cause and only by the affirmative vote of holders of at least 75% of our outstanding voting stock. These provisions are likely to increase the time required for stockholders to change the composition of the board of directors. For example, in general, at least two annual meetings will be necessary for stockholders to effect a change in a majority of the members of the board of directors.

Authorization of Blank Check Preferred Stock. Our amended and restated certificate of incorporation provides that, upon completion of this offering, our board of directors will be authorized to issue, without stockholder approval, blank check preferred stock. Blank check preferred stock can operate as a defensive measure known as a "poison pill" by diluting the stock ownership of a potential hostile acquirer to prevent an acquisition that is not approved by our board of directors.

Advance Notice Provisions for Stockholder Proposals and Stockholder Nominations of Directors. Our amended and restated bylaws provide that, for nominations to the board of directors or for other business to be properly brought by a stockholder before a meeting of stockholders, the stockholder must first have given timely notice of the proposal in writing to our Secretary. For an annual meeting, a stockholder's notice generally must be delivered not less than 45 days nor more than 75 days prior to the anniversary of the mailing date of the proxy statement for the previous year's annual meeting. For a special meeting, the notice must generally be delivered no less than 60 days nor more than 90 days prior to the special meeting or ten days following the day on which public announcement of the meeting is first made. Detailed requirements as to the form of the notice and information required in the notice are specified in our amended and restated bylaws. If it is determined that business was not properly brought before a meeting in accordance with our bylaw provisions, this business will not be conducted at the meeting.

Special Meetings of Stockholders. Special meetings of the stockholders may be called only by our board of directors pursuant to a resolution adopted by a majority of the total number of directors.

No Stockholder Action by Written Consent. Our amended and restated certificate of incorporation does not permit our stockholders to act by written consent. As a result, any action to be effected by our stockholders must be effected at a duly called annual or special meeting of the stockholders.

Super-Majority Stockholder Vote required for Certain Actions. The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless the corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our amended and restated certificate of incorporation requires the affirmative vote of the holders of at least 75% of our outstanding voting stock to amend or repeal any of the provisions discussed in this section of this prospectus entitled "Effect of Anti-Takeover Provisions of Our Amended and Restated Certificate of Incorporation, Our Amended and Restated Bylaws and Delaware Law" or to reduce the number of authorized shares of common stock or preferred stock. This 75% stockholder vote would be in addition to any separate class vote that might in the future be required pursuant to the terms of any preferred stock that might then be outstanding. A 75% vote is also required for any amendment to, or repeal of, our amended and restated bylaws by the stockholders. Our amended and restated bylaws may be amended or repealed by a simple majority vote of the board of directors.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer and Trust Company. The transfer agent and the registrar's address is 59 Maiden Lane, New York, New York 10038.

Listing

At the present time, there is no established trading market for our common stock. We have applied to list our common stock on The NASDAQ Global Market under the symbol AMDA.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. Future sales of substantial amounts of our common stock in the public market, including shares issued upon the vesting of RSUs and the exercise of outstanding options and warrants, or the anticipation of such sales, could adversely affect prevailing market prices prevailing from time to time. Furthermore, because only a limited number of shares will be available for sale shortly after this offering due to existing contractual and legal restrictions on resale as described below, there may be sales of substantial amounts of our common stock in the public market after the restrictions lapse. This may adversely affect the prevailing market price and our ability to raise equity capital in the future.

Upon completion of this offering, we will have 11,363,636 shares of common stock outstanding, assuming the conversion of all outstanding shares of convertible preferred stock, no exercise of the underwriters' option to purchase additional shares and no exercise of any options and warrants outstanding as of September 30, 2013. Of these shares, all of the shares sold in this offering will be freely transferable without restriction or registration under the Securities Act, except for any shares purchased by one of our existing "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining 8,181,818 shares of common stock (as well as 123,721 shares underlying outstanding RSUs and shares subject to outstanding stock options and warrants will be upon issuance) "restricted shares" as defined in Rule 144. Restricted shares may be sold in the public market only if registered or if they qualify for an exemption from registration under Rules 144 or 701 of the Securities Act, as described below. Substantially all of these restricted shares will be subject to the 180-day lock-up period. Please see the section below entitled "—Lock-up Agreements" for further information. Immediately after the 180-day lock-up period, 6,667,589 shares will be freely tradable under Rule 144 or Rule 701(g)(3) under the Securities Act and 1,504,299 shares will be eligible for resale under Rule 144 or Rule 701(g)(3), subject to volume limitations. 8,305,539 shares will be freely tradable or eligible for resale at various times after the 180-day lock-up period under Rule 144 or Rule 701(g)(3), some of which are subject to volume limitations. In addition, upon completion of this offering, a holder of warrants to acquire shares of our common stock will be able to net exercise such shares by surrendering a portion of that holder's warrants as payment of the exercise price rather than paying the exercise price in cash.

Rule 144

In general, under Rule 144 as currently in effect, beginning 90 days after the effective date of the registration statement of which this prospectus is a part, a person, or persons whose shares are aggregated, who owns shares that were purchased from us, or any affiliate, at least six months previously, is entitled to sell within any three-month period a number of shares that does not exceed the greater of:

- 1% of our then-outstanding shares of common stock, which will equal approximately 113,600 shares immediately after this offering; or
- the average weekly trading volume of our common stock on The NASDAQ Global Market during the four calendar weeks preceding the filing of a notice of the sale on Form 144.

Sales under Rule 144 are also subject to manner of sale provisions, notice requirements and the availability of current public information about us. Rule 144 also provides that affiliates that sell our common stock that are not restricted securities must still comply with certain other restrictions of that rule on their manner of sale of our shares, other than the holding period requirement. Additionally, under Rule 144 as currently in effect, a person who is not deemed to have been one of our affiliates at any time during the 90 days preceding a sale, and who owns shares within the definition of "restricted securities" under Rule 144 that were purchased from us, or any affiliate, at least one year previously, would be entitled to sell shares under Rule 144 without regard to the volume limitations, manner of sale provisions, public information requirements or notice requirements described above.

We are unable to estimate the number of shares that will be sold under Rule 144 since this will depend on the market price for our common stock, the personal circumstances of the stockholder and other factors.

Rule 701

In general, under Rule 701 as currently in effect, any of our employees, directors, officers, consultants or advisors who purchased shares from us in connection with a qualified compensatory stock or option plan or other written agreement before the effective date of this offering is eligible to resell such shares 90 days after the effective date of this offering in reliance on Rule 144. Securities issued in reliance on Rule 701 are restricted securities and, subject to the contractual restrictions described above, beginning 90 days after the date of this prospectus, may be sold by persons other than "affiliates," as defined in Rule 144, subject only to the manner of sale provisions of Rule 144 and by "affiliates" under Rule 144 without compliance with its one year minimum holding requirement.

Registration Rights

The holders of 2,581,941 shares of common stock, assuming the conversion of our convertible preferred stock, holders of 72,939 shares of common stock, assuming the exercise of preferred stock warrants and further assuming the conversion of such shares of convertible preferred stock, and holders of 12,363 shares of common stock, assuming the exercise of common stock warrants, have entered into an agreement with us that provides certain registration rights to these holders and certain future transferees of their securities. Registration of these shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares held by affiliates, subject to the lock-up agreements described under "—Lock-up Agreements." See "Description of Capital Stock—Registration Rights."

Warrants

As of September 30, 2013, we had the following outstanding warrants to purchase a total of 2,344,731 shares of our preferred stock and a total of 473,952 shares of our common stock:

- warrants to purchase in the aggregate 1,203,750 shares of Series C convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 52,335 shares of our common stock at an exercise price of $56.70 per share, terminating in February 2018;
- warrants to purchase in the aggregate 253,290 shares of Series D convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 12,789 shares of common stock at an exercise price of $85.06 per share, terminating in April 2014;
- warrants to purchase in the aggregate 567,691 shares of Series E convertible preferred stock, which upon completion of this offering, will be converted to a warrant to purchase in the aggregate 25,028 shares of common stock at an exercise price of $56.70 per share, terminating between March and September 2015;
- a warrant to purchase 50,000 shares of Series E convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase 2,204 shares of our common stock at an exercise price of $56.70 per share, terminating in April 2015;
- warrants to purchase in the aggregate 270,000 shares of Series F convertible preferred stock which, upon completion of this offering, will be converted to a warrant to purchase in the aggregate 61,364 shares of common stock at an exercise price of $51.55 per share, terminating in December 2022;
- warrants to purchase in the aggregate 22,064 shares of common stock at an exercise price of $85.06 per share, issued in June and August 2008, and terminating seven years from the date of issuance;
- a warrant to purchase 2,910 shares of common stock at an exercise price of $45.11 per share, issued in February 2010 and terminating on February 17, 2017;
- warrants to purchase in the aggregate 288,802 shares of common stock at an exercise price of $17.40 per share, originally issued between March and May 2011, and terminating seven years from the date of issuance;
- warrants to purchase in the aggregate 388 shares of common stock at an exercise of $51.55 per share, issued on April 18, 2011 and November 15, 2011, and terminating three years from the date of issuance;
- warrants to purchase in the aggregate 57,557 shares of common stock at an exercise price of $56.70 per share, issued on May 9, 2011, and terminating five years from the date of issuance;
- a warrant to purchase 970 shares of common stock at an exercise price of $51.55, issued on March 17, 2011;

- warrants to purchase in the aggregate 91,951 shares of common stock at an exercise price of $25.77 per share, issued in August and September 2013, and terminating five years from the date of issuance which have a price protection provision for any securities issued by us at a price below $25.77 per share (excluding shares sold in connection with this offering and shares granted to our employees or consultants); and
- warrants to purchase 9,311 shares of common stock at an exercise price of $56.70 per share, issued in August and September 2013, and terminating five years from the date of issuance.

8,093,379 shares of common stock and 620,959 shares of common stock issuable pursuant to these warrants are subject to the lock-up agreements described under "—Lock-up Agreements."

Stock Options and Restricted Stock Units

As of September 30, 2013, options to purchase a total of 94,161 shares of common stock were outstanding and options to purchase 92,820 shares of common stock were exercisable. All of the shares subject to options were issued pursuant to the 2003 Plan and substantially all are subject to lock-up agreements. As of September 30, 2013, there were a total of 123,721 shares of common stock issuable upon the vesting of outstanding RSUs issued under the 2012 Plan and 168,553 shares of common stock were available for future equity grants under the 2012 Plan.

Upon completion of this offering, we intend to file a registration statement on Form S-8 under the Securities Act covering all shares of common stock subject to outstanding options or issuable pursuant to the 2003 Plan and the 2012 Plan. Subject to Rule 144 volume limitations applicable to affiliates, shares registered under any registration statements will be available for sale in the open market, except to the extent that the shares are subject to vesting restrictions with us or the contractual restrictions described below.

All RSUs issued prior to the completion of this offering will be eligible to be sold under Rule 701 or Rule 144.

Lock-up Agreements

We, all of our officers, directors and substantially all of our stockholders have agreed, subject to limited exceptions, not to offer, pledge, sell, contract to sell, hypothecate, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) of the Exchange Act, grant any option or purchase any option or contract to sell, sell any option or contract to purchase, lend or otherwise encumber, dispose of or transfer, or grant any rights with respect to directly or indirectly any shares of our common stock or any securities convertible into or exercisable or exchangeable for shares of our common stock, or enter into any transaction which would have the same effect, or enter into any swap, hedge or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock held prior to the offering during the period beginning on the date of this prospectus and ending 180 days thereafter, whether any such transaction is to be settled by delivery of shares of our common stock or such other securities, cash or otherwise, or publicly disclose the intention to may any such offer, sale, pledge or disposition of shares of our common stock without the prior written consent of JMP Securities LLC. In addition, such persons have agreed that without the prior written consent of JMP Securities LLC, such persons will not make any demand for or exercise any right with respect to the registration of any shares of our common stock or for any security convertible into or exercisable or exchangeable for common stock.

JMP Securities LLC may in its sole discretion choose to release any or all of these shares from these restrictions prior to the expiration of the 180-day period. The lock-up restrictions will not apply to transactions relating to common stock acquired in open market transactions after the closing of this offering provided that no filing under Section 13 or Section 16(a) of the Exchange Act is required or will be voluntarily made in connection with subsequent sales of common stock or other securities acquired in such market transactions. The lock-up restrictions also will not apply to certain transfers not involving a disposition for value, provided that the recipient agrees to be bound by these lock-up restrictions and provided that such transfers are not required to be reported in any public report or filing with the SEC, or otherwise, during the lock-up period.

MATERIAL U.S. FEDERAL TAX CONSEQUENCES FOR NON-U.S. HOLDERS OF COMMON STOCK

The following is a general discussion of material U.S. federal income and estate tax considerations relating to the purchase, ownership and disposition of shares of our common stock by a non-U.S. holder. For purposes of this discussion, the term "non-U.S. holder" means a beneficial owner of shares of our common stock that is, for U.S. federal income tax purposes, an individual, corporation, estate or trust other than:

- an individual who is a citizen or resident of the United States;
- a corporation, or other organization treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States or of any political subdivision of the United States;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if (1) a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have authority to control all substantial decisions of the trust or (2) if the trust has a valid election to be treated as a U.S. person under applicable U.S. Treasury Regulations.

A modified definition of non-U.S. holder applies for U.S. federal estate tax purposes (as discussed below).

This discussion is based on current provisions of the Internal Revenue Code, existing and proposed U.S. Treasury Regulations promulgated or proposed thereunder and current administrative and judicial interpretations thereof, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change could alter the tax consequences to non-U.S. holders described in this prospectus. In addition, the Internal Revenue Service, or the IRS, could challenge one or more of the tax consequences described in this prospectus.

We assume in this discussion that each non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment). This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of state, local or non-U.S. taxes, or, except as explicitly addressed herein, U.S. federal taxes other than income and estate taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax considerations that may be applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt organizations;
- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- controlled foreign corporations;
- passive foreign investment companies;
- corporations that accumulate earnings to avoid U.S. federal income tax;
- certain U.S. expatriates;
- persons subject to the alternative minimum tax;
- persons in special situations;
- persons that have a "functional currency" other than the U.S. dollar;
- persons that acquire our common stock as compensation for services; and
- owners that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment.

In addition, this discussion does not address the tax treatment of partnerships or persons who hold their common stock through partnerships or other entities that are transparent for U.S. federal income tax purposes. A partner in a partnership or other transparent entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of shares of our common stock through a partnership or other transparent entity, as applicable.

Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of acquiring, holding and disposing of shares of our common stock.

Dividends

If we pay distributions of cash or property with respect to shares of our common stock, those distributions generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles and will be subject to withholding as described in the paragraphs below. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in its shares of our common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "—Gain on Sale, Exchange or Other Taxable Disposition of Common Stock." Any distribution described in this paragraph would also be subject to the discussion below in "—Foreign Account Tax Compliance Act."

Subject to the exceptions described below, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence. If we determine, at a time reasonably close to the date of payment of a distribution on shares of our common stock, that the distribution will not constitute a dividend because we do not anticipate having current or accumulated earnings and profits, we intend not to withhold any U.S. federal income tax on the distribution as permitted by U.S. Treasury Regulations.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States, and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. To obtain this exemption, a non-US holder must provide us with a properly executed original and unexpired IRS Form W-8ECI properly certifying such exemption. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to U.S. persons (as defined in the Internal Revenue Code). Any U.S. effectively connected income received by a non-U.S. holder that is treated as a corporation for U.S. federal income tax purposes may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of shares of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN (or successor form) and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on Sale, Exchange or Other Taxable Disposition of Common Stock

Subject to the discussion below in "—Foreign Account Tax Compliance Act," a non-U.S. holder generally will not be subject to U.S. federal income tax on gain recognized on a sale, exchange or other taxable disposition of shares of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder will be taxed on a net income basis at the regular graduated rates and in the manner applicable to U.S. persons, and, if the non-U.S. holder is a non-U.S. corporation, an additional branch profits tax at a rate of 30%, or a lower rate as may be specified by an applicable income tax treaty, may also apply;

- the non-U.S. holder is an individual present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the amount by which such non-U.S. holder's capital gains allocable to U.S. sources exceed capital losses allocable to U.S. sources during the taxable year of the disposition; or
- we are or were a "U.S. real property holding corporation" during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" (within the meaning of the Internal Revenue Code) equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. We believe that we are not currently, and we do not anticipate becoming, a "U.S. real property holding corporation" for U.S. federal income tax purposes.

Information Reporting and Backup Withholding Tax

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on shares of our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. These information reporting requirements apply even if withholding is not required. Subject to the discussion below under "—Foreign Account Tax Compliance Act," non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Internal Revenue Code) or otherwise subject to an exemption in order to avoid backup withholding at the applicable rate (currently 28%) with respect to dividends on shares of our common stock. Generally, a holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or otherwise meets documentary evidence requirements for establishing that it is a non-U.S. holder, or otherwise establishes an exemption. Dividends paid to non-U.S. holders subject to the U.S. federal withholding tax, as described above in "—Dividends," generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding generally will apply to the payment of the proceeds of a disposition of shares of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or non-U.S., unless the holder certifies that it is a non-U.S. person (as defined in the Internal Revenue Code) and satisfies certain other requirements, or otherwise establishes an exemption. For information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker and dispositions otherwise effected through a non-U.S. office generally will not be subject to information reporting. Generally, backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected through a non-U.S. office of a U.S. broker or non-U.S. office of a non-U.S. broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

Foreign Account Tax Compliance Act

Legislation enacted in March 2010, commonly referred to as FATCA, generally will impose a U.S. federal withholding tax of 30% on payments to certain non-U.S. entities (including certain intermediaries), including dividends on and the gross proceeds from a sale or other disposition of our common stock, unless such persons comply with a complicated U.S. information reporting, due diligence, disclosure and certification regime. This new regime and its requirements are different from, and in addition to, the certification requirements described elsewhere in this discussion. The FATCA withholding rules apply to certain payments, including dividend payments on our common stock, if any, paid after December 31, 2013, and to payments of gross proceeds from

the sale or other dispositions of our common stock paid after December 31, 2016. Although administrative guidance and proposed regulations have been issued, regulations implementing the new FATCA regime have not been finalized and the exact scope of these rules remains unclear and potentially subject to material changes. Prospective investors should consult their own tax advisors regarding the possible impact of these rules on their investment in our common stock, including any investment in our common stock made through another entity.

Federal Estate Tax

Common stock owned or treated as owned by an individual who is a non-U.S. holder (as specially defined for U.S. federal estate tax purposes) at the time of such non-U.S. holder's death will be included in the individual's gross estate for U.S. federal estate tax purposes and, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise. Generally, amounts included in the taxable estate of decedents are subject to U.S. federal estate tax at a maximum rate of 40%.

The preceding discussion of material U.S. federal tax considerations is for general information only. It is not tax advice. Prospective investors should consult their own tax advisors regarding the particular U.S. federal, state, local and non-U.S. tax consequences of purchasing, holding and disposing of shares of our common stock, including the consequences of any proposed changes in applicable laws.

UNDERWRITING

JMP Securities LLC is acting as representative of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement dated the date of this prospectus, each of the underwriters named below has severally agreed to purchase from us the aggregate number of shares of common stock set forth opposite their respective names below:

Underwriters	Number of Shares
JMP Securities LLC	
Needham & Company, LLC	
Total	

The underwriting agreement provides that the obligations of the several underwriters are subject to various conditions, including approval of legal matters by counsel. The nature of the underwriters' obligations commits them to purchase and pay for all of the shares of common stock listed above if any are purchased. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2014.

Option to Purchase Additional Shares

We have granted a 30-day option to the underwriters to purchase up to a total of 477,273 additional shares of our common stock from us at the initial public offering price, less the underwriting discount payable by us, as set forth on the cover page of this prospectus. If the underwriters exercise this option in whole or in part, then each of the underwriters will be separately committed, subject to the conditions described in the underwriting agreement, to purchase the additional shares of our common stock in proportion to their respective commitments set forth in the table above.

Determination of Offering Price

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined through negotiations between us and the representative. In addition to currently prevailing general conditions in the equity securities markets, including current market valuations of publicly traded companies considered comparable to our company, the factors to be considered in determining the initial public offering price will include our results of operations, our current financial condition, our future prospects, our management, our markets, the economic conditions in and future prospects for the industry in which we compete and other factors we deem relevant. We cannot assure you that an active or orderly trading market will develop for our common stock or that our common stock will trade in the public markets subsequent to this offering at or above the initial public offering price.

Commissions and Discounts

The underwriters propose to offer the shares of common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus, and at this price less a concession not in excess of $ per share of common stock to other dealers specified in a master agreement among underwriters who are members of the Financial Industry Regulatory Authority, Inc. After this offering, the offering price, concessions, and other selling terms may be changed by the underwriters. Our common stock is offered subject to receipt and acceptance by the underwriters and to the other conditions, including the right to reject orders in whole or in part.

The following table summarizes the compensation to be paid to the underwriters by us and the proceeds, before expenses, payable to us:

		Total	
	Per Share	Without Option to Purchase Additional Shares	With Option to Purchase Additional Shares
Public offering price			
Underwriting discount			
Proceeds, before expenses, to us			

We estimate that the total expenses of this offering, excluding underwriting discounts and commissions, will be $6.0 million, all of which will be paid by us. We have also agreed to reimburse the underwriters for certain of their expenses totaling approximately $370,000 as set forth in the underwriting agreement.

JMP Securities LLC has agreed to pay an amount equal to ten percent of the total underwriting discount to Inverness Advisors, a division of KEMA Partners LLC, on our behalf in consideration of the following advisory services provided to us in connection with this offering:

- advising with respect to our strategic approach to the offering and the structure, terms and timing of the offering;
- participating in the preparation of this prospectus; and
- providing such other general financial advisory services as may from time to time be agreed upon by Inverness and us.

In addition we have separately agreed to pay Inverness Advisors a financial advisory fee upon the closing of this offering of $175,000 if the gross proceeds from this offering are less than $30 million or $150,000 if the gross proceeds from this offering are equal to or greater than $30 million. KEMA Partners LLC is a FINRA member and SEC-registered broker-dealer. KEMA Partners LLC, including its division Inverness Advisors, is not acting as an underwriter and will not sell or offer to sell any securities or identify, solicit or engage directly with potential investors. In addition, KEMA Partners LLC, including its division Inverness Advisors, will not underwrite or purchase any of the offered securities or otherwise participate in any such undertaking.

Indemnification of Underwriters

We will indemnify the underwriters against some civil liabilities, including liabilities under the Securities Act and liabilities arising from breaches of our representations and warranties contained in the underwriting agreement. If we are unable to provide this indemnification, we will contribute to payments the underwriters may be required to make in respect of those liabilities.

No Sales of Similar Securities

The underwriters will require all of our directors and officers and substantially all of our stockholders to agree not to offer, sell, agree to sell, directly or indirectly, or otherwise dispose of any shares of common stock or any securities convertible into or exchangeable for shares of common stock without the prior written consent of JMP Securities LLC for a period of 180 days after the date of this prospectus, subject to specified limited exceptions. JMP Securities LLC in its sole discretion may release any of the securities subject to these agreements at any time, which, in the case of officers and directors, shall be with notice.

We have agreed that for a period of 180 days after the date of this prospectus, we will not, without the prior written consent of JMP Securities LLC, offer, sell or otherwise dispose of any shares of common stock, except for the shares of common stock offered in this offering, the shares of common stock issuable upon exercise of outstanding options on the date of this prospectus and other specified limited exceptions.

NASDAQ Global Market Listing

We have applied to list our common stock on the NASDAQ Global Market under the symbol “AMDA.”

Short Sales, Stabilizing Transactions, and Penalty Bids

In order to facilitate this offering, persons participating in this offering may engage in transactions that stabilize, maintain, or otherwise affect the price of our common stock during and after this offering. Specifically, the underwriters may engage in the following activities in accordance with the rules of the Securities and Exchange Commission.

Short sales. Short sales involve the sales by the underwriters of a greater number of shares than they are required to purchase in the offering. Covered short sales are short sales made in an amount not greater than the underwriters' option to purchase additional shares from us in this offering. The underwriters may close out any covered short position by either exercising their option to purchase shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares. Naked short sales are any short sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

Stabilizing transactions. The underwriters may make bids for or purchases of the shares for the purpose of pegging, fixing, or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.

Penalty bids. If the underwriters purchase shares in the open market in a stabilizing transaction or syndicate covering transaction, they may reclaim a selling concession from the underwriters and selling group members who sold those shares as part of this offering. Stabilization and syndicate covering transactions may cause the price of the shares to be higher than it would be in the absence of these transactions. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages presales of the shares.

The transactions above may occur on the NASDAQ Global Market or otherwise. Neither we nor the underwriters make any representation or prediction as to the effect that the transactions described above may have on the price of the shares. If these transactions are commenced, they may be discontinued without notice at any time.

Discretionary Sales

The underwriters have informed us that they do not expect to confirm sales of common stock offered by this prospectus to accounts over which they exercise discretionary authority without obtaining the specific approval of the account holder.

Electronic Distribution

A prospectus in electronic format may be made available on the internet sites or through other online services maintained by one or more of the underwriters participating in this offering, or by their affiliates. Other than the prospectus in electronic format, the information on any underwriter's website and any information contained in any other website maintained by an underwriter is not part of the prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or any underwriter in its capacity as underwriter and should not be relied upon by investors.

Relationships

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their affiliates have in the past provided, and may in the future from time to time provide, investment banking and other financing and banking services to us, for which they have in the past received, and may in the future receive, customary fees and reimbursement for their expenses. In the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial

instruments including bank loans for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments.

European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of securities described in this prospectus may not be made to the public in that relevant member state other than:

- to any legal entity that is authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;
- to any legal entity that has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;
- to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the representative; or
- in any other circumstances that do not require the publication of a prospectus pursuant to Article 3 of the Prospectus Directive,

provided that no such offer of securities shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive. For purposes of this provision, the expression an "offer of securities to the public" in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" means Directive 2003/71/EC and includes any relevant implementing measure in each relevant member state.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the securities as contemplated in this prospectus. Accordingly, no purchaser of the securities, other than the underwriters, is authorized to make any further offer of the securities on behalf of us or the underwriters.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive (Qualified Investors) that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the Order) or (ii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as relevant persons). This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this document or any of its contents.

France

This prospectus has not been prepared in the context of a public offering of financial securities in France within the meaning of Article L.411-1 of the French Code Monétaire et Financier and Title I of Book II of the Reglement Général of the Autorité des marchés financiers (the AMF) and therefore has not been and will not be filed with the AMF for prior approval or submitted for clearance to the AMF. Consequently, the shares of our common stock may not be, directly or indirectly, offered or sold to the public in France and offers and sales of the shares of our common stock may only be made in France to qualified investors (investisseurs qualifiés) acting for their own account, as defined in and in accordance with Articles L.411-2 and D.411-1 to D.411-4, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code Monétaire et Financier. Neither this prospectus nor any other

offering material may be released, issued or distributed to the public in France or used in connection with any offer for subscription on sale of the shares of our common stock to the public in France. The subsequent direct or indirect retransfer of the shares of our common stock to the public in France may only be made in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code Monétaire et Financier.

Notice to Residents of Germany

Each person who is in possession of this prospectus is aware of the fact that no German securities prospectus (wertpapierprospekt) within the meaning of the securities prospectus act (wertpapier-prospektgesetz, the act) of the federal republic of Germany has been or will be published with respect to the shares of our common stock. In particular, each underwriter has represented that it has not engaged and has agreed that it will not engage in a public offering in the federal republic of Germany (ôffertliches angebot) within the meaning of the act with respect to any of the shares of our common stock otherwise than in accordance with the act and all other applicable legal and regulatory requirements.

Notice to Residents of Switzerland

The securities which are the subject of the offering contemplated by this prospectus may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. None of this prospectus or any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

None of this prospectus or any other offering or marketing material relating to the offering, us or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority, or FINMA and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of the securities.

Notice to Residents of the Netherlands

The offering of the shares of our common stock is not a public offering in The Netherlands. The shares of our common stock may not be offered or sold to individuals or legal entities in The Netherlands unless (i) a prospectus relating to the offer is available to the public, which has been approved by the Dutch Authority for the Financial Markets (Autoriteit Financiële Markten) or by the competent supervisory authority of another state that is a member of the European Union or party to the Agreement on the European Economic Area, as amended or (ii) an exception or exemption applies to the offer pursuant to Article 5:3 of The Netherlands Financial Supervision Act (Wet op het financieel toezicht) or Article 53 paragraph 2 or 3 of the Exemption Regulation of the Financial Supervision Act, for instance due to the offer targeting exclusively “qualified investors” (gekwalificeerde beleggers) within the meaning of Article 1:1 of The Netherlands Financial Supervision Act.

Notice to Residents of Japan

The underwriters will not offer or sell any of the shares of our common stock directly or indirectly in Japan or to, or for the benefit of, any Japanese person or to others, for re-offering or re-sale directly or indirectly in Japan or to any Japanese person, except in each case pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law of Japan and any other applicable laws and regulations of Japan. For purposes of this paragraph, “Japanese person” means any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Residents of Hong Kong

The underwriters and each of their affiliates have not (1) offered or sold, and will not offer or sell, in Hong Kong, by means of any document, any shares of our common stock other than (a) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance; and (2) issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere any advertisement, invitation or document relating to the shares of our common stock which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the shares of our common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance and any rules made under that Ordinance. The contents of this document have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to the offer. If you are in any doubt about any of the contents of this document, you should obtain independent professional advice.

Notice to Residents of Singapore

This document has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this document and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of shares of our common stock may not be circulated or distributed, nor may shares of our common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the Securities and Futures Act), (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the Securities and Futures Act or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the Securities and Futures Act.

Where shares of our common stock are subscribed or purchased under Section 275 by a relevant person, which is:

(a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares of our common stock under Section 275 except:

(1) to an institutional investor or to a relevant person, or to any person pursuant to an offer that is made on terms that such rights or interest are acquired at a consideration of not less than $200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets;

(2) where no consideration is given for the transfer; or

(3) by operation of law.

LEGAL MATTERS

The validity of the issuance of the common stock offered by us in this offering will be passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. Certain legal matters relating to this offering will be passed upon for the underwriters by Cooley LLP, New York, New York.

EXPERTS

The consolidated financial statements of Amedica Corporation at December 31, 2012 and 2011, and for each of the two years in the period ended December 31, 2012, appearing in this prospectus have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about our ability to continue as a going concern as described in Note 1 to the consolidated financial statements) appearing elsewhere herein, and are included in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the common stock offered by this prospectus. This prospectus, which is part of the registration statement, omits certain information, exhibits, schedules and undertakings set forth in the registration statement. For further information pertaining to us and our common stock, reference is made to the registration statement and the exhibits and schedules to the registration statement. Statements contained in this prospectus as to the contents or provisions of any documents referred to in this prospectus are not necessarily complete, and in each instance where a copy of the document has been filed as an exhibit to the registration statement, reference is made to the exhibit for a more complete description of the matters involved.

You may read and copy all or any portion of the registration statement without charge at the public reference room of the SEC at 100 F Street, N.E., Washington, D.C. 20549. Copies of the registration statement may be obtained from the SEC at prescribed rates from the public reference room of the SEC at such address. You may obtain information regarding the operation of the public reference room by calling 1-800-SEC-0330. In addition, registration statements and certain other filings made with the SEC electronically are publicly available through the SEC's web site at *http://www.sec.gov*. The registration statement, including all exhibits and amendments to the registration statement, has been filed electronically with the SEC.

Upon completion of this offering, we will become subject to the information and periodic reporting requirements of the Exchange Act and, accordingly, will file annual reports containing financial statements audited by an independent public accounting firm, quarterly reports containing unaudited financial data, current reports, proxy statements and other information with the SEC. You will be able to inspect and copy such periodic reports, proxy statements and other information at the SEC's public reference room, and the web site of the SEC referred to above. We will also maintain a web site at *http://www.amedica.com*, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our web site is not part of this prospectus.

AMEDICA CORPORATION

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders of
Amedica Corporation

We have audited the accompanying consolidated balance sheets of Amedica Corporation as of December 31, 2011 and 2012, and the related consolidated statements of comprehensive loss, convertible preferred stock and stockholders' deficit, and cash flows for the years then ended in the period ended December 31, 2012. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Amedica Corporation at December 31, 2012 and 2011, and the consolidated results of its operations and its cash flows for the years then ended in the period ended December 31, 2012, in conformity with U.S. generally accepted accounting principles.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has recurring losses from operations and has a net capital deficiency that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Ernst & Young LLP
Salt Lake City, Utah
September 23, 2013, except for the last paragraph of Note 1,
as to which the date is February XX, 2014

The foregoing report is in the form that will be signed upon the effectiveness of the reverse stock split as described in the last paragraph of Note 1 to the financial statements.

/s/ Ernst & Young LLP

Salt Lake City, Utah
January 28, 2014

AMEDICA CORPORATION

Consolidated Balance Sheets

	December 31, 2011	December 31, 2012	September 30, 2013	Pro Forma September 30, 2013
			(unaudited)	
Assets				
Current assets:				
Cash and cash equivalents	$ 3,330,932	$ 2,741,300	$ 7,562,400	$ 7,562,400
Restricted cash	—	260,459	298,493	298,493
Marketable securities	7,808,644	2,680,441	—	—
Trade accounts receivable, net of allowance of $284,272 and $58,346 and $136,749, respectively	3,446,673	4,015,721	2,344,036	2,344,036
Prepaid expenses and other current assets	1,702,281	519,238	491,752	491,752
Deferred offering costs	—	—	1,348,004	1,348,004
Inventories	11,397,306	8,825,894	9,210,296	9,210,296
Total current assets	27,685,836	19,043,053	21,254,981	21,254,981
Property and equipment, net	4,979,194	3,022,532	3,302,998	3,302,998
Indefinite lived intangible assets	2,249,000	350,000	350,000	350,000
Amortizable intangible assets	20,105,778	4,839,000	4,463,560	4,463,560
Goodwill	6,162,565	6,162,565	6,162,565	6,162,565
Other long-term assets	37,794	37,794	35,000	35,000
Total assets	$ 61,220,167	$ 33,454,944	$ 35,569,104	$ 35,569,104
Liabilities and stockholders' deficit				
Current liabilities:				
Accounts payable	$ 1,389,230	$ 2,142,411	$ 3,088,671	$ 3,088,671
Accrued liabilities	1,872,597	1,599,313	1,931,988	1,931,988
Deferred rent	19,756	7,084	25,226	25,226
Deferred revenue	4,720	—	—	—
Line of credit	2,000,000	2,572,929	—	—
Contingent consideration, current	6,800,010	—	—	—
Current portion of long-term debt	2,857,634	17,892,759	17,916,609	17,916,609
Total current liabilities	14,943,947	24,214,496	22,962,494	22,962,494
Deferred rent	571,975	605,931	583,339	583,339
Long-term accrued liabilities	860,000	134,000	134,000	134,000
Preferred stock warrant liability	328,949	525,479	452,331	—
Common stock warrant liability	2,164,935	2,783,191	3,877,230	3,877,230
Long-term debt	15,500,000	—	—	—
Convertible debt	23,628,289	—	—	—
Commitments and contingencies				
Convertible preferred stock, $0.01 par value:				
Authorized shares—100,000,000 at December 31, 2011 and 2012 and September 30, 2013 (unaudited); issued and outstanding shares—57,882,889 and 76,170,394 at December 31, 2011 and 2012, and 80,910,394 at September 30, 2013 (unaudited); liquidation preference —$104,000,000 and $140,000,000 at December 31, 2011 and 2012 and $150,000,000 at September 30, 2013 (unaudited); no shares issued and outstanding, pro forma (unaudited)	117,501,194	153,474,317	161,455,812	—
Stockholders' deficit:				
Common stock, $0.01 par value:				
Authorized shares—150,000,000 at December 31, 2011 and 2012 and September 30, 2013 (unaudited); issued and outstanding shares—348,186 and 348,636 at December 31, 2011 and 2012, and 597,745 at September 30, 2013 (unaudited); 8,181,818 shares issued and outstanding, pro forma (unaudited)	3,482	3,487	5,977	81,818
Additional paid-in capital / (capital deficiency)	(17,657,476)	(16,650,977)	(13,317,024)	148,515,278
Accumulated other comprehensive income (loss)	(23,033)	1,784	—	—
Accumulated deficit	(96,602,095)	(131,636,764)	(140,585,055)	(140,585,055)
Total stockholders' equity (deficit)	(114,279,122)	(148,282,470)	(153,896,102)	8,012,041
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 61,220,167	$ 33,454,944	$ 35,569,104	$ 35,569,104

See accompanying notes.

AMEDICA CORPORATION

Consolidated Statements of Comprehensive Loss

	Years Ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
			(unaudited)	
Product revenue	$ 20,261,455	$ 23,065,272	$ 17,126,394	$16,603,662
Cost of revenue				
Product revenue	4,088,166	5,422,805	3,363,478	4,234,726
Write-down of excess and obsolete inventory	—	1,042,909	—	777,699
Total cost of revenue	4,088,166	6,465,714	3,363,478	5,012,425
Operating expenses				
Research and development	7,789,216	6,013,400	4,488,259	2,866,407
General and administrative	7,263,045	7,312,997	5,457,789	4,067,066
Sales and marketing	17,145,515	17,094,177	11,944,210	12,123,109
Impairment loss on intangible assets	—	15,280,861	—	—
Change in fair value of contingent consideration	4,831,609	—	—	—
Total operating expenses	37,029,385	45,701,435	21,890,258	19,056,582
Loss from operations	(20,856,096)	(29,101,877)	(8,127,342)	(7,465,345)
Other income (expense)				
Interest income	71,775	57,444	45,380	12,920
Interest expense	(3,455,811)	(5,610,926)	(3,863,642)	(1,345,055)
Loss on extinguishment of debt	—	(250,678)	—	—
Change in fair value of preferred stock warrants	307,890	(85,228)	(109,804)	73,149
Change in fair value of common stock warrants	172,381	(618,256)	1,348,000	(223,525)
Other income / (expense)	8,691	(151,148)	(4,087)	(435)
Total other expense	(2,895,074)	(6,658,792)	(2,584,153)	(1,482,946)
Net loss before income taxes	(23,751,170)	(35,760,669)	(10,711,495)	(8,948,291)
Income tax benefit	—	726,000	—	—
Net loss	(23,751,170)	(35,034,669)	(10,711,495)	(8,948,291)
Other comprehensive loss, net of tax:				
Unrealized gain / (loss) on marketable securities	(23,033)	24,817	35,054	(1,784)
Total comprehensive loss	$(23,774,203)	$(35,009,852)	$(10,676,441)	$ (8,950,075)
Net loss per share attributable to common stockholders:				
Basic and diluted	$ (68.28)	$ (100.52)	$ (30.74)	$ (17.64)
Shares used to compute net loss per share attributable to common stockholders:				
Basic and diluted	347,846	348,550	348,488	507,227
Pro forma net loss per share attributable to common shareholders (unaudited):				
Basic and diluted		$ (9.90)		$ (1.27)
Weighted average shares used to compute pro forma net loss per share attributable to common stockholders (unaudited):				
Basic and diluted		3,531,503		7,119,918

See accompanying notes.

AMEDICA CORPORATION

Consolidated Statements of Convertible Preferred Stock and Stockholders' Deficit

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital/ (Capital Deficiency)	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at December 31, 2010	**57,582,869**	**$117,337,084**	**346,617**	**$ 3,475**	**$ (18,487,516)**	**$ —**	**$ (72,850,925)**	**$ (91,334,966)**
Issuance of Series A preferred stock upon exercise of warrants	48,125	31,763	—	—	—	—	—	—
Issuance of Series A preferred stock upon cashless exercise of warrants	157,248	96,159	—	—	—	—	—	—
Issuance of Series B preferred stock upon cashless exercise of warrants	94,647	36,188	—	—	—	—	—	—
Issuance of common stock upon exercise of stock options	—	—	667	7	3,680	—	—	3,687
Stock-based compensation	—	—	—	—	826,360	—	—	826,360
Unrealized loss on marketable securities	—	—	—	—	—	(23,033)	—	(23,033)
Net loss	—	—	—	—	—	—	(23,751,170)	(23,751,170)
Balance at December 31, 2011	**57,882,889**	**117,501,194**	**348,284**	**3,482**	**(17,657,476)**	**(23,033)**	**(96,602,095)**	**(114,279,122)**
Issuance of Series C preferred stock as US Spine settlement shares	2,557,562	5,115,124	—	—	—	—	—	—
Issuance of Series E preferred stock as US Spine settlement shares	842,443	1,684,886	—	—	—	—	—	—
Issuance of Series F preferred stock upon conversion of convertible debt,			—	—	—	—	—	—
net of issuance costs	14,887,500	29,173,113						—
Issuance of common stock upon exercise of stock options	—	—	450	5	5,245	—	—	5,250
Stock-based compensation	—	—	—	—	1,001,254	—	—	1,001,254
Unrealized loss on marketable securities	—	—	—	—	—	24,817	—	24,817
Net loss	—	—	—	—	—	—	(35,034,669)	(35,034,669)
Balance at December 31, 2012	**76,170,394**	**153,474,317**	**348,734**	**3,487**	**(16,650,977)**	**1,784**	**(131,636,764)**	**(148,282,470)**
Issuance of common stock upon exercise of warrants (unaudited)	—	—	178,516	1,785	2,876,712	—	—	2,878,497
Issuance of common stock upon cashless exercise of stock options (unaudited)	—	—	27,624	276	(276)	—	—	—
Issuance of common stock upon exercise of stock options (unaudited)	—	—	29,680	297	76,203	—	—	76,500
Issuance of Series F preferred stock for $2.00 per share, net of issuance costs (unaudited)	4,740,000	7,981,495	—	—	—	—	—	—
Stock-based compensation (unaudited)	—	—	13,191	132	381,314	—	—	381,446
Unrealized loss on marketable securities (unaudited)	—	—	—	—	—	(1,784)	—	(1,784)
Net loss (unaudited)	—	—	—	—	—	—	(8,948,291)	(8,948,291)
Balance at September 30, 2013	**80,910,394**	**$161,455,812**	**597,745**	**$ 5,977**	**$ (13,317,024)**	**$ —**	**$(140,585,055)**	**$(153,896,102)**

See accompanying notes.

AMEDICA CORPORATION

Consolidated Statements of Cash Flows

	Year Ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
			(unaudited)	
Operating activities				
Net loss	$(23,751,170)	$(35,034,669)	$(10,711,495)	$ (8,948,291)
Adjustments to reconcile net loss to net cash used in operating activities:				
Write-down of intangible assets	—	15,280,861	—	—
Change in fair value of contingent consideration	4,831,609	—	—	—
Depreciation expense	3,823,778	2,378,655	1,843,000	1,289,561
Amortization of intangible assets	1,884,916	1,884,917	1,413,688	375,440
Amortization of lease incentive for tenant improvements	19,752	19,752	14,814	14,814
Accretion of interest expense on US Spine-related note payable	290,355	142,366	142,366	—
Accretion of interest expense on new bank debt	—	4,061	—	275,143
Non-cash interest expense on convertible debt	1,193,664	2,511,895	1,333,724	—
Loss on extinguishment of debt	—	250,678	—	—
Non-cash interest expense on bank debt	—	21,610	—	—
Stock based compensation	826,360	1,001,254	824,302	381,446
Change in fair value of preferred stock warrant liability	(307,890)	85,228	109,804	(73,149)
Change in fair value of common stock warrant liability	(172,381)	618,256	(1,348,000)	223,525
Loss (gain) on sale of equipment	(8,691)	151,148	—	—
Write-down of excess and obsolete inventory	—	1,042,909	—	777,699
Bad debt expense (recovery)	297,144	(27,551)	95,841	101,828
Payments on acquired US Spine liabilities	(356,972)	—	—	—
Changes in operating assets and liabilities:				
Trade accounts receivable	(652,675)	(541,497)	(75,078)	1,569,857
Prepaid expenses and other current assets	205,507	(843,816)	234,497	(1,573,595)
Inventories	(2,893,836)	1,528,503	(250,882)	(1,162,100)
Other long-term assets	(35,000)	—	—	2,794
Accounts payable and accrued liabilities	(85,764)	(221,286)	(34,314)	1,278,934
Deferred rent	48,496	21,284	15,962	(19,263)
Deferred revenue	(64,959)	(4,720)	—	—
Net cash used in operating activities	(14,907,757)	(9,730,162)	(6,391,771)	(5,485,357)
Investing activities				
Purchase of property and equipment	(1,361,789)	(592,893)	(459,521)	(1,570,027)
(Increase) decrease in restricted cash	—	(260,459)	—	(38,034)
Purchases of marketable securities	(15,140,518)	(5,081,666)	—	—
Proceeds from maturities of marketable securities	7,331,874	10,209,869	6,274,840	2,680,441
Net cash provided by (used in) investing activities	(9,170,433)	4,274,851	5,815,319	1,072,380
Financing activities				
Proceeds from exercise of preferred stock warrants	31,763	—	—	—
Proceeds from exercise of common stock warrants	—	—	—	2,878,452
Proceeds from exercise of stock options	3,687	5,250	5,251	76,545
Proceeds from line of credit	2,000,000	2,572,929	500,000	10,939,649
Payments on line of credit	(1,860,000)	(2,000,000)	—	(13,512,578)
Proceeds from issuance of long-term debt	3,000,000	17,888,698	—	—
Issuance of preferred stock warrants	—	111,302	—	—
Payments on bank debt extinguishment	—	(15,500,000)	—	—
Payments on US Spine debtholder note	(3,000,000)	(3,000,000)	—	—
Proceeds from issuance of convertible debt and common stock warrants, net of issuance costs	23,574,183	4,787,500	4,787,500	—
Proceeds from issuance of convertible preferred stock and warrants for common stock, net of issuance costs	—	—	—	8,852,009
Net cash provided by financing activities	23,749,633	4,865,679	5,292,751	9,234,077
Net increase (decrease) in cash and cash equivalents	(328,557)	(589,632)	4,716,299	4,821,100
Cash and cash equivalents at beginning of period	3,659,489	3,330,932	3,330,932	2,741,300
Cash and cash equivalents at end of period	$ 3,330,932	$ 2,741,300	$ 8,047,231	$ 7,562,400
Supplemental cash flow information				
Common stock warrants issued in connection with convertible debt	$ 2,339,044	$ —	$ —	$ —
Cash paid for interest	$ 1,928,689	$ 3,078,519	$ 2,302,851	$ 913,571

See accompanying notes.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

1. Organization and Summary of Significant Accounting Policies

Amedica Corporation ("Amedica" or "the Company") was incorporated in the state of Delaware on December 10, 1996. Amedica is a commercial-stage biomaterial company focused on using its silicon nitride technology platform to develop, manufacture, and commercialize a broad range of medical devices. The Company believes it is the first and only manufacturer to use silicon nitride in medical applications. The Company acquired US Spine, Inc. ("US Spine"), a Delaware spinal products corporation with operations in Florida, on September 20, 2010.

Basis of Presentation and Principles of Consolidation

These consolidated financial statements have been prepared by management in accordance with accounting principles generally accepted in the United States ("U.S. GAAP"), and include all assets and liabilities of the Company and its wholly-owned subsidiary, US Spine. All material intercompany transactions and balances have been eliminated.

Unaudited Pro Forma Stockholders' Equity and Unaudited Pro Forma Loss Per Share

Prior to the completion of the offering contemplated by this prospectus, we expect all of the convertible preferred stock outstanding to convert into shares of common stock at the then applicable conversion rate. Unaudited pro forma convertible preferred stock, common stock and additional paid-in capital on the accompanying consolidated balance sheets assume only the conversion of convertible preferred stock outstanding at September 30, 2013. The unaudited pro forma basic and diluted loss per share calculations assume the conversion of all outstanding shares of convertible preferred stock into common stock using the as-if converted method, as-if such conversion had occurred at the beginning of the period or the issuance date, if later.

Unaudited Interim Financial Information

The accompanying interim balance sheet as of September 30, 2013, the statements of comprehensive loss and cash flows for the nine months ended September 30, 2012 and 2013, the statement of convertible preferred stock and stockholders' deficit for the nine months ended September 30, 2013 and the interim footnote disclosures are unaudited. These unaudited interim financial statements have been prepared in accordance with U.S. GAAP. In management's opinion, the unaudited interim financial statements have been prepared on the same basis as the audited financial statements and include all adjustments, which include only normal recurring adjustments, necessary for the fair presentation of the Company's financial position as of September 30, 2013 and its results of operations and comprehensive loss and its cash flows for the nine months ended September 30, 2012 and 2013. The results for the nine months ended September 30, 2013 are not necessarily indicative of the results expected for the full fiscal year or any other interim period.

Liquidity and Capital Resources

For the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 and 2013, the Company incurred a net loss of $23.8 million, $35.0 million, $10.7 million and $8.9 million, respectively and used cash in operations of $14.9 million, $9.7 million, $6.4 million and $4.6 million, respectively. The Company had an accumulated deficit of $131.6 million as of December 31, 2012 and $140.6 million as of September 30, 2013. With the exception of a small net income for the years ended December 31, 2002 and 1999, the Company has incurred net losses in each year since inception. To date, the Company's operations have been principally financed from proceeds from the issuance of preferred and common stock, convertible debt and bank debt and, to a lesser extent, cash generated from product sales. It is anticipated that the Company will continue to generate operating losses and use cash in operations through 2014.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

As discussed further in Note 7, the Company is contractually obligated to repay $18.0 million to a bank beginning in January 2014, over a period of 30 months. In order to finance the continued growth in product sales, to invest in further product development and to otherwise satisfy obligations as they mature, the Company expects to seek additional financing in the near term through the issuance of common and preferred stock and/or convertible debt. As of December 31, 2012 and September 30, 2013, the Company had approximately $5.7 million and $7.9 million, respectively, in cash and investments. Based on business operating plans for 2013 and 2014, including the proceeds from the sale of Series F convertible preferred stock and taking into account the required minimum liquidity financial debt covenant discussed in Note 7, the Company expects its existing cash and investments to support its operations through the completion of this offering. Additional funding may not be available to the Company on acceptable terms, or at all. If the Company is unable to access additional funds when needed, it may not be able to continue the development of its silicon nitride interbody spinal fusion products or the Company could be required to delay, scale back or eliminate some or all of its development programs and other operations. Any additional equity financing, if available to the Company, may not be available on favorable terms, will most likely be dilutive to its current stockholders, and debt financing, if available, may involve more restrictive covenants. The Company's ability to access capital when needed is not assured and, if not achieved on a timely basis, will materially harm its business, financial condition and results of operations. These uncertainties create substantial doubt about the Company's ability to continue as a going concern. The Report of Independent Registered Public Accounting Firm at the beginning of these financial statements includes a going concern explanatory paragraph.

The accompanying financial statements have been prepared on a basis which assumes that the Company will continue as a going concern, which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. The financial statements do not include any adjustments that may result from the outcome of this uncertainty.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the period. Actual results could differ from those estimates. Some of the more significant estimates relate to inventory, stock-based compensation, long-lived and intangible assets, contingent consideration and the liability for preferred stock and common stock warrants.

Concentrations of Credit Risk and Significant Customers

Financial instruments which potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities, accounts receivable and restricted cash. The Company limits its exposure to credit loss by placing its cash and cash equivalents with high credit-quality financial institutions in bank deposits, money market funds, U.S. government securities and other investment grade debt securities that have strong credit ratings. The Company has established guidelines relative to diversification of its cash and marketable securities and their maturities that are intended to secure safety and liquidity. These guidelines are periodically reviewed and modified to take advantage of trends in yields and interest rates and changes in the Company's operations and financial position. Although the Company may deposit its cash and cash equivalents with multiple financial institutions, its deposits, at times, may exceed federally insured limits.

The Company's customers are primarily hospitals and surgical centers. At December 31, 2012, no customer receivable balance was 10% or greater of the Company's total trade accounts receivable. At September 30, 2013, one customer receivable balance was 11% of the Company's total trade accounts receivable. There was one

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

customer that accounted for 10% or more of the Company's revenue representing 17% and 14% of revenue for the years ended December 31, 2011 and 2012, and 15% of revenue for the nine months ended September 30, 2013, respectively.

Credit to customers is granted based upon an analysis of the customers' individual credit worthiness. The Company's allowance for bad debts as of December 31, 2011 and 2012, and September 30, 2013, was $284,000, $58,000 and $137,000, respectively. For the years ended December 31, 2011 and 2012, and the nine months ended September 30, 2012 and 2013, the Company recorded bad debt expense (recovery) of $297,000, ($28,000), $96,000, and $102,000, respectively.

Revenue Recognition

The Company derives its product revenue primarily from the sale of spinal fusion devices and related products used in the treatment of spine disorders. The Company's product revenue is generated from sales to two types of customers: (1) surgeons and hospitals and (2) stocking distributors. Most of our products are sold on a consignment basis through a network of independent sales distributors; however, the Company also sells its products to independent stocking distributors. Product revenue is recognized when all four of the following criteria are met: (1) persuasive evidence that an arrangement exists; (2) delivery of the products has occurred; (3) the selling price of the product is fixed or determinable; and (4) collectability is reasonably assured. The Company generates the majority of its revenue from the sale of inventory that is consigned to independent sales distributors that sell the Company's products to surgeons and hospitals. For these products, the Company recognizes revenue at the time it is notified the product has been used or implanted and a valid purchase order has been received. For all other transactions, the Company recognizes revenue when title and risk of loss transfer to the stocking distributor, and all other revenue recognition criteria have been met. The Company generally recognizes revenue from sales to stocking distributors at the time the product is shipped to the distributor. Stocking distributors, who sell the products to their customers, take title to the products and assume all risks of ownership at time of shipment. The Company's stocking distributors are obligated to pay within specified terms regardless of when, if ever, they sell the products. The Company's policy is to classify shipping and handling costs billed to customers as an offset to total shipping expense in the statement of operations, primarily within sales and marketing. In general, the Company's customers do not have any rights of return or exchange.

Cost of Revenue

The expenses that are included in cost of revenue include all direct product costs and manufacturing costs. Specific provisions for excess or obsolete inventory are also included in cost of revenue. Beginning in January 2013, cost of revenue also includes the 2.3% excise tax on the sale of medical devices in the United States.

Cash, Cash Equivalents, Restricted Cash, and Investments

The Company considers all cash on deposit, money market accounts and highly-liquid debt instruments purchased with original maturities of three months or less to be cash and cash equivalents. Restricted cash consists of cash we receive from payments of our accounts receivables held in a segregated account that must be applied to pay amounts owed under our revolving credit facility with General Electric Capital Corporation. The Company's investments in marketable debt and equity securities are deemed by management to be available for sale and are reported at fair market value with the net unrealized appreciation or depreciation reported as a component of accumulated other comprehensive loss in stockholders' deficit. At the time of sale, any realized appreciation or depreciation, calculated by the specific identification method, is recognized in other income and expense.

Inventories

Inventories are stated at the lower of cost or market, with cost for manufactured inventory determined under the standard cost method which approximates first-in first-out ("FIFO"). Manufactured inventory consists of raw

material, direct labor and manufacturing overhead cost components. Inventories purchased from third-party manufacturers are stated at the lower of cost or market using the first-in, first-out method. The Company reviews the carrying value of inventory on a periodic basis for excess or obsolete items, and records any write-down as a cost of revenue, as necessary. It is reasonably possible that the Company may be required to make adjustments to the carrying value of inventory in future periods. The Company holds consigned inventory at distributor and other customer locations where revenue recognition criteria have not yet been achieved.

Property and Equipment

Property and equipment, including surgical instruments and leasehold improvements, are stated at cost, less accumulated depreciation and amortization. Property and equipment are depreciated using the straight-line method over the estimated useful lives of the assets, which range from three to five years. Leasehold improvements are amortized over the shorter of their estimated useful lives or the related lease term, generally five years.

In accounting for long-lived assets, the Company makes estimates about the expected useful lives of the assets, the expected residual values of certain of these assets, and the potential for impairment based on the fair value of the assets and the cash flows they generate. The Company periodically evaluates the carrying value of long-lived assets to be held and used when events and circumstances indicate that the carrying amount of an asset may not be recovered. The Company has not recognized any impairment loss for property and equipment for the year ended December 31, 2012, and the nine months ended September 30, 2013.

Long-Lived Assets and Goodwill

Periodically, the Company assesses potential impairment of its long-lived assets, which include property, equipment, and acquired intangible assets. The Company performs an impairment review whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors the Company considers important which could trigger an impairment review include, but are not limited to, significant under-performance relative to historical or projected future operating results, significant changes in the manner of its use of acquired assets or its overall business strategy, and significant industry or economic trends. When the Company determines that the carrying value of a long-lived asset may not be recoverable based upon the existence of one or more of the above indicators, the Company determines the recoverability by comparing the carrying amount of the asset to net future undiscounted cash flows that the asset is expected to generate and recognizes an impairment charge equal to the amount by which the carrying amount exceeds the fair market value of the asset. The Company amortizes intangible assets on a straight-line basis over their estimated useful lives.

The Company tests goodwill for impairment annually as of December 31, or whenever events or changes in circumstances indicate that goodwill may be impaired. The Company initially assesses qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount. For goodwill impairment testing purposes, we consider the value of our equity, including the value of our convertible preferred stock, in the total carrying value of our single reporting unit. If, after assessing the totality of events or circumstances, the Company determines it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then the Company performs a first step by comparing the book value of net assets to the fair value of the Company's single reporting unit. If the fair value is determined to be less than the book value, a second step is performed to compute the amount of impairment as the difference between the estimated fair value of goodwill and the carrying value. Based upon this assessment, the Company determined that it was not more-likely-than-not that the fair value of the Company's single reporting unit was less than its carrying amount and no goodwill impairment was recognized during the years ended December 31, 2011 or 2012 or the nine months ended

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

September 30, 2012 or 2013. As of December 31, 2011 and 2012 and September 30, 2013, the Company had recorded approximately $6.2 million of goodwill related to the Company's acquisition of US Spine in 2010.

Research and Development

All research and development costs, including those funded by third parties, are expensed as incurred. Research and development costs consist of engineering, product development, test-part manufacturing, testing, developing and validating the manufacturing process, and regulatory related costs. Research and development expenses also include employee compensation, employee and nonemployee stock-based compensation, supplies and materials, consultant services, and travel and facilities expenses related to research activities.

Advertising Costs

Advertising costs are expensed as incurred. The primary component of the Company's advertising expenses is advertising in trade periodicals. Advertising costs were approximately $392,000 and $1.1 million for the years ended December 31, 2011 and 2012, respectively, and $343,000 and $334,000 for the nine months ended September 30, 2012 and 2013, respectively.

Income Taxes

The Company recognizes a liability or asset for the deferred tax consequences of all temporary differences between the tax basis of assets and liabilities and their reported amounts in the financial statements that will result in taxable or deductible amounts in future years when the reported amounts of the assets and liabilities are recovered or settled. The income tax benefit for the years ended December 31, 2011 and 2012, is $0 and $726,000, respectively. The Company recognizes interest and penalties as a component of the provision for income taxes. The amount of interest and penalties recognized in the years ended December 31, 2011 and 2012 and for the nine months ended September 30, 2012 and 2013 was $0.

Stock-Based Compensation

The Company records stock-based compensation expense related to employee stock-based awards based on the estimated fair value of the awards as determined on the date of grant. The Company utilizes the Black-Scholes-Merton option pricing model to estimate the fair value of employee stock options. The Black-Scholes-Merton model requires the input of highly subjective and complex assumptions, including the estimated fair value of the Company's common stock on the date of grant, the expected term of the stock option, and the expected volatility of the Company's common stock over the period equal to the expected term of the grant. The Company estimates forfeitures at the date of grant and revises the estimates, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

The Company accounts for stock options and warrants to purchase shares of stock that are issued to non-employees based on the estimated fair value of such instruments using the Black-Scholes-Merton option pricing model. The measurement of stock-based compensation expense for these instruments is variable and subject to periodic adjustments to the estimated fair value until the awards vest or, in the case of convertible preferred stock warrants, each reporting period until the warrant is exercised. Any resulting change in the estimated fair value is recognized in the Company's consolidated statements of comprehensive loss during the period in which the related services are rendered.

Deferred offering costs

Deferred offering costs totaled $1.3 million at September 30, 2013. These costs represent legal and accounting costs related to the Company's efforts to raise capital through an initial public offering, or IPO, of the Company's

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

common stock. There were no IPO costs incurred prior to May 1, 2013. Future costs related to the Company's IPO activities will be deferred until the completion of the IPO, at which time they will be reclassified to additional paid-in capital as a reduction of the IPO proceeds. If the Company terminates its plan for an IPO, any costs deferred will be expensed immediately.

Net Loss Per Share

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of common shares outstanding for the period, without consideration for common stock equivalents. Excluded from the weighted-average number of shares outstanding are unvested restricted stock units ("RSUs") totaling 123,721 shares for the nine months ended September 30, 2013. Diluted net loss per share is calculated by dividing the net loss by the weighted-average number of common share equivalents outstanding for the period determined using the treasury-stock method. Dilutive common stock equivalents are comprised of convertible preferred stock, warrants for the purchase of convertible preferred stock and common stock, stock options and RSUs outstanding under the Company's equity incentive plans. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding due to the Company's net loss position.

Potentially dilutive securities not included in the calculation of diluted net loss per share because to do so would be anti-dilutive are as follows (in common stock equivalent shares):

	Year ended December 31,		Nine months ended September 30,	
	2011	2012	2012	2013
Convertible preferred stock	2,766,073	3,578,513	2,897,986	7,584,073
Convertible debt shares	480,609	—	577,604	—
Preferred stock warrants	80,495	90,971	80,498	153,720
Options for common stock	299,072	287,418	299,581	94,161
Common stock warrants	374,979	377,578	377,578	473,952
Restricted stock units	—	—	—	123,721
Total	4,001,228	4,334,480	4,233,244	8,429,627

Unaudited Pro Forma Net Loss Per Share

The following table summarizes our unaudited pro forma net loss per share:

	Year Ended December 31, 2012	Nine Months Ended September 30, 2013
Numerator		
Net loss	$ (35,034,669)	$ (8,950,075)
Change in fair value of preferred stock warrant liability	85,228	(73,149)
Pro forma net loss	$ (34,949,441)	$ (9,023,224)
Denominator		
Shares used to compute net loss per common share, basic and diluted	348,550	507,227
Add: Pro forma adjustments to reflect assumed weighted-average effect of conversion of convertible preferred stock	3,182,953	6,612,691
Shares used to compute pro forma net loss per common share, basic and diluted	3,531,503	7,119,918
Pro forma net loss per common share, basic and diluted (unaudited)	$ (9.90)	$ (1.27)

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Immaterial error correction

Subsequent to the filing of the unaudited interim financial statements as of and for the nine months ended September 30, 2013, the Company determined the change in fair value of common stock warrant liability included in operating cash flows was overstated by approximately $870,000, and the proceeds from issuance of convertible preferred stock in the financing cash flows was understated by approximately $870,000. This error has been corrected by reducing the change in fair value of common stock warrant liability adjustment to operating cash flows by approximately $870,000, and increasing the disclosed proceeds from the issuance of preferred shares by approximately $870,000. This correction of an error was not considered material to the consolidated balance sheet, consolidated statement of convertible preferred stock and stockholders' deficit of the consolidated statement of cash flows, and had no effect on the Company's consolidated statements of comprehensive loss as of September 30, 2013 and for the nine months then ended.

Reverse Stock Split

On , 2014, the Company effected a 1 for 25.7746 reverse stock split of the Company's common stock. The par value and the authorized shares of the common and convertible preferred stock were not adjusted as a result of the reverse stock split. All common stock share and per-share amounts for all periods presented in these financial statements have been adjusted retroactively to reflect the reverse stock split.

2. Intangible Assets

Indefinite lived intangible assets consist of trademarks, while amortizable intangible assets subject to amortization consist of customer relationships, developed technology and other patents and patent applications, all of which were acquired in 2010 in connection with the US Spine acquisition. The amortizable intangible assets are being amortized over a period of 12 years from the acquisition date. As of December 31, 2011 and 2012 and September 30, 2013, the weighted average remaining life was 10.7, 9.7 and 8.9 years, respectively.

Impairment Analysis

Management of the Company noted that certain US Spine product sales, as well as sales to certain acquired US Spine customers during the one-year period ended December 31, 2012 have been less than expected relative to the forecasted revenues at the time of the acquisition. This indicator prompted the Company to question whether the carrying value of its long-lived and indefinite lived intangible assets would be recoverable. Management compared the carrying amount of the assets to net future undiscounted cash flows that the intangible assets are expected to generate, and concluded that an impairment existed. All of the Company's definite-lived and indefinite-lived intangible assets are categorized within Level 3 of the fair value hierarchy. Management estimated the fair values of the intangible assets and recognized an impairment loss of approximately $15.3 million in the year ended December 31, 2012. Significant assumptions included the following:

Valuation technique	Discounted cash flow method
Weighted-average cost of capital	17%
Weighted-average revenue growth rate	-58% to 10%
EBITDA margin	8.99% to 12.44%

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The details of the impairment loss recorded in the year ended December 31, 2012 are presented below:

Asset Group	Net Carrying Value of Intangible Assets Prior to Impairment	Impairment of Intangible Assets	Adjusted Net Carrying Value After Impairment Charge
Indefinite-lived intangible assets			
Trademark—US SPINE	$ 1,244,000	$ (1,044,000)	$ 200,000
Trademark—PREFERENCE	700,000	(550,000)	150,000
Trademark—FACET GUN/BOLT	205,000	(205,000)	—
Trademark—JAVELIN	100,000	(100,000)	—
Subtotal—indefinite-lived intangible assets	2,249,000	(1,899,000)	350,000
Long-lived intangible assets			
Customer relationships	7,869,472	(5,779,539)	2,089,933
Developed technology	9,242,139	(6,787,661)	2,454,478
Other patents and patent applications	1,109,250	(814,661)	294,589
Subtotal—long-lived intangible assets	18,220,861	(13,381,861)	4,839,000
Total asset group	$20,469,861	$(15,280,861)	$5,189,000

Following this impairment loss, the estimated amortization expense for each of the five years ending in 2017 is approximately $501,000 per year and $2,334,000 thereafter. The total accumulated amortization as of December 31, 2011 and 2012 and September 30, 2013, is approximately $2,513,000, $4,398,000 and $4,774,000, respectively.

3. Fair Value, Marketable Securities, and Contingent Consideration Liability

Fair Value Measurements

The Company has implemented the accounting requirements for financial assets, financial liabilities, non-financial assets and non-financial liabilities reported or disclosed at fair value. ASC 820, *Fair Value Measurements*, defines fair value, establishes a three level hierarchy for measuring fair value in generally accepted accounting principles, and expands disclosures about fair value measurements. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that a company has the ability to access at the measurement date. Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date. Assets are classified in their entirety based on the lowest level of input that is significant to the fair value measurement.

The Company's financial instruments are cash and cash equivalents, marketable securities, accounts receivable, accounts payable, accrued liabilities, common and preferred stock warrant liabilities, and notes payable. The recorded values of cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities approximate their fair values based on their short-term nature. The fair value of marketable securities is primarily estimated based upon quoted market prices in either active or inactive markets. The fair value of the common stock warrant liability and the preferred stock warrant is estimated based upon a Black-Scholes-Merton option pricing model. The recorded value of notes payable approximates the fair value as the interest rate approximates market interest rates.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Marketable Securities

Marketable securities at December 31, 2012 are summarized as follows:

	December 31, 2012			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Certificates of deposit	$1,000,000	$ 628	$ —	$1,000,628
Corporate debt securities	1,678,658	1,614	(459)	1,679,813
Total	$2,678,658	$ 2,242	$ (459)	$2,680,441

The Company had no marketable securities at September 30, 2013. Marketable securities available for sale in an unrealized loss position as of December 31, 2011 and 2012 are as follows:

	December 31, 2011			
	Held for less than 12 months		Held for more than 12 months	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Corporate debt securities	$5,407,385	$ (25,244)	$462,272	$ (2,514)
Total	$5,407,385	$ (25,244)	$462,272	$ (2,514)

	December 31, 2012			
	Held for less than 12 months		Held for more than 12 months	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
Corporate debt securities	$450,000	$ (80)	$319,265	$ (379)
Total	$450,000	$ (80)	$319,265	$ (379)

The majority of the Company's marketable securities are valued using quoted prices in markets that are not active or based on other observable inputs. Commercial paper, certificates of deposit and corporate debt securities are categorized as Level 2 because they are based on evaluated prices that reflect observable market information, such as actual trade information or similar securities, including interest rates and yield curves, adjusted for observable differences. The Company's asset manager obtains prices from pricing services, whose prices are obtained from direct feeds from market exchanges.

The following table sets forth the fair value of the Company's financial assets that were re-measured as of December 31, 2011 and 2012, respectively:

	Level 1	Level 2	Level 3	Total
At December 31, 2011:				
Commercial paper	$ —	$ 649,244	$ —	$ 649,244
Corporate debt securities	—	7,159,400	—	7,159,400
Total	$ —	$7,808,644	$ —	$7,808,644

	Level 1	Level 2	Level 3	Total
At December 31, 2012:				
Certificate of deposit	$ —	$1,000,628	$ —	$1,000,628
Corporate debt securities	—	1,679,813	—	1,679,813
Total	$ —	$2,680,441	$ —	$2,680,441

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The Company had no marketable securities that were required to be remeasured at September 30, 2013.

Maturities of marketable securities are as follows at December 31, 2011 and 2012:

	December 31, 2011		December 31, 2012	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Due within one year	$6,426,679	$6,404,135	$1,359,013	$1,360,547
Due after one but before five years	1,404,998	1,404,509	1,319,645	1,319,894
Total	$7,831,677	$7,808,644	$2,678,658	$2,680,441

The Company had no marketable securities at September 30, 2013.

No impairment losses were recognized through earnings related to available for sale securities for the periods ended December 31, 2011 and 2012, and September 30, 2013.

The proceeds from maturities and sales of marketable securities and resulting realized gain and losses for the periods ended December 31, 2011, and 2012 and September 30, 2013 are as follows:

	For the year ended		For the nine months ended
	December 31, 2011	December 31, 2012	September 30, 2013
Proceeds from maturities and sales	$ 7,331,874	$ 10,209,869	$ 2,978,752
Realized gains	842	127	2,158
Realized losses	(268)	—	115

For fair value disclosures regarding warrants to purchase convertible preferred stock, see Preferred Stock Warrant Liability under Note 8. For fair value disclosures regarding warrants to purchase common stock, see Common Stock Warrant Liability under Note 7.

Contingent Consideration Liability

The following table presents the Company's contingent consideration liability, measured at fair value on a recurring basis. The December 31, 2011 fair value was determined based on the ultimate settlement amount which occurred shortly after the end of 2012:

	Contingent Consideration Liability
Balance at December 31, 2010	$ 1,968,401
Change in fair value included in earnings	4,831,609
Balance at December 31, 2011	6,800,010
Settlement of contingency by issuance of preferred shares	(6,800,010)
Balance at December 31, 2012	$ —

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

4. Property and Equipment

The following is a summary of the components of property and equipment:

	December 31, 2011	December 31, 2012	September 30, 2013
Manufacturing and lab equipment	$ 6,975,210	$ 6,975,210	$ 7,104,734
Surgical instruments	6,910,410	6,357,891	7,790,509
Leasehold improvements	1,430,221	1,430,221	1,430,221
Software and computer equipment	901,416	807,456	807,456
Furniture and equipment	627,751	620,751	620,751
	$ 16,845,008	16,191,529	17,753,671
Less: accumulated depreciation and amortization	(11,865,814)	(13,168,997)	(14,450,674)
	$ 4,979,194	$ 3,022,532	$ 3,302,998

5. Inventories

The following is a summary of the components of inventories:

	December 31, 2011	December 31, 2012	September 30, 2013
Raw materials	$ 981,745	$ 968,688	$ 924,054
Work-in-process	1,367,897	421,542	1,754,226
Finished goods	9,047,663	7,435,664	6,532,016
	$ 11,397,306	$ 8,825,894	$ 9,210,296

Current finished goods include consigned inventory in the amounts of approximately $4.8 million and $5.6 million as of December 31, 2011 and 2012, respectively and $5.7 million as of September 30, 2013.

Inventory write-downs for excess or obsolete inventory are recorded as a cost of revenue.

6. Accrued Liabilities

Accrued liabilities consist of the following:

	December 31, 2011	December 31, 2012	September 30, 2013
Commissions	$ 513,825	$ 755,918	$ 688,283
Payroll and related expenses	408,446	521,555	699,323
Royalties	134,373	246,300	224,734
Interest payable	72,408	71,536	108,656
Final loan payment fee	—	—	154,286
Trade shows	329,559	—	—
Legal and patent expenses	136,768	—	—
Other	277,218	4,004	56,706
	$1,872,597	$1,599,313	$1,931,988

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

7. Debt and Line of Credit

The following table summarizes the maturities of the Company's debt, at face value, as of December 31, 2012:

2013	$ —
2014	7,200,000
2015	7,200,000
2016	3,600,000
	$18,000,000

Total interest expense for all debt instruments for the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 and 2013 was $3.5 million, $5.6 million, $3.9 million and $1.3 million, respectively.

Bank Debt

In February 2009, the Company borrowed $5.0 million from a bank under a promissory note agreement ("Term Loan 1"). The Term Loan agreement required that $1.0 million in principal be repaid annually for five years, along with interest which was due and payable on a monthly basis. The interest rate was 3.5% per annum above the Ninety-Day London Interbank Offered Rate. The Company pledged all of its inventory, accounts receivable and equipment as collateral for the loan. The Company could prepay all or any portion of the promissory note without penalty. In December 2009, the Company amended the agreement to extend the first principal repayment date to February 1, 2010. The amendment also added a minimum liquidity covenant of $5.0 million through January 31, 2010, and not less than $6.0 million thereafter.

In April 2010, the Company further amended the Term Loan 1 agreement, extending the date of the first principal repayment, increasing the principal balance of the term loan note from $5.0 million to $7.5 million and adding a line of credit facility, with a total amount available of $2.5 million. The amendment also modified the interest rate for both the promissory note and the line of credit to 4.25% per annum above the 90-day London Interbank Offered Rate with a floor of 4.5% and increased the principal repayments on the term loan note to $1.5 million annually. The amendment provides for an unused commitment fee of 0.5% per annum on the unused portion of the line of credit, payable quarterly in arrears. The amendment also includes a minimum liquidity covenant of $4.0 million through April 2010 and not less than $6.0 million thereafter. The Company received the proceeds from the additional $2.5 million term loan in April 2010 and borrowed $1.86 million under the line of credit in December 2010. In March 2011, the Company repaid the entire $1.86 million borrowed under the line of credit.

In 2010, the Company paid approximately $45,000 in loan fees and related costs in connection with the amendment, which will be amortized over the five year term of the promissory note. Also in 2010, in connection with the amendment, the Company issued warrants to purchase 50,000 shares of the Company's Series E convertible preferred stock, to the bank. The warrants became exercisable, after one year, at the purchase price of $2.20 per share and expire after five years. There are certain conditions that would have caused the warrants to become immediately exercisable. The Company has accounted for these warrants under the provisions of ASC 480, *Distinguishing Liabilities from Equity*. Accordingly, the Company has recorded a liability for the fair value of these warrants in 2010, and is required to record fair value adjustments to the liability at the end of each reporting period.

In September 2010, in connection with the acquisition of US Spine, the Company guaranteed a $5.0 million loan to US Spine, a wholly owned subsidiary of the Company ("Term Loan 2"). Term Loan 2 matures on August 1, 2015, is secured by all of the assets of US Spine and requires interest to be paid on a monthly basis. The agreement states that $1.0 million in principal be repaid annually commencing August 1, 2011 and on each

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

August 1 thereafter with one final payment of all interest and outstanding principal due on August 1, 2015. The interest rate is 4.25% per annum above the Ninety-Day London Interbank Offered Rate with a floor of 4.5%. The Company may prepay all or any portion of Term Loan 2 without penalty. The Company paid approximately $53,000 in loan fees and related costs in connection with the agreement, which will be amortized over the remaining term of the note.

In March 2011, the Company amended its Term Loan 1 and Term Loan 2 agreements. The March 2011, amendment to the Term Loan 1 agreement increase the principal from $7.5 million to $10.5 million, increase the annual payments from $1.5 million to $2.1 million and extended the date of the first principal repayment to April 1, 2012 (and annually thereafter) with a final payment due April 1, 2015. The March 2011 amendment to the Term Loan 2 extends the date of the first principal repayment of $1.0 million to August 1, 2012, with a final payment due August 1, 2015. The March 2011 amendments included a minimum liquidity covenant of not less than $6.0 million, minimum EBITDA, minimum gross profit, minimum loan to value and certain other financial covenants and limitations on dividends, distributions, other indebtedness, sale of assets, etc. The March 2011, amendment also grants the bank a perfected first security interest in all assets of the Company. As of December 31, 2011, the Company was not in compliance with its minimum EBITDA and minimum gross profit covenants, but in May 2012, the Company obtained a waiver from the bank. As of May 31, 2012, the Company was in compliance with all of its debt covenants. As of June 30, 2012, the Company was not in compliance with its debt covenants with respect to the issuance of audited financial statements for the year ended December 31, 2011. In July 2012, the Company obtained a waiver from the bank with respect to this covenant.

As of December 31, 2011, $2.0 million and $15.5 million were classified as current and long-term debt, respectively, regarding total bank debt. As of December 31, 2011, the Company was not in compliance with its minimum EBITDA and minimum gross profit covenants but obtained a waiver from the bank in May 2012.

In May 2012, the Company amended its Term Loan 1 and Term Loan 2 agreements. The amendment did not change the principal balances, which remained at $10.5 million and $5.0 million, respectively; however, the annual principal repayments beginning in 2012 for both loans were waived and the maturity date was modified to be April 1, 2013. In connection with the May 2012 amendments new minimum gross profit and minimum EBITDA targets were established and the Company incurred approximately $50,000 in legal and debt modification fees payable to the bank.

In December 2012, the Company repaid all amounts outstanding under the Term Loan 1 and Term Loan 2 agreements with the bank, as well as all amounts outstanding under the line of credit facility, totaling $18.0 million in principal and approximately $36,000 in accrued interest. The Company wrote off approximately $52,000 of capitalized debt issuance costs related to the term loans and the line of credit facility. The Company paid $107,500 in commissions related to the debt restructuring, of which approximately $70,000 was capitalized as debt issuance costs and the remaining $37,500 was recorded as interest expense in 2012. See New Bank Debt disclosures below.

US Spine-Related Note Payable

In connection with the acquisition of US Spine in September 2010, the Company entered into a subordinated secured promissory note agreement to pay two equal payments of $3.0 million to a US Spine stockholder over a two-year period. In accordance with this note agreement, the Company paid $3.0 million to the US Spine stockholder during 2011 and paid the remaining $3.0 million in 2012. The Company discounted the note using an imputed interest rate of 6.5%, which approximated a market rate of interest on the acquisition date. As of December 31, 2011, $2.9 million was classified as a current liability.

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Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Senior Secured Subordinated Convertible Promissory Notes

From March to May 2011, the Company issued $24.8 million in aggregate principal amount of Senior Secured Subordinated Convertible Promissory Notes (the "Notes"). The Company also received a commitment to purchase $5.0 million of Notes in February 2012, at the option of the Company ("Commitment Notes"). The Notes mature two years from issuance (one year on the Commitment Notes) and interest was paid quarterly at 6% for the first year and 8% for year two. The Notes may be converted to common stock at a conversion rate of $51.55 per share. The Note holders also received 3-year warrants exercisable for shares of the Company's common stock equal to 50% of the principal amount of the Notes divided by two, with an exercise price of $51.55 per share (total of 288,802 warrants) (the "Note Holder Warrants"). The warrants are fully exercisable immediately and expire after three years from issuance. The Company paid approximately $1.2 million in commissions, loan fees and related costs in connection with the Notes, which will be amortized over the two year term of the Notes. In connection with the closing of the Notes, and in accordance with the US Spine acquisition agreement, $1.0 million of the $24.8 million in proceeds was paid in March 2011 towards the $3.0 million due to a US Spine stockholder in September 2011.

As of December 31, 2011, $0 and $23.6 million were classified as current and long-term debt, respectively, regarding the Notes. The long-term amount of $23.6 million as of December 31, 2011 was increased by $5.0 million in February 2012 by the Commitment Notes, and was being accreted up to $29.8 million by the maturity dates in March–May 2013, through charges to interest expense.

In December 2012, contemporaneous with the closing of the New Bank Debt (see below), holders of approximately 82% of the outstanding principal balance of the Notes consented to the conversion of the Notes into shares of Series F convertible preferred stock at $2.00 per share, pursuant to the Company's request. The Company issued 14,887,500 shares of Series F convertible preferred stock. See Convertible preferred stock under Note 8.

New Bank Debt/Preferred Stock Warrant Liability

In December 2012, the Company closed on a $21.5 million senior secured credit facility (the "New Bank Debt") with a bank consortium consisting of two lenders, one of which was the existing bank lender from whom the Company borrowed beginning in 2009 (see Bank Debt above). The new agreement consists of a term loan for $18.0 million and a $3.5 million revolving line of credit secured by the Company's accounts receivable, based on certain defined criteria. The term loan consists of interest only payments for a period of 12 months after which monthly principal payments of approximately $600,000 are required for a period of 30 months. The term loan bears interest at the fixed rate of 7.5% per annum, while the line of credit had an interest rate of 7.0% at December 31, 2012 and September 30, 2013, which is based on the variable rate of 5.5% plus the higher of (i) 1.5% and (ii) the three-month LIBOR determined as of two London business days divided by a number equal to 1.0 minus the aggregate of the rates of reserve requirements on the day that is two London business days prior to the beginning of the interest period for Eurocurrency funding that are required to be maintained by a member bank of the Federal Reserve System. The Company pledged all of its assets as collateral for the loan. The agreement includes a non-refundable final payment fee equal to 4% of the original principal amount of the term loan, as well as an annual management fee equal to $15,000 per year.

The agreement includes certain financial covenants related to minimum liquidity including six (6) times the monthly cash burn amount, as defined, days sales outstanding of accounts receivable balances, and other financial reporting requirements. Upon any event of default, including the financial covenants, the lender may declare the loan immediately due and payable. The agreement provides for an unused credit facility fee of 0.75% per annum of the unused portion of the line of credit, payable monthly in arrears. The Company paid a total of approximately $333,000 in fees and commissions associated with the New Bank Debt, of which

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

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approximately $264,000 was capitalized as debt issuance costs and the remaining $69,000 was recorded as interest expense in 2012. The agreement includes a final payment fee of $720,000 due upon prepayment in full or at scheduled maturity.

In December 2012, in connection with the New Bank Debt, the Company issued warrants to purchase 270,000 shares of the Company's Series F convertible preferred stock to the two lenders. The warrants are immediately exercisable at the purchase price of $2.00 per share and expire after ten years. The Company has accounted for these warrants under the provisions of ASC 480, *Distinguishing Liabilities from Equity*. Accordingly, the Company has recorded a liability for the fair value of these warrants in 2012, and is required to record fair value adjustments to the liability at the end of each reporting period. See Preferred Stock Warrant Liability under Note 8.

Pursuant to its terms, the Company must repay its $18.0 million term loan over a period of 30 months, which began in January 2014. As of September 30, 2013, the total outstanding principal and accrued interest was $18.0 million, although the financial statements reflect a carrying value of $17.9 million due to the bifurcated value of warrants issued in connection with the debt. The Company has been in covenant default under the agreement in the past, and was in default with respect to the minimum liquidity covenant in November 2013, and has therefore classified the entire obligation as a current liability.

Common Stock Warrant Liability

Due to the issuance of 288,802 Note Holder Warrants in 2011, the Company was required to allocate the total proceeds received in the Notes offering to the common stock warrants and the Notes using the residual method. Under this method, the fair value of the Note Holder Warrants at the grant date was allocated to the Note Holder Warrants with the remaining proceeds allocated to the Note. The Note Holder Warrants are considered mark-to-market liabilities which are re-measured to fair value at each reporting period due to a round down provision whereby the exercise price of the warrants would change, if subsequent equity instruments were issued with an exercise price less than $51.55 per share. The fair value of the Note Holder Warrants at the grant date was approximately $1.8 million based upon the Black-Scholes-Merton option pricing model and the assumptions set forth in the table below. This amount has been recorded as a derivative liability while also reducing the carrying amount of the Notes. During the year ended December 31, 2011, approximately $559,000 was accreted as non-cash interest expense and increased the carrying amount of the Notes. The Company revalued the fair value of the derivative liability as of December 31, 2011, using the Black-Scholes-Merton option pricing model and decreased the carrying amount of the derivative liability by approximately $192,000.

In connection with the issuance of the Notes, the Company issued warrants to purchase 57,557 shares of common stock to the placement agent in May 2011, in connection with the Notes, the Company was required to record the fair value of the warrants of approximately $535,000 as a derivative liability, similar to the $1.8 million associated with the issuance of Note Holder Warrants with the offset being capitalized as debt issuance costs included in prepaid expenses. This asset was written off in 2012 to interest expense in connection with the conversion of the associated debt to equity; see Senior Secured Subordinated Convertible Promissory Note above. The warrants are fully exercisable after one year from issuance and expire after five years from issuance. The exercise price of the warrants is equal to 110% of the conversion price of the underlying common stock, or $56.70. On the closing of an initial public offering, all of the common stock warrants issued to the placement agent will become immediately exercisable. The Company capitalized the initial value of the warrants as debt issuance costs with a corresponding derivative liability for common stock warrants.

The initial value of the placement agent warrants was approximately $535,000 was based upon the Black-Scholes-Merton option pricing model and the 2011 per-share assumptions set forth in the table below. During the year ended December 31, 2011, the Company amortized $166,000 as non-cash interest expense which reduced the carrying value of the debt issuance costs and will continue amortizing the debt issuance costs over the

remaining term of the Notes. The Company revalued the derivative liability as of December 31, 2011, using the Black-Scholes-Merton option pricing model and the 2011 assumptions set forth below and increased the carrying amount by approximately $20,000. The change in the fair value of the derivative liability for all of the common stock warrants for the year ended December 31, 2011 was a decrease of approximately $172,000.

The Company will continue to adjust the common stock warrant liability for changes in fair value until the earlier of the exercise of the warrants to purchase shares of common stock or the completion of a liquidation event. The common stock warrant liability fair value was determined using primarily unobservable inputs and has been classified as a Level 3 liability in accordance with U.S. GAAP.

During 2012 the Company reduced the exercise price of the 288,802 Note Holder Warrants, from $51.55 to $25.77 per share, in connection with the conversion of the convertible debt into 14,887,500 shares of Series F convertible preferred stock as discussed above and in Note 8 and also extended the expiration date by four years to March 2018. This caused an increase in the value of the common stock liability of approximately $2.0 million; see the table below. In February 2013, the Company further reduced the exercise price of the 288,802 Note Holder Warrants, from $25.77 to $17.53 per share, and offered a replacement warrant for every Note Holder Warrant exercised at $17.53 per share. The replacement warrants contain the same terms and conditions (including exercise price and term) as before the February 2013 amendment. This caused an increase in the common stock liability of approximately $339,000. As a result of this amendment, the Company raised $3.1 million from the exercise of warrants for common stock and issued 178,516 shares of common stock. In connection with this financing, the Company paid Creation Capital LLC, its financial advisor, approximately $250,000 in commissions pursuant to its 2012 financial advisor consulting agreement. During August and September 2013 the Company issued warrants to purchase a total of 101,262 shares of common stock in connection with the sale of Series F convertible preferred stock. See “Convertible Preferred Stock” under Note 8. These warrants are classified as liabilities which are re-measured to fair value at the conclusion of each reporting period due to a round down provision whereby the exercise price of the warrants would change if subsequent equity investments were issued with a purchase price less than $25.77 per share with respect to 91,951 of the warrants and $56.70 per share with respect to 9,311 of the warrants. The fair value of the warrants at the grant date was approximately $870,000 based upon the Black-Scholes-Merton option pricing model and the assumptions set forth in the table below. This amount has been recorded as a derivative liability while also reducing the carrying amount of convertible preferred stock.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The following table summarizes the changes in the common stock warrant liability for the years ended December 31, 2012 and 2011, and the nine months ended September 30, 2013:

	Common Stock Warrant Liability
Balance at December 31, 2010	$ —
Increase in liability due to issuance of warrants to placement agent	(534,763)
Increase in liability due to issuance of warrants to noteholders	(1,802,553)
Decrease in fair value included in earnings, as other income	172,381
Balance at December 31, 2011	(2,164,935)
Increase in liability due to modification of warrant terms	(1,998,575)
Decrease in fair value included in earnings, as other income	1,380,319
Balance at December 31, 2012	(2,783,191)
Increase in liability due to issuance of warrants to placement agent (unaudited)	(54,730)
Increase in liability due to issuance of warrants to investors (unaudited)	(815,785)
Increase in liability due to modification of warrant terms (unaudited)	(339,121)
Decrease in fair value included in earnings, as other income (unaudited)	115,597
Balance at September 30, 2013 (unaudited)	$(3,877,230)

The assumptions used in estimating the common stock warrant liability as of December 31, 2011 and 2012 and September 30, 2013 and for the periods then ended, are set forth below:

	As of and for the year ended December 31,		As of and for the nine months ended September 30,
	2011	2012	2013
Estimated fair value of Company common shares	$ 25.77	$ 17.53	$ 17.53
Weighted-average risk free interest rate	1.31%	0.68%	1.27%
Weighted-average expected life (in years)	3.33	4.93	4.37
Expected dividend yield	0%	0%	0%
Weighted average expected volatility	64%	71%	71%

The significant assumptions used in determining the estimated fair value of the Company's common shares are updated on an annual basis and include the following:

Valuation technique	As of and for the year ended December 31, 2011: Hybrid of discounted cash flow method and guideline public company methodology	As of and for the year ended December 31, 2012: Hybrid of discounted cash flow method and guideline public company methodology
Weighted-average cost of capital (WACC)	18%	17%
Revenue growth rate (range)	159.4% to 5.7%	32.5% to 5.0%
Compounded average revenue growth rate	17.5%	17.7%
EBITDA margin (range)	(25.0)% to 28.8%	(23.8)% to 32.7%

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The effect of changes to these significant assumptions on the estimated liability for preferred stock warrants are set forth below:

Fair value of Company common shares	Warrant liability increases
WACC increases	Warrant liability decreases
Revenue growth increases	Warrant liability increases
Average revenue growth increases	Warrant liability increases
EBITDA margin increases	Warrant liability increases
Risk free interest increases	Warrant liability decreases
Expected average life increases	Warrant liability increases
Expected dividend yield increases	Warrant liability decreases
Expected volatility increases	Warrant liability increases

8. Equity

Common Stock

The Company had reserved shares of common stock for future issuance as follows:

	December 31,		September 30
	2011	2012	2013
Convertible preferred stock			
Shares outstanding	2,245,734	2,955,250	3,139,152
Warrants			
Series C convertible preferred stock	46,703	46,703	46,703
Series D convertible preferred stock	9,827	9,827	9,827
Series E convertible preferred stock	23,965	23,965	23,965
Series F convertible preferred stock	—	10,475	10,475
Common stock	374,979	377,578	473,952
Options outstanding	299,072	287,418	94,161
Restricted stock units	—	—	123,721
Shares available for grant under equity incentive plans	147,858	160,124	168,553
	3,148,138	3,871,340	4,090,509

Convertible Preferred Stock

In August and September 2013, the Company issued an aggregate of 4,740,000 shares of Series F convertible preferred stock at a purchase price of $2.00 per share, and associated warrants to purchase 91,951 shares of common stock. The warrants have an exercise price of $25.77 per share and expire after five years. In addition, the Company issued warrants to purchase an aggregate of 9,311 shares of common stock to a placement agent, in August and September 2013. These warrants contain an exercise price of $56.70 per share and expire after five years. See “Common Stock Warrant Liability” under Note 7.

In December 2012, the Company issued 14,887,500 shares of Series F convertible preferred stock at $2.00 per share upon conversion of the Notes. The placement agent received commissions of approximately $447,000 in connection with this conversion. See Senior Secured Subordinated Convertible Promissory Notes under Note 7. See also “Conversion Price Protection for Series F Convertible Preferred Stock” below.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

At December 31, 2011, convertible preferred stock consisted of the following:

Series	Designated Shares	Shares Issued and Outstanding	Aggregate Liquidation Preference
Series A	5,800,000	5,365,398	$ 3,219,239
Series A-1	10,400,000	10,390,463	6,234,278
Series B	2,300,000	1,944,147	2,332,976
Series B-1	3,300,000	3,299,141	3,958,969
Series C	5,400,000	4,125,000	8,250,000
Series C-1	4,325,000	4,275,000	8,550,000
Series D	8,200,000	7,978,800	23,936,400
Series D-1	6,300,000	6,145,667	18,437,001
Series E	31,150,000	14,359,273	28,718,546
Undesignated	22,825,000	—	—
Total	100,000,000	57,882,889	$103,637,409

At December 31, 2012, convertible preferred stock consisted of the following:

Series	Designated Shares	Shares Issued and Outstanding	Aggregate Liquidation Preference
Series A	5,800,000	5,365,398	$ 3,219,239
Series A-1	10,400,000	10,390,463	6,234,278
Series B	2,300,000	1,944,147	2,332,976
Series B-1	3,300,000	3,299,141	3,958,969
Series C	7,900,000	6,682,562	13,365,124
Series C-1	4,325,000	4,275,000	8,550,000
Series D	8,300,000	7,978,800	23,936,400
Series D-1	6,300,000	6,145,667	18,437,001
Series E	16,200,000	15,201,716	30,403,432
Series F	14,950,000	14,887,500	29,775,000
Undesignated	20,225,000	—	—
Total	100,000,000	76,170,394	$140,212,419

At September 30, 2013, convertible preferred stock consisted of the following:

Series	Designated Shares	Shares Issued and Outstanding	Aggregate Liquidation Preference
Series A	5,800,000	5,365,398	$ 3,219,239
Series A-1	10,400,000	10,390,463	6,234,278
Series B	2,300,000	1,944,147	2,332,976
Series B-1	3,300,000	3,299,141	3,958,969
Series C	7,900,000	6,682,562	13,365,124
Series C-1	4,325,000	4,275,000	8,550,000
Series D	8,300,000	7,978,800	23,936,400
Series D-1	6,300,000	6,145,667	18,437,001
Series E	16,200,000	15,201,716	30,403,432
Series F	20,710,000	19,627,500	39,255,000
Undesignated	14,465,000	—	—
Total	100,000,000	80,910,394	$149,692,419

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The rights and preferences of the convertible preferred stock are as follows:

Dividends

Holders of the convertible preferred stock shall be entitled to receive noncumulative dividends in preference to any dividend on common stock payable only if declared by the Board of Directors. As of December 31, 2011 and 2012, and September 30, 2013, the Board of Directors had not declared any dividends.

Liquidation Preference

In the event of any liquidation or winding up of the Company, including in the event of the merger, consolidation and sale of the Company, the holders of Series F convertible preferred stock shall be entitled to receive, in preference to holders of all other series of preferred stock and holders of common stock, a per share amount equal to $2.00, plus all accrued but unpaid dividends, when, as and if declared. If the Series F convertible preferred stock liquidation preference is paid in full to holders of such preferred stock, thereafter, the holders of Series A and A-1, Series B and B-1, Series C and C-1, Series D and D-1 convertible preferred stock, and Series E convertible preferred stock, shall be entitled to receive ratably, and in preference to the holders of common stock, a per share amount equal to $0.60 for Series A and A-1 convertible preferred stock, $1.20 for Series B and B-1 convertible preferred stock, $2.00 for Series C and C-1 convertible preferred stock, $3.00 for Series D and D-1 convertible preferred stock, and $2.00 for Series E convertible preferred stock plus, with respect to each such series of preferred stock, all declared but unpaid dividends. After the payment of the liquidation preference to the holders of the preferred stock, the remaining assets shall be distributed ratably to the holders of the common stock.

A sale, merger, reorganization, liquidation, dissolution or winding up of the Company may, in certain circumstances, be deemed to be a liquidation event and trigger the liquidation preferences associated with the outstanding shares of convertible preferred stock. Because a change in control could occur and not be solely within the control of the Company, all convertible preferred stock has been deemed to be redeemable and classified outside of permanent equity in the accompanying consolidated balance sheets. However, because the timing of any such redemption is uncertain, the Company will not accrete the carrying value of the convertible preferred stock to its liquidation preference value until it becomes probable that redemption will occur.

Conversion

The holders of the convertible preferred stock shall have the right to convert the shares of preferred stock held by such holders, at any time, into shares of common stock. Upon conversion, any declared but unpaid dividends on the preferred stock will be paid in additional shares of common stock.

The convertible preferred stock shall be automatically converted into common stock, at the then applicable conversion ratio, upon the closing of a public offering of shares of common stock at a per share price not less than the then applicable conversion price (as adjusted for stock splits, stock dividends, recapitalizations, etc.).

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The conversion ratio of each series of convertible preferred stock at September 30, 2013 is as noted below:

Series	Conversion Ratio
Series A	0.0388
Series A-1	0.0582
Series B	0.0414
Series B-1	0.0591
Series C	0.0435
Series C-1	0.0631
Series D	0.0505
Series D-1	0.0653
Series E	0.0441
Series F	0.0388

Conversion Price Protection for Series F Convertible Preferred Stock

Holders of the Series F convertible preferred stock enjoy certain protections in the event the Company closes its initial underwritten public offering pursuant to an effective registration statement covering the offer and sale to the public of common stock for the account of the Company (an "IPO") or closes a transaction that constitutes a change in control of the Company (a "Change in Control Transaction"). In the event the Company closes an IPO and the IPO price per share of common stock offered to the public is equal to or greater than $64.44 per share (subject to adjustment), the Series F conversion price shall be the Series F conversion price in effect immediately prior to the closing of the IPO. In the event the Company closes an IPO and the IPO price per share of common stock offered to the public is less than $64.44 per share (subject to adjustment), the Series F conversion price shall be adjusted to the lesser of (1) 80% of the IPO price per share and (2) the Series F conversion price in effect immediately prior to the IPO. In the event the Company closes a Change in Control Transaction and the aggregate consideration paid, payable, escrowed (including contingent consideration) per common equivalent share is equal to or greater than $64.44 per share (subject to adjustment), the Series F conversion price shall be the Series F conversion price in effect immediately prior to the closing of the Change in Control Transaction. In the event the Company closes a Change in Control Transaction and the transaction consideration per common equivalent share is less than $64.44 per share (subject to adjustment), the Series F conversion price shall be adjusted to the lesser of (1) 80% of the Change in Control consideration per common equivalent share and (2) the Series F conversion price in effect immediately prior to the closing of a Change in Control Transaction.

Voting Rights

The preferred stock will vote together with the common stock, and not as separate classes, except as specifically provided below or as otherwise required by law. Each share of preferred stock shall have a number of votes equal to the number of shares of common stock the preferred stock is convertible into on an as-converted basis.

Unless an affirmative vote of 50% of the combined outstanding shares of preferred stock, voting separately as a class, is obtained, the Company shall not undertake any of the following: (i) declaration or payment of any dividend or other distribution or payment on the (or the redemption, purchase or other acquisition for value of any) capital stock of the Company or any subsidiary; (ii) any liquidation, dissolution, recapitalization or reorganization of the Company; (iii) transfer or disposition of assets or rights with a value of more than $1,000,000; and/or (iv) any amendment to the Company's certificate of incorporation that changes or alters any of the preferences, voting powers or other rights and privileges of preferred stock.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Registration Rights

The preferred stockholders and warrant holders were granted registration rights that provide these holders the right to request, beginning 180 days after the completion of a qualifying initial public offering, that the Company file a registration statement to register under the Securities Act the common stock that would be issued upon conversion of the preferred shares or exercise of the warrants. Thereupon, the Company is obligated to use commercially reasonable efforts to timely file a registration statement. These registration rights are subject to certain conditions and limitations, including the Company's right, based on advice of the lead managing underwriter of a future offering, to limit the number of shares included in any such registration under certain circumstances.

Preferred Stock Warrant Liability

In connection with the various convertible preferred stock offerings, the placement agent received warrants to purchase convertible preferred stock. The warrants are fully exercisable after one year from issuance and expire after seven years. As described in Note 11, Related-Party Transactions, during 2012 the Company extended the expiration date for the warrants to purchase Series C convertible preferred stock by an additional five years. The exercise price of these warrants is equal to 110% of the offering price of the underlying convertible preferred stock. On the closing of an initial public offering, these warrants will convert into warrants to purchase shares of common stock at the then applicable conversion rate for the related preferred stock. During 2012, the Company granted warrants to purchase Series F convertible preferred stock at $2.00 per share to a bank in connection with the debt refinancing (see Note 7, New Bank Debt). The warrants to purchase Series F convertible preferred stock are immediately exercisable and expire after ten years. The grant dates, number of warrants, exercise price and estimated fair value of the warrants at December 31, 2011 and 2012 and September 30, 2013, are as noted below:

Series of convertible preferred stock underlying warrants	Grant Date	Number of Warrants	Exercise Price	Estimated Fair Value December 31, 2011
Series C	02/24/06	1,203,750	$ 2.20	$ 60,188
Series D	04/27/07	253,290	$ 3.30	27,862
Series E	03/22/10	617,691	$ 2.20	240,899
		2,074,731		$ 328,949

Series of convertible preferred stock underlying warrants	Grant Date	Number of Warrants	Exercise Price	Estimated Fair Value December 31, 2012
Series C	02/24/06	1,203,750	$ 2.20	$ 276,863
Series D	04/27/07	253,290	$ 3.30	7,599
Series E	03/22/10	617,691	$ 2.20	129,715
Series F	12/17/12	270,000	$ 2.00	111,302
		2,344,731		$ 525,479

Series of convertible preferred stock underlying warrants	Grant Date	Number of Warrants	Exercise Price	Estimated Fair Value September 30, 2013
Series C	02/24/06	1,203,750	$ 2.20	$ 233,440
Series D	04/27/07	253,290	$ 3.30	3,971
Series E	03/22/10	617,691	$ 2.20	106,527
Series F	12/17/12	270,000	$ 2.00	108,393
		2,344,731		$ 452,331

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

Freestanding warrants for shares that are either putable or warrants for shares that are redeemable are classified as liabilities on the balance sheet at fair value. In connection with the grant of the warrants to purchase Series C convertible preferred stock in 2006, Series D convertible preferred stock in 2007, Series E convertible preferred stock in 2010, and Series F convertible preferred stock in 2012, the Company recorded the initial fair values of the warrants of approximately $929,000, $442,000, $266,000, and $111,000, respectively, as a preferred stock warrant liability. At the end of each reporting period, changes in fair value during the period are recorded as a component of other income or expense. The preferred stock warrant liability fair value was determined using primarily unobservable inputs and has been classified as a Level 3 liability.

During 2011 the Company recorded a $132,000 decrease in the preferred stock warrant liability due to the exercise by stockholders of 282,820 warrants for Series A convertible preferred stock (48,125 for cash and 234,695 net exercised) and 278,374 warrants for Series B convertible preferred stock (all net exercise). For the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2013, the Company recorded a benefit of $308,000, a charge of $85,000 and a benefit of $73,000, respectively, for the change in fair value of the preferred stock warrants. The Company will continue to adjust the liability for changes in fair value until the earlier of the exercise of the warrants to purchase shares of convertible preferred stock, the completion of a liquidation event, including the completion of an initial public offering, at which time the liabilities will be reclassified to stockholders' deficit when the warrants are converted to common stock warrants, or the expiration of the warrants.

The valuation of the preferred stock warrant liability has been determined using the underlying common share value; See Common Stock Warrant Liability under Note 7. The following table presents the changes in the estimated fair value of the preferred stock warrant liability for the years ended December 31, 2011 and 2012 and the nine months ended September 30, 2013:

	Preferred Stock Warrant Liability
Balance at December 31, 2010	$(769,186)
Cashless exercise of preferred stock warrants	115,984
Reduction in liability due to exercise of warrants for cash	16,363
Change in fair value included in earnings	307,890
Balance at December 31, 2011	(328,949)
Increase in liability due to issuance of warrants	(111,302)
Change in fair value included in earnings	(85,228)
Balance at December 31, 2012	(525,479)
Change in fair value included in earnings	73,148
Balance at September 30, 2013 (unaudited)	$(452,331)

The assumptions used in estimating the preferred stock warrant liability as of December 31, 2011 and 2012 and September 30, 2013 and for the periods then ended, are set forth below:

	As of and for the year ended December 31,		As of and for the nine months ended September 30,
	2011	2012	2013
Estimated fair value of the Company's common shares	$ 25.77	$ 17.53	$ 17.53
Weighted-average risk free interest rate	1.31%	0.68%	1.09%
Weighted-average expected life (in years)	3.33	4.93	4.43
Expected dividend yield	0%	0%	0%
Weighted-average expected volatility	64%	71%	76%

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The significant assumptions used in determining the estimated fair value of the Company's common shares are updated on an annual basis and include the following:

Valuation technique	As of and for the year ended December 31, 2011: Hybrid of discounted cash flow method and guideline public company methodology	As of and for the year ended December 31, 2012: Hybrid of discounted cash flow method and guideline public company methodology
Weighted-average cost of capital (WACC)	18%	17%
Revenue growth rate (range)	159.4% to 5.7%	32.5% to 5.0%
Compounded average revenue growth rate	17.5%	17.7%
EBITDA margin (range)	(25.0)% to 28.8%	(23.8)% to 32.7%

The effect of changes to these significant assumptions on the estimated liability for preferred stock warrants are set forth below:

Fair value of Company common shares	Warrant liability increases
WACC increases	Warrant liability decreases
Revenue growth increases	Warrant liability increases
Average revenue growth increases	Warrant liability increases
EBITDA margin increases	Warrant liability increases
Risk free interest increases	Warrant liability decreases
Expected average life increases	Warrant liability increases
Expected dividend yield increases	Warrant liability decreases
Expected volatility increases	Warrant liability increases

2003 and 2012 Option and Equity Plans

Under the Company's 2003 Stock Option Plan (the "2003 Plan"), the Company's Board of Directors has authorized the grant of options to employees and nonemployees for the issuance of up to 465,575 shares of the Company's common stock. All options granted have a term of ten years from the date of the grant and generally become fully exercisable within four years of continued employment or service at a rate defined in each option agreement.

In September 2012, the Company's Board of Directors adopted the 2012 Employee, Director and Consultant Equity Incentive Plan (the "2012 Plan") and resolved to cease awarding any further equity awards under the 2003 Plan. At that time there were approximately 155,192 approved and available shares of Common Stock available for issuance under the 2003 Plan. The Board resolved to transfer the available approximately 155,192 shares under the 2003 Plan into the 2012 Plan and further resolved that any outstanding shares of Common Stock represented by awards previously granted under the 2003 Plan that are forfeited, expire or are cancelled without delivery of shares of Common Stock shall be made available for award under the 2012 Plan.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

A summary of the Company's stock option activity and related information is as follows:

	# of Options	Weighted Average Exercise Price	Restricted Stock
December 31, 2010	326,894	$ 28.35	—
Granted	48,210	25.77	—
Exercised	(667)	5.41	—
Cancelled	(75,366)	42.53	—
December 31, 2011	299,071	27.06	—
Granted	90,450	25.77	—
Exercised	(450)	11.60	—
Cancelled	(101,654)	34.28	—
December 31, 2012	287,417	23.20	—
Granted	—	—	132,805
Exercised	(60,719)	2.84	—
Cancelled	(132,537)	28.09	(9,084)
September 30, 2013	94,161	$ 29.38	123,721
Options exercisable	92,820	$ 29.38	—

The total number of shares available for grant under the 2012 Plan as of September 30, 2013 was 168,553.

There were options to purchase 231,469, 235,465 and 92,820 shares of common stock that were exercisable at December 31, 2011 and 2012 and September 30, 2013, respectively, at a weighted-average exercise price of $27.32, $22.42 and $39.38, respectively. The aggregate intrinsic value of all outstanding options as of September 30, 2013 was approximately $124,000, based on an estimated fair value of common stock of $17.53 per share.

Information about outstanding stock options is as follows:

	As of December 31, 2012			As of September 30, 2013		
Exercise Price Per Share	Options Outstanding	Weighted-Average Remaining Contractual Life (in years)	Options Exercisable	Options Outstanding	Weighted-Average Remaining Contractual Life (in years)	Options Exercisable
$2.58—$6.44	74,686	0.71	74,686	9,311	0.68	9,311
$15.46—$25.77	159,607	7.55	107,654	59,963	5.90	58,234
$41.24—$61.86	53,125	5.80	53,125	24,887	4.14	25,275
$2.58—$61.86	287,418	5.45	235,465	94,161		92,820

Stock Options

Stock-based compensation expense is measured at grant date, based on the fair value of the award, and is recognized as expense over the remaining requisite service period.

In March 2012, the board of directors of the Company approved the cancellation of stock options held by active employees and board members with exercise prices above $25.77 per share, and the replacement of such options with options for the same number of shares with 100% immediate vesting on the date of grant. This

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

resulted in additional stock-based compensation expense of approximately $413,000, based on 47,100 options originally granted with exercise prices of $32.22, $41.24, $47.68 or $61.86 per share that were cancelled and using updated inputs into the Black-Scholes-Merton valuation model, as follows:

	Inputs Before Modification	Inputs Following Modification
Weighted-average risk-free interest rate	0.50%	1.11%
Weighted-average expected life (in years)	2.50	5.00
Expected dividend yield	0%	0%
Weighted-average expected volatility	65%	71%

Total stock-based compensation expense included in the consolidated statements of comprehensive income was allocated as follows:

	Year Ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
Research and development	$193,189	$ 157,871	$257,633	$ 42,915
General and administrative	449,571	479,542	309,410	88,254
Sales and marketing	114,104	188,547	156,694	249,305
Cost of product revenue	49,884	31,385	12,286	114
Capitalized into inventory	—	143,909	88,281	858
Total	$806,748	$1,001,254	$824,304	$381,446

During 2011 and 2012, the Company issued options to employees and directors with exercise prices that, at the time of grant, the board of directors determined to approximate the fair value of the Company's common stock, taking into consideration a number of factors including the issuance price of shares of the Company's convertible preferred stock, the preferential terms and conditions of the convertible preferred stock, the status of scientific research and development efforts and associated milestones and the likelihood of achieving a liquidity event for the share of the Company's common stock.

There were no option grants in the nine months ended September 30, 2013. The fair value of each employee option grant was estimated on the date of grant using the Black-Scholes-Merton valuation model with the following assumptions:

	Year ended December 31,		Nine Months Ended September 30,	
	2011	2012	2012	2013
Weighted average risk-free interest rate	1.32	1.14	1.14	*
Weighted-average expected life (in years)	6.30	5.34	5.34	*
Expected dividend yield	0%	0%	0%	*
Weighted average expected volatility	70%	72%	72%	*
Weighted-average fair value of options granted	$16.50	$14.18	$ 14.18	*

* There were no stock option grants in the nine months ended September 30, 2013

The Company's computation of expected volatility for the year ended December 31, 2011 and 2012 and the nine months ended September 30, 2012 is based on an average of the historical volatility of a peer group of similar companies. The Company's computation of expected term utilizes the simplified method in accordance with U.S. GAAP. The risk-free interest rate for periods within the contractual life of the option is based on the

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

U.S. Treasury yield curve in effect at the time of grant. The Company recognizes stock-based compensation expense for the fair values of these awards on a straight-line basis over the requisite service period of each of these awards.

As of December 31, 2012, the weighted-average remaining contractual term for outstanding stock options and for exercisable stock options was 5.45 years and 4.99 years, respectively. The total intrinsic value of options exercised for the year ended December 31, 2012 was $6,375, based on 450 shares exercised, an estimated value of common stock during 2012 of $25.77 per share, and an average exercise price of $11.60 per share. Cash received from option exercises for the years ended December 31, 2011 and 2012, was $3,687 and $5,250, respectively. The Company recorded no tax benefit related to options exercised during 2011 and 2012.

As of September 30, 2013, the weighted-average remaining contractual term for outstanding stock options and for exercisable stock options was 4.92 years and 4.86 years, respectively. The total intrinsic value of options exercised for the nine months ended September 30, 2013 was $900,000, based on 60,719 shares exercised, an estimated value of common stock during 2013 of $17.53 per share, and an average exercise price of $2.84 per share. Cash received from option exercises for the nine months ended September 30, 2013 was approximately $77,000. The Company recorded no tax benefit related to options exercised in the nine months ended September 30, 2013.

At December 31, 2011 and 2012 and September 30, 2013, total compensation expense related to nonvested options not yet recognized in the financial statements was approximately $1,049,000, $773,000 and $383,000, respectively, and the weighted-average period over which it was expected to be recognized was 3.15 years, 2.82 years and 1.84 years, respectively. The Company recorded no tax benefit related to these options during any periods presented, since the Company currently maintains a full valuation allowance offsetting its deferred tax assets.

Stock Options and Awards Granted to Nonemployees

The Company did not grant any options to consultants or nonemployees for services in the years ended December 31, 2011 and 2012 or the nine months ended September 30, 2013. The exercise price of all previously granted nonemployee stock options ranges from $2.58 to $47.68 per share.

The following table shows the assumptions used to compute the stock-based compensation expense recognized for nonemployee stock options during the year ended December 31, 2011, the last year in which the expense was recognized, using the Black-Scholes-Merton valuation model:

Weighted-average risk-free interest rate	1.45%
Weighted-average expected term (remaining contractual life in years)	6.33
Expected dividend yield	0%
Weighted-average expected volatility	68.0%

The estimated fair value of options previously granted to consultants that vested during the year ended December 31, 2011, was $19,613 and was charged to research and development expense. There was no such vesting after December 31, 2011.

The Company issued 13,191 shares of common stock to nonemployees for sales and marketing services in the nine months ended September 30, 2013.

Option Exchange Program

In February 2013, employees of the Company elected to exchange 93,968 stock options for an equal number of RSUs pursuant to a one-time tender offer approved by the board of directors. The RSUs vest solely upon either a change in control or upon the expiration of a lock-up period in connection with an underwritten public offering of shares of the Company's common stock.

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

The incremental fair value on the date of the exchange between the original stock options and the RSUs issued will be recognized when vesting conditions are achieved.

9. Income Taxes

The following is a reconciliation of the expected statutory federal income tax provision to the actual income tax benefit:

	Years Ended December 31,	
	2011	2012
Income tax benefit at federal statutory rate	(34.0)%	(34.0)%
Income tax benefit at state statutory rate	(4.3)%	(4.3)%
Research and development credits	(1.2)%	(0.7)%
Equity related expenses	11.6%	6.7%
Change in valuation allowance	27.9%	30.3%
	0.0%	(2.0)%

The following table summarizes the Company's tax benefit.

	Years Ended December 31,	
	2011	2012
Current:		
Total Current	$ —	$ —
Deferred:		
State	$	$ (80,667)
Federal	—	(645,333)
Total Benefit	$ —	$(726,000)

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes.

Significant components of the Company's deferred tax assets at December 31 are shown below.

	December 31	
	2011	2012
Deferred tax assets:		
Net operating loss carryforwards	$ 33,025,000	$ 38,610,000
Depreciation	106,000	90,000
Research credits	1,863,000	2,113,000
Other	3,603,000	3,329,000
Total deferred tax assets	38,597,000	44,142,000
Deferred tax liabilities:		
Amortization of intangible assets	(7,623,000)	(1,138,000)
Total deferred tax liabilities	(7,623,000)	(1,138,000)
Net deferred tax assets	30,974,000	43,004,000
Less valuation allowance	(31,834,000)	(43,138,000)
Net deferred tax assets after valuation allowance	$ (860,000)	$ (134,000)

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

At December 31, 2011 and 2012, the Company had net operating loss carryforwards for federal and state income tax purposes of approximately $85.3 million and $99.1 million, respectively. The federal and state net operating loss carryforwards will expire from 2023 to 2032, unless previously utilized.

The income tax benefit recorded of $726,000 in 2012 relates to the impairment of intangible assets associated with the 2010 US Spine acquisition. In accordance with Section 382 of the Internal Revenue Code, a change in ownership of greater than 50% within a three-year period places an annual limitation on the Company's ability to utilize its existing net operating loss carryforwards. The Company may be subject to these annual limitations and, therefore, unable to fully utilize the net operating loss carryforwards. Additionally, the Company may be unable to fully utilize all of the net operating loss carryforwards associated with the US Spine acquisition, due to certain annual limitations.

During the years ended December 31, 2011 and 2012, the Company recognized no amounts related to tax interest or penalties. The Company is subject to taxation in the United States and various state jurisdictions. The Company currently has no years under examination by any jurisdiction.

A valuation allowance has been established as realization of such deferred tax assets has not met the more likely-than-not threshold requirement. If the Company's judgment changes and it is determined that the Company will be able to realize these deferred tax assets, the tax benefits relating to any reversal of the valuation allowance on deferred tax assets will be accounted for as a reduction to income tax expense. The tax valuation allowance increased by approximately $3.9 million and $11.3 million for the years ended December 31, 2011 and 2012, respectively.

10. Commitments and Contingencies

The Company currently leases laboratory, manufacturing and office space and equipment under noncancelable operating leases which provide for rent holidays and escalating payments. Lease incentives, including rent holidays, allowances for tenant improvements and rent escalation provisions, are recorded as deferred rent. Rent under operating leases is recognized on a straight-line basis beginning with lease commencement through the end of the lease term. For each of the years ended December 31, 2011 and 2012, rental expense was approximately $810,000. For the nine month periods ended September 30, 2012 and 2013, rental expense was approximately $610,000 and $608,000, respectively.

The following table summarizes future minimum rental payments required under operating leases that have initial or remaining non-cancelable lease terms in excess of one year as of December 31, 2012:

2013	$ 830,528
2014	855,036
2015	871,857
2016	898,062
2017	925,276
Thereafter	1,932,194
Total	$6,312,953

The Company has entered into consulting and development agreements with some of its advisors, including some surgeon advisors. The Company has agreed to pay some of the surgeon advisors a portion of the net profits attributable to the sale of specific spine products for which the surgeon advisors provided the Company with consulting and related services related to the conceptualization, development, testing, clearance, approval and/or related matters involving implant products. The Company is obligated to pay royalties to as many as 14 different surgeon advisors in connection with the sale of certain of its implant products. These agreements generally

continue until the later of (a) ten years from the date of the agreements, and (b) the expiration of the patent rights relating to the devices covered by the agreements, when rights have been assigned by the individuals to the Company. The Company paid $656,000 and $852,000 for the years ended December 31, 2011 and 2012, respectively, and $742,000 and $631,000 for the nine months ended September 30, 2012 and 2013, respectively, relating to these agreements. At December 31, 2011 and 2012 and September 30, 2013, the Company had accrued $134,000, $246,000 and $225,000 relating to these agreements. Also relating to these agreements, the Company recorded $7,000, $6,000 and $6,000 at December 31, 2011 and 2012 and September 30, 2013, respectively, as prepaid royalties.

The Company has executed agreements with certain executive officers of the Company which, upon the occurrence of certain events related to a change in control, call for payments to the executives up to three times their annual salary and accelerated vesting of previously granted stock options.

From time to time, the Company is subject to various claims and legal proceedings covering matters that arise in the ordinary course of its business activities. Management believes any liability that may ultimately result from the resolution of these matters will not have a material adverse effect on the Company's consolidated financial position, operating results, or cash flows.

11. Related-Party Transactions

Gregg R. Honigblum, the Chief Executive Officer of each of Creation Capital, LLC ("Creation Capital") and Creation Capital Advisors, LLC ("Creation Advisors"), joined the Company's board of directors in December 2006 and resigned in September 2013. The Company completed offerings of preferred stock and convertible debt through Creation Capital, as its placement agent, and it received strategic financial advisory services from Creation Advisors.

In conjunction with the Notes issued in 2011 (see Note 8) Creation Capital served as the Company's placement agent, and was paid $1,049,000 and received warrants exercisable for 57,557 shares of common stock at $56.70 per share as commissions. In February 2012, the Company received the final tranche of $5 million in Notes and paid Creation Capital an additional $212,500.

In connection with the conversion of the Notes to shares of Series F convertible preferred stock in December 2012, the Company was obligated to pay Creation Advisors a strategic financial advisory fee of approximately $447,000. Creation Advisors agreed to a payment plan whereby the Company would pay one half of the advisory fee (or approximately $223,500) immediately, and pay the other half in monthly installments over a period of 24 months. Also pursuant to the financial advisor consulting agreement Company entered into with Creation Advisors in June 2012, the Company paid Creation Advisors a strategic financial advisory fee of approximately $107,500 in 2012 related to the new bank financing which closed in December 2012 (see Note 7).

Pursuant to the June 2012 financial advisor consulting agreement with Creation Advisors, the Company agreed to extend the expiration date of all warrants to purchase Series C convertible preferred stock previously issued to Creation Capital from February 2013 to February 2018. In connection with this modification, the Company recorded additional expense of approximately $520,000.

In conjunction with the warrant restructuring and the sale and issuance of other shares of common stock in March 2013, Creation Advisors was paid a strategic financial advisory fee of approximately $250,000 (see Note 7—Common Stock Warrant Liability).

AMEDICA CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Years ended December 31, 2011 and 2012 (audited) and Nine Months ended September 30, 2012 and 2013 (unaudited)

12. 401(k) Plan

Effective June 1, 2004, the Company adopted a defined contribution retirement plan under Section 401(k) of the Internal Revenue Code. The plan covers substantially all employees. Eligible employees may contribute amounts to the plan, via payroll withholdings, subject to certain limitations. The plan permits, but does not require, additional matching contributions to the plan by the Company on behalf of the participants in the plan. The Company incurred approximately $199,000 and $151,000 relating to retirement contributions for the years ended December 31, 2011 and 2012, respectively, and approximately $116,000 and $120,000 for the nine months ended September 30, 2012 and 2013, respectively.

13. Subsequent Events (unaudited)

In October 2013, the Company entered into a one-year consulting agreement for financial advisory services with Creation Advisors in which Creation Advisors will receive compensation of up to $180,000 in cash (payable $15,000 per month).

In November 2013 the Company was in default with respect to the minimum liquidity covenant under its agreement with a bank. The Company obtained an amendment to the agreement in December 2013 which stipulated that the liquidity covenant would not be tested through January 31, 2014. The Company obtained an additional amendment to the agreement on January 28, 2014 from the bank that expires on March 1, 2014. This amendment extended the time through which the liquidity covenant would not be tested to February 28, 2014. Except as noted above, the Company is in compliance with all other covenants under the agreement.

With respect to the audited financial statements as of and for the year ended December 31, 2012 the Company evaluated subsequent events through September 23, 2013.

The Company has evaluated subsequent events with respect to the unaudited financial statements as of September 30, 2013 and for the nine months then ended through January 28, 2014, to ensure that this submission includes appropriate disclosure of events both recognized in these financial statements, and events which occurred subsequently but were not recognized in the financial statements.

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3,181,818 Shares
Common Stock

PROSPECTUS
, 2014

JMP Securities
Needham & Company

Neither we nor any of the underwriters have authorized anyone to provide information different from that contained in this prospectus. When you make a decision about whether to invest in our common stock, you should not rely upon any information other than the information in this prospectus. Neither the delivery of this prospectus nor the sale of our common stock means that information contained in this prospectus is correct after the date of this prospectus. This prospectus is not an offer to sell or solicitation of an offer to buy these shares of common stock in any circumstances under which the offer or solicitation is unlawful.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth an itemization of the various costs and expenses, all of which Amedica Corporation ("we," "our" and "us") we will pay, in connection with the issuance and distribution of the securities being registered. All of the amounts shown are estimated except the SEC Registration Fee, The NASDAQ Global Market Listing Fee and the Financial Industry Regulatory Authority, Inc. ("FINRA") Filing Fee.

SEC Registration Fee	$ 5,656
The NASDAQ Global Market Listing Fee	125,000
FINRA Filing Fee	7,086
Printing and Engraving Fees	250,000
Legal Fees and Expenses	2,000,000
Accounting Fees and Expenses	1,200,000
Transfer Agent and Registrar Fees	5,000
Miscellaneous	107,258
Total	$3,700,000

Item 14. Indemnification of Directors and Officers.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that each person who was or is made a party or is threatened to be made a party to or is otherwise involved (including, without limitation, as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was one of our directors or officers or is or was serving at our request as a director, officer, employee or agent of another corporation, or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan, whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by us to the fullest extent authorized by the Delaware General Corporation Law against all expense, liability and loss (including attorneys' fees, judgments, fines, Employee Retirement Insurance Security Act excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered in connection with legal proceedings. These provisions limit the liability of our directors and officers to fullest extent permitted under Delaware law. A director or officer will not receive indemnification if he or she is found not to have acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interest.

Section 145 of the Delaware General Corporation Law permits a corporation to indemnify any director or officer of the corporation against expenses (including attorney's fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with any action, suit or proceeding brought by reason of the fact that such person is or was a director or officer of the corporation, if such person acted in good faith and in a manner that he reasonably believed to be in, or not opposed to, the best interests of the corporation, and, with respect to any criminal action or proceeding, if he or she had no reasonable cause to believe his or her conduct was unlawful. In a derivative action, (i.e., one brought by or on behalf of the corporation), indemnification may be provided only for expenses actually and reasonably incurred by any director or officer in connection with the defense or settlement of such an action or suit if such person acted in good faith and in a manner that he or she reasonably believed to be in, or not opposed to, the best interests of the corporation, except that no indemnification shall be provided if such person shall have been adjudged to be liable to the corporation, unless and only to the extent that the court in which the action or suit was brought shall determine that such person is fairly and reasonably entitled to indemnity for such expenses despite such adjudication of liability.

Pursuant to Section 102(b)(7) of the Delaware General Corporation Law, Article Eighth of our amended and restated certificate of incorporation eliminates the liability of a director to us or our stockholders for monetary damages for such a breach of fiduciary duty as a director, except for liabilities arising:

- from any breach of the director's duty of loyalty to us or our stockholders;

- from acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- under Section 174 of the Delaware General Corporation Law; or
- from any transaction from which the director derived an improper personal benefit.

We carry insurance policies insuring our directors and officers against certain liabilities that they may incur in their capacity as directors and officers. We have entered into indemnification agreements with certain of our executive offices and directors. These agreements, among other things, indemnify and advance expenses to our directors and officers for certain expenses, including attorney's fees, judgments, fines and settlement amounts incurred by any such person in any action or proceeding, including any action by us arising out of such person's services as our director or officer, or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and officers. Prior to the completion of this offering, we plan to enter into agreements to indemnify all of our directors and officers.

Additionally, reference is made to the Underwriting Agreement filed as Exhibit 1.1 hereto, which provides for indemnification by the underwriters of Amedica Corporation, our directors and officers who sign the registration statement and persons who control Amedica Corporation, under certain circumstances.

Item 15. Recent Sales of Unregistered Securities.

Since January 1, 2010, we have sold the following securities that were not registered under the Securities Act.

a) Issuances of Capital Stock and Warrants

The sale and issuance of the securities set forth below were deemed to be exempt from registration under the Securities Act by virtue of Section 4(2) or Rule 506 promulgated under Regulation D promulgated thereunder and Section 3(a)(9). Each of the recipients of securities in these transactions was an accredited investor within the meaning of Rule 501 of Regulation D under the Securities Act and had adequate access, through employment, business or other relationships, to information about us. No underwriters were involved in these transactions. Common stock amounts and per share prices are presented after giving effect to a reverse stock split to be effected before the effectiveness of this registration statement.

- On February 17, 2010, we issued a common stock warrant covering 2,910 shares at a price of $45.11 per share to the University of Utah.
- On March 22, 2010, June 30, 2010 and July 27, 2010, we issued and sold a total of 7,209,273 shares of our Series E convertible preferred stock at a purchase price per share of $2.00 per share to 147 accredited investors for an aggregate purchase price of $14,418,546. In connection with this sale, on September 14, 2010, we issued a warrant to purchase 567,691 shares of our Series E convertible preferred stock at an exercise price of $2.20 per share to Creation Capital, LLC.
- On March 22, 2010, in connection with the initial closing of the issuance of our Series E convertible preferred stock, we issued 10,390,463 shares of our Series A-1 convertible preferred stock, 3,299,141 shares of our Series B-1 convertible preferred stock, 4,275,000 shares of our Series C-1 convertible preferred stock and 6,145,667 shares of our Series D-1 convertible preferred stock to 134 of our stockholders in exchange for 10,390,463 shares of our Series A convertible preferred stock, 3,299,141 shares of our Series B convertible preferred stock, 4,275,000 shares of our Series C convertible preferred stock and 6,145,667 shares of our Series D convertible preferred stock, respectively.
- On April 6, 2010, in connection with amending our loan agreement with Zions First National Bank, or Zions, we entered into a Series E Warrant Agreement with Zions, pursuant to which we issued a warrant to purchase 50,000 shares of our Series E convertible preferred stock at an exercise price of $2.20 per share to Zions.
- On September 20, 2010, in connection with our acquisition of US Spine, Inc., we issued 6,816,250 shares of our Series E convertible preferred stock to the former stockholders of US Spine and 333,750 shares of our Series E convertible preferred stock to Spinal Management LLC, an advisor to US Spine, as a transaction fee payment.
- On March 4, 2011 and May 9, 2011, we issued aggregate principal amount of $24.8 million of Senior Secured Subordinated 6%/8% Convertible Promissory Notes, or the Senior Secured Notes, and warrants to

purchase an aggregate of 288,802 shares of our common stock at an exercise price of $51.55 per share to 85 accredited investors. In connection with the initial closing of this offering, we received a commitment from Hampshire Med Tech Partners, LP to purchase an additional $5.0 million Senior Secured Note by no later than the first anniversary of the initial closing upon thirty days if its receipt of our notice to fund. Pursuant to this commitment, we issued an additional $5.0 million Senior Secured Note in February 2012. In connection with this offering, on May 9, 2011, we issued a warrant to purchase 57,577 shares of our common stock at an exercise price of $56.70 per share to Creation Capital, LLC.

- On April 18, 2011 and on November 15, 2011 we issued warrants to purchase an aggregate of 388 shares of our common stock at an exercise price of $51.55 per share to sales agents.
- On March 17, 2011, we issued a warrant to purchase 970 shares of our common stock to Zions First National Bank at an exercise price of $51.55 per share.
- On May 10, 2012, in connection with entering into a settlement agreement dated May 1, 2010, we issued (a) 842,443 shares of our Series E convertible preferred stock to the former stockholders of US Spine, of which 39,249 shares were issued to MSK and its affiliates, and (b) 2,557,562 shares of our Series C convertible preferred stock to MSK. Spinal Management LLC also received a commission that was paid in 42,122 and 127,878 of the shares of our Series E convertible preferred stock and Series C convertible preferred stock, respectively, issued under the settlement agreement.
- On December 17, 2012, in connection with entering into a commercial lending transaction, we issued warrants to purchase a total of 270,000 shares of our Series F convertible preferred stock at an exercise price of $2.00 per share to two of our institutional lenders.
- On December 17, 2012, we issued 14,887,500 shares of our Series F convertible preferred stock upon conversion of all of the outstanding Senior Secured Notes.
- In March 2013, we issued an aggregate of 178,516 shares of our common stock to 33 accredited investors upon exercise of warrants and the sale of additional shares of our common stock to other investors at $17.53 per share for an aggregate purchase price of $3,128,802. We also issued each investor purchasing shares of our common stock through the exercise of warrants new warrants to purchase an aggregate of 76,455 shares of our common stock at an exercise price of $17.53 per share.
- In 2013, we issued a total of 13,191 shares of our common stock at $17.53 per share to sales agents for shares earned in 2011, 2012 and 2013 in connection with our obligations under a settlement agreement dated May 1, 2010. We issued 1,358, 5,509 and 6,324 shares in the first, second and third quarters of 2013, respectively.
- On August 30, 2013 and September 20, 2013, we issued and sold a total of 94.8 units, each unit consisting of 50,000 shares of our Series F convertible preferred stock and a warrant to acquire 970 shares of our common stock at an exercise price of $25.77 per share, to 45 accredited investors at $100,000 per unit for an aggregate purchase price of $9,480,000. The purchase of these units resulted in our issuance of 4,740,000 shares of our Series F convertible preferred stock and warrants to purchase 91,951 shares of our common stock. In connection with this offering, we issued warrants to purchase an aggregate of 9,311 shares of our common stock, at an exercise price of $56.70 per share, to TGP Securities, Inc.

(b) Certain Equity Grants and Exercises of Stock Options

From January 1, 2013 through November 15, 2013, we granted no stock options. During this period, we granted a total of 191,002 RSUs. During the same period, 60,719 options to purchase shares of common stock were exercised.

In 2012, we granted options to purchase a total of 90,450 shares of our common stock to participants in the 2003 Plan, at a weighted-average price of $25.77 per share. In 2012, we issued 450 shares of common stock upon the exercise of options to purchase such shares of common stock at a weighted-average price of $11.60 per share.

In 2011, we granted options to purchase a total of 48,210 shares of our common stock to 2003 Plan participants, at a weighted-average price of $25.77 per share. In 2011, we issued 667 shares of common stock upon the exercise of options to purchase such shares of common stock at a weighted-average price of $5.41 per share.

In 2010, we granted options to purchase a total of 80,370 shares of our common stock to 2003 Plan participants, at a weighted-average price of $26.29 per share. In 2010, we issued 1,005 shares of common stock upon the exercise of options to purchase such shares of common stock at a weighted-average price of $8.25 per share.

Option grants, RSU grants and the issuances of common stock upon exercise of such options were exempt pursuant to Rule 701 and Section 4(2) of the Securities Act of 1933.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits

Exhibit Number	Description of Exhibit
1.1	Form of Underwriting Agreement
3.1*	Restated Certificate of Incorporation, as amended and as currently in effect
3.1.1	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to effect automatic conversion to be effective prior to effectiveness of this Registration Statement
3.1.2	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to effect reverse stock split to be effective prior to effectiveness of this Registration Statement
3.1.3	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to increase the number of authorized shares of the Registrant
3.2	Form of Restated Certificate of Incorporation, to become effective upon the closing of this offering
3.3*	Amended and Restated By-Laws, as currently in effect
3.4	Form of Restated Bylaws, to become effective upon the closing of this offering
4.1	Form of Common Stock Certificate
4.2*	Fifth Amended and Restated Registration Rights Agreement by and among the Registrant and certain of its stockholders, dated as of July 27, 2010
4.3	Omitted
4.4	Omitted
4.5*	Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of February 24, 2006
4.6*	Series D Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of April 27, 2007
4.7*	Common Stock Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of April 30, 2008
4.8*	Series E Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of September 14, 2010
4.9	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on May 9, 2011
4.10*	Warrant to Purchase 156,978 Shares of Series F Convertible Preferred Stock by and between the Registrant and GE Capital Equity Investments, Inc., dated as of December 17, 2012
4.11*	Warrant to Purchase 113,022 Shares of Series F Convertible Preferred Stock by and between the Registrant and Zions First National Bank, dated as of December 17, 2012
4.12*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on March 4, 2011 and May 9, 2011
4.13*	Form of Amendment to Warrant to Purchase Shares of Common Stock of the Registrant, dated as of December 18, 2012
4.14*	Form of Amendment No. 2 to Warrant to Purchase Shares of Common Stock of the Registrant, dated as of February 1, 2013
4.15*	Warrant to Purchase Shares of Common Stock of the Registrant by and between the Registrant and the University of Utah Research Foundation, dated as of February 17, 2010

Exhibit Number	Description of Exhibit
4.16*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on April 18, 2011, November 15, 2011, November 16, 2011, February 22, 2012, February 29, 2012 and March 7, 2012
4.17*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on August 30, 2013 and September 20, 2013, as amended
4.17.1	Form of Amendment to Warrant to Purchase Common Stock of the Registrant, dated as of December 23, 2013
4.18*	Warrant to Purchase Shares of Common Stock of the Registrant by and between the Registrant and Zions First National Bank, dated as of March 17, 2011
4.19*	Series E Warrant Agreement by and between the Registrant and Zions First National Bank, dated as of April 7, 2010
4.20*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued to TGP Securities, Inc. on August 30, 2013 and September 20, 2013, as amended
4.21	Form of Amendment to Warrant to Purchase Shares of Common Stock of the Registrant, issued to TGP Securities, Inc., dated as of December 23, 2013
5.1	Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to Amedica Corporation, with respect to the legality of the securities being registered
10.1*	Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and the financial institutions party thereto, dated as of December 17, 2012
10.2*	First Amendment to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of June 28, 2013
10.3*	Second Amendment and Waiver to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of July 31, 2013
10.4*	Third Amendment and Waiver to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of August 15, 2013
10.4.1	Fourth Amendment to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of December 23, 2013
10.4.2	Fifth Amendment to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of January 28, 2014.
10.5*	Pledge Agreement by and between the Registrant and General Electric Capital Corporation, dated as of December 17, 2012
10.6*	Intellectual Property Security Agreement by the Registrant in favor of General Electric Capital Corporation, dated as of December 17, 2012
10.7@	Joint Development and License Agreement by and between the Registrant and Orthopaedic Synergy, Inc., dated as of February 8, 2010
10.8@	Distribution Agreement by and between the Registrant and Orthopaedic Synergy, Inc., dated as of February 22, 2010, and First Amendment and Addendum thereto, dated as of November 1, 2012
10.9	Omitted
10.10*	Centrepointe Business Park Lease Agreement Net by and between the Registrant and Centrepointe Properties, LLC, dated as of April 21, 2009
10.11*	First Addendum to Centrepointe Business Park Lease Agreement Net by and between the Registrant and Centrepointe Properties, LLC, dated as of January 31, 2012
10.12*+	Form of Severance and Change of Control Agreement
10.13*+	Employment Term Sheet by and between the Registrant and Jay M. Moyes, dated as of October 29, 2013

Exhibit Number	Description of Exhibit
10.13.1	Restricted Stock Unit Agreement, by and between the Registrant and Jay Moyes, dated as of October 30, 2013
10.14*+	Form of Indemnification Agreement by and between the Registrant and its officers and directors
10.15+	Amedica Corporation Amended and Restated 2012 Equity Incentive Plan
10.16+	Form of 2012 Stock Option Grant Notice and Stock Award and Restricted Stock Option Agreement
10.17+	Form of 2012 Restricted Stock Unit Agreement
10.18*+	Amedica Corporation 2003 Stock Option Plan
10.19*+	Form of 2003 Non-Qualified Stock Option Agreement and Notice of Exercise of Non-Qualified Stock Option thereunder
10.20*+	Form of 2003 Incentive Stock Option Agreement and Notice of Exercise of Incentive Stock Option thereunder
21.1*	List of Subsidiaries of the Registrant
23.1	Consent of Independent Registered Public Accounting Firm
23.2	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (see Exhibit 5.1)
24.1*	Power of Attorney
24.2	Power of Attorney of Jeffrey S. White
*	Previously filed
+	Management contract or compensatory plan or arrangement.
@	Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and then filed separately with the SEC.

(b) Financial Statement Schedules

Financial Statement Schedules are omitted because the information is included in our financial statements or notes to those financial statements.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 14 above, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes:

(1) That for purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933 shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) That for the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Salt Lake City, Utah on January 29, 2014.

AMEDICA CORPORATION

By: /s/ Eric K. Olson
Eric K. Olson
Chief Executive Officer and President

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities held on the dates indicated.

Signature	Title	Date
/s/ Eric K. Olson Eric K. Olson	Chief Executive Officer, President and Director (principal executive officer)	January 29, 2014
* Jay M. Moyes	Chief Financial Officer and Director (principal financial and accounting officer)	January 29, 2014
* Max E. Link, Ph.D.	Chairman of the Board of Directors	January 29 , 2014
* B. Sonny Bal, M.D.	Director	January 29, 2014
* David W. Truetzel	Director	January 29, 2014
* Jeffrey S. White	Director	January 29, 2014

*By: /s/ Eric K. Olson
Eric K. Olson, Attorney-in-fact

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EXHIBIT INDEX

Exhibit Number	Description of Exhibit
1.1	Form of Underwriting Agreement
3.1*	Restated Certificate of Incorporation, as amended and as currently in effect
3.1.1	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to effect automatic conversion to be effective prior to effectiveness of this Registration Statement
3.1.2	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to effect reverse stock split to be effective prior to effectiveness of this Registration Statement
3.1.3	Form of Certificate of Amendment to Restated Certificate of Incorporation of the Registrant to increase the number of authorized shares of the Registrant
3.2	Form of Restated Certificate of Incorporation, to become effective upon the closing of this offering
3.3*	Amended and Restated By-Laws, as currently in effect
3.4	Form of Restated Bylaws, to become effective upon the closing of this offering
4.1	Form of Common Stock Certificate
4.2*	Fifth Amended and Restated Registration Rights Agreement by and among the Registrant and certain of its stockholders, dated as of July 27, 2010
4.3	Omitted
4.4	Omitted
4.5*	Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of February 24, 2006
4.6*	Series D Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of April 27, 2007
4.7*	Common Stock Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of April 30, 2008
4.8*	Series E Warrant Agreement by and between the Registrant and Creation Capital LLC, dated as of September 14, 2010
4.9	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on May 9, 2011
4.10*	Warrant to Purchase 156,978 Shares of Series F Convertible Preferred Stock by and between the Registrant and GE Capital Equity Investments, Inc., dated as of December 17, 2012
4.11*	Warrant to Purchase 113,022 Shares of Series F Convertible Preferred Stock by and between the Registrant and Zions First National Bank, dated as of December 17, 2012
4.12*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on March 4, 2011 and May 9, 2011
4.13*	Form of Amendment to Warrant to Purchase Shares of Common Stock of the Registrant, dated as of December 18, 2012
4.14*	Form of Amendment No. 2 to Warrant to Purchase Shares of Common Stock of the Registrant, dated as of February 1, 2013
4.15*	Warrant to Purchase Shares of Common Stock of the Registrant by and between the Registrant and the University of Utah Research Foundation, dated as of February 17, 2010
4.16*	Form of Warrant to Purchase Common Stock, issued on April 18, 2011, November 15, 2011, November 16, 2011, February 22, 2012, February 29, 2012 and March 7, 2012

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Exhibit Number	Description of Exhibit
4.17*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued on August 30, 2013 and September 20, 2013, as amended
4.17.1	Form of Amendment to Warrant to Purchase Shares of Common Stock of the Registrant, dated as of December 23, 2013
4.18*	Warrant to Purchase Shares of Common Stock of the Registrant by and between the Registrant and Zions First National Bank, dated as of March 17, 2011
4.19*	Series E Warrant Agreement by and between the Registrant and Zions First National Bank, dated as of April 7, 2010
4.20*	Form of Warrant to Purchase Shares of Common Stock of the Registrant, issued to TGP Securities, Inc. on August 30, 2013 and September 20, 2013, as amended
4.21	Form of Amendment to Warrant to Purchase Shares of Common Stock of the Registrant, issued to TGP Securities, Inc., dated as of December 23, 2013
5.1	Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to Amedica Corporation, with respect to the legality of the securities being registered
10.1*	Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and the financial institutions party thereto, dated as of December 17, 2012
10.2*	First Amendment to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of June 28, 2013
10.3*	Second Amendment and Waiver to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of July 31, 2013
10.4*	Third Amendment and Waiver to Loan and Security Agreement by and among the Registrant, General Electric Capital Corporation and US Spine, Inc., dated as of August 15, 2013
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23.1	Consent of Independent Registered Public Accounting Firm
23.2	Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (see Exhibit 5.1)
24.1*	Power of Attorney
24.2	Power of Attorney of Jeffrey S. White
*	Previously filed
+	Management contract or compensatory plan or arrangement.
@	Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and then filed separately with the SEC.

Exhibit 1.1

[ ] Shares

Amedica Corporation

Common Stock

UNDERWRITING AGREEMENT

[ ], 2014

JMP SECURITIES LLC
600 Montgomery Street
San Francisco, California 94111

As Representative of the several Underwriters listed on Schedule I hereto

Ladies and Gentlemen:

Amedica Corporation, a Delaware corporation (the "Company"), proposes to issue and sell to the several underwriters named in Schedule I hereto (the "Underwriters") for whom you are acting as representative (the "Representative") an aggregate of [ ] shares (the "Firm Shares") of the common stock, par value $0.01 per share, of the Company ("Common Stock"). The Company also proposes to sell to the several Underwriters, for the sole purpose of covering over-allotments in connection with the sale of the Firm Shares, at the option of the Underwriters, up to an additional [ ] shares of Common Stock (the "Option Shares"). The Firm Shares and the Option Shares are hereinafter referred to collectively as the "Shares".

The Company confirms as follows its agreements with the Representative and the several other Underwriters.

1. The Company represents and warrants to, and agrees with, each of the Underwriters that, as of the date hereof and as of the Closing Date and each Option Closing Date, if any:

(a) A registration statement on Form S-1 (File No. 333-192232) in respect of the Shares and one or more pre-effective amendments thereto (together, the "Initial Registration Statement") have been filed with the Securities and Exchange Commission (the "Commission"); the Initial Registration Statement and any post-effective amendment thereto, each in the form heretofore delivered to you, have been declared effective by the Commission in such form; other than a registration statement, if any, increasing the size of the offering (a "Rule 462(b) Registration Statement"), filed

pursuant to Rule 462(b) under the Securities Act of 1933, as amended (the "Securities Act"), which became effective upon filing, no other document with respect to the Initial Registration Statement has heretofore been filed with the Commission; no stop order suspending the effectiveness of the Initial Registration Statement, any post-effective amendment thereto or the Rule 462(b) Registration Statement, if any, has been issued, no proceeding for that purpose has been initiated or, to the Company's knowledge, threatened by the Commission and any request on the part of the Commission for additional information from the Company has been satisfied in all material respects; any preliminary prospectus included in the Initial Registration Statement, as originally filed or as part of any amendment thereto, or filed with the Commission pursuant to Rule 424(a) of the rules and regulations of the Commission under the Securities Act is hereinafter called a "Preliminary Prospectus"; the various parts of the Initial Registration Statement and the Rule 462(b) Registration Statement, if any, including all schedules and exhibits thereto and including the information contained in the form of final prospectus filed with the Commission pursuant to Rule 424(b) under the Securities Act and deemed by virtue of Rule 430A under the Securities Act to be part of the Initial Registration Statement at the time it was declared effective or such part of the Rule 462(b) Registration Statement, if any, became or hereafter becomes effective, each as amended at the time such part of the Initial Registration Statement became effective, are hereinafter collectively called the "Registration Statement"; the Preliminary Prospectus relating to the Shares that was included in the Registration Statement immediately prior to the Applicable Time (as defined in Section 1(c) hereof) is hereinafter called the "Pricing Prospectus"; such final prospectus, in the form first filed pursuant to Rule 424(b) under the Securities Act, is hereinafter called the "Prospectus"; and any "issuer free writing prospectus" as defined in Rule 433 under the Securities Act relating to the Shares is hereinafter called an "Issuer Free Writing Prospectus"; and all references to the Registration Statement, any Preliminary Prospectus, the Pricing Prospectus, the Prospectus, any Issuer Free Writing Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval system ("EDGAR"). From the time of initial confidential submission of the Registration Statement to the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company"). "Testing-the-Waters Communication" means any oral or written communication with potential investors undertaken in reliance on Section 5(d) of the Securities Act;

(b) (1) at the respective times the Initial Registration Statement, any Rule 462(b) Registration Statement and any post-effective amendments thereto became effective and at the Closing Date (as defined herein) (and, if any Option Shares are purchased, at each Option Closing Date) (as defined herein)), the Initial Registration Statement, any Rule 462(b) Registration Statement and any amendments and supplements thereto complied and will comply in all material respects with the requirements of the Securities Act and the rules and regulations of the Commission thereunder (the "Rules and Regulations") and did not and will not contain an untrue statement of a material fact

or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and (2) at the time the Prospectus or any amendments or supplements thereto were issued and at the Closing Date (and, if any Option Shares are purchased, at each Option Closing Date), neither the Prospectus nor any amendment or supplement thereto included or will include an untrue statement of a material fact or omitted or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided that the representations and warranties in clauses (1) and (2) above shall not apply to statements in or omissions from the Registration Statement or the Prospectus made in reliance upon and in strict conformity with information furnished to the Company in writing by any Underwriter through the Representative expressly for use in the Registration Statement or the Prospectus, it being understood and agreed that the only such information provided by any Underwriter is that described as such in Section 9(b) hereof. No order preventing or suspending the use of any Preliminary Prospectus, the Pricing Prospectus or any Issuer Free Writing Prospectus has been issued by the Commission. Each Preliminary Prospectus, Pricing Prospectus, Issuer Free Writing Prospectus and the Prospectus filed as part of the Initial Registration Statement as originally filed or as part of any amendment thereto, or filed pursuant to Rule 424 under the Securities Act, complied when so filed in all material respects with the requirements of the Securities Act and the Rules and Regulations and each Preliminary Prospectus, Pricing Prospectus, Issuer Free Writing Prospectus and the Prospectus delivered to the Underwriters for use in connection with this offering was identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T;

(c) For the purposes of this Agreement, the "Applicable Time" is [ ] [a/p].m. (Eastern time) on the date of this Agreement; the Pricing Prospectus as supplemented by (i) the pricing information set forth in Schedule II(a) hereto and (ii) the Issuer Free Writing Prospectuses listed in Schedule II(b) hereto, taken together (collectively, the "Pricing Disclosure Package") as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; and each Issuer Free Writing Prospectus listed on Schedule II(b) hereto and/or Written Testing-the-Waters Communication (as defined below) listed on Schedule II(c) hereto does not conflict with the information contained in the Registration Statement, the Pricing Prospectus or the Prospectus and each such Issuer Free Writing Prospectus and/or Written Testing-the-Waters Communication, as supplemented by and taken together with the Pricing Disclosure Package as of the Applicable Time, did not include any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading; provided, however, that this representation and warranty shall not apply to statements or omissions made in an Issuer Free Writing Prospectus or Written Testing-the-Waters Communication in reliance upon and in strict conformity with information furnished in writing to the Company by an Underwriter through the Representative expressly for use therein;

(d) The Company has filed a registration statement pursuant to the Securities Exchange Act of 1934, as amended (the "Exchange Act"), to register the Common Stock, and such registration statement has been declared effective; at the time of filing the Initial Registration Statement the Company was not and, as of the date hereof, is not an "ineligible issuer," as defined under Rule 405 under the Securities Act;

(e) The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own, lease and operate its properties and conduct its business as described in the Pricing Prospectus and to enter into and perform its obligations under this Agreement, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, except where the failure so to qualify or be in good standing would not have a material adverse effect on the condition (financial or otherwise), prospects, earnings, management, business, properties or stockholders' equity of the Company and the Subsidiary (as defined below), taken as a whole (a "Material Adverse Effect");

(f) The Company has one subsidiary, US Spine, Inc., a Delaware corporation (the "Subsidiary"). The Subsidiary has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware, with power and authority to own, lease and operate its properties and conduct its business as described in the Pricing Prospectus, and has been duly qualified as a foreign corporation for the transaction of business and is in good standing under the laws of each other jurisdiction in which it owns or leases properties or conducts any business so as to require such qualification, except where the failure so to qualify or be in good standing would not have a Material Adverse Effect; all of the issued and outstanding capital stock (or other ownership interests) of the Subsidiary has been duly and validly authorized and issued, is fully paid and non-assessable and is owned by the Company free and clear of any security interest, mortgage, pledge, lien, encumbrance, claim or equity;

(g) The Company has an authorized capitalization as set forth in the Pricing Prospectus, and all of the issued and outstanding shares of capital stock of the Company have been duly and validly authorized and issued, are fully paid and non-assessable and conform to the descriptions thereof contained in the Pricing Prospectus; and none of the issued and outstanding shares of capital stock of the Company are subject to any preemptive or similar rights;

(h) The Shares have been duly and validly authorized and, when issued and delivered to and paid for by the Underwriters in accordance with the terms of this Agreement, will be duly and validly issued and fully paid and non-assessable and will conform to the descriptions thereof contained in the Prospectus; and the issuance of such Shares is not subject to any preemptive or similar rights;

(i) This Agreement has been duly authorized, executed and delivered by the Company;

(j) The issue and sale of the Shares, the execution of this Agreement by the Company and the compliance by the Company with all of the provisions of this Agreement and the consummation of the transactions herein contemplated will not conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or the Subsidiary is a party or by which the Company or the Subsidiary is bound or to which any of the property or assets of the Company or the Subsidiary is subject, nor will such action result in any violation of the provisions of the certificate of incorporation or by-laws of the Company or the Subsidiary or any statute or any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Company or the Subsidiary or any of their properties; and no consent, approval, authorization, order, registration or qualification of or with any such court or governmental agency or body is required for the issue and sale of the Shares or the consummation by the Company of the transactions contemplated by this Agreement, except the registration under the Securities Act of the Shares and such consents, approvals, authorizations, registrations or qualifications as may be required by the Financial Industry Regulatory Authority, Inc. ("FINRA") or under state securities or Blue Sky laws in connection with the purchase and distribution of the Shares by the Underwriters;

(k) Ernst & Young LLP, who have certified certain financial statements of the Company and the Subsidiary are independent public accountants as required by the Securities Act, the Rules and Regulations and the Public Company Accounting Oversight Board (United States). The financial statements, together with related schedules and notes, included in the Registration Statement and the Pricing Prospectus comply in all material respects with the requirements of the Securities Act and present fairly the consolidated financial position, results of operations and changes in financial position of the Company and the Subsidiary on the basis stated in the Registration Statement at the respective dates or for the respective periods to which they apply; such statements and related schedules and notes have been prepared in accordance with generally accepted accounting principles consistently applied throughout the periods involved, except as disclosed therein; and the selected financial data and the summary financial data included in the Pricing Prospectus present fairly the information shown therein and have been compiled on a basis consistent with that of the financial statements included in the Registration Statement. Except as otherwise included therein, no historical or pro forma financial statements or supporting schedules are required to be included or incorporated by reference in the Registration Statement, the Pricing Prospectus or the Prospectus under the Securities Act or the Rules and Regulations;

(l) Neither the Company nor the Subsidiary has sustained since the date of the latest audited financial statements included in the Pricing Prospectus any material loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Pricing Prospectus; and, since the respective dates as of which information is given in the

Registration Statement and the Pricing Prospectus, (1) there has not been any change in the capital stock or long-term debt of the Company or the Subsidiary (other than the issuance of shares of Common Stock upon the exercise or conversion of outstanding securities described in the Pricing Prospectus, or the grant of options, restricted stock or other equity based awards under the Company's existing stock plans, which grants are described in the Pricing Prospectus), (2) there has not been any material adverse change, or any development involving a prospective material adverse change, in or affecting the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiary, considered as one enterprise, (3) there have been no transactions entered into by, and no obligations or liabilities, contingent or otherwise, incurred by the Company or the Subsidiary, whether or not in the ordinary course of business, which are material to the Company and the Subsidiary, considered as one enterprise or (4) there has been no dividend or distribution of any kind declared, paid or made by the Company on any class of its capital stock, in each case, otherwise than as set forth or contemplated in the Pricing Prospectus;

(m) Neither the Company nor the Subsidiary is (1) in violation of its certificate of incorporation or bylaws or (2) in violation of any law, ordinance, administrative or governmental rule or regulation applicable to the Company or the Subsidiary, or (3) in violation of any decree of any court or governmental agency or body having jurisdiction over the Company or the Subsidiary, or (4) in default in the performance of any obligation, agreement or condition contained in any bond, debenture, note or any other evidence of indebtedness or in any agreement, indenture, lease or other instrument to which the Company or the Subsidiary is a party or by which any of them or any of their respective properties may be bound, except, in the case of clauses (2), (3) and (4), where any such violation or default, individually or in the aggregate, would not have a Material Adverse Effect;

(n) Each of the Company and the Subsidiary has good and marketable title to all real and personal property owned by it, in each case free and clear of all liens, encumbrances and defects except such as are described in the Pricing Prospectus or such as do not materially affect the value of such property and do not interfere with the use made and proposed to be made of such property by the Company or the Subsidiary; and any real property and buildings held under lease by the Company or the Subsidiary are held under valid, subsisting and enforceable leases with such exceptions as are not material and do not interfere with the use made and proposed to be made of such property and buildings by the Company or the Subsidiary;

(o) Other than as set forth in the Pricing Prospectus, there are no legal or governmental proceedings pending to which the Company or the Subsidiary is a party or of which any property of the Company or the Subsidiary is the subject which, if determined adversely to the Company or the Subsidiary, individually or in the aggregate, would have or may reasonably be expected to have a Material Adverse Effect, or would prevent or impair the consummation of the transactions contemplated by this Agreement, or which are required to be described in the Registration Statement or the Pricing Prospectus; and, to the best of the Company's knowledge, no such proceedings are threatened or contemplated by governmental authorities or others;

(p) The Company and the Subsidiary possess all permits, licenses, clearances, approvals, consents and other authorizations (collectively, "Permits") issued by the appropriate federal, state, local or foreign regulatory agencies or bodies necessary to conduct the businesses now operated by them; the Company and the Subsidiary are in compliance with the terms and conditions of all such Permits and all of the Permits are valid and in full force and effect, except, in each case, where the failure so to comply or where the invalidity of such Permits or the failure of such Permits to be in full force and effect, individually or in the aggregate, would not have a Material Adverse Effect; and neither the Company nor the Subsidiary has received any notice of proceedings relating to the revocation or material modification of any such Permits;

(q) To the Company's knowledge, the Company and the Subsidiary has, or can acquire on reasonable terms, ownership of and/or license to, or otherwise has the right to use, all inventions, know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), patents and patent rights trademarks, service marks and trade names, copyrights, (collectively "Intellectual Property") material to carrying on their businesses as described in the Pricing Prospectus. Neither the Company nor the Subsidiary has received any correspondence relating to any Intellectual Property, including notice of: (A) infringement or misappropriation of, or conflict with, any Intellectual Property of a third party; (B) asserted rights of others with respect to any Intellectual Property of the Company or the Subsidiary; (C) assertions that any Intellectual Property of the Company or the Subsidiary is invalid or otherwise inadequate to protect the interest of the Company and the Subsidiary, that in each case (if the subject of any unfavorable decision, ruling or finding), individually or in the aggregate, would have or would reasonably be expected to have a Material Adverse Effect. There are no third parties who have been able to establish any material rights to any Intellectual Property, except for the retained rights of the owners or licensors of any Intellectual Property that is licensed to the Company or the Subsidiary. There is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the validity, enforceability or scope of any Intellectual Property of the Company or the Subsidiary or (B) challenging the Company's rights or the Subsidiary's rights in or to any Intellectual Property or (C) that the Company or the Subsidiary materially infringes, misappropriates or otherwise violates or conflicts with any Intellectual Property or other proprietary rights of others. The Company and the Subsidiary have complied in all material respects with the terms of each agreement described in the Registration Statement, Pricing Disclosure Package or Prospectus pursuant to which any Intellectual Property is licensed to the Company and/or the Subsidiary, and all such agreements related to products currently made or sold by the Company, or to product candidates currently under development, are in full force and effect. All patents issued in the name of, or assigned to, the Company or the Subsidiary, and all patent applications made by or on behalf of the Company or the Subsidiary (collectively, the "Company Patents") has been duly and properly filed. The Company is not aware of any material information that was required to be disclosed to the United

States Patent and Trademark Office (the "PTO") but that was not disclosed to the PTO with respect to any issued Company Patent, or that is required to be disclosed and has not yet been disclosed in any pending application in the Company Patents and that would preclude the grant of a patent on such application. To the Company's knowledge, the Company is the sole owner of the Company Patents;

(r) No material labor dispute with the employees of the Company or the Subsidiary exists, or, to the knowledge of the Company, is imminent. The Company is not aware of any existing or imminent labor disturbance by the employees of any of its or the Subsidiary's principal suppliers, manufacturers, distributors, customers or contractors, which, individually or in the aggregate, may reasonably be expected to result in a Material Adverse Effect;

(s) The Company and the Subsidiary are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which they are engaged; neither the Company nor the Subsidiary has been refused any insurance coverage sought or applied for; and the Company has no reason to believe that either it or the Subsidiary will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect;

(t) The Company and the Subsidiary have made and keep books, records and accounts, which, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company and the Subsidiary. The Company maintains a system of internal accounting controls sufficient to provide reasonable assurance that (1) transactions are executed in accordance with management's general or specific authorizations; (2) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (3) access to assets is permitted only in accordance with management's general or specific authorization; and (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences;

(u) Since the date of the latest audited financial statements included in the Pricing Prospectus, (a) the Company has not been advised of (1) any significant deficiencies in the design or operation of internal controls that could adversely affect the ability of the Company and the Subsidiary to record, process, summarize and report financial data, or any material weaknesses in internal controls and (2) any fraud, whether or not material, that involves management or other employees who have a significant role in the internal controls of the Company and the Subsidiary, and (b) since that date, there has been no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting;

(v) The Company maintains disclosure controls and procedures (as such term is defined in Rule 13a-15(e) of the Exchange Act) that comply with the requirements of the Exchange Act; such disclosure controls and procedures are effective;

(w) All United States federal income tax returns of the Company and the Subsidiary required by law to be filed have been filed and all taxes shown by such returns or otherwise assessed, which are due and payable, have been paid, except assessments against which appeals have been or will be promptly taken and as to which adequate reserves have been provided. The Company and the Subsidiary have filed all other tax returns that are required to have been filed by them pursuant to applicable foreign, state, local or other law, except insofar as the failure to file such returns, individually or in the aggregate, would not result in a Material Adverse Effect, and have paid all taxes due pursuant to such returns or pursuant to any assessment received by the Company or the Subsidiary except for such taxes, if any, as are being contested in good faith and as to which adequate reserves have been provided, or where the failure to pay such taxes, individually or in the aggregate, would not have a Material Adverse Effect. The charges, accruals and reserves on the books of the Company and the Subsidiary in respect of any income and corporation tax liability for any years not finally determined are adequate to meet any assessments or re-assessments for additional income tax for any years not finally determined;

(x) There are no statutes, regulations, documents or contracts of a character required to be described in the Registration Statement or the Pricing Prospectus or to be filed as an exhibit to the Registration Statement which are not described or filed as required;

(y) Neither the Company nor the Subsidiary is in violation of any statute or any rule, regulation, decision or order of any governmental agency or body or any court, domestic or foreign, relating to the use, production, disposal or release of hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to hazardous or toxic substances (collectively, "environmental laws"), owns or operates any real property contaminated with any substance that is subject to any environmental laws, is liable for any off-site disposal or contamination pursuant to any environmental laws, or is subject to any claim relating to any environmental laws, which violation, contamination, liability or claim, individually or in the aggregate, would have a Material Adverse Effect; and the Company is not aware of any pending investigation which might lead to such a claim;

(z) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended ("ERISA"), that is maintained, administered or contributed to by the Company or the Subsidiary for employees or former employees of the Company and its affiliates has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Internal Revenue Code of 1986, as amended (the "Code"), except to the extent that failure to so comply, individually or in the aggregate, would not have a Material Adverse Effect. No prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code has occurred with respect to any such plan excluding transactions effected pursuant to a statutory or administrative exemption;

(aa) Neither the Company nor the Subsidiary, or, to the Company's knowledge, any director, officer, agent, employee or other person associated with or acting on behalf of the Company or the Subsidiary, has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds, (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, or (iv) made any bribe, unlawful rebate, payoff, influence payment, kickback or other unlawful payment. Neither the Company nor the Subsidiary, nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or the Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC"); and the Company will not directly or indirectly use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to the Subsidiary, joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC;

(bb) Solely to the extent that the Sarbanes-Oxley Act of 2002, as amended, and the rules and regulations promulgated by the Commission and the NASDAQ Global Market thereunder (the "Sarbanes-Oxley Act") have been applicable to the Company, there is and has been no failure on the part of the Company or any of its directors or officers to comply in all material respects with any provisions of the Sarbanes-Oxley Act. The Company is actively taking steps intended to allow it to be in compliance with the provisions of the Sarbanes-Oxley Act not currently in effect or which the Company is not required to comply with, that are reasonably expected to be applicable to the Company after the effectiveness of the Registration Statement;

(cc) There are no persons with registration rights or other similar rights to have securities registered pursuant to the Registration Statement or otherwise registered by the Company under the Securities Act, which rights have not been duly waived in writing;

(dd) The Company is not and, after giving effect to the offering and sale of the Shares as contemplated herein and the application of the net proceeds therefrom as described in the Pricing Prospectus, will not be an "investment company", as defined in the Investment Company Act of 1940, as amended (the "Investment Company Act");

(ee) The Company has not distributed and, prior to the later to occur of the Closing Date (as defined in Section 4 hereof) and completion of distribution of the Shares, will not distribute any offering materials in connection with the offering and sale of the Shares, other than the Pricing Prospectus, the Prospectus and, subject to compliance with Section 6 hereof, any Issuer Free Writing Prospectus; and the Company

has not taken and will not take, directly or indirectly, any action designed to cause or result in, or which constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale of the Shares. The Company (a) has not alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Representative with entities that are qualified institutional buyers within the meaning of Rule 144A under the Securities Act or institutions that are accredited investors within the meaning of Rule 501 under the Securities Act and (b) has not authorized anyone other than the Representative to engage in Testing-the-Waters Communications. The Company reconfirms that the Representative has been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications other than those listed on Schedule II(c) hereto. "Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the Securities Act;

(ff) The statistical and market and industry-related data included in the Pricing Prospectus and the Prospectus are based on or derived from sources which the Company believes to be reliable and accurate or represent the Company's good faith estimates that are made on the basis of data derived from such sources, and the Company has obtained the written consent to the use of such data from sources to the extent required;

(gg) The audiovisual presentation made available to the public by the Company at http://www.netroadshow.com is a "bona fide electronic roadshow" for purposes of Rule 433(d)(8)(ii) of the Securities Act, and such presentation, together with the Pricing Prospectus, does not contain any untrue statement of material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, except that the representations and warranties set forth in this paragraph do not apply to statements in or omissions from such presentation or Pricing Prospectus made in reliance upon and in strict conformity with information furnished to the Company in writing by any Underwriter through the Representative expressly for use therein;

(hh) Any certificate signed by any officer of the Company delivered to the Underwriters or to counsel for the Underwriters in connection with the transactions contemplated hereby shall be deemed a representation and warranty by the Company to the Underwriters as to the matters covered thereby.

(ii) To the Company's knowledge, there are no affiliations or associations between any member of FINRA and any of the Company's officers, directors or 5% or greater securityholders or securityholders who acquired securities of the Company within the past 180 days immediately prior to the initial submission of the Initial Registration Statement, except as set forth in the Registration Statement;

(jj) The Shares have been approved for listing subject to notice of issuance on the NASDAQ Global Market;

(kk) There are no relationships or related-party transactions involving the Company or any other person required to be described in the Prospectus which have not been described as required;

(ll) Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company (i) does not have any material lending or other relationship with any Underwriter or lending affiliate of any Underwriter and (ii) does not intend to use any of the proceeds from the sale of the Shares to repay any outstanding debt owed to any affiliate of an Underwriter;

(mm) Except as disclosed in the Registration Statement, the Pricing Disclosure Package and the Prospectus, the Company has not sold, issued or distributed any shares of Common Stock during the six-month period preceding the date hereof, including any sales pursuant to Rule 144A, Regulation D or Regulation S under the Securities Act, other than shares issued pursuant to employee benefit plans, qualified stock option plans or other employee compensation plans or pursuant to outstanding options, rights or warrants;

(nn) The preclinical tests and clinical trials, and other studies (collectively, "Studies") that are described in, or the results of which are referred to in, the Registration Statement, the Pricing Disclosure Package or the Prospectus were and, if still pending, are being conducted in all material respects in accordance with the protocols, procedures and controls designed and approved for such Studies and in compliance with all applicable laws and regulations; each description of the results of such Studies is accurate and complete in all material respects and fairly presents the data derived from such Studies, and the Company has no knowledge of any other studies the results of which are inconsistent with, or otherwise call into question, the results described or referred to in the Registration Statement, the Pricing Disclosure Package or the Prospectus; the Company and the Subsidiary have made all such filings and obtained all such approvals as may be required by the U.S. Food and Drug Administration or from any other U.S. or foreign government or medical device regulatory agency (collectively, the "Regulatory Agencies"); neither the Company nor the Subsidiary has received any written notice of, or other correspondence from, any Regulatory Agency requiring the termination, suspension or modification of any clinical trials sponsored or conducted by the Company or that are described or referred to in the Registration Statement, the Pricing Disclosure Package or the Prospectus; and the Company and the Subsidiary have each operated and currently are in compliance in all material respects with all applicable rules and regulations of the Regulatory Agencies.

(oo) The Company and the Subsidiary are, and at all times have been, in compliance with all Health Care Laws to the extent they apply to the Company and its Subsidiary, except where any such non-compliance, individually or in the aggregate, would not have a Material Adverse Effect. For purposes of this Agreement, "Health Care

Laws" means: (1) the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder; (2) all applicable federal, state, and local health care civil and criminal fraud and abuse laws, including, without limitation, the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the Anti-Inducement Law (42 U.S.C. § 1320a-7a(a)(5)), the U.S. Civil False Claims Act (31 U.S.C. Section 3729 et seq.), and, the exclusion laws of applicable government healthcare programs, including but not limited to the exclusion laws at 42 U.S.C. § 1320a-7; (3) the laws governing the Medicare program (Title XVIII of the Social Security Act) and the regulations promulgated thereunder; (4) the laws governing the Medicaid program (Title XIX of the Social Security Act) and the regulations promulgated thereunder; (5) the Standards for Privacy of Individually Identifiable Health Information (the "Privacy Rule"), the Security Standards, and the Standards for Electronic Transactions and Code Sets promulgated under the U.S. Health Insurance Portability and Accountability Act of 1996 ("HIPAA") (42 U.S.C. Section 1320d et seq.), the Health Information Technology for Economic and Clinical Health Act (42 U.S.C. Section 17921 et seq.), and the regulations promulgated thereunder and any state or non-U.S. counterpart thereof or other law or regulation the purpose of which is to protect the privacy of individuals or prescribers; (6) the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, the regulations promulgated thereunder; (7) to the extent applicable, the U.S. Controlled Substances Act (21 U.S.C. Section 801 et seq.); and (8) quality, safety and accreditation requirements under applicable federal, state, local or foreign laws or regulatory bodies. Neither the Company nor the Subsidiary has received any Form 483 notice of inspectional violations or warning letters from the U.S. Food and Drug Administration or other correspondence from a Regulatory Agency alleging or asserting noncompliance with any Health Care Laws. Neither the Company nor the Subsidiary has received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or governmental or regulatory authority or third party alleging that any product operation or activity is in violation of any Health Care Laws nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened. The Company and the Subsidiary have filed, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Health Care Laws, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission). Neither the Company nor the Subsidiary is a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Additionally, neither the Company nor the Subsidiary nor any of their respective current employees, officers or directors or, to the knowledge of the Company, current agents or subcontractors has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the knowledge of the Company or except as disclosed in the Registration Statement, the Pricing Disclosure Package or the Prospectus, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion.

2. Subject to the terms and conditions herein set forth, (a) the Company agrees to sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at a purchase price per share of $[ ] (the "Purchase Price"), the number of Firm Shares (to be adjusted by you so as to eliminate fractional shares) determined by multiplying the aggregate number of Firm Shares to be sold by the Company hereunder by a fraction, the numerator of which is the aggregate number of Firm Shares to be purchased by such Underwriter as set forth opposite the name of such Underwriter in Schedule I hereto and the denominator of which is the aggregate number of Firm Shares to be purchased by all of the Underwriters from the Company hereunder and (b) in the event and to the extent that the Underwriters shall exercise the election to purchase Option Shares as provided below, the Company agrees to sell to each of the Underwriters, and each of the Underwriters agrees, severally and not jointly, to purchase from the Company, at the Purchase Price, the number of Option Shares (to be adjusted by you so as to eliminate fractional shares) determined by multiplying the number of Option Shares as to which such election shall have been exercised by the fraction set forth in clause (a) above.

The Company hereby grants to the Underwriters the right to purchase at their election up to [ ] Option Shares, at the Purchase Price, for the sole purpose of covering over-allotments in connection with the sale of the Firm Shares. The Underwriters may exercise their option to acquire Option Shares in whole or in part from time to time only by written notice from the Representative to the Company, given within a period of 30 calendar days after the date of this Agreement and setting forth the aggregate number of Option Shares to be purchased and the date on which such Option Shares are to be delivered, as determined by the Representative but in no event earlier than the Closing Date or, unless the Representative and the Company otherwise agree in writing, earlier than two or later than ten business days after the date of such notice.

3. It is understood that the several Underwriters propose to offer the Firm Shares for sale to the public upon the terms and conditions set forth in the Prospectus.

4. The Company will deliver the Firm Shares to the Representative through the facilities of the Depository Trust Company ("DTC") for the accounts of the Underwriters, against payment of the purchase price therefor in Federal (same day) funds by wire transfer to the account specified by the Company at the office of Cooley LLP, 4401 Eastgate Mall, San Diego, California 92121, at 10:00 A.M., New York time, on [ ], 2014, or at such other time not later than seven full business days thereafter as the Representative and the Company determine, such time being herein referred to as the "Closing Date". For purposes of Rule 15c6-1 under the Exchange Act, the Closing Date (if later than the otherwise applicable settlement date) shall be the settlement date for payment of funds and delivery of securities for all the Firm Shares. If the Representative so elects, delivery of the Firm Shares will be made by credit to the accounts designated by the Representative through DTC's full fast transfer or DWAC programs. If the

Representative so elects, the certificates for the Firm Shares so to be delivered will be in definitive form, in such denominations and registered in such names as the Representative requests and will be made available for checking and packaging at the above office of Cooley LLP at least 24 hours prior to the Closing Date.

Each time for the delivery of and payment for the Option Shares, being herein referred to as an "Option Closing Date", which may be the Closing Date, shall be determined by the Representative as provided above. The Company will deliver the Option Shares being purchased on each Option Closing Date to the Representative through the facilities of DTC for the accounts of the Underwriters, against payment of the purchase price therefor in Federal (same day) funds by wire transfer to the account specified by the Company at the above office of Cooley LLP, at 10:00 A.M., New York time on the applicable Option Closing Date. If the Representative so elects, delivery of the Option Shares will be made by credit to the accounts designated by the Representative through DTC's full fast transfer or DWAC programs. If the Representative so elects, the certificates for the Option Securities so to be delivered will be in definitive form, in such denominations and registered in such names as the Representative requests and will be made available for checking and packaging at the above office of Cooley LLP at least 24 hours prior to such Option Closing Date.

5. The Company covenants and agrees with each of the Underwriters as follows:

(a) The Company, subject to Section 5(b), will comply with the requirements of Rule 430A under the Securities Act, and will notify the Representative promptly, and confirm the notice in writing, (i) when any post-effective amendment to the Registration Statement shall become effective, or any supplement to the Prospectus or any amended prospectus shall have been filed, to furnish the Representative with copies thereof, and to file promptly all material required to be filed by the Company with the Commission pursuant to Rule 433(d) under the Securities Act, (ii) of the receipt of any comments from the Commission relating to the Registration Statement, the Preliminary Prospectus or the Prospectus, (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or for additional information, (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of any order preventing or suspending the use of any Preliminary Prospectus, or of the suspension of the qualification of the Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceedings for any of such purposes; and (v) if the Company ceases to be an Emerging Growth Company at any time prior to the later of (A) completion of the distribution of the Shares within the meaning of the Securities Act and (B) completion of the 180-day restricted period referred to in Section 5(j) hereof. The Company will promptly effect the filings necessary pursuant to Rule 424(b) under the Securities Act and will take such steps as it deems necessary to ascertain promptly whether the form of prospectus transmitted for filing under Rule 424(b) was received for filing by the Commission and, in the event that it was not, it will promptly file such prospectus. The Company will make every reasonable effort to prevent the issuance of any stop order and, if any stop order is issued, to obtain the lifting thereof at the earliest possible moment.

(b) The Company will give the Representative notice of its intention to file or prepare any amendment to the Registration Statement (including any filing under Rule 462(b) under the Securities Act), or any amendment, supplement or revision to the Prospectus, or any Issuer Free Writing Prospectus, will furnish the Representative with copies of any such documents a reasonable amount of time prior to such proposed filing or use, as the case may be, and will not file or use any such document to which the Representative or counsel for the Underwriters shall reasonably object.

(c) The Company will use its best efforts to qualify the Shares for offering and sale under the securities laws of such jurisdictions as you may reasonably request and to comply with such laws so as to permit the continuance of sales and dealings therein in such jurisdictions for as long as may be necessary to complete the distribution of the Shares, provided that nothing in this Section 5(c) shall require the Company to qualify as a foreign corporation in any jurisdiction in which it is not already so qualified, or to file a general consent to service of process in any jurisdiction.

(d) The Company has furnished or will deliver to the Representative, without charge, two signed copies of the Initial Registration Statement as originally filed, any Rule 462(b) Registration Statement and of each amendment to each (including exhibits filed therewith or incorporated by reference therein) and signed copies of all consents and certificates of experts, and will also, upon your request, deliver to the Representative, without charge, a conformed copy of the Registration Statement as originally filed and of each amendment thereto (without exhibits) for each of the Underwriters. The copies of the Registration Statement and each amendment thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(e) The Company has delivered to each Underwriter, without charge, as many written and electronic copies of each Preliminary Prospectus as such Underwriter reasonably requested, and the Company hereby consents to the use of such copies for purposes permitted by the Securities Act. The Company will furnish to each Underwriter, without charge, prior to 5:00 P.M. on the business day next succeeding the date of this Agreement and from time to time thereafter during the period when the Prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act, such number of written and electronic copies of the Prospectus (as amended or supplemented) as such Underwriter may reasonably request. The Prospectus and any amendments or supplements thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(f) The Company will comply with the Securities Act and the Rules and Regulations so as to permit the completion of the distribution of the Shares as contemplated in this Agreement and in the Prospectus. If at any time when, in the opinion of counsel for the Underwriters, a prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act), any event shall occur or condition shall exist as a result of which it is necessary, in the opinion of counsel for the Underwriters or for the Company, to amend the Registration Statement or amend or supplement the Prospectus in order that the Prospectus will not include any untrue statements of a material fact or omit to state a material fact necessary in order to make the statements therein not misleading in the light of the circumstances existing at the time it (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act) is delivered to a purchaser, or if it shall be necessary, in the opinion of either such counsel, at any such time to amend the Registration Statement or amend or supplement the Prospectus in order to comply with the requirements of the Securities Act or the Rules and Regulations, the Company will promptly prepare and file with the Commission, subject to Section 5(b), such amendment or supplement as may be necessary to correct such statement or omission or to make the Registration Statement or the Prospectus comply with such requirements, and the Company will furnish to the Underwriters such number of written and electronic copies of such amendment or supplement as the Underwriters may reasonably request. The Company will provide the Representative with notice of the occurrence of any event during the period specified above that may give rise to the need to amend or supplement the Registration Statement or the Prospectus as provided in the preceding sentence promptly after the occurrence of such event. If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representative and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

(g) The Company will make generally available (within the meaning of Section 11(a) of the Securities Act) to its security holders and to the Representative as soon as practicable, but not later than 45 days after the end of its fiscal quarter in which the first anniversary date of the effective date of the Registration Statement occurs, an earnings statement (in form complying with the provisions of Rule 158 under the Securities Act) covering a period of at least twelve consecutive months beginning after the effective date of the Registration Statement.

(h) The Company will use the net proceeds received by it from the sale of the Shares in the manner specified in the Pricing Prospectus under the heading “Use of Proceeds”.

(i) The Company will use its best efforts to effect and maintain the listing for quotation of the Common Stock (including the Shares) on the NASDAQ Global Market.

(j) During a period of 180 days from the date of the Prospectus, the Company will not, without the prior written consent of the Representative, (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock or (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of Common Stock, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, other than (1) the Shares to be sold hereunder, (2) the issuance of equity-based awards granted pursuant to the Company's benefit plans existing on the date hereof that are referred to in the Prospectus, as such plans may be amended, (3) the issuance of shares of Common Stock upon the exercise or vesting of any such equity based awards, (4) the issuance of shares of Common Stock upon the exercise, vesting or conversion of options, warrants or other convertible securities outstanding as of the date of this Agreement and described in the Prospectus or (5) the issuance of shares of Common Stock or securities convertible into Common Stock representing in the aggregate no more than 5% of the Company's issued and outstanding shares of Common Stock following the Closing Date to one or more counterparties in connection with the consummation of a credit facility, strategic partnership, joint venture, collaboration or the acquisition or license of any business products or intellectual property, provided that each recipient of such shares of Common Stock or securities convertible into Common Stock agree to be bound by the terms of the "lock-up" agreement in the form of Exhibit A hereto.

(k) If the Representative, in its sole discretion, agrees to release or waive the restrictions set forth in a "lock-up" agreement described in Section 8(l) hereof for an officer or director of the Company and provides the Company with notice of the impending release or waiver at least three business days before the effective date of the release or waiver, the Company agrees to announce the impending release or waiver by a press release substantially in the form of Exhibit B hereto through a major news service at least two business days before the effective date of the release or waiver.

(l) The Company, during the period when the Prospectus is required to be delivered in connection with sales of the Shares under the Securities Act or the Exchange Act (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act), will file all documents and reports required to be filed with the Commission and the NASDAQ Global Market pursuant to the Exchange Act within the time periods required by the Exchange Act or the NASDAQ Global Market and the rules and regulations of the Commission thereunder.

(m) The Company will file with the Commission such information on Form 10-Q or Form 10-K as may be required pursuant to Rule 463 under the Securities Act.

(n) During a period of three years from the effective date of the Registration Statement, the Company will furnish to you (to the extent not available on EDGAR or on the Company's website) copies of all reports or other communications (financial or other) furnished to shareholders generally, and to deliver to you (i) as soon as they are available, copies of any reports and financial statements furnished to or filed with the Commission or any national securities exchange on which any class of securities of the Company is listed (to the extent not available on EDGAR or on the Company's website); and (ii) subject to your delivery to the Company of a non-disclosure agreement in form and substance reasonably satisfactory to the Company, such additional information concerning the business and financial condition of the Company as you may from time to time reasonably request (such financial statements to be on a consolidated basis to the extent the accounts of the Company and the Subsidiary are consolidated in reports furnished to its shareholders generally or to the Commission).

(o) If the Company elects to rely upon Rule 462(b) under the Securities Act, the Company will file a Rule 462(b) Registration Statement with the Commission in compliance with Rule 462(b) by 10:00 P.M., Washington, D.C. time, on the date of this Agreement, and at the time of filing either to pay to the Commission the filing fee for the Rule 462(b) Registration Statement or to give irrevocable instructions for the payment of such fee pursuant to Rule 111(b) under the Securities Act.

(p) The Company shall cause to be prepared and delivered, at its expense, within one business day from the effective date of this Agreement, to the Representative an "electronic Prospectus" to be used by the Underwriters in connection with the offering and sale of the Shares. As used herein, the term "electronic Prospectus" means a form of the most recent Preliminary Prospectus, any Issuer Free Writing Prospectus or the Prospectus, and any amendment or supplement thereto, that meets each of the following conditions: (i) it shall be encoded in an electronic format, satisfactory to the Representative, that may be transmitted electronically by the Representative and the other Underwriters to offerees and purchasers of the Shares, (ii) it shall disclose the same information as such paper Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus, as the case may be; and (iii) it shall be in or convertible into a paper format or an electronic format, satisfactory to the Representative, that will allow investors to store and have continuously ready access to such Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus at any future time, without charge to investors (other than any fee charged for subscription to the Internet generally). The Company hereby confirms that, if so requested by the Representative, it has included or will include in the Prospectus filed with the Commission an undertaking that, upon receipt of a request by an investor or his or her representative, the Company shall transmit or cause to be transmitted promptly, without charge, a paper copy of such paper Preliminary Prospectus, Issuer Free Writing Prospectus or the Prospectus to such investor or representative.

(q) The Company shall maintain, at its expense, a registrar and transfer agent for the Shares.

6. (a) The Company represents and agrees that, without the prior consent of the Representative, it has not made and will not make any offer relating to the Shares that would constitute a "free writing prospectus" as defined in Rule 405 under the Securities Act; each Underwriter represents and agrees that, without the prior consent of the Company and the Representative, it has not made and will not make any offer relating to the Shares that would constitute a free writing prospectus; any such free writing prospectus the use of which has been consented to by the Company and the Representative is listed on Schedule II hereto;

(b) The Company has complied and will comply with the requirements of Rule 433 under the Securities Act applicable to any Issuer Free Writing Prospectus, including timely filing with the Commission or retention where required and legending; the Company represents that it has satisfied and agrees that it will satisfy the conditions under Rule 433 under the Securities Act to avoid a requirement to file with the Commission any electronic road show;

(c) The Company agrees that if at any time following issuance of an Issuer Free Writing Prospectus any event occurred or occurs as a result of which such Issuer Free Writing Prospectus would conflict with the information in the Registration Statement, the Pricing Prospectus or the Prospectus or would include an untrue statement of a material fact or omit to state any material fact necessary in order to make the statements therein, in light of the circumstances then prevailing, not misleading, the Company will give prompt notice thereof to the Representative and, if requested by the Representative, will prepare and furnish without charge to each Underwriter an Issuer Free Writing Prospectus or other document which will correct such conflict, statement or omission; provided, however, that this covenant shall not apply to any statements or omissions in an Issuer Free Writing Prospectus made in reliance upon and in strict conformity with information furnished in writing to the Company by an Underwriter through the Representative expressly for use therein.

7. The Company covenants and agrees with the several Underwriters that, whether or not the transactions contemplated by this Agreement are consummated, the Company will pay or cause to be paid all expenses incident to the performance of its obligations under this Agreement, including (i) the fees, disbursements and expenses of the Company's counsel, accountants and other advisors; (ii) filing fees and all other expenses in connection with the preparation, printing and filing of the Registration Statement, each Preliminary Prospectus, any Issuer Free Writing Prospectus and the Prospectus and amendments and supplements thereto and the mailing and delivering of copies thereof to the Underwriters and dealers; (iii) the cost of printing or producing this Agreement, closing documents (including any compilations thereof) and such other documents as may be required in connection with the offering, purchase, sale and delivery of the Shares; (iv) all expenses in connection with the qualification of the Shares

for offering and sale under state securities laws as provided in Section 5(c), including filing fees and the reasonable fees and disbursements of counsel for the Underwriters, if any, in connection with such qualification; (v) all fees and expenses in connection with listing the Common Stock (including the Shares) on the NASDAQ Global Market; (vi) the filing fees incident to, and the reasonable fees and disbursements of counsel for the Underwriters (not to exceed $20,000) in connection with, securing any required review by FINRA of the terms of the sale of the Shares; (vii) all fees and expenses in connection with the preparation, issuance and delivery of the certificates representing the Shares to the Underwriters, including any stock or other transfer taxes and any stamp or other duties payable upon the sale, issuance or delivery of the Shares to the Underwriters; (viii) the cost and charges of any transfer agent or registrar; (ix) the transportation and other expenses incurred by the Company in connection with presentations to prospective purchasers of Shares, provided that the Company shall only be responsible for one-half of the cost of any aircraft chartered in connection with the road show; (x) the fees and disbursements of counsel to the Underwriters up to $350,000, exclusive of the fees and disbursements of such counsel referred to in clause (iv), clause (v) and clause (vi) above; and (xi) all other costs and expenses incident to the performance of its obligations hereunder which are not otherwise specifically provided for in this Section. The Representative covenants and agrees to pay Inverness Advisors, LLC, a financial advisor to the Company, an amount equal to ten percent of: (i) the initial public offering price set forth on the cover of the Prospectus less (ii) the Purchase Price, multiplied by (iii) the number of Shares sold to the Underwriters hereunder. Subject to this Section 7 and Section 12 of this Agreement, the Underwriters will pay all of their costs and expenses associated with the transactions contemplated hereunder, including any remaining fees and disbursements of their counsel.

8. The several obligations of the Underwriters hereunder to purchase the Shares on the Closing Date or each Option Closing Date, as the case may be, are subject to the performance by the Company of its obligations hereunder and to the following additional conditions:

(a) The Prospectus shall have been filed with the Commission pursuant to Rule 424(b) under the Securities Act within the applicable time period prescribed for such filing by the Rules and Regulations and in accordance with Section 5(a); all material required to be filed by the Company pursuant to Rule 433(d) under the Securities Act shall have been filed with the Commission within the applicable time period prescribed for such filing by Rule 433 under the Securities Act; if the Company has elected to rely upon Rule 462(b) under the Securities Act, the Rule 462(b) Registration Statement shall have become effective by 10:00 P.M., Washington, D.C. time, on the date of this Agreement; no stop order suspending the effectiveness of the Registration Statement or any part thereof or the Prospectus or any part thereof or any Issuer Free Writing Prospectus shall have been issued and no proceeding for that purpose shall have been initiated or threatened by the Commission or any state securities commission; and all requests for additional information on the part of the Commission shall have been complied with to your reasonable satisfaction.

(b) The representations and warranties of the Company contained herein are true and correct on and as of the Closing Date or the Option Closing Date, as the case may be, as if made on and as of the Closing Date or the Option Closing Date, as the case may be, and the Company shall have complied with all agreements and all conditions on its part to be performed or satisfied hereunder at or prior to the Closing Date or the Option Closing Date, as the case may be.

(c) Subsequent to the execution and delivery of this Agreement and prior to the Closing Date or the Option Closing Date, as the case may be, there shall not have occurred any downgrading, nor shall any notice have been given of (i) any downgrading, (ii) any intended or potential downgrading or (iii) any review or possible change that does not indicate an improvement, in the rating accorded any securities of or guaranteed by the Company or the Subsidiary by any "nationally recognized statistical rating organization", as such term is defined for purposes of Rule 436(g)(2) under the Securities Act.

(d) (i) Neither the Company nor the Subsidiary shall have sustained since the date of the latest audited financial statements included in the Pricing Prospectus any material loss or interference with its business from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor dispute or court or governmental action, order or decree, otherwise than as set forth or contemplated in the Pricing Prospectus, and (ii) since the respective dates as of which information is given in the Registration Statement and the Prospectus, other than as set forth or contemplated in the Pricing Prospectus, (1) there shall not have been any change in the capital stock or long-term debt of the Company or the Subsidiary (other than the issuance of shares of Common Stock upon the exercise or conversion of outstanding securities described in the Pricing Prospectus, or the grant of options, restricted stock or other equity based awards under the Company's existing stock plans, which grants are described in the Pricing Prospectus) or (2) there shall not have been any material adverse change, or any development involving a prospective material adverse change, in or affecting the general affairs, business, prospects, management, financial position, shareholders' equity or results of operations of the Company and the Subsidiary, considered as one enterprise, the effect of which, in any such case described in clause (i) or (ii), is in the judgment of the Representative so material and adverse as to make it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Closing Date or Option Closing Date, as the case may be, on the terms and in the manner contemplated in the Pricing Prospectus.

(e) The Representative shall have received on and as of the Closing Date or the Option Closing Date, as the case may be, a certificate of two executive officers of the Company, at least one of whom has specific knowledge about the Company's financial matters, satisfactory to the Representative, to the effect (1) set forth in Sections 8(b) (with respect to the respective representations, warranties, agreements and conditions of the Company) and 8(c), (2) that none of the situations set forth in clause (i) or (ii) of Section 8(d) shall have occurred and (3) that no stop order suspending the effectiveness of the Registration Statement has been issued and, to the knowledge of the Company, no proceedings for that purpose have been instituted or are pending or contemplated by the Commission.

(f) On the Closing Date or Option Closing Date, as the case may be, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel for the Company, shall have furnished to the Representative their favorable written opinion, dated the Closing Date or the Option Closing Date, as the case may be, in form and substance satisfactory to the Representative.

(g) On the effective date of the Registration Statement and, if applicable, the effective date of the most recently filed post-effective amendment to the Registration Statement, Ernst & Young LLP shall have furnished to the Representative a letter, dated the date of delivery thereof, in form and substance satisfactory to the Representative, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement and the Prospectus.

(h) On the Closing Date or Option Closing Date, as the case may be, the Representative shall have received from Ernst & Young LLP a letter, dated the Closing Date or such Option Closing Date, as the case may be, to the effect that they reaffirm the statements made in the letter or letters furnished pursuant to Section 8(g), except that the specified date referred to shall be a date not more than three business days prior to the Closing Date or such Option Closing Date, as the case may be.

(i) On the Closing Date or Option Closing Date, as the case may be, Cooley LLP, counsel for the Underwriters, shall have furnished to the Representative their opinion dated the Closing Date or the Option Closing Date, as the case may be, in form and substance satisfactory to the Representative, and such counsel shall have received such papers and information as they may reasonably request to enable them to furnish such opinion.

(j) The Shares to be delivered on the Closing Date or Option Closing Date, as the case may be, shall have been approved for listing on the NASDAQ Global Market, subject to official notice of issuance.

(k) FINRA shall have confirmed that it has not raised any objection with respect to the fairness and reasonableness of the underwriting terms and conditions.

(l) The Representative shall have received "lock-up" agreements, each substantially in the form of Exhibit A hereto, from all the officers and directors of the Company, and shareholders of the Company that, together with the officers and directors, hold at least [98%] of the Company's Common Stock outstanding immediately prior to

the offering of the Shares, giving effect to the issuance of shares of Common Stock from any securities convertible into or exercisable or exchangeable for shares of Common Stock, and such agreements shall be in full force and effect on the Closing Date or Option Closing Date, as the case may be.

(m) The Company shall have completed any reorganization, including, but not limited to, the conversion of any series of preferred stock of the Company into Common Stock and any stock split or reverse stock split of the Common Stock contemplated by the Pricing Prospectus.

(n) The Representative shall have received on and as of the Closing Date or the Option Closing Date, as the case may be, a certificate of the Chief Financial Officer of the Company, in form and substance satisfactory to the Representatives.

(o) On or prior to the Closing Date or Option Closing Date, as the case may be, the Company shall have furnished to the Representative such further information, certificates and documents as the Representative shall reasonably request.

(p) On or after the Applicable Time there shall not have occurred any of the following: (i) a suspension or material limitation in trading in securities generally on the NASDAQ Global Market; (ii) a suspension or material limitation in trading in the Company's securities on the NASDAQ Global Market; (iii) a general moratorium on commercial banking activities declared by any of Federal or New York State authorities or a material disruption in commercial banking or securities settlement or clearance services in the United States; (iv) the outbreak or escalation of hostilities involving the United States or the declaration by the United States of a national emergency or war or (v) the occurrence of any other calamity or crisis or any change in financial, political or economic conditions in the United States or elsewhere, if the effect of any such event specified in clause (iv) or (v) in the judgment of the Representative makes it impracticable or inadvisable to proceed with the public offering or the delivery of the Shares being delivered at such Closing Date or Option Closing Date, as the case may be, on the terms and in the manner contemplated in the Prospectus;

If any condition specified in this Section 8 shall not have been fulfilled when and as required to be fulfilled, this Agreement may be terminated, subject to the provisions of Section 12, by the Representative by notice to the Company at any time at or prior to the Closing Date or Option Closing Date, as the case may be, and such termination shall be without liability of any party to any other party, except as provided in Section 12.

9. (a) The Company agrees to indemnify and hold harmless each Underwriter and each person, if any, who controls any Underwriter within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act against any and all losses, liabilities, claims, damages and expenses whatsoever as incurred (including without limitation, reasonable attorneys' fees and any and all reasonable expenses whatsoever incurred in investigating, preparing or defending against any litigation,

commenced or threatened, or any claim whatsoever, and any and all amounts paid in settlement of any claim or litigation), joint or several, to which they or any of them may become subject under the Securities Act, the Exchange Act or otherwise, insofar as such losses, liabilities, claims, damages or expenses (or actions in respect thereof) arise out of or are based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any post-effective amendment thereof, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, or (ii) any untrue statement or alleged untrue statement of a material fact contained in the Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication, or any "issuer information" filed or required to be filed pursuant to Rule 433(d) under the Securities Act, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they are made, not misleading; provided, however, that the Company will not be liable in any such case to the extent that any such loss, liability, claim, damage or expense arises out of or is based upon any such untrue statement or alleged untrue statement or omission or alleged omission made in the Initial Registration Statement, as originally filed or any amendment thereof, the Registration Statement, or any post-effective amendment thereof, any Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication in reliance upon and in strict conformity with written information furnished to the Company by or on behalf of any Underwriter through the Representative expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter is the information described as such in Section 9(b) below.

(b) Each Underwriter severally, and not jointly, agrees to indemnify and hold harmless the Company, each of the directors of the Company, each of the officers of the Company who shall have signed the Registration Statement, and each other person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act, against any losses, liabilities, claims, damages and expenses whatsoever as incurred (including without limitation, reasonable attorneys' fees and any and all reasonable expenses whatsoever incurred in investigating, preparing or defending against any litigation, commenced or threatened, or any claim whatsoever, and any and all amounts paid in settlement of any claim or litigation), joint or several, to which they or any of them may become subject under the Securities Act, the Exchange Act or otherwise, insofar as such losses, liabilities, claims, damages or expenses (or actions in respect thereof) arise out of or are based upon (i) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, or any post-effective amendment thereof, or any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, or (ii) any untrue statement or alleged untrue statement of a material fact contained in the Preliminary Prospectus, the Pricing Prospectus or the Prospectus, or in any supplement thereto or amendment thereof, any Issuer Free Writing Prospectus, or any Written Testing-the-Waters Communication, or any omission or

alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they are made, not misleading, in each case to the extent, but only to the extent, that any such loss, liability, claim, damage or expense arises out of or is based upon any such untrue statement or alleged untrue statement or omission or alleged omission made therein in reliance upon and in strict conformity with written information furnished to the Company by or on behalf of such Underwriter through the Representative expressly for use therein, it being understood and agreed that the only such information furnished by any Underwriter consists of the following information in the Prospectus furnished on behalf of each Underwriter: the second to last paragraph on the cover page concerning the expected delivery of shares to purchasers, the concession figure appearing in the sixth paragraph under the caption "Underwriting" and the information contained in the twentieth paragraph under the caption "Underwriting".

(c) Promptly after receipt by an indemnified party under Section 9(a) or 9(b) of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such Section, notify each party against whom indemnification is to be sought in writing of the commencement thereof (but the failure so to notify an indemnifying party shall not relieve it from any liability which it may have under this Section 9, except to the extent such failure results in the forfeiture by the indemnifying party of substantial rights and defenses). In case any such action is brought against any indemnified party, and it notifies an indemnifying party of the commencement thereof, the indemnifying party will be entitled to participate therein, and jointly with any other indemnifying party similarly notified, to the extent it may elect by written notice delivered to the indemnified party promptly after receiving the aforesaid notice from such indemnified party, to assume the defense thereof with counsel reasonably satisfactory to such indemnified party (who shall not, except with the consent of the indemnified party, be counsel to the indemnified party). Notwithstanding the foregoing, the indemnified party or parties shall have the right to employ its or their own counsel in any such case, but the fees and expenses of such counsel shall be at the expense of such indemnified party or parties unless (i) the employment of such counsel shall have been authorized in writing by the indemnifying parties in connection with the defense of such action, (ii) the indemnifying parties shall not have employed counsel to have charge of the defense of such action within a reasonable time after notice of commencement of the action, or (iii) such indemnified party or parties shall have reasonably concluded that there may be defenses available to it or them which are different from or additional to those available to one or all of the indemnifying parties (in which case the indemnifying parties shall not have the right to direct the defense of such action on behalf of the indemnified party or parties), in any of which events such fees and expenses shall be borne by the indemnifying parties. In no event shall the indemnifying parties be liable for fees and expenses of more than one counsel (in addition to any local counsel) separate from their own counsel for all indemnified parties in connection with any one action or separate but similar or related actions in the same jurisdiction arising out of the same general allegations or circumstances, which counsel, in the event of indemnified parties under Section 9(a), shall be selected by the Representative. No indemnifying party shall, without the written

consent of the indemnified party, effect the settlement or compromise of, or consent to the entry of any judgment with respect to, any pending or threatened action or claim in respect of which indemnification or contribution may be sought hereunder (whether or not the indemnified party is an actual or potential party to such action or claim) unless such settlement, compromise or judgment (i) includes an unconditional release of the indemnified party from all liability arising out of such action or claim and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act, by or on behalf of any indemnified party.

(d) If the indemnification provided for in this Section 9 is unavailable to or insufficient to hold harmless an indemnified party under Section 9(a) or 9(b) in respect of any losses, liabilities, claims, damages or expenses (or actions in respect thereof) referred to therein, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of such losses, liabilities, claims, damages or expenses (or actions in respect thereof) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares. If, however, the allocation provided by the immediately preceding sentence is not permitted by applicable law, then each indemnifying party shall contribute to such amount paid or payable by such indemnified party in such proportion as is appropriate to reflect not only such relative benefits but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions which resulted in such losses, liabilities, claims, damages or expenses (or actions in respect thereof), as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Shares shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company on the one hand or the Underwriters on the other and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this Section 9(d) were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this Section 9(d). The amount paid or payable by an indemnified party as a result of the losses, liabilities, claims, damages or expenses (or actions in respect thereof) referred to above in this Section 9(d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim. Notwithstanding the provisions of this Section 9(d), no Underwriter shall be required to contribute any amount in excess of the amount by which the total price at which the Shares underwritten by it and distributed to the public were offered to the public exceeds the amount of any damages which such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission.

No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this Section 9(d) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the parties to this Agreements contained in this Section 9 are not exclusive and shall not limit any rights or remedies which may otherwise be available to any indemnified party at law or in equity.

10. If any Underwriter or Underwriters default in its or their obligations to purchase Shares hereunder on the Closing Date or any Option Closing Date and the aggregate number of Shares that such defaulting Underwriter or Underwriters agreed but failed to purchase does not exceed 10% of the total number of Shares that the Underwriters are obligated to purchase on such Closing Date or Option Closing Date, as the case may be, the Representative may make arrangements satisfactory to the Company for the purchase of such Shares by other persons, including any of the Underwriters, but if no such arrangements are made by such Closing Date or Option Closing Date, as the case may be, the non-defaulting Underwriters shall be obligated severally, in proportion to their respective commitments hereunder, to purchase the Shares that such defaulting Underwriters agreed but failed to purchase on such Closing Date or Option Closing Date, as the case may be. If any Underwriter or Underwriters so default and the aggregate number of Shares with respect to which such default or defaults occur exceeds 10% of the total number of Shares that the Underwriters are obligated to purchase on such Closing Date or Option Closing Date, as the case may be, and arrangements satisfactory to the Representative and the Company for the purchase of such Shares by other persons are not made within 36 hours after such default, this Agreement will terminate, subject to the provisions of Section 12, without liability on the part of any non-defaulting Underwriter or the Company, except as provided in Section 12. Nothing herein will relieve a defaulting Underwriter from liability for its default.

In the event of any such default which does not result in a termination of this Agreement, either the Representative or the Company shall have the right to postpone the Closing Date or the relevant Option Closing Date, as the case may be, for a period not exceeding seven days in order to effect any required changes in the Registration Statement or Prospectus or in any other documents or arrangements. As used in this Agreement, the term "Underwriter" includes any person substituted for an Underwriter under this Section 10.

11. Notwithstanding anything herein contained, this Agreement (or the obligations of the several Underwriters with respect to any Option Shares which have yet to be purchased) may be terminated, subject to the provisions of Section 12, in the absolute discretion of the Representative, by notice given to the Company, if after the execution and delivery of this Agreement and prior to the Closing Date or the Option Closing Date, as the case may be, (a) trading generally on the NYSE MKT or the New York Stock Exchange or on the NASDAQ Global Select Market or the NASDAQ Global Market shall have been suspended or materially limited, or minimum or maximum prices for trading have been fixed, or maximum ranges for prices have been required, by any of said exchanges or by such system or by order of the Commission, FINRA or any other governmental or regulatory authority, (b) trading of any securities of or guaranteed by the Company or the Subsidiary shall have been suspended on any exchange or in any over-the-counter market, (c) a general moratorium on commercial banking activities in New York shall have been declared by Federal or New York State authorities or a new restriction materially adversely affecting the distribution of the Firm Shares or the Option Shares, as the case may be, shall have become effective, or (d) there has occurred any material adverse change in the financial markets in the United States or the international financial markets, any outbreak of hostilities or escalation thereof or other calamity or crisis or any change or development involving a prospective change in national or international political, financial or economic conditions, in each case the effect of which is such as to make it, in the judgment of the Representative, impracticable to market the Shares to be delivered on the Closing Date or Option Closing Date, as the case may be, or to enforce contracts for the sale of the Shares.

If this Agreement is terminated pursuant to this Section 11, such termination will be without liability of any party to any other party except as provided in Section 12 hereof.

12. The respective indemnities, agreements, representations, warranties and other statements of the Company or its officers and of the several Underwriters set forth in or made pursuant to this Agreement will remain in full force and effect, regardless of any investigation, or statement as to the results thereof, made by or on behalf of any Underwriter, the Company or any of their respective representatives, officers or directors or any controlling person, and will survive delivery of and payment for the Shares. If this Agreement is terminated pursuant to Section 8, 10 or 11 or if for any reason the purchase of any of the Shares by the Underwriters is not consummated, the Company shall remain responsible for the expenses to be paid or reimbursed by it pursuant to Section 7, the respective obligations of the Company and the Underwriters pursuant to Section 9 and the provisions of Sections 12, 13 and 16 shall remain in effect and, if any Shares have been purchased hereunder the representations and warranties in Section 1 and all obligations under Section 5 and Section 6 shall also remain in effect. If this Agreement shall be terminated by the Underwriters, or any of them, under Section 8 or otherwise because of any failure or refusal on the part of the Company to comply with the terms or to fulfill any of the conditions of this Agreement (other than solely by reason of the failure of any Underwriter to perform its obligations hereunder), or if for any reason the Company shall be unable to perform its obligations under this Agreement (other than solely by reason of the failure of any Underwriter to perform its obligations hereunder) or any condition of the Underwriters' obligations cannot be fulfilled, the Company agrees to reimburse the Underwriters or such Underwriters as have so terminated this Agreement with respect to themselves, severally, for all out-of-pocket expenses (including the fees and expenses of its counsel) reasonably incurred by the Underwriter in connection with this Agreement or the offering contemplated hereunder.

13. This Agreement shall inure to the benefit of and be binding upon the Company and the Underwriters, the officers and directors of the Company referred to herein, any controlling persons referred to herein and their respective successors and assigns. Nothing expressed or mentioned in this Agreement is intended or shall be construed to give any other person, firm or corporation any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision herein contained. No purchaser of Shares from any Underwriter shall be deemed to be a successor or assign by reason merely of such purchase.

14. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given upon receipt thereof by the recipient if mailed or transmitted by any standard form of telecommunication. Notices to the Underwriters shall be given to the Representative, c/o JMP Securities LLC, 600 Montgomery Street, Suite 1100, San Francisco, California 94111, (fax no.: (415) 835-8920); Attention: Scott Solomon. Notices to the Company shall be given to it at Amedica Corporation, 1885 West 2100 South, Salt Lake City, Utah 84119 (fax no.: [801-839-3605]); Attention: [Chief Legal Officer].

15. This Agreement may be signed in counterparts, each of which shall be an original and all of which together shall constitute one and the same instrument.

16. THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK, WITHOUT REGARD TO SUCH STATE'S PRINCIPLES OF CONFLICTS OF LAWS.

17. The parties hereby submit to the jurisdiction of and venue in the federal courts located in the City of New York, New York in connection with any dispute related to this Agreement, any transaction contemplated hereby, or any other matter contemplated hereby.

18. The Company acknowledges and agrees that (i) the purchase and sale of the Shares pursuant to this Agreement, including the determination of the public offering price of the Shares and any related discounts and commissions, is an arm's-length commercial transaction between the Company on the one hand, and the several Underwriters, on the other, (ii) in connection therewith and with the process leading to such transaction each Underwriter is acting solely as a principal and not the agent or fiduciary of the Company or its stockholders, creditors, employees or any other party, (iii) no Underwriter has assumed an advisory or fiduciary responsibility in favor of the Company with respect to the offering contemplated hereby or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company on other matters) or any other obligation to the Company except the obligations expressly set forth in this Agreement, and (iv) the Company has consulted its

own legal and financial advisors to the extent it deemed appropriate. The Company agrees that it will not claim that the Underwriters, or any of them, has rendered advisory services of any nature or respect, or owes a fiduciary or similar duty to the Company, in connection with such transaction or the process leading thereto.

19. The Company acknowledges that the Underwriters' research analysts and research departments are required to be independent from their respective investment banking divisions and are subject to certain regulations and internal policies, and that such Underwriters' research analysts may hold views and make statements or investment recommendations and/or publish research reports with respect to the Company and/or the offering that differ from the views of their respective investment banking divisions. The Company hereby waives and releases, to the fullest extent permitted by law, any claims that the Company may have against the Underwriters with respect to any conflict of interest that may arise from the fact that the views expressed by their independent research analysts and research departments may be different from or inconsistent with the views or advice communicated to the Company by such Underwriters' investment banking divisions. The Company acknowledges that each of the Underwriters is a full service securities firm and as such from time to time, subject to applicable securities laws, may effect transaction for its own account or the account of its customers and hold long or short positions in debt or equity securities of the companies that may be the subject of the transactions contemplated by this Agreement.

20. Notwithstanding anything herein to the contrary, the Company is authorized to disclose to any persons the U.S. federal and state income tax treatment and tax structure of the potential transaction and all materials of any kind (including tax opinions and other tax analyses) provided to the Company relating to that treatment and structure, without the Underwriters imposing any limitation of any kind. However, any information relating to the tax treatment and tax structure shall remain confidential (and the foregoing sentence shall not apply) to the extent necessary to enable any person to comply with securities laws. For this purpose, "tax structure" is limited to any facts that may be relevant to that treatment.

21. This Agreement supersedes all prior agreements and understandings (whether written or oral) between the Company and the Underwriters, or any of them, with respect to the subject matter hereof.

22. The Company and each of the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

[*signature page follows*]

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument will become a binding agreement among the Company and the Underwriters.

Very truly yours,

AMEDICA CORPORATION

By: _____
Name:
Title:

Accepted as of the date hereof:

JMP SECURITIES LLC

By: _____
Name:
Title:

For itself and as Representative of the
other Underwriters named in Schedule I hereto

SCHEDULE I

Underwriter	Number of Firm Shares to be Purchased
JMP Securities LLC	
Needham & Company, LLC	
Total:	

SCHEDULE II

(a) Pricing Information

Initial Public Offering Price per Share: $[ ]

[Firm Shares: [ ]

Option Shares: [ ]]

(b) Free Writing Prospectuses

[None.]

(c) Written Testing the Waters Communications

[]

EXHIBIT A

LOCK-UP AGREEMENT

, 2013

Re: Proposed Initial Public Offering by Amedica Corporation

Ladies and Gentlemen:

The undersigned understands that [ ] (the "**Representative**") proposes to enter into an Underwriting Agreement (the "**Underwriting Agreement**") with Amedica Corporation, a Delaware corporation (the "**Company**"), providing for the public offering (the "**Public Offering**") by the several Underwriters named therein, including the Representative (the "**Underwriters**"), of shares of the Common Stock, par value $0.01 per share, of the Company (the "**Common Stock**").

To induce the Underwriters that may participate in the Public Offering to continue their efforts in connection with the Public Offering, the undersigned hereby agrees that, without the prior written consent of the Representative on behalf of the Underwriters, it will not (and will cause any spouse or immediate family member of the spouse or the undersigned living in the undersigned's household, any partnership, corporation or other entity within the undersigned's control, and any trustee of any trust that holds Common Stock or other securities of the Company for the benefit of the undersigned or such spouse or family member not to), during the period commencing on the date hereof and ending 180 days after the date of the final prospectus (the "**Restricted Period**") relating to the Public Offering (the "**Prospectus**"), offer, pledge, sell, contract to sell (including any short sale), hypothecate, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), grant any option, right or warrant for the sale of, purchase any option or contract to sell, sell any option or contract to purchase, lend, or otherwise encumber, dispose of or transfer, or grant any rights with respect to, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock, enter into a transaction which would have the same effect, or enter into any swap, hedge or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such aforementioned transaction is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, or publicly disclose the intention to make any such offer, sale, pledge or disposition of shares of Common Stock. The foregoing sentence shall not apply to (a) transfers or dispositions of Common Stock acquired in the Public Offering (other than any issuer-directed shares of Common Stock purchased in the Public Offering by an officer or director of the Company) or acquired in open market transactions after the completion of the Public Offering; (b) the exercise

of options to purchase shares or Common Stock or the receipt of shares of Common Stock upon the vesting of restricted stock awards disclosed in the Prospectus or any related transfer of shares of Common Stock to the Company (i) deemed to occur upon the cashless exercise of such options or (ii) for paying taxes due as a result of the exercise of such options or as a result of the vesting of such shares of Common Stock, *provided* that the underlying Common Stock continues to be subject to the restrictions set forth above; (c) transfers or dispositions of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock to the Company pursuant to any contractual arrangement in effect on the date of this Lock-Up Agreement that is described in the Prospectus that provides for the repurchase of the undersigned's Common Stock or such other securities by the Company or in connection with the termination of the undersigned's employment with the Company; (d) transfers or dispositions of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock as a bona fide gift; (e) transfers or dispositions of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock by will or other testamentary document or by intestacy; (f) distributions of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock to partners, members, stockholders or trust beneficiaries of the undersigned, to the undersigned's affiliates or to any investment fund or other entity controlled or managed by the undersigned; (g) transfers or dispositions of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned in a transaction not involving a disposition for value; (h) transfers to any corporation, partnership, limited liability company or other entity all of the beneficial ownership interests of which are held by the undersigned; *provided* that (i) in the case of any transfer or distribution pursuant to clause (d), (e), (f), (g) or (h), each donee, transferee or distributee shall sign and deliver a lock-up agreement substantially in the form of this Lock-Up Agreement to the Representative and (ii) in the case of any transfer or distribution pursuant to clause (a), (d), (f), (g) or (h), no filing under Section 13 or Section 16(a) of the Exchange Act, or other public announcement, reporting a reduction in beneficial ownership of shares of Common Stock, shall be required or shall be voluntarily made during the Restricted Period in connection with such transfer or distribution; or (i) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of shares of Common Stock, *provided* that (i) such plan does not provide for the transfer of shares of Common Stock during the Restricted Period and (ii) no public announcement or filing under the Exchange Act is made by or on behalf of the undersigned or the Company regarding the establishment of such plan. For purposes hereof, "immediate family" shall mean any relationship by blood, marriage or adoption, not more remote than first cousin. In addition, the undersigned agrees that, without the prior written consent of the Representative on behalf of the Underwriters, it will not, during the Restricted Period, make any demand for or exercise any right with respect to, the registration of any shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock and the undersigned waives any and all notice requirements and rights with respect to the registration of any such security pursuant to any agreement, understanding or otherwise to which the undersigned is a party. The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the undersigned's shares of Common Stock except in compliance with the foregoing restrictions.

If the undersigned is an officer or director of the Company, (i) the undersigned further agrees that the foregoing provisions shall be equally applicable to any issuer-directed shares of Common Stock the undersigned may purchase in the Public Offering; (ii) the Representative agrees that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of shares of Common Stock, the Representative will notify the Company of the impending release or waiver, and (iii) the Company has agreed in the Underwriting Agreement to announce the impending release or waiver by press release through a major news service at least two business days before the effective date of the release or waiver. Any release or waiver granted by the Representative hereunder to any such officer or director shall only be effective two business days after the publication date of such press release. The provisions of this paragraph will not apply if (a) the release or waiver is effected solely to permit a transfer not for consideration and (b) the transferee has agreed in writing to be bound by the same terms described in this Lock-Up Agreement to the extent and for the duration that such terms remain in effect at the time of the transfer.

The undersigned understands that the Company and the Underwriters are relying upon this Lock-Up Agreement in proceeding toward consummation of the Public Offering. The undersigned further understands that this Lock-Up Agreement is irrevocable and shall be binding upon the undersigned's heirs, legal representatives, successors and assigns.

Whether or not the Public Offering actually occurs depends on a number of factors, including market conditions. Any Public Offering will only be made pursuant to the Underwriting Agreement, the terms of which are subject to negotiation between the Company and the Underwriters.

The undersigned understands that (i) if the Representative or the Company informs the other in writing, prior to the execution of the Underwriting Agreement, that it has determined not to proceed with the Public Offering, (ii) if the Underwriting Agreement (other than the provisions thereof which survive termination) shall terminate or be terminated prior to payment for and delivery of the securities to be sold thereunder, (iii) if the registration statement related to the Public Offering has been withdrawn prior to the execution of the Underwriting Agreement or (iv) the Underwriting Agreement is not executed on or before June 30, 2014 (*provided, however*, that the Company may extend the June 30, 2014 date by up to three months with written notice to the undersigned prior thereto), the undersigned shall be automatically released from all obligations under this Lock-Up Agreement.

This Lock-Up Agreement and any claim, controversy or dispute arising under or related to this Lock-Up Agreement shall be governed by and construed in accordance with the laws of the State of New York, without regard to the conflict of laws principles thereof.

Very truly yours,

_____
Name of Security Holder (Print exact name)

By: _____
Signature

_____
Title

_____
Address

If not signing in an individual capacity:

_____
Name of Authorized Signatory (Print)

_____
Title of Authorized Signatory (Print)

(*indicate capacity of person signing if signing as custodian, trustee, or on behalf of an entity*)

EXHIBIT B

[Form of Press Release]

Amedica Corporation
[Date]

Amedica Corporation (the "Company") announced today that JMP Securities LLC, the lead book-running managing underwriter in the Company's recent public offering of _____ shares of common stock, is [waiving] [releasing] a lock-up restriction with respect to _____ shares of the Company's common stock held by [certain officers or directors] [an officer or director] of the Company. The [waiver] [release] will take effect on _____, 20____, and the shares may be sold on or after such date.

This press release is not an offer or sale of the securities in the United States or in any other jurisdiction where such offer or sale is prohibited, and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the United States Securities Act of 1933, as amended.

Exhibit 3.1.1

CERTIFICATE OF AMENDMENT

TO

RESTATED CERTIFICATE OF INCORPORATION

OF

AMEDICA CORPORATION
(Pursuant to Section 242 of the
General Corporation Law of the State of Delaware)

Amedica Corporation, a corporation organized and existing under the laws of the State of Delaware, hereby certifies as follows:

1. The name of the corporation (hereinafter referred to as the "***Corporation***") is Amedica Corporation.

2. The date of filing of the Certificate of Incorporation of the Corporation with the Secretary of State of the State of Delaware was December 10, 1996 under the name Amedica Corp. A Restated Certificate of Incorporation of the Corporation was filed on October 25, 2004 (the "***Base Restated Certificate***"), and said Base Restated Certificate was amended by (a) a Certificate of Designation for Series C Convertible Preferred Stock filed on February 24, 2006 (the "***Series C Certificate of Designation***"), (b) a Certificate of Designation for Series D Convertible Preferred Stock filed on April 16, 2007 (the "***Series D Certificate of Designation***"), (c) Certificates of Amendment respectively filed on July 26, 2007 and November 1, 2007, (d) a Certificate of Increase of Series D Convertible Preferred Stock filed on December 21, 2007, (e) a Certificate of Amendment filed on March 1, 2010, (f) a Certificate of Designation for Series E Convertible Preferred Stock filed March 19, 2010 (the "***Series E Certificate of Designation***"), (g) Certificates of Designation of Series A-1 Convertible Preferred Stock (the "***Series A-1 Certificate of Designation***"), Series B-1 Convertible Preferred Stock (the "***Series B-1 Certificate of Designation***"), Series C-1 Convertible Preferred Stock (the "***Series C-1 Certificate of Designation***") and Series D-1 Convertible Preferred Stock (the "***Series D-1 Certificate of Designation***") filed on March 19, 2010, (h) a Certificate of Amendment filed on March 19, 2010, (i) a Certificate of Increase of Series D-1 Convertible Preferred Stock filed on March 24, 2010, (j) a Certificate of Decrease of the Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series C Convertible Preferred Stock and Series D Convertible Preferred Stock filed on March 25, 2010, (k) a Certificate of Increase of Series E Convertible Preferred Stock filed on September 20, 2010, (l) a Certificate of Increase of Series C Convertible Preferred Stock filed May 10, 2012, (m) a Certificate of Increase of Series D Convertible Preferred Stock and a Certificate of Decrease of Series E Convertible Preferred Stock, each filed on December 14, 2012, (n) a Certificate of Designation of Series F Convertible Preferred Stock filed on December 14, 2012 (the "***Series F Certificate of Designation***"), (o) a Certificate of Amendment filed on August 27, 2013, and (p) a Certificate of Increase of Series F Convertible Preferred Stock filed on August 27, 2013.

3. The following paragraph is inserted immediately following Article FOURTH, Section C.2(c)(i) of the Base Restated Certificate, and immediately before Section C.2(c)(ii) thereof:

> "In addition to the automatic conversion of shares of Series A Preferred Stock and Series B Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series A Preferred Stock and Series B Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

4. The following paragraph is inserted immediately following Section 2(c)(i) of the Series C Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

> "In addition to the automatic conversion of shares of Series C Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series C Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

5. The following paragraph is inserted immediately following Section 2(c)(i) of the Series D Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

> "In addition to the automatic conversion of shares of Series D Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series D Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30,

2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

6. The following paragraph is inserted immediately following Section 2(c)(i) of the Series E Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

"In addition to the automatic conversion of shares of Series E Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series E Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

7. The following paragraph is inserted immediately following Section 2(c)(ii) of the Series F Certificate of Designation, and immediately before Section 2(c)(iii) thereof:

"In addition to the automatic conversion of shares of Series F Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series F Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio calculated using the Conversion Price determined pursuant to paragraph (iii) below immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

8. The following paragraph is inserted immediately following Section 2(c)(i) of the Series A-1 Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

"In addition to the automatic conversion of shares of Series A-1 Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series A-1 Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock

for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

9. The following paragraph is inserted immediately following Section 2(c)(i) of the Series B-1 Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

"In addition to the automatic conversion of shares of Series B-1 Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series B-1 Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

10. The following paragraph is inserted immediately following Section 2(c)(i) of the Series C-1 Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

"In addition to the automatic conversion of shares of Series C-1 Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series C-1 Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30, 2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a "Qualified Initial Public Offering" hereunder."

11. The following paragraph is inserted immediately following Section 2(c)(i) of the Series D-1 Certificate of Designation, and immediately before Section 2(c)(ii) thereof:

"In addition to the automatic conversion of shares of Series D-1 Preferred Stock under circumstances described in the immediately preceding paragraph, each share of Series D-1 Preferred Stock shall automatically be converted into shares of Common Stock at the then effective Conversion Ratio immediately prior to the closing of the first underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of Common Stock for the account of the Corporation that shall occur on or before June 30,

2014, with gross proceeds equal to or greater than Twenty Million Dollars ($20,000,000.00), and such offering shall be deemed to be a “Qualified Initial Public Offering” hereunder.”

12. Pursuant to Section 228(a) of the General Corporation Law of the State of Delaware, the holders of the outstanding shares of the Corporation having no less than the minimum number of votes that would be necessary to authorize or take such actions at a meeting at which all shares entitled to vote thereon were present and voted, consented to the adoption of the aforesaid amendments without a meeting, without a vote and without prior notice, and written notice of the taking of such actions was given in accordance with Section 228(e) of the General Corporation Law of the State of Delaware.

13. Said amendments were duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its duly authorized officer this day of , 201 .

AMEDICA CORPORATION

By: _____

Exhibit 3.1.2

CERTIFICATE OF AMENDMENT

TO

RESTATED CERTIFICATE OF INCORPORATION

OF

AMEDICA CORPORATION
(Pursuant to Section 242 of the
General Corporation Law of the State of Delaware)

Amedica Corporation, a corporation organized and existing under the laws of the State of Delaware, hereby certifies as follows:

1. The name of the corporation (hereinafter referred to as the "***Corporation***") is Amedica Corporation.

1. The date of filing of the Certificate of Incorporation of the Corporation with the Secretary of State of the State of Delaware was December 10, 1996 under the name Amedica Corp. A Restated Certificate of Incorporation of the Corporation was filed on October 25, 2004 (the "***Base Restated Certificate***"), and said Base Restated Certificate was amended by (a) a Certificate of Designation for Series C Convertible Preferred Stock filed on February 24, 2006, (b) a Certificate of Designation for Series D Convertible Preferred Stock filed on April 16, 2007, (c) Certificates of Amendment respectively filed on July 26, 2007 and November 1, 2007, (d) a Certificate of Increase of Series D Convertible Preferred Stock filed on December 21, 2007, (e) a Certificate of Amendment filed on March 1, 2010, (f) a Certificate of Designation for Series E Convertible Preferred Stock filed March 19, 2010, (g) Certificates of Designation of Series A-1 Convertible Preferred Stock, Series B-1 Convertible Preferred Stock, Series C-1 Convertible Preferred Stock and Series D-1 Convertible Preferred Stock filed on March 19, 2010, (h) a Certificate of Amendment filed on March 19, 2010, (i) a Certificate of Increase of Series D-1 Convertible Preferred Stock filed on March 24, 2010, (j) a Certificate of Decrease of the Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series C Convertible Preferred Stock and Series D Convertible Preferred Stock filed on March 25, 2010, (k) a Certificate of Increase of Series E Convertible Preferred Stock filed on September 20, 2010, (l) a Certificate of Increase of Series C Convertible Preferred Stock filed May 10, 2012, (m) a Certificate of Increase of Series D Convertible Preferred Stock and a Certificate of Decrease of Series E Convertible Preferred Stock, each filed on December 14, 2012, (n) a Certificate of Designation of Series F Convertible Preferred Stock filed on December 14, 2012, (o) a Certificate of Amendment filed on August 27, 2013, (p) a Certificate of Increase of Series F Convertible Preferred Stock filed on August 27, 2013, and (q) a Certificate of Amendment filed on , 201 .

3. The Base Restated Certificate, is hereby amended by deleting the second and third sentences of Article FOURTH thereof and inserting the following new paragraph immediately following the first sentence of Article FOURTH thereof:

"Upon the effectiveness of this Certificate of Amendment to the Certificate of Incorporation, every ( ) issued and outstanding shares of Common Stock of the Corporation shall be changed, combined and reclassified into one (1) whole share of Common Stock, which shares shall be fully paid and nonassessable shares of Common Stock of the Corporation; *provided, however*, that in lieu of fractional interests in shares of Common Stock to which any stockholder would otherwise be entitled pursuant hereto (taking into account all shares of Common Stock owned by such stockholder), such stockholder shall be entitled to receive a cash payment equal to the fair value of one share of Common Stock as determined by the Board of Directors of the Corporation multiplied by such fraction.

4. Pursuant to Section 228(a) of the General Corporation Law of the State of Delaware, the holders of outstanding shares of the Corporation having no less than the minimum number of votes that would be necessary to authorize or take such actions at a meeting at which all shares entitled to vote thereon were present and voted, consented to the adoption of the aforesaid amendments without a meeting, without a vote and without prior notice and that written notice of the taking of such actions was given in accordance with Section 228(e) of the General Corporation Law of the State of Delaware.

5. Said amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be signed by its duly authorized officer this day of , 201 .

AMEDICA CORPORATION

By: _____

Exhibit 3.1.3

CERTIFICATE OF AMENDMENT

TO

RESTATED CERTIFICATE OF INCORPORATION

OF

AMEDICA CORPORATION
(Pursuant to Section 242 of the
General Corporation Law of the State of Delaware)

Amedica Corporation, a corporation organized and existing under the laws of the State of Delaware, hereby certifies as follows:

1. The name of the corporation is Amedica Corporation (the "***Corporation***").

2. The date of filing of the Certificate of Incorporation of the Corporation with the Secretary of State of the State of Delaware was December 10, 1996 under the name Amedica Corp. A Restated Certificate of Incorporation of the Corporation was filed on October 25, 2004 (the "***Base Restated Certificate***"), and said Base Restated Certificate was amended by (a) a Certificate of Designation for Series C Convertible Preferred Stock filed on February 24, 2006, (b) a Certificate of Designation for Series D Convertible Preferred Stock filed on April 16, 2007, (c) Certificates of Amendment respectively filed on July 26, 2007 and November 1, 2007, (d) a Certificate of Increase of Series D Convertible Preferred Stock filed on December 21, 2007, (e) a Certificate of Amendment filed on March 1, 2010, (f) a Certificate of Designation for Series E Convertible Preferred Stock filed March 19, 2010, (g) Certificates of Designation of Series A-1 Convertible Preferred Stock, Series B-1 Convertible Preferred Stock, Series C-1 Convertible Preferred Stock and Series D-1 Convertible Preferred Stock filed on March 19, 2010, (h) a Certificate of Amendment filed on March 19, 2010, (i) a Certificate of Increase of Series D-1 Convertible Preferred Stock filed on March 24, 2010, (j) a Certificate of Decrease of the Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series C Convertible Preferred Stock and Series D Convertible Preferred Stock filed on March 25, 2010, (k) a Certificate of Increase of Series E Convertible Preferred Stock filed on September 20, 2010, (l) a Certificate of Increase of Series C Convertible Preferred Stock filed May 10, 2012, (m) a Certificate of Increase of Series D Convertible Preferred Stock and a Certificate of Decrease of Series E Convertible Preferred Stock, each filed on December 14, 2012, (n) a Certificate of Designation of Series F Convertible Preferred Stock filed on December 14, 2012, (o) a Certificate of Amendment filed on August 27, 2013, (p) a Certificate of Increase of Series F Convertible Preferred Stock filed on August 27, 2013, (q) a Certificate of Amendment filed on , 201 and (r) a Certificate of Amendment filed on , 201 . The Restated Certificate, as amended, is hereby further amended to change the authorized capital of the Corporation by striking out the first paragraph of Article FOURTH thereof, as such paragraph appears in the Certificate of Amendment filed on March 1, 2010, and by substituting in lieu of said first paragraph of Article FOURTH the following new first paragraph:

"The total number of shares of all classes of stock which the Corporation shall have authority to issue is Three Hundred Eighty Million (380,000,000), consisting of (i) Two Hundred Fifty Million (250,000,000) shares of Common Stock, $0.01 par value per share (the "Common Stock"), and (ii) One Hundred Thirty Million (130,000,000) shares of Preferred Stock, $0.01 par value per share (the "Preferred Stock").

3. Pursuant to Section 228(a) of the General Corporation Law of the State of Delaware, the holders of outstanding shares of the Corporation having no less than the minimum number of votes that would be necessary to authorize or take such actions at a meeting at which all shares entitled to vote thereon were present and voted, consented to the adoption of the aforesaid amendments without a meeting, without a vote and without prior notice, and written notice of the taking of such actions was given in accordance with Section 228(e) of the General Corporation Law of the State of Delaware.

4. The amendment of the Restated Certificate, as amended, as herein certified has been duly adopted in accordance with the provisions of Sections 242 of the General Corporation Law of the State of Delaware.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to Restated Certificate of Incorporation be signed by its duly authorized officer this day of , 2014.

AMEDICA CORPORATION

By: _____

Eric K. Olson
President and Chief Executive Officer

Exhibit 3.2

RESTATED CERTIFICATE OF INCORPORATION

OF

AMEDICA CORPORATION

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Amedica Corporation, a corporation organized and existing under the laws of the State of Delaware (the "Corporation"), hereby certifies as follows:

The Corporation filed a Certificate of Incorporation with the Secretary of State of the State of Delaware was December 10, 1996 under the name Amedica Corp. A Restated Certificate of Incorporation of the Corporation was filed on October 25, 2004 (the "Base Restated Certificate"), and the Base Restated Certificate was amended by (a) a Certificate of Designation for Series C Convertible Preferred Stock filed on February 24, 2006, (b) a Certificate of Designation for Series D Convertible Preferred Stock filed on April 16, 2007, (c) Certificates of Amendment respectively filed on July 26, 2007 and November 1, 2007, (d) a Certificate of Increase of Series D Convertible Preferred Stock filed on December 21, 2007, (e) a Certificate of Amendment filed on March 1, 2010, (f) a Certificate of Designation for Series E Convertible Preferred Stock filed March 19, 2010, (g) Certificates of Designation of Series A-1 Convertible Preferred Stock, Series B-1 Convertible Preferred Stock, Series C-1 Convertible Preferred Stock and Series D-1 Convertible Preferred Stock filed on March 19, 2010, (h) a Certificate of Amendment filed on March 19, 2010, (i) a Certificate of Increase of Series D-1 Convertible Preferred Stock filed on March 24, 2010, (j) a Certificate of Decrease of the Series A Convertible Preferred Stock, Series B Convertible Preferred Stock, Series C Convertible Preferred Stock and Series D Convertible Preferred Stock filed on March 25, 2010, (k) a Certificate of Increase of Series E Convertible Preferred Stock filed on September 20, 2010, (l) a Certificate of Increase of Series C Convertible Preferred Stock filed May 10, 2012, (m) a Certificate of Increase of Series D Convertible Preferred Stock and a Certificate of Decrease of Series E Convertible Preferred Stock, each filed on December 14, 2012, (n) a Certificate of Designation of Series F Convertible Preferred Stock filed on December 14, 2012, (o) a Certificate of Amendment filed on August 27, 2013, (p) a Certificate of Increase of Series F Convertible Preferred Stock filed on August 27, 2013, (q) a Certificate of Amendment filed on , 2014, (r) a Certificate of Amendment filed on , 2014 and (s) a Certificate of Amendment filed on , 2014.

This Restated Certificate of Incorporation restates, integrates and further amends the Base Restated Certificate, as heretofore amended.

This Restated Certificate of Incorporation was duly adopted by written consent of the directors and stockholders of the Corporation in accordance with the applicable provisions of Sections 228, 242 and 245 of the General Corporation Law of the State of Delaware.

The text of the Corporation's Certificate of Incorporation, as amended, is hereby further amended and restated to read in full as follows:

RESTATED CERTIFICATE OF INCORPORATION

OF

AMEDICA CORPORATION

FIRST: The name of the corporation is Amedica Corporation (the "Corporation").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, Wilmington, Delaware 19810, County of New Castle. The name of its registered agent at such address is The Corporation Trust Company.

THIRD: The purpose of the Corporation is to engage in any lawful act or activity or carry on any business for which corporations may be organized under the Delaware General Corporation Law or any successor statute.

FOURTH:

A. Designation and Number of Shares.

The total number of shares of all classes of stock which the Corporation shall have the authority to issue is Three Hundred Eighty Million (380,000,000) shares, consisting of Two Hundred Fifty Million (250,000,000) shares of common stock, par value $0.01 per share (the "Common Stock"), and One Hundred Thirty Million (130,000,000) shares of preferred stock, par value $0.01 per share (the "Preferred Stock").

The number of authorized shares of Common Stock or Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the voting power of all of the then-outstanding shares of capital stock of the Corporation entitled to vote thereon, without a vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the terms of any Preferred Stock designation.

B. Preferred Stock

1. Shares of Preferred Stock may be issued in one or more series at such time or times and for such consideration as the Board of Directors of the Corporation (the "Board of Directors") may determine.

2. Authority is hereby expressly granted to the Board of Directors to fix from time to time, by resolution or resolutions providing for the establishment and/or issuance of any series of Preferred Stock, the designation and number of the shares of such series and the powers, preferences and rights of such series, and the qualifications, limitations or restrictions thereof, to the fullest extent such authority may be conferred upon the Board of Directors under the Delaware General Corporation Law. Without limiting the generality of the foregoing, the resolutions providing for issuance of any series of Preferred Stock may provide that such series shall be superior or rank equally or be junior to the Preferred Stock of any other series to the extent permitted by law.

C. Common Stock.

1. Dividends. Dividends may be declared and paid on the Common Stock from funds lawfully available therefor if, as and when determined by the Board of Directors in their sole discretion, subject to provisions of law, any provision of this Restated Certificate of Incorporation, as amended from time to time, and subject to the relative rights and preferences of any shares of Preferred Stock authorized, issued and outstanding hereunder. The term "Restated Certificate of Incorporation" as used herein shall mean the Restated Certificate of Incorporation of the Corporation as amended from time to time.

2. Voting. The holders of the Common Stock are entitled to one vote for each share held; *provided, however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Restated Certificate of Incorporation (including any certificate of designation relating to Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon by law or pursuant to this Restated Certificate of Incorporation (including any certificate of designation relating to Preferred Stock).

FIFTH: The following provisions are inserted for the management of the business and the conduct of the affairs of the Corporation, and for further definition, limitation and regulation of the powers of the Corporation and of its directors and stockholders:

A. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors. In addition to the powers and authority expressly conferred upon them by statute or by this Restated Certificate of Incorporation or the Bylaws of the Corporation as in effect from time to time, the directors are hereby empowered to exercise all such powers and do all such acts and things as may be exercised or done by the Corporation.

B. The directors of the Corporation need not be elected by written ballot unless the Bylaws so provide.

C. Subject to the rights of the holders of any series of Preferred Stock then outstanding, any action required or permitted to be taken by the stockholders of the Corporation may be effected only at a duly called annual or special meeting of stockholders of the Corporation and not by written consent.

D. Special meetings of the stockholders may only be called by the Board of Directors acting pursuant to a resolution adopted by a majority of the Whole Board. For the purposes of this Restated Certificate of Incorporation, the term "Whole Board" shall mean the total number of authorized directors whether or not there exist any vacancies in previously authorized directorships. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

SIXTH:

A. Subject to the rights of the holders of shares of any series of Preferred Stock then outstanding to elect additional directors under specified circumstances, the number of directors shall be fixed from time to time exclusively by the Board of Directors pursuant to a resolution adopted by a majority of the Whole Board.

B. The directors, other than those who may be elected by the holders of shares of any series of Preferred Stock under specified circumstances, shall be divided into three classes, with the term of office of the first class to expire at the first annual meeting of stockholders following the initial classification of directors, the term of office of the second class to expire at the second annual meeting of stockholders following the initial classification of directors, and the term of office of the third class to expire at the third annual meeting of stockholders following the initial classification of directors. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire, other than directors elected by the holders of any series of Preferred Stock under specified circumstances, shall be elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election and until their successors are duly elected and qualified. The Board of Directors is authorized to assign members of the Board already in office to such classes as it may determine at the time the classification of the Board of Directors pursuant to this Restated Certificate of Incorporation becomes effective.

C. Subject to the rights of the holders of any series of Preferred Stock then outstanding, newly created directorships resulting from any increase in the authorized number of directors or any vacancies in the Board of Directors resulting from death, resignation, retirement, disqualification, removal from office or other cause shall, unless otherwise required by law or by resolution of the Board of Directors, be filled only by a majority vote of the directors then in office even though less than a quorum, or by a sole remaining director, and not by stockholders, and directors so chosen shall serve for a term expiring at the annual meeting of stockholders at which the term of office of the class to which they have been chosen expires or until such director's successor shall have been duly elected and qualified. No decrease in the authorized number of directors shall shorten the term of any incumbent director.

D. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the Bylaws of the Corporation.

E. Subject to the rights of the holders of any series of Preferred Stock then outstanding, any director, or the entire Board of Directors, may be removed from office at any time only for cause and only by the affirmative vote of the holders of at least eighty percent (80%) of the voting power of all of the then-outstanding shares of capital stock of the Corporation entitled to vote at an election of directors, voting together as a single class.

SEVENTH: The Board of Directors is expressly empowered to adopt, amend or repeal Bylaws of the Corporation. Any adoption, amendment or repeal of the Bylaws of the Corporation by the Board of Directors shall require the approval of a majority of the Whole

Board. The stockholders shall also have power to adopt, amend or repeal the Bylaws of the Corporation; provided, that in addition to any vote of the holders of any class or series of stock of the Corporation required by law or by this Restated Certificate of Incorporation, the affirmative vote of the holders of at least eighty percent (80%) of the voting power of all of the then outstanding shares of the capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required for the stockholders to adopt, amend or repeal any provision of the Bylaws of the Corporation.

EIGHTH:

A. Each person who was or is made a party or is threatened to be made a party to or is otherwise involved (including, without limitation, as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or an officer of the Corporation or is or was serving at the request of the Corporation as a director, officer, or trustee of another corporation, or of a partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan (hereinafter an "Indemnitee"), whether the basis of such proceeding is alleged action in an official capacity as a director, officer or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by the Corporation to the fullest extent permitted by the Delaware General Corporation Law, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such Indemnitee in connection therewith; *provided, however*, that, except as provided in Paragraph C of this Article EIGHTH with respect to proceedings to enforce rights to indemnification or an advancement of expenses or as otherwise required by law, the Corporation shall not be required to indemnify or advance expenses to any such Indemnitee in connection with a proceeding (or part thereof) initiated by such Indemnitee unless such proceeding (or part thereof) was authorized by the Board of Directors of the Corporation.

B. In addition to the right to indemnification conferred in Paragraph A of this Article EIGHTH, an Indemnitee shall also have the right to be paid by the Corporation the expenses (including attorney's fees) incurred in defending any such proceeding in advance of its final disposition; *provided, however*, that, if the Delaware General Corporation Law requires, an advancement of expenses incurred by an Indemnitee in his capacity as a director or officer (and not in any other capacity in which service was or is rendered by such Indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the Corporation of an undertaking, by or on behalf of such Indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such Indemnitee is not entitled to be indemnified for such expenses under this Paragraph B or otherwise.

C. If a claim under Paragraph A or B of this Article EIGHTH is not paid in full by the Corporation within sixty (60) days after a written claim has been received by the Corporation, except in the case of a claim for an advancement of expenses, in which case the applicable period

shall be twenty (20) days, the Indemnitee may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim. If successful in whole or in part in any such suit, or in a suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Indemnitee shall also be entitled to be paid the expenses of prosecuting or defending such suit. In (i) any suit brought by the Indemnitee to enforce a right to indemnification hereunder (but not in a suit brought by the Indemnitee to enforce a right to an advancement of expenses) it shall be a defense that, and (ii) in any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that, the Indemnitee has not met any applicable standard for indemnification set forth in the Delaware General Corporation Law. Neither the failure of the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) to have made a determination prior to the commencement of such suit that indemnification of the Indemnitee is proper in the circumstances because the Indemnitee has met the applicable standard of conduct set forth in the Delaware General Corporation Law, nor an actual determination by the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) that the Indemnitee has not met such applicable standard of conduct, shall create a presumption that the Indemnitee has not met the applicable standard of conduct or, in the case of such a suit brought by the Indemnitee, be a defense to such suit. In any suit brought by the Indemnitee to enforce a right to indemnification or to an advancement of expenses hereunder, or brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the burden of proving that the Indemnitee is not entitled to be indemnified, or to such advancement of expenses, under this Article EIGHTH or otherwise shall be on the Corporation.

D. The rights to indemnification and to the advancement of expenses conferred in this Article EIGHTH shall not be exclusive of any other right which any person may have or hereafter acquire under any statute, the Corporation's Certificate of Incorporation as amended from time to time, the Corporation's Bylaws, any agreement, any vote of stockholders or disinterested directors or otherwise.

E. The Corporation may maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or another corporation, partnership, joint venture, trust or other enterprise against any expense, liability or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under the Delaware General Corporation Law.

F. The Corporation may, to the extent authorized from time to time by the Board of Directors, grant rights to indemnification and to the advancement of expenses to any employee or agent of the Corporation to the fullest extent of the provisions of this Article EIGHTH with respect to the indemnification and advancement of expenses of directors and officers of the Corporation.

G. The rights conferred upon Indemnitees in this Article EIGHTH shall be contract rights and such rights shall continue as to an Indemnitee who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the Indemnitee's heirs, executors and administrators. Any amendment, alteration or repeal of this Article EIGHTH that adversely affects

any right of an Indemnitee or its successors shall be prospective only and shall not limit or eliminate any such right with respect to any proceeding involving any occurrence or alleged occurrence of any action or omission to act that took place prior to any such amendment, alteration or repeal.

H. If any word, clause, provision or provisions of this Article EIGHTH shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (i) the validity, legality and enforceability of the remaining provisions of this Article EIGHTH (including, without limitation, each portion of any section of this Article EIGHTH containing any such provision held to be invalid, illegal or unenforceable, that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby; and (ii) to the fullest extent possible, the provisions of this Article EIGHTH (including, without limitation, each such portion of any section of this Article EIGHTH containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal or unenforceable.

NINTH: No director shall be personally liable to the Corporation or its stockholders for any monetary damages for breaches of fiduciary duty as a director; provided that this provision shall not eliminate or limit the liability of a director, to the extent that such liability is imposed by applicable law, (i) for any breach of the director's duty of loyalty to the Corporation or its stockholders; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; (iii) under Section 174 or successor provisions of the Delaware General Corporation Law; or (iv) for any transaction from which the director derived an improper personal benefit. No amendment to or repeal of this provision shall apply to or have any effect on the liability or alleged liability of any director for or with respect to any acts or omissions of such director occurring prior to such amendment or repeal. If the Delaware General Corporation Law is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the Delaware General Corporation Law, as so amended. All references in this Article NINTH to a director shall also be deemed to refer to any such director acting in his or her capacity as a Continuing Director (as defined in Article ELEVENTH).

TENTH: The Corporation reserves the right to amend or repeal any provision contained in this Restated Certificate of Incorporation in the manner prescribed by the Delaware General Corporation Law and all rights conferred upon stockholders are granted subject to this reservation.provided that in addition to the vote of the holders of any class or series of stock of the Corporation required by law or by this Restated Certificate of Incorporation, the affirmative vote of the holders of shares of voting stock of the Corporation representing at least eighty percent (80%) of the voting power of all of the then outstanding shares of the capital stock of the Corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to amend, alter or repeal, or adopt any provision inconsistent with, Articles FIFTH, SIXTH, SEVENTH, EIGHTH, NINTH, this Article TENTH and Article ELEVENTH of this Restated Certificate of Incorporation.

ELEVENTH: The Board of Directors is expressly authorized to cause the Corporation to issue rights pursuant to Section 157 of the Delaware General Corporation Law and, in that

connection, to enter into any agreements necessary or convenient for such issuance, and to enter into other agreements necessary and convenient to the conduct of the business of the Corporation. Any such agreement may include provisions limiting, in certain circumstances, the ability of the Board of Directors of the Corporation to redeem the securities issued pursuant thereto or to take other action thereunder or in connection therewith unless there is a specified number or percentage of Continuing Directors then in office. Pursuant to Section 141(a) of the Delaware General Corporation Law, the Continuing Directors shall have the power and authority to make all decisions and determinations, and exercise or perform such other acts that any such agreement provides that such Continuing Directors shall make, exercise or perform. For purposes of this Article ELEVENTH and any such agreement, the term, "Continuing Directors," shall mean (1) those directors who were members of the Board of Directors of the Corporation at the time the Corporation entered into such agreement and any director who subsequently becomes a member of the Board of Directors, if such director's nomination for election to the Board of Directors is recommended or approved by the majority vote of the Continuing Directors then in office or (2) such members of the Board of Directors designated in, or in the manner provided in, such agreement as Continuing Directors.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, this Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of the Certificate of Incorporation, as amended, of the Corporation, and which has been duly adopted in accordance with Sections 228, 242 and 245 of the Delaware General Corporation Law, has been duly executed by its duly authorized Officer on , 2014.

AMEDICA CORPORATION

By: _____

Eric K. Olson
President and Chief Executive Officer

Exhibit 3.4

AMEDICA CORPORATION

RESTATED BYLAWS

(effective , 2014)

ARTICLE I - STOCKHOLDERS

Section 1. Annual Meeting.

An annual meeting of the stockholders, for the election of directors to succeed those whose terms expire and for the transaction of such other business as may properly come before the meeting, shall be held at such place, on such date, and at such time as the Board of Directors shall fix. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but instead shall be held solely by means of remote communication as provided under the General Corporation Law of the State of Delaware (as hereafter amended from time to time, the "Delaware General Corporation Law").

Section 2. Special Meetings.

Special meetings of the stockholders of the Corporation may be called only by the Board of Directors pursuant to a resolution adopted by a majority of the Authorized Board. For the purposes of these Restated Bylaws (hereinafter referred to herein as these "Bylaws"), the term "Authorized Board" shall mean the total number of authorized directors whether or not there exist any vacancies on the Board of Directors. Special meetings of the stockholders may be held at such place within or without the State of Delaware as may be stated in such resolution. The Board of Directors or the officer of the Corporation calling the meeting may, in its, his or her sole discretion, determine that the meeting shall not be held at any place, but instead shall be held solely by means of remote communication as provided under the Delaware General Corporation Law.

Section 3. Notice of Meetings.

Notice of the place, if any, date, and time of all meetings of the stockholders, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting, shall be given, not less than ten (10) nor more than sixty (60) days before the date on which the meeting is to be held, to each stockholder entitled to vote at such meeting, except as otherwise provided herein or required by law (meaning hereinafter as required from time to time by the Delaware General Corporation Law or the Certificate of Incorporation of the Corporation, as amended and restated from time to time).

When a meeting is adjourned to another place, if any, date or time, notice need not be given of the adjourned meeting if the place, if any, date and time thereof, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, are announced at the meeting at which the adjournment is taken; *provided, however*, that if the date of any adjourned meeting is more than thirty (30) days after the date originally designated for the meeting in the notice, or if a new record date is fixed for

the adjourned meeting, notice of the place, if any, date, and time of the adjourned meeting, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting, shall be given in conformity herewith. At any adjourned meeting, any business may be transacted which might have been transacted at the original meeting.

Section 4. Quorum.

At any meeting of the stockholders, the holders of a majority of the voting power of all of the shares of the stock entitled to vote at the meeting, present in person or represented by proxy, shall constitute a quorum for all purposes, unless or except to the extent that the presence of a larger number may be required by law or by rules of any stock exchange upon which the Corporation's securities are listed. Where a separate vote by a class or classes is required, a majority of the voting power of the shares of such class or classes, present in person or represented by proxy, shall constitute a quorum entitled to take action with respect to that vote on that matter.

If a quorum shall fail to attend any meeting, the chairman of the meeting may adjourn the meeting to another place, if any, date, or time.

Section 5. Organization and Conduct of Business.

The Chairman of the Board of Directors or, in his or her absence, the Chief Executive Officer of the Corporation or, in his or her absence, the President of the Corporation or, in his or her absence, such person as the Board of Directors may have designated, shall call to order any meeting of the stockholders and shall preside at and act as chairman of the meeting. In the absence of the Secretary of the Corporation, the secretary of the meeting shall be such person as the chairman of the meeting appoints. The chairman of any meeting of the stockholders shall determine the order of business and the procedures at the meeting, including such regulation of the manner of voting and the conduct of discussion as he or she deems to be appropriate. The chairman of any meeting of the stockholders shall have the power to adjourn the meeting to another place, if any, date and time. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting.

Section 6. Notice of Stockholder Business and Nominations.

A. Annual Meetings of Stockholders.

Nominations of persons for election to the Board of Directors and the proposal of business to be considered by the stockholders may be made at an annual meeting of the stockholders (a) pursuant to the Corporation's notice of meeting or proxy materials with respect to such meeting, (b) by or at the direction of the Board of Directors or (c) by any stockholder of the Corporation who was a stockholder of record at the time of giving of notice provided for in this Section, who is entitled to vote at the meeting and who complies with the notice procedures set forth in this Section.

B. Special Meetings of Stockholders.

Only such business shall be conducted at a special meeting of the stockholders as shall have been included in the notice of meeting given pursuant to Section 2 above. The notice of such

special meeting shall include the purpose for which the meeting is called. Nominations of persons for election to the Board of Directors may be made at a special meeting of the stockholders at which directors are to be elected (a) by or at the direction of the Board of Directors or (b) provided that the Board of Directors has determined that directors shall be elected at such meeting, by any stockholder of the Corporation who is a stockholder of record at the time of giving of notice provided for in this Section, who shall be entitled to vote at the meeting and who complies with the notice procedures set forth in this Section.

C. Certain Matters Pertaining to Stockholder Business and Nominations.

(1) For nominations or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (c) of paragraph A of this Section or a special meeting pursuant to paragraph B of this Section, (1) the stockholder must have given timely notice thereof in writing to the Secretary of the Corporation, (2) such other business must otherwise be a proper matter for stockholder action under the Delaware General Corporation Law, (3) if the stockholder, or the beneficial owner on whose behalf any such proposal or nomination is made, has provided the Corporation with a Solicitation Notice, as that term is defined in this paragraph, such stockholder or beneficial owner must, in the case of a proposal, have delivered a proxy statement and form of proxy to holders of at least the percentage of the Corporation's voting shares required under applicable law to carry any such proposal, or, in the case of a nomination or nominations, have delivered a proxy statement and form of proxy to holders of a percentage of the Corporation's voting shares reasonably believed by such stockholder or beneficial owner to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder or beneficial owner, and must, in either case, have included in such materials the Solicitation Notice and (4) if no Solicitation Notice relating thereto has been timely provided pursuant to this Section, the stockholder or beneficial owner proposing such business or nomination must not have solicited a number of proxies sufficient to have required the delivery of such a Solicitation Notice under this Section.

To be timely, a stockholder's notice pertaining to an annual meeting shall be delivered to the Secretary at the principal executive offices of the Corporation not less than ninety (90) or more than one-hundred and twenty (120) days prior to the first anniversary of the date of the preceding year's annual meeting (the "Anniversary"); *provided, however*, that in the event that the date of the annual meeting is more than thirty (30) days before or more than thirty (30) days after the Anniversary, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the one-hundred and twentieth (120th) day prior to such annual meeting and not later than the close of business on the later of the ninetieth (90th) day prior to such annual meeting or the close of business on the tenth (10th) day following the day on which public announcement of the date of such meeting is first made by the Corporation. Such stockholder's notice for an annual meeting or a special meeting shall set forth and include:

(a) as to each person whom the stockholder proposes to nominate for election or reelection as a director:

(i) all information relating to such person that is required to be disclosed in solicitations of proxies for election of directors, or is otherwise required, in each case, pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "Exchange Act") (including such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected);

(ii) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three (3) years, and any other material relationships, between or among such stockholder and beneficial owner, if any, and their respective affiliates and associates, on the one hand, and each proposed nominee, and his or her respective affiliates and associates, on the other hand, including, without limitation, all information that would be required to be disclosed pursuant to Item 404 of Regulation S-K promulgated under the Securities Act of 1933, as amended, if the stockholder making the nomination and any beneficial owner on whose behalf the nomination is made, if any, or any affiliate or associate thereof, were the "registrant" for purposes of such rule and the nominee were a director or executive officer of such registrant;

(iii) to the extent known by the stockholder or the beneficial owner, the name and address of any other securityholder of the Corporation who owns, beneficially or of record, any securities of the Corporation and who supports any nominee proposed by such stockholder or beneficial owner; and

(iv) with respect to each nominee for election or reelection to the Board of Directors, a completed and signed questionnaire, representation and agreement required by paragraph D of this Article.

(b) as to any other business that the stockholder or beneficial owner proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, including the text of any resolutions proposed for consideration, the reasons for conducting such business at the meeting, any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made, and to the extent known by the stockholder or beneficial owner, the name and address of any other securityholder of the Corporation who owns, beneficially or of record, any securities of the Corporation and who supports any matter such stockholder or beneficial owner intends to propose; and

(c) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made:

(i) the name and address of such stockholder, as they appear on the Corporation's books, and of such beneficial owner;

(ii) (A) the class or series and number of shares of the Corporation which are, directly or indirectly, owned beneficially and of record by such stockholder and such beneficial owner, (B) any option, warrant, convertible security, restricted stock unit, stock appreciation right, or similar right with an exercise or conversion privilege or a settlement payment or mechanism at a price related to any class or series of shares of the Corporation or with a value derived in whole or in part from the value of any class or series of shares of the Corporation, whether or not such instrument or right shall be subject to settlement in the underlying class or series of capital stock of the Corporation or otherwise (a "Derivative Instrument") directly or indirectly owned beneficially by such stockholder and such beneficial

owner, if any, and any other direct or indirect opportunity to profit or share in any profit derived from any increase or decrease in the value of shares of the Corporation, (C) any proxy, contract, arrangement, understanding, or relationship pursuant to which such stockholder and beneficial owner, if any, has a right to vote any shares of any security of the Corporation, (D) any short interest in any security of the Corporation (for purposes of these Bylaws, a person shall be deemed to have a short interest in a security if such person directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has the opportunity to profit or share in any profit derived from any decrease in the value of the subject security), (E) any rights to dividends on the shares of the Corporation owned beneficially and of record by such stockholder that are separated or separable from the underlying shares of the Corporation, (F) any proportionate interest in shares of the Corporation or Derivative Instruments held, directly or indirectly, by a general or limited partnership in which such stockholder is a general partner or, directly or indirectly, beneficially owns an interest in a general partner, or held, directly or indirectly, by a limited liability company in which such stockholder is a member or manager or directly or indirectly owns in interest in such member or manager, and (G) any performance-related fees (other than an asset-based fee) that such stockholder is entitled to based on any increase or decrease in the value of shares of the Corporation or Derivative Instruments, if any, as of the date of such notice, including without limitation any such interests held by members of such stockholder's immediate family sharing the same household (which information shall be supplemented by such stockholder and beneficial owner, if any, not later than ten (10) days after the record date for the meeting to disclose such ownership as of the record date; provided that if such date is after the date of the meeting, not later than the day prior to the meeting);

(iii) any other information relating to such stockholder and beneficial owner, if any, that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for, as applicable, the proposal and/or for the election of directors in a contested election pursuant to Regulation 14A under the Exchange Act and the rules and regulations promulgated thereunder;

(iv) a description of all agreements, arrangements and understandings between such stockholder and beneficial owner, if any, and any other person or persons (including their names) in connection with the proposal of such business by such stockholder and beneficial owner, if any; and

(v) a statement whether or not either such stockholder or beneficial owner intends to deliver a proxy statement and form of proxy to holders of, in the case of a proposal, at least the percentage of the Corporation's voting shares required under applicable law to carry the proposal or, in the case of a nomination or nominations, a percentage of the Corporation's voting shares that such stockholder or beneficial owner reasonably believes to be sufficient to elect such nominee or nominees (an affirmative statement of such intent being referred to herein as a "Solicitation Notice").

(2) Notwithstanding anything in the second sentence of paragraph C(1) of this Section to the contrary, in the event that the number of directors to be elected to the Board of Directors of the Corporation is increased and there is no public announcement by the Corporation naming all of the nominees for director or specifying the size of the increased Board of Directors at least fifty-five (55) days prior to the Anniversary (or, if the annual meeting is held more than thirty

(30) days before or thirty (30) days after the Anniversary, at least fifty-five (55) days prior to such annual meeting), a stockholder's notice required by this Section shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to the Secretary at the principal executive office of the Corporation not later than the close of business on the tenth (10th) day following the day on which such public announcement is first made by the Corporation.

(3) In the event the Corporation calls a special meeting of the stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder may nominate a person or persons (as the case may be), for election to such position(s) as specified in the Corporation's notice of meeting, if the stockholder's notice required by paragraph C(1) of this Section shall be delivered to the Secretary at the principal executive offices of the Corporation not earlier than the ninetieth (90th) day prior to such special meeting nor later than the close of business on the later of the sixtieth (60th) day prior to such special meeting, or the tenth (10th) day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting.

D. General.

(1) Only such persons who are nominated in accordance with the procedures set forth in this Section shall be eligible to serve as directors and only such business shall be conducted at a meeting of the stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section. Except as otherwise provided by law or these Bylaws, the chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance herewith, to declare that such defective proposal or nomination shall be disregarded.

(2) For purposes of this Section, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or successor entity or comparable national news service or in a document publicly filed by the Corporation with the U.S. Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

(3) Notwithstanding the foregoing provisions of this Section, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to the matters set forth herein. Nothing in this Section shall be deemed to affect any rights (i) of the stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act or (ii) of the holders of any series of Preferred Stock of the Corporation to elect directors under specified circumstances.

(4) In addition to the requirements set forth elsewhere in these Bylaws, to be eligible to be a nominee for election or reelection as a director of the Corporation, a person must deliver, in accordance with the time periods prescribed for delivery of notice under Section 6(C)(1) of this Article, to the Secretary of the Corporation at the principal executive offices of the Corporation a completed and signed questionnaire with respect to the background and qualification of such person and the background of any other person or entity on whose behalf

the nomination is being made (which questionnaire shall be provided by the Secretary upon written request) and a written representation and agreement (in the form provided by the Secretary upon written request) that such person (i) is not and will not become a party to (A) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the Corporation or (B) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the Corporation, with such person's fiduciary duties under applicable law, (ii) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director that has not been disclosed therein, and (iii) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a director of the Corporation, and will comply with, applicable law and all applicable publicly disclosed corporate governance, code of conduct and ethics, conflict of interest, corporate opportunities, trading and any other policies and guidelines of the Corporation applicable to its directors.

(5) Notwithstanding the foregoing provisions of this Section, unless otherwise required by law, if the stockholder (or a qualified representative of the stockholder) does not appear at the annual or special meeting of the stockholders of the Corporation to make his, her or its nomination or propose any other matter, such nomination shall be disregarded and such other proposed matter shall not be transacted, even if proxies in respect of such vote have been received by the Corporation. For purposes of this Section, to be considered a "qualified representative" of the stockholder, a person must be a duly authorized officer, manager or partner of such stockholder or must be authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of the stockholders, and such person must produce such writing or electronic transmission, or a reliable reproduction of the writing or electronic transmission, at the commencement of the meeting of the stockholders.

Section 7. Proxies and Voting.

At any meeting of the stockholders, every stockholder entitled to vote may vote in person or by proxy authorized by an instrument in writing or by a transmission permitted by law filed in accordance with the procedure established for the meeting. Any copy, facsimile telecommunication or other reliable reproduction of the writing or transmission created pursuant to this Section may be substituted or used in lieu of the original writing or transmission for any and all purposes for which the original writing or transmission could be used, provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or transmission.

All voting, including on the election of directors but excepting where otherwise required by law, may be by voice vote. Any vote not taken by voice shall be taken by ballots, each of which shall state the name of the stockholder or proxy voting and such other information as may be required under the procedure established for the meeting. The Corporation may, and to the extent required by law, shall, in advance of any meeting of the stockholders, appoint one or more

inspectors to act at the meeting and make a written report thereof. The Corporation may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of the stockholders, the person presiding at the meeting may, and to the extent required by law, shall, appoint one or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his ability. Every vote taken by ballots shall be counted by a duly appointed inspector or inspectors.

Except as otherwise provided in the terms of any class or series of Preferred Stock of the Corporation, all elections at any meeting of the stockholders shall be determined by a plurality of the votes cast, and except as otherwise required by law, these Bylaws or the rules of any stock exchange upon which the Corporation's securities are listed, all other matters determined by stockholders at a meeting shall be determined by a majority of the votes cast affirmatively or negatively.

Section 8. Action Without Meeting.

Any action required or permitted to be taken by the stockholders of the Corporation may be effected only at a duly called annual or special meeting of the stockholders of the Corporation and may not be effected by written consent.

Section 9. Stock List.

A complete list of the stockholders entitled to vote at any meeting of the stockholders, arranged in alphabetical order for each class of stock and showing the address of each such stockholder and the number of shares registered in his or her name, shall be open to the examination of any such stockholder for a period of at least ten (10) days prior to the meeting in the manner provided by law.

The stock list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law. Such list shall presumptively determine the identity of the stockholders entitled to examine such stock list and to vote at the meeting and the number of shares held by each of them.

ARTICLE II - BOARD OF DIRECTORS

Section 1. General Powers, Number, Election, Tenure, Qualification and Chairman.

A. The business and affairs of the Corporation shall be managed by or under the direction of its Board of Directors.

B. Subject to the rights of the holders of any series of Preferred Stock of the Corporation then outstanding to elect additional directors under specified circumstances, the number of directors shall be fixed from time to time exclusively by the Board of Directors pursuant to a resolution adopted by a majority of the Authorized Board.

C. Subject to the rights of the holders of shares of any series of Preferred Stock of the Corporation then outstanding to elect additional directors under specified circumstances, the Board of Directors of the Corporation shall be divided into three classes, with the term of office of the first class to expire at the first annual meeting of the stockholders following the initial classification of directors, the term of office of the second class to expire at the second annual meeting of the stockholders, following the initial classification of directors, and the term of office of the third class to expire at the third annual meeting of the stockholders following the initial classification of directors. At each annual meeting of the stockholders, directors elected to succeed those directors whose terms expire, other than directors elected by the holders of any series of Preferred Stock of the Corporation, shall be elected for a term of office to expire at the third succeeding annual meeting of the stockholders after their election and until their successors are duly elected and qualified. The Board of Directors is authorized to assign members of the Board already in office to such classes as it may determine at the time the classification of the Board of Directors becomes effective.

D. The Chairman of the Board and any Vice Chairman appointed to act in the absence of the Chairman, if any, shall be elected by and from the Board of Directors. The Chairman of the Board shall preside at all meetings of the Board of Directors and stockholders at which he or she is present and shall have such authority and perform such duties as may be prescribed by these Bylaws or from time to time be determined by the Board of Directors.

Section 2. Vacancies and Newly Created Directorships.

Subject to the rights of the holders of any series of Preferred Stock of the Corporation then outstanding, newly created directorships resulting from any increase in the authorized number of directors or any vacancies in the Board of Directors resulting from death, resignation, retirement, disqualification, removal from office or other cause shall, unless otherwise required by law or by resolution of the Board of Directors, be filled only by a resolution of a majority of the directors then in office even though less than a quorum, or by a sole remaining director and not by the stockholders, and directors so chosen shall serve for a term expiring at the annual meeting of the stockholders at which the term of office of the class to which they have been chosen expires or until such director's successor shall have been duly elected and qualified. No decrease in the authorized number of directors shall shorten the term of any incumbent director. In the event of a vacancy in the Board of Directors, the remaining directors, except as otherwise provided by law, may exercise the powers of the full Board of Directors until the vacancy is filled.

Section 3. Resignation and Removal.

Any director may resign at any time upon notice given in writing or by electronic transmission to the Corporation at its principal place of business or to the Chairman of the Board, Chief Executive Officer, President or Secretary of the Corporation. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event. Subject to the rights of the holders of any series of Preferred Stock of the Corporation then outstanding, any director, or the entire Board of Directors, may be removed from office at any time only for cause and only by the affirmative vote of the holders of at least eighty percent (80%) of the voting power of all of the then outstanding shares of the Corporation then entitled to vote at an election of directors, voting together as a single class.

Section 4. Regular Meetings.

Regular meetings of the Board of Directors shall be held at such place or places, on such date or dates, and at such time or times as shall have been established by the Board of Directors and publicized among all directors. A notice of each regular meeting shall not be required.

Section 5. Special Meetings.

Special meetings of the Board of Directors may be called by the Chairman of the Board of Directors or the Chief Executive Officer, and shall be called by the Secretary if requested by a majority of the Authorized Board, and shall be held at such place, on such date, and at such time as he or she or they shall fix. Notice of the place, date, and time of each such special meeting shall be given to each director by whom it is not waived by mailing written notice not less than five (5) days before the meeting or orally, by telegraph, telex, cable, telecopy or electronic transmission given not less than twenty-four (24) hours before the meeting. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

Section 6. Quorum.

At any meeting of the Board of Directors, a majority of the total number of the Authorized Board shall constitute a quorum for all purposes. If a quorum shall fail to attend any meeting, a majority of those present may adjourn the meeting to another place, date, or time, without further notice or waiver thereof.

Section 7. Action by Consent.

Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors may be taken without notice and without a meeting, if all members of the Board consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the Board. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 8. Participation in Meetings By Conference Telephone.

Members of the Board of Directors, or of any committee thereof, may participate in a meeting of such Board or committee by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other and such participation shall constitute presence in person at such meeting.

Section 9. Conduct of Business.

At any meeting of the Board of Directors, business shall be transacted in such order and manner as the Board may from time to time determine, and all matters shall be determined by a resolution of a majority of the directors present, except as otherwise provided herein or required by law.

Section 10. Powers.

The Board of Directors may, except as otherwise required by law, exercise all such powers and do all such acts and things as may be exercised or done by the Corporation, including, without limiting the generality of the foregoing, the unqualified power:

(1) to declare dividends from time to time in accordance with law;

(2) to purchase or otherwise acquire any property, rights or privileges on such terms as it shall determine;

(3) to authorize the creation, making and issuance, in such form as it may determine, of written obligations of every kind, negotiable or non-negotiable, secured or unsecured, to borrow funds and guarantee obligations, and to do all things necessary in connection therewith;

(4) to remove any officer of the Corporation with or without cause, and from time to time to devolve the powers and duties of any officer upon any other person for the time being;

(5) to confer upon any officer of the Corporation the power to appoint, remove and suspend subordinate officers, employees and agents;

(6) to adopt from time to time such stock, option, stock purchase, bonus or other compensation plans for directors, officers, employees, consultants and agents of the Corporation and its direct or indirect subsidiaries as it may determine;

(7) to adopt from time to time such insurance, retirement, and other benefit plans for directors, officers, employees and agents of the Corporation and its direct or indirect subsidiaries as it may determine; and,

(8) to adopt from time to time regulations, not inconsistent with these Bylaws, for the management of the Corporation's business and affairs.

Section 11. Compensation of Directors.

Unless otherwise restricted by the Certificate of Incorporation, the Board of Directors shall have the authority to fix the compensation of the directors. The directors may be paid their expenses, if any, of attendance at each meeting of the Board of Directors and may be paid a fixed sum for attendance at each meeting of the Board of Directors or paid a stated salary or paid other compensation as director. No such payment shall preclude any director from serving the Corporation in any other capacity and receiving compensation therefor. Members of special or standing committees may be allowed compensation for attending committee meetings.

ARTICLE III - COMMITTEES

Section 1. Committees of the Board of Directors.

The Board of Directors, by a resolution of a majority of the Board of Directors, may from time to time designate committees of the Board, with such lawfully delegable powers and duties as it thereby confers, to serve at the pleasure of the Board and shall, for those committees and any others provided for herein, elect a director or directors to serve as the member or members, designating, if it desires, other directors as alternate members who may replace any absent or disqualified member at any meeting of the committee. Any such committee, to the extent provided in a resolution of the Board of Directors, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation to the fullest extent authorized by law. In the absence or disqualification of any member of any committee and any alternate member in his or her place, the member or members of the committee present at the meeting and not disqualified from voting, whether or not he or she or they constitute a quorum, may by resolution unanimously appoint another member of the Board of Directors to act at the meeting in the place of the absent or disqualified member.

Section 2. Conduct of Business.

Each committee may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith, except as otherwise provided herein or required by law. Adequate provision shall be made for notice to members of all meetings; one-third (1/3) of the members of any committee shall constitute a quorum unless the committee shall consist of one (1) or two (2) members, in which event one (1) member shall constitute a quorum; and all matters shall be determined by a resolution of a majority of the members present. Action may be taken by any committee without notice and without a meeting if all members thereof consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of the proceedings of such committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

ARTICLE IV - OFFICERS

Section 1. Enumeration.

The officers of the Corporation shall consist of a Chief Executive Officer, President, Chief Financial Officer, Treasurer, Secretary and such other officers as the Board of Directors or the Chief Executive Officer may determine, including, but not limited to, one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries. The salaries of officers elected by the Board of Directors shall be fixed from time to time by the Board of Directors or by such officers as may be designated by resolution of the Board of Directors.

Section 2. Election.

The Chief Executive Officer, President, Chief Financial Officer, Treasurer and the Secretary shall be elected annually by the Board of Directors at their first meeting following the annual meeting of the stockholders. The Board of Directors or the Chief Executive Officer, may, from time to time, elect or appoint such other officers as it or he or she may determine, including, but not limited to, one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries.

Section 3. Qualification.

No officer need be a director. Two or more offices may be held by any one person. If required by a resolution of the Board of Directors, an officer shall give bond to the Corporation for the faithful performance of his or her duties, in such form and amount and with such sureties as the Board of Directors may determine. The premiums for such bonds shall be paid by the Corporation.

Section 4. Tenure and Removal.

Each officer elected or appointed by the Board of Directors shall hold office until the first meeting of the Board of Directors following the next annual meeting of the stockholders and until his or her successor is elected or appointed and qualified, or until he or she dies, resigns, is removed or becomes disqualified, unless a shorter term is specified in the resolution electing or appointing said officer. Each officer appointed by the Chief Executive Officer shall hold office until his or her successor is elected or appointed and qualified, or until he or she dies, resigns, is removed or becomes disqualified, unless a shorter term is specified by any agreement or other instrument appointing such officer. Any officer may resign by notice given in writing or by electronic transmission of his or her resignation to the Chief Executive Officer, the President, or the Secretary, of the Corporation or to the Board of Directors at a meeting of the Board. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event. Any officer elected or appointed by the Board of Directors may be removed from office with or without cause only by a resolution of a majority of the directors. Any officer appointed by the Chief Executive Officer may be removed with or without cause by the Chief Executive Officer or by a resolution of a majority of the directors then in office.

Section 5. Chief Executive Officer.

The Chief Executive Officer shall be the chief executive officer of the Corporation and shall, subject to the direction of the Board of Directors, have the responsibility for the general management and control of the day-to-day business and affairs of the Corporation. Unless otherwise provided by resolution of the Board of Directors, in the absence of the Chairman of the Board, the Chief Executive Officer shall preside at all meetings of the stockholders and, if a director, meetings of the Board of Directors. The Chief Executive Officer shall have general supervision and direction of all of the other officers (other than the Chairman of the Board or any Vice Chairman of the Corporation), employees and agents of the Corporation. The Chief Executive Officer shall also have the power and authority to determine the duties of all officers, employees and agents of the Corporation, shall determine the compensation of any officers whose compensation is not established by the Board of Directors and shall have the power and authority to sign all contracts and other instruments of the Corporation which are authorized.

Section 6. President.

Except for meetings at which the Chief Executive Officer or the Chairman of the Board, if any, presides, the President shall, if present, preside at all meetings of the stockholders, and if a director, at all meetings of the Board of Directors. The President shall, subject to the control and

direction of the Chief Executive Officer and the Board of Directors, have and perform such powers and duties as may be prescribed by these Bylaws or from time to time be determined by the Chief Executive Officer or the Board of Directors. The President shall have power to sign all stock certificates, contracts and other instruments of the Corporation which are authorized. In the absence of a Chief Executive Officer, the President shall be the chief executive officer of the Corporation and shall, subject to the direction of the Board of Directors, have responsibility for the general management and control of the day-to-day business and affairs of the Corporation and shall have general supervision and direction of all of the officers (other than the Chairman of the Board or any Vice Chairman or the Chief Executive Officer of the Corporation), employees and agents of the Corporation.

Section 7. Vice Presidents.

The Vice Presidents, if any, in the order of their election, or in such other order as the Board of Directors or the Chief Executive Officer may determine, shall have and perform the powers and duties of the President (or such of the powers and duties as the Board of Directors or the Chief Executive Officer may determine) whenever the President is absent or unable to act, including the power to sign contracts and other instruments of the Corporation. The Vice Presidents, if any, shall also have such other powers and duties as may from time to time be determined by the Board of Directors or the Chief Executive Officer and shall have the power to sign all stock certificates, contracts and other instruments of the Corporation which are authorized.

Section 8. Chief Financial Officer, Treasurer and Assistant Treasurers.

The Chief Financial Officer shall, subject to the control and direction of the Board of Directors and the Chief Executive Officer, be the chief financial officer of the Corporation and shall have and perform such powers and duties as may be prescribed in these Bylaws or be determined from time to time by the Board of Directors and the Chief Executive Officer, including the power to sign all contracts and other instruments of the Corporation which are authorized. All property of the Corporation in the custody of the Chief Financial Officer shall be subject at all times to the inspection and control of the Board of Directors and the Chief Executive Officer. The Chief Financial Officer shall have the responsibility for maintaining the financial records of the Corporation. The Chief Financial Officer shall make such disbursements of the funds of the Corporation as are authorized and shall render from time to time an account of all such transactions and of the financial condition of the Corporation. Unless the Board of Directors has designated another person as the Corporation's Treasurer, the Chief Financial Officer shall also be the Treasurer. Unless otherwise determined by the Board of Directors, the Treasurer (if different than the Chief Financial Officer) and each Assistant Treasurer, if any, shall have and perform the powers and duties of the Chief Financial Officer whenever the Chief Financial Officer is absent or unable to act, and may at any time exercise such of the powers of the Chief Financial Officer, and such other powers and duties, as may from time to time be determined by the Board of Directors, the Chief Executive Officer or the Chief Financial Officer and shall have the power to sign all stock certificates, contracts and instruments of the Corporation which are authorized.

Section 9. Secretary and Assistant Secretaries.

The Board of Directors or the Chief Executive Officer shall appoint a Secretary and, in his or her absence, one or more Assistant Secretaries. Unless otherwise directed by the Board of Directors, the Secretary or, in his or her absence, any Assistant Secretary shall attend all meetings of the directors and the stockholders and shall record all resolutions of the Board of Directors and votes of the stockholders and minutes of the proceedings at such meetings. The Secretary or, in his or her absence, any Assistant Secretary, shall notify the directors of their meetings, and shall have and perform such other powers and duties as may be prescribed in these Bylaws or as may from time to time be determined by the Board of Directors, including the power to sign contracts and other instruments of the Corporation. If the Secretary or an Assistant Secretary is elected but is not present at any meeting of the Board of Directors or the stockholders, a temporary Secretary may be appointed by the directors or the Chief Executive Officer at the meeting. The Secretary and each Assistant Secretary shall have the power to sign all stock certificates, contracts and instruments of the Corporation which are authorized.

Section 10. Bond.

If required by the Board of Directors, any officer shall give the Corporation a bond in such sum and with such surety or sureties and upon such terms and conditions as shall be satisfactory to the Board of Directors, including without limitation a bond for the faithful performance of the duties of his office and for the restoration to the Corporation of all books, papers, vouchers, money and other property of whatever kind in his or her possession or under his or her control and belonging to the Corporation.

Section 11. Action with Respect to Securities of Other Corporations.

Unless otherwise directed by the Board of Directors or the Chief Executive Officer, the Chief Executive Officer, the President, the Chief Financial Officer or the Treasurer shall have power to vote and otherwise act on behalf of the Corporation, in person or by proxy, at any meeting of the stockholders of or with respect to any action of the stockholders of any other corporation in which the Corporation may hold securities and otherwise to exercise any and all rights and powers which the Corporation may possess by reason of its ownership of securities in such other corporation.

ARTICLE V - STOCK

Section 1. Certificated and Uncertificated Stock.

Shares of the Corporation’s stock may be certificated or uncertificated, as provided under the Delaware General Corporation Law, and shall be entered in the books of the Corporation and registered as they are issued. Any certificates representing shares of stock shall be in such form as the Board of Directors shall prescribe, certifying the number and class of shares of stock owned by the stockholder. Any certificates issued to a stockholder of the Corporation shall bear the name of the Corporation and shall be signed by the Chairman of the Board of Directors, or the President or a Vice President, and by the Treasurer or an Assistant Treasurer, or the Secretary or an Assistant Secretary. Any or all of the signatures on the certificate may be by facsimile.

Section 2. Transfers of Stock.

Transfers of stock shall be made only upon the transfer books of the Corporation kept at an office of the Corporation or by transfer agents designated to transfer shares of the stock of the Corporation. Except where a certificate is issued in accordance with Section 4 of this Article of these Bylaws or in the case of uncertificated shares, an outstanding certificate for the number of shares involved shall be surrendered for cancellation before a new certificate is issued therefor.

Section 3. Record Date.

In order that the Corporation may determine the stockholders entitled to notice of any meeting of the stockholders, or to receive payment of any dividend or other distribution or allotment of any rights or to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date on which the resolution fixing the record date is adopted and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of any meeting of the stockholders, nor more than sixty (60) days prior to the time for such other action as hereinbefore described. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of and to vote at a meeting of the stockholders shall be at the close of business on the day immediately preceding the day on which notice is given or, if notice is waived, at the close of business on the day immediately preceding the day on which the meeting is held, and, for determining stockholders entitled to receive payment of any dividend or other distribution or allotment of rights or to exercise any rights of change, conversion or exchange of stock or for any other purpose, the record date shall be at the close of business on the day on which the Board of Directors adopts a resolution relating thereto.

A determination of the stockholders of record entitled to notice of or to vote at a meeting of the stockholders shall apply to any adjournment of the meeting; *provided, however*, that the Board of Directors may fix a new record date for determination of the stockholders entitled to vote at the adjourned meeting, and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of the stockholders entitled to vote in accordance with the foregoing provisions of this Section 3 at the adjourned meeting.

Section 4. Lost, Stolen or Destroyed Certificates.

In the event of the loss, theft or destruction of any certificate of stock, the Corporation may issue a replacement certificate of stock or uncertificated shares in place of any certificate previously issued by the Corporation pursuant to such regulations as the Board of Directors may establish concerning proof of such loss, theft or destruction and concerning the giving of a satisfactory bond or bonds of indemnity.

Section 5. Regulations.

The issue, transfer, conversion and registration of certificates of stock shall be governed by such other regulations as the Board of Directors may establish.

Section 6. Interpretation.

The Board of Directors shall have the power to interpret all of the terms and provisions of these Bylaws, which interpretation shall be conclusive.

ARTICLE VI - NOTICES

Section 1. Notices.

If mailed, notice to stockholders shall be deemed given when deposited in the mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in Section 232 of the Delaware General Corporation Law.

Section 2. Waiver of Notice.

A written waiver of any notice, signed by a stockholder or director, or waiver by electronic transmission by such person, whether before or after the time of the event for which notice is to be given, shall be deemed equivalent to the notice required to be given to such person. Neither the business nor the purpose of any meeting need be specified in such a waiver. Attendance at any meeting shall constitute waiver of notice, except attendance for the express purpose of objecting at the beginning of the meeting to the transaction of business because the meeting is not lawfully called or convened.

ARTICLE VII - INDEMNIFICATION OF DIRECTORS AND OFFICERS

Section 1. Right to Indemnification.

Each person who was or is made a party or is threatened to be made a party to or is otherwise involved (including, without limitation, as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or an officer of the Corporation or is or was serving at the request of the Corporation as a director, officer, trustee, member or manager of another corporation, limited liability company, partnership, joint venture, trust or other enterprise, including service with respect to an employee benefit plan (hereinafter referred to as an "Indemnitee"), whether the basis of such proceeding is alleged action in an official capacity as a director, officer, manager, member, partner or trustee or in any other capacity while serving as a director, officer or trustee, shall be indemnified and held harmless by the Corporation to the fullest extent permitted by law, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights to such Indemnitee than such law permitted the Corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and

amounts paid in settlement) reasonably incurred or suffered by such Indemnitee in connection therewith; *provided, however*, that, except as provided in Section 3 of this Article with respect to proceedings to enforce rights to indemnification or as otherwise required by law, the Corporation shall not be required to indemnify or advance expenses to any such Indemnitee in connection with a proceeding (or part thereof) initiated by such Indemnitee unless such proceeding (or part thereof) was authorized by the Board of Directors of the Corporation.

Section 2. Right to Advancement of Expenses.

In addition to the right to indemnification conferred in Section 1 of this Article, an Indemnitee shall also have the right to be paid by the Corporation the expenses (including attorney's fees) incurred in defending any such proceeding in advance of its final disposition; *provided, however*, that, if the Delaware General Corporation Law requires, an advancement of expenses incurred by an Indemnitee in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such Indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the Corporation of an undertaking, by or on behalf of such Indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such Indemnitee is not entitled to be indemnified for such expenses under this Section 2 or otherwise.

Section 3. Right of Indemnitees to Bring Suit.

If a claim under Section 1 or 2 of this Article is not paid in full by the Corporation within sixty (60) days after a written claim has been received by the Corporation, except in the case of a claim for an advancement of expenses, in which case the applicable period shall be twenty (20) days, the Indemnitee may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim. To the fullest extent permitted by law, if successful in whole or in part in any such suit, or in a suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Indemnitee shall also be entitled to be paid the expenses of prosecuting or defending such suit. In (i) any suit brought by the Indemnitee to enforce a right to indemnification hereunder (but not in a suit brought by the Indemnitee to enforce a right to an advancement of expenses) it shall be a defense that, and (ii) in any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that, the Indemnitee has not met any applicable standard for indemnification set forth in the Delaware General Corporation Law. Neither the failure of the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) to have made a determination prior to the commencement of such suit that indemnification of the Indemnitee is proper in the circumstances because the Indemnitee has met the applicable standard of conduct set forth in the Delaware General Corporation Law, nor an actual determination by the Corporation (including its directors who are not parties to such action, a committee of such directors, independent legal counsel, or its stockholders) that the Indemnitee has not met such applicable standard of conduct, shall create a presumption that the Indemnitee has not met the applicable standard of conduct or, in the case of such a suit brought by the Indemnitee, be a defense to such suit. In any suit brought by the Indemnitee to enforce a right to indemnification or to an advancement of expenses hereunder, or brought by the Corporation to recover an advancement of

expenses pursuant to the terms of an undertaking, the burden of proving that the Indemnitee is not entitled to be indemnified, or to such advancement of expenses, under this Article or otherwise shall be on the Corporation.

Section 4. Non-Exclusivity of Rights.

The rights to indemnification and to the advancement of expenses conferred in this Article shall not be exclusive of any other right which any person may have or hereafter acquire under any law, statute, the Corporation's Certificate of Incorporation as amended from time to time, these Bylaws, any agreement, any vote of the stockholders or resolution of disinterested directors or otherwise.

Section 5. Insurance.

The Corporation may maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or another corporation, partnership, limited liability company, joint venture, trust or other enterprise against any expense, liability or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under the Delaware General Corporation Law.

Section 6. Indemnity Agreements.

The Corporation may enter into indemnity agreements with the persons who are members of its Board of Directors from time to time, and with such officers, employees and agents of the Corporation and with such officers, directors, members, managers, partners, employees and agents of any direct or indirect subsidiaries of the Corporation as the Board of Directors may designate, such indemnity agreements to provide in substance that the Corporation will indemnify such persons as contemplated by this Article, and to include any other substantive or procedural provisions regarding indemnification as are not inconsistent with Delaware law. The provisions of such indemnity agreements shall prevail to the extent that they limit or condition or differ from the provisions of this Article.

Section 7. Indemnification of Employees and Agents of the Corporation.

The Corporation may, to the extent authorized from time to time by the Board of Directors, grant rights to indemnification and to the advancement of expenses to any employee or agent of the Corporation to the fullest extent of the provisions of this Article with respect to the indemnification and advancement of expenses of directors and officers of the Corporation.

Section 8. Nature of Rights.

The rights conferred upon Indemnitees in this Article shall be contract rights and such rights shall continue as to an Indemnitee who has ceased to be a director, officer, member, manager, employee, agent or trustee and shall inure to the benefit of such Indemnitee's heirs, executors and administrators. Any amendment, alteration or repeal of this Article that adversely affects any right of an Indemnitee or its successors shall be prospective only and shall not limit, eliminate, or impair any such right with respect to any proceeding involving any occurrence or alleged occurrence of any action or omission to act that took place prior to such amendment, alteration or repeal.

Section 9. Severability.

If any word, clause, provision or provisions of this Article shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (i) the validity, legality and enforceability of the remaining provisions of this Article (including, without limitation, each portion of any Section of this Article containing any such provision held to be invalid, illegal or unenforceable, that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby; and (ii) to the fullest extent possible, the provisions of this Article (including, without limitation, each such portion of any Section of this Article containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal or unenforceable.

ARTICLE VIII - CERTAIN TRANSACTIONS

Section 1. Transactions with Interested Parties.

No contract or transaction between the Corporation and one or more of its directors or officers, or between the Corporation and any other corporation, partnership, limited liability company, association, or other organization in which one or more of its directors or officers are directors or officers, or have a financial interest, shall be void or voidable solely for this reason, or solely because the director or officer is present at or participates in the meeting of the Board or committee thereof which authorizes the contract or transaction or solely because the votes of such director or officer are counted for such purpose, if:

(a) The material facts as to his or her relationship or interest and as to the contract or transaction are disclosed or are known to the Board of Directors or the committee, and the Board or committee in good faith authorizes the contract or transaction by a resolution of a majority of the disinterested directors, even though the disinterested directors be less than a quorum; or

(b) The material facts as to his or her relationship or interest and as to the contract or transaction are disclosed or are known to the stockholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the stockholders; or

(c) The contract or transaction is fair as to the Corporation as of the time it is authorized, approved or ratified, by the Board of Directors, a committee thereof, or the stockholders.

Section 2. Quorum.

Common or interested directors may be counted in determining the presence of a quorum at a meeting of the Board of Directors or of a committee which authorizes the contract or transaction.

ARTICLE IX - MISCELLANEOUS

Section 1. Facsimile Signatures.

In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the Corporation may be used whenever and as authorized by the Board of Directors or a committee thereof.

Section 2. Corporate Seal.

The Board of Directors may provide a suitable seal, containing the name of the Corporation, which seal shall be in the charge of the Secretary. If and when so directed by the Board of Directors or a committee thereof, duplicates of the seal may be kept and used by the Treasurer or by an Assistant Secretary or Assistant Treasurer.

Section 3. Reliance upon Books, Reports and Records.

Each director, each member of any committee designated by the Board of Directors, and each officer of the Corporation shall, in the performance of his or her duties, be fully protected in relying in good faith upon the books of account or other records of the Corporation and upon such information, opinions, reports or statements presented to the Corporation by any of its officers or employees, or committees of the Board of Directors so designated, or by any other person as to matters which such director or committee member reasonably believes are within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation.

Section 4. Fiscal Year.

Except as otherwise determined by the Board of Directors from time to time, the fiscal year of the Corporation shall end on the last day of December of each year.

Section 5. Time Periods.

In applying any provision of these Bylaws which requires that an act be done or not be done a specified number of days prior to an event or that an act be done during a period of a specified number of days prior to an event, calendar days shall be used, the day of the doing of the act shall be excluded, and the day of the event shall be included.

Section 6. Pronouns.

Whenever the context may require, any pronouns used in these Bylaws shall include the corresponding masculine, feminine or neuter forms.

ARTICLE X - FORUM FOR ADJUDICATION

Unless the Board of Directors consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a

claim arising pursuant to any provision of the Delaware General Corporation Law, the Corporation's Certificate of Incorporation or these Bylaws, or (iv) any other action asserting a claim governed by the internal affairs doctrine.

ARTICLE XI - AMENDMENTS

In furtherance and not in limitation of the powers conferred by law, the Board of Directors is expressly authorized to adopt, amend and repeal these Bylaws subject to the power of the holders of capital stock of the Corporation to adopt, amend or repeal the Bylaws; *provided, however*, that, with respect to the power of holders of capital stock to adopt, amend and repeal Bylaws of the Corporation, notwithstanding any other provision of these Bylaws or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of the capital stock of the Corporation required by law, these Bylaws or any Preferred Stock of the Corporation, the affirmative vote of the holders of at least eighty percent (80%) of the voting power of all of the then-outstanding shares entitled to vote generally in the election of directors, voting together as a single class, shall be required to adopt, amend or repeal any provision of these Bylaws.

Exhibit 4.1


PROOF
PROOF
NUMBER
AC
AMEDICA
rethink what's possible®
SHARES
COMMON STOCK
INCORPORATED UNDER THE LAWS OF THE STATE OF DELAWARE
SEE REVERSE FOR CERTAIN DEFINITIONS
SYMBOL: AMDA
CUSIP 023435 10 0
THIS CERTIFIES THAT:
IS THE OWNER OF
PROOF
FULLY PAID AND NON-ASSESSABLE SHARES OF COMMON STOCK OF $0.01 PAR VALUE EACH OF
AMEDICA CORPORATION
transferable on the books of the Corporation in person or by attorney upon surrender of this certificate duly endorsed or assigned. This certificate and the shares represented hereby are subject to the laws of the State of Delaware, and to the Certificate of Incorporation and Bylaws of the Corporation, as now or hereafter amended. This certificate is not valid until countersigned by the Transfer Agent.
WITNESS the facsimile seal of the Corporation and the facsimile signatures of its duly authorized officers.
DATED:
AMEDICA CORPORATION CORPORATE SEAL 1996 DELAWARE
CHIEF EXECUTIVE OFFICER
CORPORATE SECRETARY
COUNTERSIGNED AND REGISTERED: AMERICAN STOCK TRANSFER & TRUST COMPANY, LLC BROOKLYN, NY
BY:
TRANSFER AGENT AND REGISTRAR
AUTHORIZED SIGNATURE
© 1990 COLUMBIA FINANCIAL PRINTING CORP.

The following abbreviations, when used in the inscription on the face of this certificate, shall be construed as though they were written out in full according to applicable laws or regulations:

TEN COM -	*as tenants in common*	*UNIF GIFT MIN ACT -* _____ *Custodian* _____	
TEN ENT -	*as tenants by the entireties*	*(Cust)*	*(Minor)*
JT TEN -	*as joint tenants with right of survivorship and not as tenants in common*	*under Uniform Gifts to Minors Act* _____	
			(State)

Additional abbreviations may also be used though not in the above list.

For Value Received, *hereby sell, assign and transfer unto*

PLEASE INSERT SOCIAL SECURITY OR OTHER IDENTIFYING NUMBER OF ASSIGNEE

(PLEASE PRINT OR TYPEWRITE NAME AND ADDRESS, INCLUDING ZIP CODE, OF ASSIGNEE)

_____ *Shares*

of the stock represented by the within Certificate, and do hereby irrevocably constitute and appoint

_____ *Attorney*

to transfer the said stock on the books of the within named Corporation with full power of substitution in the premises.

Dated _____

NOTICE: THE SIGNATURE TO THIS ASSIGNMENT MUST CORRESPOND WITH THE NAME AS WRITTEN UPON THE FACE OF THE CERTIFICATE IN EVERY PARTICULAR, WITHOUT ALTERATION OR ENLARGEMENT OR ANY CHANGE WHATSOEVER.

Signature(s) Guaranteed

By _____

The Signature(s) must be guaranteed by an eligible guarantor institution (Banks, Stockbrokers, Savings and Loan Associations and Credit Unions with membership in an approved Signature Guarantee Medallion Program), pursuant to SEC Rule 17Ad-15.

THE CORPORATION WILL FURNISH TO ANY STOCKHOLDER, UPON REQUEST AND WITHOUT CHARGE, A FULL STATEMENT OF THE DESIGNATIONS, RELATIVE RIGHTS, PREFERENCES AND LIMITATIONS OF THE SHARES OF EACH CLASS AND SERIES AUTHORIZED TO BE ISSUED, SO FAR AS THE SAME HAVE BEEN DETERMINED, AND OF THE AUTHORITY, IF ANY, OF THE BOARD TO DIVIDE THE SHARES INTO CLASSES OR SERIES AND TO DETERMINE AND CHANGE THE RELATIVE RIGHTS, PREFERENCES AND LIMITATIONS OF ANY CLASS OR SERIES. SUCH REQUEST MAY BE MADE TO THE SECRETARY OF THE CORPORATION OR TO THE TRANSFER AGENT NAMED ON THIS CERTIFICATE.

Exhibit 4.9

THIS WARRANT AND THE SHARES OF COMMON STOCK ISSUABLE UPON ANY EXERCISE HEREOF HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY APPLICABLE STATE SECURITIES LAWS AND MAY NOT BE SOLD OR OTHERWISE TRANSFERRED BY ANY PERSON, INCLUDING A PLEDGEE, UNLESS (1) EITHER (A) A REGISTRATION WITH RESPECT THERETO SHALL BE EFFECTIVE UNDER THE SECURITIES ACT, OR (B) THE COMPANY SHALL HAVE RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT IS AVAILABLE, AND (2) THERE SHALL HAVE BEEN COMPLIANCE WITH ALL APPLICABLE STATE SECURITIES OR "BLUE SKY" LAWS. THERE IS NO AND THERE IS NOT EXPECTED TO BE A PUBLIC MARKET FOR THE SHARES OF COMMON STOCK ISSUABLE UPON ANY EXERCISE HEREOF. INVESTORS SHOULD BE AWARE THAT THEY WILL BE REQUIRED TO BEAR THE FINANCIAL RISKS OF THIS INVESTMENT FOR AN INDEFINITE PERIOD OF TIME.

WARRANT TO PURCHASE

SHARES OF COMMON STOCK OF

AMEDICA CORPORATION

Warrant No: CDC-[ ] Issue Date: May 9, 2011

This certifies that, for value received, [ ], (referred to herein as the "***Holder***"), is entitled to purchase from Amedica Corporation, a Delaware corporation with offices at 1885 West 2100 South, Salt Lake City, UT 84119 (the "Company"), [ ] ([ ]) shares of the Company's common stock, $0.01 par value per share ("Common Stock"), as such number and class of securities may be adjusted in accordance with the terms of Section 4 below, for the Stated Purchase Price (defined below), at any time commencing on the first anniversary of the date hereof and shall terminate at 5:00 p.m. (New York City time) on the Warrant Expiration Date (as defined below) in accordance with the terms hereof. "Stated Purchase Price" shall mean the purchase price to be paid upon exercise of this Warrant in accordance with the terms hereof, which price initially shall be $2.20 per share of Common Stock. The Stated Purchase Price shall be subject to adjustment from time to time pursuant to the provisions of Section 4 below. "Warrant Expiration Date" means 5:00 p.m., New York City time, on the fifth anniversary of the date hereof. If pursuant to the above the Warrant Expiration Date would be a Saturday, Sunday or legal holiday in the State of Utah, then the Warrant Expiration Date shall be the next succeeding date that is not a Saturday, Sunday or legal holiday.

In the event of (a) the closing of the issuance and sale of shares of Common Stock of the Company in the Company's first underwritten public offering ("***IPO***") pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "***Securities Act***"), or (b) a Change of Control, the Warrant shall, on the date of such event, become immediately exercisable.

1. Exercise.

(a) Manner of Exercise. This Warrant may be exercised at any time or from time to time for all or any part of the number of shares of Common Stock (or other securities) then purchasable upon its exercise (the "Shares"); provided, however, that this Warrant shall be void and all rights represented hereby shall cease unless exercised before the end of the Warrant Expiration Date. In order to exercise this Warrant, in whole or in part, Holder will deliver to the Company at its principal executive offices, or at such other office as the Company may designate by notice in writing, (i) this Warrant, (ii) a written notice of Holder's election to exercise this Warrant substantially in the form of Exhibit A attached hereto (the "Notice of Exercise"), and (iii) any documents required pursuant to Section 7 hereof, and shall pay to the Company in cash, by a certified or cashier's check drawn on a United States Bank made payable to the order of the Company, or by wire transfer of funds to a bank account designated by the Company, an amount equal to the aggregate Stated Purchase Price for all Shares as to which this Warrant is exercised.

(b) Net Exercise.

(1) In lieu of exercising this Warrant by payment in cash, or by check or wire transfer, the Holder may elect to receive Shares equal to the value of this Warrant (or the portion thereof being exercised), at any time after the date hereof and before the end of the Warrant Expiration Date, by surrender of this Warrant at the principal executive office of the Company, together with the Notice of Exercise in the form annexed hereto, in which event the Company will issue to the Holder a number of Shares computed in accordance with the following formula:

$$X = \frac{Y \times (A-B)}{A}$$

Where, X = the number of Shares to be issued to Holder pursuant to this net exercise;
Y = the number of Shares for which the net exercise election is made;
A = the fair market value of one Share at the time the net exercise election is made; and
B = the Stated Purchase Price (as adjusted at the date of the net exercise election is made).

(2) For purposes of this Section 1(b), the fair market value of a Share and the effectiveness of the exercise of this Warrant are determined as follows:

(i) if the exercise is in connection with an initial public offering, and if the Company's registration statement relating to such offering has been declared effective by the Securities and Exchange Commission, then the fair market value shall be the initial "Price to Public" specified in the final prospectus with respect to the offering (net of applicable underwriting commissions), and such exercise shall be effected upon the date of such initial public offering, subject to due, proper and prior surrender of this Warrant and the closing of the initial public offering;

(ii) if the exercise is in connection with a Change of Control, then the fair market value shall be the value received by the holders of Shares pursuant to the Change of Control for each share of such securities, and the exercise shall be effective upon the closing of such Change of Control, subject to due, proper and prior surrender of this Warrant and the closing of the Change of Control; or

(iii) if the exercise is other than in connection with subsections (i) or (ii) above and the Shares are traded on a securities exchange or through the Nasdaq Global Market, the value shall be deemed to be the average of the closing prices of the securities on such exchange over the thirty (30) day period ending three (3) days prior to the net exercise election; or

(iv) if the exercise is other than in connection with subsections (i) or (ii) above and the Shares are traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the thirty (30) day period ending three (3) days prior to the net exercise; or

(v) if the exercise is other than in connection with subsections (i) or (ii) above and the Shares are not traded on the over-the-counter market or on an exchange, the fair market value shall be determined in good faith by the Company's Board of Directors (the "Board").

For purposes of this Warrant, A "**Change of Control**" shall mean any acquisition of capital stock of the Company, directly or indirectly, any merger, tender offer, recapitalization or asset sale pursuant to which the Company's stockholders immediately prior to such transaction hold less than 50% of the voting securities of the surviving corporation immediately after such transaction or the majority of the assets of the Company are transferred or sold, except that any internal restructuring or re-organization of the Company that does not change the effective ultimate ownership of the Company shall not be deemed a Change of Control.

(c) Issuance of Shares. Upon receipt of the documents and payments described in Section 1(a), the Company shall, as promptly as practicable, execute or cause to be executed, and deliver to Holder a certificate or certificates representing the aggregate number of full Shares issuable upon such exercise, together with an amount in cash in lieu of any fraction of a Share, as hereinafter provided. If this Warrant shall have been exercised in part, the Company shall, at the time of delivery of said certificate or certificates, deliver to the Holder a new Warrant evidencing the rights of Holder to purchase the unpurchased Shares, which new Warrant shall in all other respects be identical with this Warrant.

2. Reservation of Shares. The Company covenants that it will at all times until the Warrant Expiration Date reserve and keep available out of its authorized and unissued Common Stock (or other securities of the Company, as applicable), solely for the purpose of issue upon exercise of this Warrant such number of shares of Common Stock (or other securities of the Company, as applicable) as shall then be issuable upon the exercise of this Warrant.

3. Loss or Mutilation. Upon receipt of evidence satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant (including a reasonably detailed affidavit

with respect to the circumstances of any loss, theft or destruction of such Warrant), and, in the case of any such mutilation, upon surrender and cancellation of this Warrant, the Company, at Holder's expense, will execute and deliver, in lieu hereof, a new Warrant of like tenor.

4. Adjustments to Shares and Stated Purchase Price.

(a) If the Company at any time after the date hereof through the Warrant Expiration Date subdivides (by any stock split, stock dividend, recapitalization or otherwise) its outstanding shares of Common Stock into a greater number of shares, the Stated Purchase Price in effect immediately prior to such subdivision will be proportionately reduced and the number of shares issuable upon exercise of this Warrant will be proportionately increased, and if the Company at any time combines (by reverse stock split, recapitalization or otherwise) its outstanding shares of Common Stock into a smaller number of shares, the Stated Purchase Price in effect immediately prior to such combination will be proportionately increased and the number of shares issuable upon exercise of this Warrant will be proportionately decreased. If the Company at any time shall, by combination, reclassification, exchange or subdivision of securities or otherwise, change any of the securities as to which purchase rights under this Warrant exist into the same or a different number of securities of any other class or classes, this Warrant shall thereafter represent the right to acquire such number and kind of securities as would have been issuable as the result of such change with respect to the securities which were subject to the purchase rights under this Warrant immediately prior to such combination, reclassification, exchange, subdivision or other change.

(b) If the Company at any time after the date hereof through the Warrant Expiration Date issues or sells any stock or other security (other than warrants or options to subscribe for or purchase shares of Common Stock or Preferred Stock granted to employees or consultants to the Company or securities issued by the Company in connection with an initial public offering) that is at any time and under any circumstances, directly or indirectly convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire, any shares of Common Stock or Preferred Stock (the "Convertible Securities"), for a consideration per share less than $2.00 per share (subject to adjustment pursuant to Section 4(a)) or for which the Convertible Securities have a conversion rate of less than $2.00 per share (subject to adjustment pursuant to 4(a)), then the Stated Purchase Price in effect immediately prior to such issuance or sale will be reduced, concurrently with such issue, to the consideration per share received by the Company for such issuance or sale.

(c) When any adjustment is required to be made in the number or kind of Shares purchasable upon exercise of this Warrant, or the Stated Purchase Price, the Company shall promptly notify the Holder in writing of such event, of the number and description of Shares thereafter purchasable upon exercise of this Warrant, and of the revised Stated Purchase Price.

5. Fractional Shares. No fractional Shares shall be issued upon the exercise of this Warrant, but, instead of any fraction of a Share which would otherwise be issuable, the Company shall pay a cash adjustment in respect of such fraction in an amount equal to the same fraction of the fair market value per share of Common Stock (or other securities, as applicable) as of the close of business on the date of the notice required by Section 1 above, determined in good faith by the Board.

6. Warrant Not Transferable. This Warrant is only exercisable by Holder and it is not transferable to any other party.

7. Agreements. As a condition precedent to any exercise of this Warrant, Holder understands and agrees that it may be required to execute certain documents and agreements (in Company standard form) relating to the purchase and sale of Shares, as well as right of first refusal, co-sale and voting rights agreements, if applicable, which all other purchasers of the same class of shares are required to execute. Upon the execution and delivery of such documents and agreements, Holder will become a party to, and bound by, such agreements, as so amended or restated, as to the securities acquired upon exercise of this Warrant.

8. Holder's Representations and Warranties. Holder, by acceptance hereof, hereby represents as follows:

(a) Investment Purpose. The right to acquire Shares (and the Shares) issuable upon exercise of the Holder's rights contained herein will be acquired for investment and not with a view to the sale or distribution of any part thereof, and the Holder has no present intention of selling or engaging in any public distribution of the same except pursuant to a registration or exemption.

(b) Private Issue. The Holder understands (i) that the Shares issuable upon exercise of this Warrant are not registered under the Securities Act or qualified under applicable state securities laws on the ground that the issuance contemplated by this Warrant will be exempt from the registration and qualifications requirements thereof, and (ii) that the Company's reliance on such exemption is predicated on the representations of Holder herein.

(c) Financial Risk. The Holder has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment, and has the ability to bear the economic risks of its investment.

(d) Risk of No Registration. The Holder understands that if the Company does not register pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "1934 Act"), or file reports pursuant to Section 15(d) of the 1934 Act, or if a registration statement covering the securities under the Securities Act is not in effect when it desires to sell the securities issuable upon exercise of this Warrant, it may be required to hold such securities for an indefinite period. The Holder also understands that any sale of securities issued or issuable hereunder which might be made by it in reliance upon Rule 144 under the Securities Act may be made only in accordance with the terms and conditions of that Rule.

(e) Accredited Investor. Holder is an "accredited investor" within the meaning of Rule 501 of Regulation D, promulgated under the Securities Act, as presently in effect.

9. Company's Representations and Warranties. The Company hereby represents and warrants to Holder as follows:

(a) Due Authorization. This Warrant has been duly authorized, executed and delivered by the Company and constitutes the valid and binding obligation of the Company, enforceable in accordance with its terms.

(b) Status of Shares; Price. The Shares purchased by Holder upon any exercise of this Warrant in accordance with its terms will be, when issued by the Company, duly authorized, validly issued, fully paid in compliance with applicable securities laws (assuming the accuracy of the Holder's representations and warranties herein) and nonassessable.

10. Holder Not Deemed Stockholder. Holder will not, as such, be entitled to vote or to receive dividends or be deemed the holder Shares that may at any time be issuable upon exercise of this Warrant for any purpose whatsoever, nor shall anything contained herein be construed to confer upon Holder, as such, any of the rights of a stockholder of the Company or any right to vote for the election of directors or upon any matter submitted to stockholders at any meeting thereof, or to receive dividends or subscription rights, until Holder shall have exercised this Warrant and been issued Shares in accordance with the provisions hereof. Subject to applicable law, any right not specifically granted hereunder to Holder is hereby disclaimed by the Company.

11. Modification of Warrant. This Warrant shall not be modified, supplemented or altered in any respect except with the consent in writing of the Holder and the Company.

12. Notices. All demands, notices and communications relating to this Warrant shall be in writing and (i) sent by registered or certified mail, postage prepaid, return receipt requested, (ii) hand delivered, (iii) sent by express mail or other reasonable overnight delivery service, or (iv) sent by telecopy, as follows (or to such other address as to which notice may be given hereunder by the party entitled to receipt of notice):

If to the Company:

Amedica Corporation
1885 West 2100 South
Salt Lake City, UT 84119
Attention: Reyn E. Gallacher
Chief Financial Officer
Telephone: (801) 839-3502
Telecopy: (801) 839-3601

13. Governing Law. This Warrant shall be governed by, and construed in accordance with, the laws of the State of Delaware, without regard to conflict of law principles.

14. Jurisdiction. Each of the Company and the Holder hereby irrevocably submits to the jurisdiction of any Utah State or Federal court sitting in Salt Lake City in any action or proceeding arising out of or relating to this Warrant, and each of the Company and the Holder hereby irrevocably agrees that all claims in respect of such action or proceeding may be heard and determined in such Utah State court or in such Federal court. Each of the Company and the

Holder hereby irrevocably waives, to the fullest extent permitted under applicable law, the defense of an inconvenient forum to the maintenance of such action or proceeding. Each of the Company and the Holder irrevocably consents, to the fullest extent permitted under applicable law, to the service of any summons and complaint and any other process by the mailing of copies of such process to them at their respective address specified in Section 12 hereof. Each of the Company and the Holder hereby agrees, to the fullest extent permitted under applicable law, that a final judgment in any such action or proceeding shall be conclusive and may be enforced in other jurisdictions by suit on the judgment or in any other manner provided by law.

15. Waiver of Jury Trial. **TO THE FULLEST EXTENT PERMITTED UNDER APPLICABLE LAW, EACH OF THE COMPANY AND THE HOLDER HEREBY IRREVOCABLY WAIVES ALL RIGHT TO A TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM ARISING OUT OF OR RELATING TO THIS WARRANT.**

16. Miscellaneous. The headings in this Warrant are for purposes of reference only, and shall not limit or otherwise affect any of the terms hereof. The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision.

[*signature page follows*]

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed as of May 9, 2011.

AMEDICA CORPORATION

By: _____

Name: Reyn E. Gallacher
Title: Chief Financial Officer

EXHIBIT A

EXERCISE FORM
(To be signed only on exercise of Warrant)

Amedica Corporation,
1885 West 2100 South
Salt Lake City, UT 84119

The undersigned hereby irrevocably elects to exercise the right to purchase represented by the within Warrant for, and to purchase thereunder, shares of the stock provided for therein, and requests that certificates for such shares be issued in its name, and, if said number of shares shall not be all the shares purchasable thereunder, that a new Warrant for the balance remaining of the shares be issued to it.

In connection with this exercise, attached please find all documents required to be signed by the undersigned as per the terms of the Warrant, all duly executed by the undersigned and binding thereupon.

Name of Holder: _____

Signature: _____

Position of Signatory: _____

Date: _____

CDC- A

AMENDMENT TO
WARRANT TO PURCHASE SHARES OF COMMON STOCK OF
AMEDICA CORPORATION

This Amendment to Warrant to Purchase Shares of Common Stock (this "***Amendment***") dated as of December 23, 2013, is made by and between Amedica Corporation, a Delaware corporation (the "***Company***"), and the undersigned, (the "***Warrant Holder***"), and it hereby amends that certain Warrant to Purchase Shares of Common Stock of the Company originally issued as of [August 30/September 19], 2013 (the "***Existing Warrant***"), in connection with the Company's offering of up to 100 units wherein each unit consisted of 50,000 shares of the Company's Series F Convertible Preferred Stock and one five year warrant to acquire 25,000 shares of the Company's common stock exercisable at $1.00 per share.

NOW, THEREFORE, in consideration of the mutual promises contained herein, and the benefits to be derived by each party hereunder, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and Warrant Holder, intending to be legally bound, hereby agree to amend the Existing Warrant, as set forth below and hereby agree as follows:

AGREEMENT:

Section 1. *Amendments to Section 4* - Adjustments to Shares and Stated Purchase Price. Section 4 of the Existing Warrant is hereby amended by renumbering existing Section 4(b) as Section 4(c), and by inserting an additional paragraph immediately following Section 4(a) as follows:

> "(b) If the Company at any time after the date hereof through the Warrant Expiration Date issues or sells any stock or other security (other than warrants or options to subscribe for or purchase shares of Common Stock or Preferred Stock granted to employees or consultants to the Company or securities issued by the Company in connection with an initial public offering of Common Stock) that is at any time and under any circumstances, directly or indirectly convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire any shares of Common Stock or Preferred Stock (the "Convertible Securities"), for a consideration per share less than the Stated Purchase Price then in effect or for which the Convertible Securities have a conversion rate of less than the Stated Purchase Price then in effect, then the Stated Purchase Price in effect immediately prior to such issuance or sale will be reduced, concurrently with such issue, to the consideration per share received by the Company for such issuance or sale."

Section 2. *No Further Amendments.* Except as expressly amended hereby, the Existing Warrant is in all respects ratified and confirmed and all the terms, conditions, and provisions thereof shall remain in full force and effect.

Section 3. *Effect of Amendment*. This Amendment shall form a part of the Existing Warrant for all purposes, and each party thereto and hereto shall be bound hereby. From and after the execution of this Amendment by the parties hereto, any reference to the Existing Warrant shall be deemed a reference to the Existing Warrant as amended hereby.

Section 4. *Headings*. The descriptive headings contained in this Amendment are included for convenience of reference only and shall not affect in any way the meaning or interpretation of this Amendment.

Section 5. *Counterparts; Facsimiles*. This Amendment may be executed in one or more counterparts, and by the different parties hereto in separate counterparts, each of which when executed shall be deemed to be an original but all of which taken together shall constitute one and the same agreement. A facsimile or other electronically transmitted signature on this Amendment is as valid as an original signature.

Section 6. *Governing Law*. This Amendment and the rights and duties of the parties hereto shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware.

IN WITNESS WHEREOF, the Company and Warrant Holder have caused this Amendment to Warrant to Purchase Shares of Common Stock of Amedica Corporation to be executed and delivered as of the date first written above by their respective officers thereunto duly authorized.

THE COMPANY:

AMEDICA CORPORATION

By: _____
Name: Eric K. Olson
Title: President and CEO

WARRANT HOLDER:

[ ]

By: _____
Print/Type Name:
Print/Type Title:

Exhibit 4.21

CDC- A

AMENDMENT TO
WARRANT TO PURCHASE SHARES OF COMMON STOCK OF
AMEDICA CORPORATION

This Amendment to Warrant to Purchase Shares of Common Stock (this "***Amendment***") dated as of December 23, 2013, is made by and between Amedica Corporation, a Delaware corporation (the "***Company***"), and the undersigned, TGP Securities, Inc. (the "***Warrant Holder***"), and it hereby amends that certain Warrant to Purchase Shares of Common Stock of the Company originally issued as of [August 30/September 19], 2013 (the "***Existing Warrant***"), in connection with the Company's offering of up to 100 units wherein each unit consisted of 50,000 shares of the Company's Series F Convertible Preferred Stock and one five year warrant to acquire 25,000 shares of the Company's common stock exercisable at $1.00 per share.

NOW, THEREFORE, in consideration of the mutual promises contained herein, and the benefits to be derived by each party hereunder, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and Warrant Holder, intending to be legally bound, hereby agree to amend the Existing Warrant, as set forth below and hereby agree as follows:

AGREEMENT:

Section 1. *Amendments to Section 4* - Adjustments to Shares and Stated Purchase Price. Section 4 of the Existing Warrant is hereby amended by inserting an additional paragraph immediately following Section 4(b) as follows:

> "(c) If the Company at any time after the date hereof through the Warrant Expiration Date issues or sells any stock or other security (other than warrants or options to subscribe for or purchase shares of Common Stock or Preferred Stock granted to employees or consultants to the Company or securities (including warrants) issued by the Company in connection with the closing of an initial public offering of Common Stock, or any strategic collaboration, license, or other similar transaction) that is at any time and under any circumstances, directly or indirectly convertible into, exercisable or exchangeable for, or which otherwise entitles the holder thereof to acquire any shares of Common Stock or Preferred Stock (the "Convertible Securities"), for a consideration per share less than the Stated Purchase Price then in effect or for which the Convertible Securities have a conversion rate of less than the Stated Purchase Price then in effect, then the Stated Purchase Price in effect immediately prior to such issuance or sale will be reduced, concurrently with such issue, to the consideration per share received by the Company for such issuance or sale."

Section 2. *No Further Amendments.* Except as expressly amended hereby, the Existing Warrant is in all respects ratified and confirmed and all the terms, conditions, and provisions thereof shall remain in full force and effect.

Section 3. *Effect of Amendment*. This Amendment shall form a part of the Existing Warrant for all purposes, and each party thereto and hereto shall be bound hereby. From and after the execution of this Amendment by the parties hereto, any reference to the Existing Warrant shall be deemed a reference to the Existing Warrant as amended hereby.

Section 4. *Headings*. The descriptive headings contained in this Amendment are included for convenience of reference only and shall not affect in any way the meaning or interpretation of this Amendment.

Section 5. *Counterparts; Facsimiles*. This Amendment may be executed in one or more counterparts, and by the different parties hereto in separate counterparts, each of which when executed shall be deemed to be an original but all of which taken together shall constitute one and the same agreement. A facsimile or other electronically transmitted signature on this Amendment is as valid as an original signature.

Section 6. *Governing Law*. This Amendment and the rights and duties of the parties hereto shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware.

IN WITNESS WHEREOF, the Company and Warrant Holder have caused this Amendment to Warrant to Purchase Shares of Common Stock of Amedica Corporation to be executed and delivered as of the date first written above by their respective officers thereunto duly authorized.

THE COMPANY:

AMEDICA CORPORATION

By: _____
Name: Eric K. Olson
Title: President and CEO

WARRANT HOLDER:

TGP SECURITIES, INC.

By: _____
Print/Type Name:
Print/Type Title:

Exhibit 5.1

MINTZ LEVIN

One Financial Center
Boston, MA 02111
617-542-6000
617-542-2241 fax
www.mintz.com

January 28, 2014

Amedica Corporation
1885 West 2100 South
Salt Lake City, UT 84119

Ladies and Gentlemen:

We have acted as legal counsel to Amedica Corporation, a Delaware corporation (the "Company"), in connection with the preparation and filing with the Securities and Exchange Commission (the "Commission") of a Registration Statement (No. 333-192232) on Form S-1 (the "Registration Statement"), pursuant to which the Company is registering the offering for sale under the Securities Act of 1933, as amended (the "Securities Act"), of an aggregate of 3,659,091 shares (the "Shares") of the Company's common stock, par value $0.01 per share (the "Common Stock"), including 477,273 shares subject to the underwriters' option to purchase additional shares. The Shares are to be sold by the Company pursuant to an underwriting agreement (the "Underwriting Agreement") to be entered into by and among the Company and JMP Securities LLC, as representative of the several underwriters to be named therein. The form of the Underwriting Agreement has been filed as Exhibit 1.1 to the Registration Statement. This opinion is being rendered in connection with the filing of the Registration Statement with the Commission. All capitalized terms used herein and not otherwise defined shall have the respective meanings given to them in the Registration Statement.

In connection with this opinion, we have examined the Company's Restated Certificate of Incorporation, as amended, and Amended and Restated Bylaws, each as currently in effect, and the form of the Underwriting Agreement; such other records of the corporate proceedings of the Company and certificates of the Company's officers as we have deemed relevant; and the Registration Statement and the exhibits thereto.

In our examination, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified or photostatic copies and the authenticity of the originals of such copies.

Our opinion is limited to the General Corporation Law of the State of Delaware and we express no opinion with respect to the laws of any other jurisdiction. No opinion is expressed herein with respect to the qualification of the Shares under the securities or blue sky laws of any state or any foreign jurisdiction.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

Based upon the foregoing, we are of the opinion that the Shares, when issued and sold in accordance with the form of the Underwriting Agreement most recently filed as an exhibit to the Registration Statement and the prospectus that forms a part of the Registration Statement, will be validly issued, fully paid and non-assessable.

We understand that you wish to file this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K promulgated under the Securities Act and to reference the firm's name under the caption "Legal Matters" in the prospectus which forms part of the Registration Statement, and we hereby consent thereto. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Mintz, Levin, Cohn,
Ferris, Glovsky and Popeo, P.C.

Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C.

Exhibit 10.4.1

FOURTH AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS FOURTH AMENDMENT TO LOAN AND SECURITY AGREEMENT (this "Amendment"), dated as of December 23, 2013, is entered into by and among **AMEDICA CORPORATION**, a Delaware corporation ("Borrower"), **US SPINE, INC.**, a Delaware corporation ("Guarantor"), the Lenders (as defined below) and **GENERAL ELECTRIC CAPITAL CORPORATION**, a Delaware corporation ("GECC"), in its capacity as administrative and collateral agent (together with its successors and assigns in such capacity, the "Agent") for the Lenders (as defined below).

W I T N E S S E T H:

WHEREAS, Borrower, Guarantor, Agent, and the lenders signatory thereto from time to time (each a "Lender" and, collectively, the "Lenders"), are parties to that certain Loan and Security Agreement, dated as of December 17, 2012 (as has been and may be amended, restated, supplemented, replaced, and otherwise modified from time to time, the "Loan Agreement"; capitalized terms used herein have the meanings given to them in the Loan Agreement except as otherwise expressly defined herein), pursuant to which Lenders and Agent have agreed to provide to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Borrower, Lenders, and Agent desire to amend certain provisions of the Loan Agreement as provided herein;

NOW, THEREFORE, in consideration of the premises, the covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Agent hereby agree as follows:

1 **AMENDMENTS TO LOAN AGREEMENT**. Subject to the terms and conditions of this Amendment, including, without limitation, Section 4 of this Amendment, the Loan Agreement is hereby amended as follows:

(a) Liquidity Covenant. Section 7.10(b) of the Loan Agreement shall not be tested for the period from November 1, 2013 until January 31, 2014. Such limitation shall cease to be effective as of February 1, 2014 and thereafter, during which Borrower shall be required to comply with Section 7.10(b) of the Loan Agreement.

2 **RESERVE**. On the date hereof, Agent shall establish a Reserve pursuant to Section 2.1(b) of the Loan Agreement, in the amount of $500,000 (the "Fourth Amendment Reserve"), which shall remain in place until removed by Agent in its Permitted Discretion. For the avoidance of doubt, the Fourth Amendment Reserve is in addition to the $500,000 Reserve established pursuant to that certain Third Amendment and Waiver to Loan and Secured Agreement dated as of August 15, 2013, by and among Borrower, Guarantor, Agent and Lenders.

3 **AMENDMENT FEE**. Borrower shall pay to Agent, for the benefit of Lenders in accordance with their Pro Rata Shares, an amendment fee in an amount equal to $860,000 (provided that such fee shall be (i) $430,000 if Borrower has terminated the Revolving Loan

Commitments and paid all Obligations in full on or prior to January 31, 2014, or (ii) $645,000 if Borrower has terminated the Revolving Loan Commitments and paid all Obligations in full after January 31, 2014, but on or prior to February 28, 2014, "Fourth Amendment Fee"), which fee shall be fully earned on the date hereof, and payable on the earlier of (x) the date all Obligations have been paid in full and the Revolving Loan Commitments terminated, or (ii) March 1, 2014.

4 **CONDITIONS TO EFFECTIVENESS**. This Amendment shall become effective upon satisfaction of each of the following conditions:

(a) No Default or Event of Default shall have occurred and be continuing;

(b) Agent shall have received one or more counterparts of this Amendment, duly executed, completed and delivered by Agent, each Lender and each Loan Party; and

(c) Agent shall have received all other documents and instruments as Agent or any Lender may reasonably deem necessary or appropriate to effectuate the intent and purpose of this Amendment.

5 **REAFFIRMATION OF LOAN DOCUMENTS**. By executing and delivering this Amendment, each Loan Party hereby (i) reaffirms, ratifies and confirms its Obligations under the Loan Agreement and the other Loan Documents, (ii) agrees that this Amendment shall be a "Loan Document" under the Loan Agreement and (iii) hereby expressly agrees that the Loan Agreement and each other Loan Document shall remain in full force and effect following any action contemplated in connection herewith.

6 **REAFFIRMATION OF GRANT OF SECURITY INTEREST IN COLLATERAL**. Each Loan Party hereby expressly reaffirms, ratifies and confirms its obligations under the Loan Agreement, including its grant, pledge and hypothecation to the Agent for the benefit of the Agent and each Lender, of the lien on and security interest in, all of its right, title and interest in, all of the Collateral.

7 **NO OTHER CONSENTS OR AMENDMENTS**. Except for the amendments set forth in Section 1 of this Amendment, the Loan Agreement and the other Loan Documents shall remain unchanged and in full force and effect. Nothing in this Amendment is intended, or shall be construed, to constitute a novation or an accord and satisfaction of any Loan Party's Obligations under or in connection with the Loan Agreement and any other Loan Document or to modify, affect or impair the perfection or continuity of Agent's security interest in, (on behalf of itself and Lenders) security titles to or other liens on any Collateral for the Obligations.

8 **REPRESENTATIONS AND WARRANTIES; LIENS; NO DEFAULT, NO CONFLICT**. Each Loan Party hereby represents, warrants and covenants with and to the Agent and Lenders as follows: (i) all of the representations and warranties set forth in the Loan Documents continue to be true and correct as of the date hereof, except to the extent such representations and warranties by their terms expressly relate only to a prior date (in which case such representations and warranties shall be true and correct as of such prior date); (ii) there are no Defaults or Events of Default that have not been waived or cured; (iii) Agent has and shall continue to have valid, enforceable and perfected first-priority liens, subject only to Permitted Liens, on and security interests in the Collateral and all other collateral heretofore granted by

each Loan Party to Agent, for the benefit of the Agent and each Lender, pursuant to the Loan Documents or otherwise granted to or held by Agent, for the benefit of the Agent and each Lender, (iv) the agreements and obligations of Loan Parties contained in the Loan Documents and in this Amendment constitute the legal, valid and binding obligations of the Loan Parties party thereto, enforceable against each such Loan Party in accordance with their respective terms, except as the enforceability thereof may be limited by bankruptcy, insolvency or other similar laws of general application affecting the enforcement of creditors' rights or by the application of general principles of equity, and (v) the execution, delivery and performance of this Amendment by each Loan Party will not violate any law, rule, regulation or order or contractual obligation or organizational document of such Loan Party and will not result in, or require, the creation or imposition of any lien, claim or encumbrance of any kind on any of its properties or revenues.

9 **ADVICE OF COUNSEL**. Each of the parties represents to each other party hereto that it has discussed this Amendment with its counsel.

10 **SEVERABILITY OF PROVISIONS**. In case any provision of or obligation under this Amendment shall be invalid, illegal or unenforceable in any applicable jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, shall not in any way be affected or impaired thereby.

11 **FURTHER ASSURANCES**. Each Loan Party agrees that at any time and from time to time, at the expense of each Loan Party, it will promptly execute and deliver all further instruments and documents, and take all further action, that may be necessary or that Agent or Lenders may reasonably request, in connection with this Amendment, or to enable them to exercise and enforce their rights and remedies under this Amendment, the Loan Agreement and the other Loan Documents.

12 **COSTS AND EXPENSES**. Each Loan Party shall be responsible for the payment of all fees, costs and expenses incurred by Agent and Lenders in connection with the preparation and negotiation of this Amendment, including, without limitation, any and all fees and expenses of Agent's and Lenders' counsel.

13 **REFERENCE TO THE EFFECT ON THE LOAN AGREEMENT**.

(a) Upon the effectiveness of this Amendment, each reference in the Loan Agreement to "this Agreement," "hereunder," "hereof," "herein" or words of similar import shall mean and be a reference to the Loan Agreement as modified by this Amendment.

(b) The execution, delivery and effectiveness of this Amendment shall not, except as expressly provided in this Amendment, operate as a waiver of any right, power or remedy of Agent or any Lender, nor constitute a waiver of any provision of the Loan Agreement or any other documents, instruments and agreements executed or delivered in connection with the Loan Agreement.

14 **ACKNOWLEDGMENT OF EACH LOAN PARTY**. Each Loan Party hereby acknowledges and agrees that: (i) it has no defense, offset or counterclaim with respect to the payment of any sum owed to Agent or Lenders, or with respect to the performance or observance of any warranty or covenant contained in the Loan Documents; and (ii) Agent and Lenders have performed all obligations and duties owed to each Loan Party through the date hereof.

15 **GOVERNING LAW**. THIS AMENDMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK APPLICABLE TO CONTRACTS MADE AND PERFORMED IN SUCH STATE WITHOUT REGARD TO THE PRINCIPLES THEREOF REGARDING CONFLICTS OF LAWS.

16 **HEADINGS**. Section headings in this Amendment are included for convenience of reference only and shall not constitute a part of this Amendment for any other purpose.

17 **ENTIRE AGREEMENT**. The Loan Agreement and the other Loan Documents as and when amended through this Amendment embody the entire agreement between the parties hereto relating to the subject matter thereof and supersede all prior agreements, representations and understandings, if any, relating to the subject matter thereof.

18 **COUNTERPARTS**. This Amendment may be executed in multiple counterparts, each of which shall be deemed to be an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed signature page of this Amendment by facsimile transmission, portable document format (.pdf), or other electronic transmission shall be as effective as delivery of a manually executed counterpart hereof.

[*Remainder of page intentionally blank; signature pages follow*.]

IN WITNESS WHEREOF, the parties hereto have caused this Fourth Amendment to Loan and Security Agreement to be duly executed and delivered as of the day and year specified at the beginning hereof.

BORROWER:

AMEDICA CORPORATION

By: /s/ Eric Olson
Name: Eric Olson
Title: President and CEO

GUARANTOR:

US SPINE, INC.

By: /s/ Eric Olson
Name: Eric Olson
Title: President and CEO

AGENT AND LENDER:

GENERAL ELECTRIC CAPITAL CORPORATION, as Agent and Lender

By: /s/ Scott R. Towers
Name: Scott R. Towers
Title: Duly Authorized Signatory

LENDER:

ZIONS FIRST NATIONAL BANK

By: /s/ Thomas C. Etzel
Name: Thomas C. Etzel
Title: Senior Vice President

Exhibit 10.4.2

FIFTH AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS FIFTH AMENDMENT TO LOAN AND SECURITY AGREEMENT (this "Amendment"), dated as of January 28, 2014, is entered into by and among **AMEDICA CORPORATION**, a Delaware corporation ("Borrower"), **US SPINE, INC.**, a Delaware corporation ("Guarantor"), the Lenders (as defined below) and **GENERAL ELECTRIC CAPITAL CORPORATION**, a Delaware corporation ("GECC"), in its capacity as administrative and collateral agent (together with its successors and assigns in such capacity, the "Agent") for the Lenders (as defined below).

W I T N E S S E T H:

WHEREAS, Borrower, Guarantor, Agent, and the lenders signatory thereto from time to time (each a "Lender" and, collectively, the "Lenders"), are parties to that certain Loan and Security Agreement, dated as of December 17, 2012 (as has been and may be amended, restated, supplemented, replaced, and otherwise modified from time to time, the "Loan Agreement"; capitalized terms used herein have the meanings given to them in the Loan Agreement except as otherwise expressly defined herein), pursuant to which Lenders and Agent have agreed to provide to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Borrower, Lenders, and Agent desire to amend certain provisions of the Loan Agreement as provided herein;

NOW, THEREFORE, in consideration of the premises, the covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Agent hereby agree as follows:

1 **AMENDMENTS TO LOAN AGREEMENT**. Subject to the terms and conditions of this Amendment, including, without limitation, Section 4 of this Amendment, the Loan Agreement is hereby amended as follows:

(a) Liquidity Covenant. Section 7.10(b) of the Loan Agreement shall not be tested for the period from November 1, 2013 until February 28, 2014. Such limitation shall cease to be effective as of March 1, 2014 and thereafter, during which Borrower shall be required to comply with Section 7.10(b) of the Loan Agreement.

2 **RESERVE**. On the date hereof, Agent shall establish a Reserve pursuant to Section 2.1(b) of the Loan Agreement, in the amount of $500,000 (the "Fifth Amendment Reserve"), which shall remain in place until removed by Agent in its Permitted Discretion. For the avoidance of doubt, the Fifth Amendment Reserve is in addition to (i) the $500,000 Reserve established pursuant to that certain Third Amendment and Waiver to Loan and Security Agreement dated as of August 15, 2013, by and among Borrower, Guarantor, Agent and Lenders, and (ii) the $500,000 Reserve established pursuant to that certain Fourth Amendment to Loan and Security Agreement dated as of December 23, 2013, by and among Borrower, Guarantor, Agent and Lenders ("Fourth Amendment").

3 **AMENDMENT FEE**. Borrower shall pay to Agent, for the benefit of Lenders in accordance with their Pro Rata Shares, an amendment fee in an amount equal to $200,000 on March 31, 2014 if Borrower has not terminated the Revolving Loan Commitments and paid all Obligations in full on or prior to March 31, 2014 ("Fifth Amendment Fee"). The Fifth Amendment Fee is in addition to the fees required in the Fourth Amendment and the other Loan Documents.

4 **CONDITIONS TO EFFECTIVENESS**. This Amendment shall become effective upon satisfaction of each of the following conditions:

(a) No Default or Event of Default shall have occurred and be continuing;

(b) Agent shall have received one or more counterparts of this Amendment, duly executed, completed and delivered by Agent, each Lender and each Loan Party; and

(c) Agent shall have received all other documents and instruments as Agent or any Lender may reasonably deem necessary or appropriate to effectuate the intent and purpose of this Amendment.

5 **REAFFIRMATION OF LOAN DOCUMENTS**. By executing and delivering this Amendment, each Loan Party hereby (i) reaffirms, ratifies and confirms its Obligations under the Loan Agreement and the other Loan Documents, (ii) agrees that this Amendment shall be a "Loan Document" under the Loan Agreement and (iii) hereby expressly agrees that the Loan Agreement and each other Loan Document shall remain in full force and effect following any action contemplated in connection herewith.

6 **REAFFIRMATION OF GRANT OF SECURITY INTEREST IN COLLATERAL**. Each Loan Party hereby expressly reaffirms, ratifies and confirms its obligations under the Loan Agreement, including its grant, pledge and hypothecation to the Agent for the benefit of the Agent and each Lender, of the lien on and security interest in, all of its right, title and interest in, all of the Collateral.

7 **NO OTHER CONSENTS OR AMENDMENTS**. Except for the amendments set forth in this Amendment, the Loan Agreement and the other Loan Documents shall remain unchanged and in full force and effect. Nothing in this Amendment is intended, or shall be construed, to constitute a novation or an accord and satisfaction of any Loan Party's Obligations under or in connection with the Loan Agreement and any other Loan Document or to modify, affect or impair the perfection or continuity of Agent's security interest in, (on behalf of itself and Lenders) security titles to or other liens on any Collateral for the Obligations.

8 **REPRESENTATIONS AND WARRANTIES; LIENS; NO DEFAULT, NO CONFLICT**. Each Loan Party hereby represents, warrants and covenants with and to the Agent and Lenders as follows: (i) all of the representations and warranties set forth in the Loan Documents continue to be true and correct as of the date hereof, except to the extent such representations and warranties by their terms expressly relate only to a prior date (in which case such representations and warranties shall be true and correct as of such prior date); (ii) there are no Defaults or Events of Default that have not been waived or cured; (iii) Agent has and shall continue to have valid, enforceable and perfected first-priority liens, subject only to Permitted

Liens, on and security interests in the Collateral and all other collateral heretofore granted by each Loan Party to Agent, for the benefit of the Agent and each Lender, pursuant to the Loan Documents or otherwise granted to or held by Agent, for the benefit of the Agent and each Lender, (iv) the agreements and obligations of Loan Parties contained in the Loan Documents and in this Amendment constitute the legal, valid and binding obligations of the Loan Parties party thereto, enforceable against each such Loan Party in accordance with their respective terms, except as the enforceability thereof may be limited by bankruptcy, insolvency or other similar laws of general application affecting the enforcement of creditors' rights or by the application of general principles of equity, and (v) the execution, delivery and performance of this Amendment by each Loan Party will not violate any law, rule, regulation or order or contractual obligation or organizational document of such Loan Party and will not result in, or require, the creation or imposition of any lien, claim or encumbrance of any kind on any of its properties or revenues.

9 **ADVICE OF COUNSEL**. Each of the parties represents to each other party hereto that it has discussed this Amendment with its counsel.

10 **SEVERABILITY OF PROVISIONS**. In case any provision of or obligation under this Amendment shall be invalid, illegal or unenforceable in any applicable jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, shall not in any way be affected or impaired thereby.

11 **FURTHER ASSURANCES**. Each Loan Party agrees that at any time and from time to time, at the expense of each Loan Party, it will promptly execute and deliver all further instruments and documents, and take all further action, that may be necessary or that Agent or Lenders may reasonably request, in connection with this Amendment, or to enable them to exercise and enforce their rights and remedies under this Amendment, the Loan Agreement and the other Loan Documents.

12 **COSTS AND EXPENSES**. Each Loan Party shall be responsible for the payment of all fees, costs and expenses incurred by Agent and Lenders in connection with the preparation and negotiation of this Amendment, including, without limitation, any and all fees and expenses of Agent's and Lenders' counsel.

13 **REFERENCE TO THE EFFECT ON THE LOAN AGREEMENT**.

(a) Upon the effectiveness of this Amendment, each reference in the Loan Agreement to "this Agreement," "hereunder," "hereof," "herein" or words of similar import shall mean and be a reference to the Loan Agreement as modified by this Amendment.

(b) The execution, delivery and effectiveness of this Amendment shall not, except as expressly provided in this Amendment, operate as a waiver of any right, power or remedy of Agent or any Lender, nor constitute a waiver of any provision of the Loan Agreement or any other documents, instruments and agreements executed or delivered in connection with the Loan Agreement.

14 **ACKNOWLEDGMENT OF EACH LOAN PARTY**. Each Loan Party hereby acknowledges and agrees that: (i) it has no defense, offset or counterclaim with respect to the

payment of any sum owed to Agent or Lenders, or with respect to the performance or observance of any warranty or covenant contained in the Loan Documents; and (ii) Agent and Lenders have performed all obligations and duties owed to each Loan Party through the date hereof.

15 **GOVERNING LAW**. THIS AMENDMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF NEW YORK APPLICABLE TO CONTRACTS MADE AND PERFORMED IN SUCH STATE WITHOUT REGARD TO THE PRINCIPLES THEREOF REGARDING CONFLICTS OF LAWS.

16 **HEADINGS**. Section headings in this Amendment are included for convenience of reference only and shall not constitute a part of this Amendment for any other purpose.

17 **ENTIRE AGREEMENT**. The Loan Agreement and the other Loan Documents as and when amended through this Amendment embody the entire agreement between the parties hereto relating to the subject matter thereof and supersede all prior agreements, representations and understandings, if any, relating to the subject matter thereof.

18 **COUNTERPARTS**. This Amendment may be executed in multiple counterparts, each of which shall be deemed to be an original and all of which when taken together shall constitute one and the same instrument. Delivery of an executed signature page of this Amendment by facsimile transmission, portable document format (.pdf), or other electronic transmission shall be as effective as delivery of a manually executed counterpart hereof.

[*Remainder of page intentionally blank; signature pages follow*.]

IN WITNESS WHEREOF, the parties hereto have caused this Fifth Amendment to Loan and Security Agreement to be duly executed and delivered as of the day and year specified at the beginning hereof.

BORROWER:

AMEDICA CORPORATION

By: /s/ Eric K. Olson
Name: Eric K. Olson
Title: President and CEO

GUARANTOR:

US SPINE, INC.

By: /s/ Eric K. Olson
Name: Eric K. Olson
Title: President and CEO

AGENT AND LENDER:

GENERAL ELECTRIC CAPITAL CORPORATION, as Agent and Lender

By: /s/ Scott R. Towers
Name: Scott R. Towers
Title: Duly Authorized Signatory

LENDER:

ZIONS FIRST NATIONAL BANK

By: /s/ Thomas C. Etzel
Name: Thomas C. Etzel
Title: Senior Vice President

CONFIDENTIAL TREATMENT REQUESTED

Exhibit 10.7

JOINT DEVELOPMENT AND LICENSE AGREEMENT

This Joint Development Agreement (the "Agreement") entered into as of the 8th day of February, 2010 (the "Effective Date") is by and between Amedica Corporation, a Delaware corporation with a principal place of business at 1885 West 2100 South, Salt Lake, City, Utah 84119 ("Amedica") and Orthopaedic Synergy, Inc., a Delaware corporation with a principal place of business at 50 O'Connell Way #10, East Taunton, MA 02718 ("OSI"). Amedica and OSI are each referred to herein as a "Party" and collectively as "Parties".

WHEREAS, Amedica develops, manufacturers, markets, and sells implantable medical devices and related products and instrumentation for the treatment of spinal and joint diseases, disorders, and injuries (the "Amedica Products");

WHEREAS, certain of the Amedica Products are manufactured utilizing a material known as Silicon Nitride ("SiN") which material in known to have particularly unique properties with respect to strength, wear, and bone ingrowth;

WHEREAS, OSI manufacturers, markets, and sells implantable medical devices, including total hip and knee systems and related instrumentation;

WHEREAS, OSI is interested in utilizing certain of Amedica's technology, including without limitation SiN, to develop new implantable orthopedic products as more fully described herein, which products would also use existing OSI technology;

WHEREAS, Amedica is interested in collaborating with OSI as more fully set out herein to develop products utilizing Amedica's SiN technology, which products will be owned and distributed as provided in this Agreement; and

WHEREAS, contemporaneously with the negotiation and execution of this Agreement, the Parties are negotiating the terms and conditions of a distribution agreement the subject of which is ex-US distribution of products utilizing OSI's Highly Cross-Linked Polyethylene and Amedica's SiN femoral head technology (the "Distribution Agreement").

NOW THEREFORE, for the consideration contained herein, the receipt and sufficiency of which is acknowledged by both Parties, Amedica and OSI agree to jointly develop the Products as that term is defined herein and to carry out various other activities related to the Products, as more fully set out herein, pursuant to the following terms and conditions:

ARTICLE I
JOINT DEVELOPMENT PRODUCTS AND RESPONSIBILITIES

1.1 *Products.* The following products are to be jointly developed by Amedica and OSI pursuant to the terms and conditions contained herein (collectively, "the Products"):

1.1.1 SiN [***] utilizing Amedica's [***] and [***] and [***] (the **"SiN Hip System"**);

1.1.2 SiN [***], which shall include all [***]including without limitation a [***], utilizing [***] (collectively, the **"Total Knee Components"**):

1.1.3 SiN [***] (the **"SiN Spacer"**); and

1.14 A unicondylar knee system utilizing Amedica's SiN femoral component and/or tibial component and various [***] (the **"SiN Uni Knee"**).

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

1.2 *Development of SiN Components.* Amedica shall be responsible for the manufacture of all SiN components listed above and shall be obligated as any manufacturer of record with respect to such components.

1.3 *Development of the Non-SiN Components.* [***] shall be responsible for the manufacture of all non-SiN components listed above and shall be obligated as any manufacturer of record with respect to such components.

1.4 *Access to Technology.* Each Party shall be required to contribute certain of its own technology as set out above, including without limitation [***], as well as [***] products (collectively, the "Technology") to the joint development projects outlined above. Accordingly, each Party agrees to ensure that all [***] access to and/or utilization of the other Party's Technology is made available upon [***] of a Party in order to carry out the activities contemplated by this Agreement.

1.5 *U.S. Clinical Trial*

1.5.1 *Pre-Market Approval.* The Parties acknowledge that the SiN Hip System will require Pre-Market Approval (a "PMA") as that term is defined by the U.S. Food & Drug Administration (the "FDA"). The Parties represent to each other [***] the duties and responsibilities contained in this Section 1.5 in order to secure a PMA for the SiN Hip System.

1.5.2 *Joint Ownership of SiN Hip System PMA.* Once the PMA for the SiN Hip System is granted by the FDA, Amedica and OSI shall [***] such PMA and will with respect to the PMA. Notwithstanding the foregoing, OSI shall [***] the SiN technology contained in the SiN Hip and Knee Systems made the subject of the PMA and [***] such technology in connection with [***] of the SiN Hip System.

1.5.3 *Reimbursement*. The Parties shall work together to ensure that products made the subject of the clinical trial will be reimbursable by applicable third party payors, including without limitation the Center for Medicare and Medicaid Services ("CMS"), and shall undertake all necessary actions to obtain such reimbursement.

1.5.4 *Clinical Trial Protocol*. OSI agrees to draft and be bound by a clinical trial protocol which protocol shall set forth all particulars of the trial, including without limitation the duties required of OSI in connection with the clinical trial (the "Protocol"). OSI shall ensure that the Protocol is consistent and complies with all applicable FDA rules and regulations for trials such as the one contemplated herein and shall abide by the Protocol without deviation when conducting the trial. The Protocol shall be reviewed and approved by Amedica.

1.5.5 *Clinical Trial Costs*. OSI shall be responsible for [***] associated with the clinical trial contemplated by this Section 1.5 and shall enter into all necessary agreements with third parties, including without limitation investigators, monitors, and clinical sites, as needed to carry out the Protocol requirements. .

1.6 *Ex-US Markets*. The Parties agree to work closely together in an effort to market and sell certain Products [***]. With respect to those components which are CE Marked or otherwise cleared for sale in other jurisdictions as of the Effective Date, or which will be so cleared during the term of this Agreement, the Parties agree to [***]for marketing and sale of the Products, and to take all necessary steps [***] as soon as practicable.

ARTICLE II
OBLIGATIONS OF AMEDICA

2. Obligations of Amedica. Amedica acknowledges and agrees that it shall be responsible as follows in connection with its participation in the joint development of the Products:

2.1 Amedica shall undertake all manufacturing and related quality obligations in accordance with Good Manufacturing Practices and all related laws, regulations and guidelines as they apply to manufacturers of implantable medical devices.

2.2 Amedica shall undertake and be responsible for all testing on the SiN components and shall make all test results and related data available to OSI upon request. Additionally, Amedica shall be responsible for compiling and/or interpreting all such data in connection with all regulatory approvals and related processes.

2.3 In the event that [***], as that term is defined by any regulatory or licensing body, is required for any of the Products described in the Distribution Agreement, Amedica shall [***] in the costs of same.

2.4 Amedica shall produce all necessary SiN components for the clinical trial contemplated hereunder.

ARTICLE III
OBLIGATIONS OF OSI

3. Obligations of OSI. OSI acknowledges and agrees that it shall be responsible as follows in connection with its participation in the joint development of the Products:

3.1 OSI shall undertake all manufacturing and related quality obligations in accordance with Good Manufacturing Practices and all related laws, regulations and guidelines as they apply to manufacturers of implantable medical devices.

3.2 OSI shall provide all non-SiN implants and instrumentation required for development and use of the Products.

3.3 OSI shall provide all required marketing support for the marketing and sale of the Products during the License Period, as that term is defined below.

3.4 In the event that [***], as that term is defined by any regulatory or licensing body, is required for any of the Products, such [***] shall be [***] by OSI.

CONFIDENTIAL TREATMENT REQUESTED

ARTICLE IV
CONFIDENTIAL INFORMATION

4. Confidential Information.

4.1 In order to fulfill their respective obligations pursuant to this Agreement, Amedica and OSI will necessarily have access to certain information relating to the each other which information is considered by the Party who owns it to be confidential, proprietary or otherwise not for public dissemination. Such information shall include but not be limited to organizational specifics of a Party, business and operating plans, manufacturing processes and protocols, research and development activities, sales activities, technical information, trade secrets, customer lists, and names of suppliers and other vendors (collectively, the "Confidential Information"). Each Party will hold all Confidential Information of the other Party as a fiduciary, in strict confidence and trust for the other Party's benefit, and will not, except as expressly permitted by the Party to whom such Confidential Information belongs, at any time during the term of this Agreement or thereafter, disclose any Confidential Information, in whole or in part, to any third party, or use same for its own benefit or for the benefit of any third party without the prior written consent of a duly authorized officer of the Party to whom the Confidential Information belongs.

4.2 Confidential Information does not include:

4.2.1 any idea or information that is already in the public domain or hereafter falls within the public domain without fault on the part of the Party to whom the Confidential Information is disclosed;

4.2.2 any idea or information for which the right to use such information has been validly obtained through license or disclosure from any third party with the right to give such license or make such disclosure;

4.2.3 any idea or information that was in the possession of either Party prior to the Effective Date; or

4.2.4 any information developed independently by a Party without the use of the other Party's Confidential Information disclosed hereunder or otherwise.

4.3 Upon request of either Party or upon expiration or termination of this Agreement, any Party so requested will promptly return all Confidential Information to the requesting Party to the extent held by a Party in written, graphic, or other tangible form, and all copies, summaries, notes and other write-ups made by that Party. The provisions of this Article IV will survive expiration or termination of this Agreement and remain in effect as long as the Confidential Information remains confidential information of either Party.

4.4 *Remedy for* Breach. The Parties acknowledges that any failure by either of them to comply with the provisions of this Article IV will result in irreparable and continuing injury to the Party to whom the Confidential Information belongs for which there will be no adequate remedy at law; and, in the event that either Party fails to comply with the terms and conditions contained in this Article IV, the Party whose Confidential Information has been compromised shall be entitled to seek, in addition to such other relief as may be proper, to all types of equitable relief (including, but not limited to, the issuance of any injunction or temporary restraining order) as may be necessary to cause the non-compliant Party to comply with this Article IV, and both Parties waive the securing or posting of any bond in connection with such remedy. If any action at law or in equity is brought to enforce or interpret the provisions of this Confidentiality Agreement, the prevailing Party in such action shall be entitled to reasonable attorneys' fees, as well as all other costs and expenses incurred in securing relief hereunder.

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

ARTICLE V
LICENSING, DISTRIBUTION, AND PRICING

5.1 *Licensing Rights of SiN Components*. OSI shall have a non-exclusive worldwide license to all SiN components identified herein and used in OSI hip and knee products as contemplated herein, which license shall last in perpetuity (the "License"). Amedica agrees that for a period of two (2) years, which time period shall begin to run for each device upon its commercialization in the US market (the "Exclusive License Period"), Amedica shall not license or otherwise market the SiN technology to any third party for use in hip and/or knee systems or components. Thereafter, Amedica may, in its sole discretion use the SiN technology for other hip and knee products in collaboration with any third party of Amedica's choosing. The Parties agree that all OSI manufactured components remain the sole and exclusive property of OSI and Amedica has no license or other right to market or sell such components other than as contemplated in this Agreement.

5.2 *Distribution*. The Parties [***] and use their best efforts to market, distribute, and sell the Products in markets both in and outside of the United States. The Parties shall provide [***] to each other in the undertaking of each Party's distribution efforts and OSI expressly agrees [***].

5.3 *CE Mark*. Amedica shall continue its application for a CE Mark for the femoral component and shall own such CE Mark in perpetuity once granted. OSI shall be entitled to use the CE Mark for as long as OSI markets, distributes, and sells the Products. OSI shall be responsible for the CE Mark approval for the complete hip system that will be utilized in concert with Amedica's CE Marked femoral components.

5.4 *Forecasts.* OSI shall provide to Amedica [***] forecast which forecast shall be updated on a [***].

5.5 *Pricing and Revenue Share*. The Parties shall mutually agree on pricing for the Products, which pricing shall depend upon all reasonable and customary factors including without limitation geographical area, availability of discounts and/or rebates, etc. To the extent that Products are sold as part of a total hip or knee system, individual component pricing shall be agreed upon between the Parties prior to any sale to any third Party. All such prices shall be committed to writing. The Parties expressly acknowledge and agreed that sharing of revenue under this Section 5.5 only applies to SiN components included in any OSI total hip or knee systems, or any SiN components identified herein and sold separately. The Parties shall share equally the net margin amount for each Product, which amount shall equal the actual sales price of each product less (i) discounts and/or rebates; (ii) usual and customary manufacturing costs of all components; (iii) commissions paid to sales personnel; and (iv) delivery costs. Either Party will have the right to auditall cost calculations upon reasonable notice in writing to the other Party, however in no event shall such right to audit be exercised more than once per calendar year. In the event that an audit evidences that such costs have been figured incorrectly and to the detriment of the Party requesting the audit, all monies due and owing the Party requesting the audit shall be made within thirty (30) days of the Parties' receipt of the written audit report, unless the report findings are disputed by either Party. In the event that such an audit shows a variance of more than ten percent (10%), the Party against whom such variance is levied shall bear all reasonable costs of the audit.

ARTICLE VI
REPRESENTATIONS AND WARRANTIES

6.1 *Ability to Contract*. The Parties hereby represent and warrant that neither of them is prohibited from entering into this Agreement, marketing or selling the Products, or otherwise conducting

business as contemplated hereunder, whether due to any contract, commitment or obligation binding a Party hereto. Furthermore, the Parties represent and warrant to each other as follows: (i) that the execution, delivery and performance of this Agreement and compliance with its terms will not result in a breach of any agreement to which either Party, or any of either Party's employees or agents, is a party; (ii) each Party is fully authorized to enter into this Agreement and duly authorized and organized to conduct business as provided herein; (iii) each Party's entrance into and performance under this Agreement does not violate or breach its charter or corporate bylaws or any agreement or contract to which it is a party; (iv) neither Party has any legal obligations which would prevent this Agreement from being fully implemented in accordance with its terms and, furthermore, each Party has, and shall maintain, all required licenses and permits; and (v) each Party has been formed and operated and will continue to operate in compliance with all applicable federal and state laws, including, without limitation, those regulations promulgated by the Food & Drug Administration, as well as all regulatory bodies located in jurisdictions where the Parties shall do business with respect to the Products.

6.2 The Parties acknowledge and agree as follows:

6.2.1 The Parties are entering into this Agreement and any other related documents or transactions, with the intent of conducting their relationship in full compliance with all applicable laws including, but not limited to, federal, state and local Anti-Kickback statutes, Stark laws and any other applicable fraud and abuse provisions. Notwithstanding any unanticipated effect of any of the provisions herein, neither party will intentionally conduct itself under the terms of this Agreement or any related documents or transactions, in a manner which violates any such laws.

6.2.2 The Parties agree that they will comply with all applicable legal requirements relating to any protected health information ("PHI"), including, without limitation, the Health Information Portability and Accountability Act of 1996 and its rules and regulations, as amended ("HIPAA") to the extent it is applicable.

6.2.3 The Parties represent and warrant that they: (i) will not violate or cause the other Party to violate any provision of United States law; (ii) shall comply at all times with all worldwide applicable laws, including, without limitation, those related to medical devices, advertising, warranties, environmental concerns, national security, registration of commercial representatives, and employment; (iii) shall comply with the United States Food and Drug Administration's current Good Manufacturing Practices (or any successor quality system regulations), to the extent that the same apply to the Parties' respective obligations under this Agreement, including, but not limited to, the following: (A) preparing and maintaining records sufficient to enable identification of the geographic location and contact information of all customers for all Products; and (B) establishing and maintaining a system for receiving, documenting, and, to the extent such Party holds the FDA clearance for the Products, investigating complaints about the Products.

ARTICLE VII
TERM AND TERMINATION

7.1 *Term*. The term of this Agreement shall begin upon the Effective Date and expire five (5) years thereafter (the "Term"). The Parties shall be free to mutually agree to any extension or renewal of this Agreement to the extent that same is memorialized in writing and signed by both Parties. Notwithstanding the foregoing, expiration of this Agreement pursuant to this Section 7.1 shall not affect the License granted in Article V hereof or the License Period, also indentified in Article V hereof.

7.2 *Termination*. This Agreement may be terminated as follows:

7.2.1 by either Party in the event that the other Party breaches this Agreement and fails to cure such breach within thirty (30) days of its receipt of written notice from the non-breaching party adequately specifying the details of such breach;

7.2.2 either Party, by written notice to the other, may terminate this Agreement immediately if the other Party: (i) ceases or suspends its business; (ii) becomes subject to any bankruptcy or insolvency proceeding under federal or state law; (iii) becomes insolvent or becomes subject to direct control by a trustee, receiver or similar authority; (iv) has wound up or liquidated its business voluntarily or otherwise; or (v) is debarred, suspended, excluded, or otherwise sanctioned with respect to any federal or state health care reimbursement program or sanctioned in connection with any of the applicable federal or state health care fraud and abuse laws; or (vi) fails to exercise its best development and/or commercialization efforts concerning this agreement; or

7.2.3 immediately by either Party if the other Party intentionally engages in wrongful acts which materially impair the goodwill or business of the Party who is terminating the Agreement hereunder or cause material damage to such Party's property, goodwill, or business.

7.3 *Surviving Provisions.* The Parties expressly agree that the provisions contained in Article V regarding the License, License Period, and Revenue Sharing relative to the Products shall survive the expiration and/or earlier termination of this Agreement unless otherwise agreed by the Parties or in the event of a breach of this Agreement by either Party.

ARTICLE VIII
INDEMNIFICATION

8.1 *By Amedica*. To the extent not otherwise covered by insurance, Amedica shall defend, indemnify and hold harmless OSI from and against any liabilities, losses, damages, costs and expenses (including reasonable attorney fees and other costs and expenses) arising out of any claim or action brought against the OSI alleging that any of the Products manufactured by Amedica and made the subject of this Agreement infringe any United States patent, copyright, trademark or trade secret under United States law, provided that, OSI promptly notifies Amedica in writing of such claim, if it becomes aware of such claim, and allows Amedica to control, and reasonably cooperates with Amedica in, the defense of any such claim or action and any settlement negotiations related thereto. Notwithstanding the above, OSI shall have no liability for any settlement or compromise made without its express written consent, which consent shall not be unreasonably withheld. In the event of a claimed infringement, Amedica reserves the right to do any of the following: replace the Product with a non-infringing product or a product of equivalent functionality; modify the Product to make it non-infringing; procure for the Parties hereto the right to continue using said Product; or remove the Product from its inclusion in the activities contemplated hereunder. The foregoing constitutes Amedica's entire liability in the event of any claim of intellectual property infringement.

8.2 *By OSI.* To the extent not otherwise covered by insurance, OSI shall defend, indemnify and hold harmless Amedica from and against any liabilities, losses, damages, costs and expenses (including reasonable attorney fees and other costs and expenses) arising out of any claim or action brought against the Amedica alleging that any of the Products manufactured by OSI and made the subject of this Agreement infringe any United States patent, copyright, trademark or trade secret under United States law, provided that, Amedica promptly notifies Amedica in writing of such claim, if it becomes aware of such claim, and allows OSI to control, and reasonably cooperates with OSI in, the defense of any such claim or action and any settlement negotiations related thereto. Notwithstanding the above, Amedica shall have no liability for any settlement or compromise made without its express written consent, which consent shall not be

unreasonably withheld. In the event of a claimed infringement, OSI reserves the right to do any of the following: replace the Product with a non-infringing product or a product of equivalent functionality; modify the Product to make it non-infringing; procure for the Parties hereto the right to continue using said Product; or remove the Product from its inclusion in the activities contemplated hereunder. The foregoing constitutes OSI'S entire liability in the event of any claim of intellectual property infringement.

8.3 *Indemnification for Product Liability*. The Parties each agree that in the event of any suit, claim, or action brought against a Party alleging product liability, the Party whose product or product component is alleged to have caused the liability, loss, damage, costs, or expense shall indemnify, defend, and hold harmless the other Party, provided that the Party seeking indemnification gives prompt written notice of such suit, claim, or action to the other Party. Notwithstanding the foregoing, failure to provide notice as set out in this Section 8.3 shall not serve to relieve the indemnifying Party of their obligations hereunder unless such failure to give notice substantially prejudiced the indemnifying Party with respect to its ability to defend against such suit, claim, or action.

ARTICLE IX
MISCELLANEOUS PROVISIONS

9. Miscellaneous Provisions.

9.1 *Entire Agreement; Modification and Amendment*. This Agreement, along with any attachments, or exhibits hereto, contains the entire agreement between the Parties with respect to the subject matter hereof and it expressly supersedes any and all other agreements, whether written or oral. No waiver, alteration or modification of any of the terms and/or conditions contained in this Agreement will be binding unless in writing and signed by authorized representatives of both Parties.

9.2 *Notice.* Any notice or communication required or permitted to be given under this Agreement shall be in writing and shall be served on the Parties at the address of the recipient Party provided above or to such other address as any Party may by written notice designate pursuant to this Section 9.2. Any notice or communication required, permitted or desired to be given by any provision of this Agreement shall be sent either (i) by prepaid certified or registered mail, return receipt requested, in which case notice shall be deemed received three business days after deposit, postage prepaid in the United States Mail; (ii) by facsimile with appropriate electronic confirmation, in which case notice shall be deemed received as of the date and time shown on such confirmation; or (iii) by nationally recognized overnight courier with signature confirmation, in which case notice shall be deemed upon actual receipt.

9.3 *Assignment.* This Agreement is non-transferable except as permitted in this paragraph. Either Party to this Agreement may assign its interest under this Agreement to any entity controlling, controlled by or under common control with such Party or an entity which is succeeding to the entire business of Company; provided, however, that either Party must assign its rights and obligations under this Agreement to any purchaser of all or substantially all of the assets of said Party, in which case the purchaser shall remain liable for all of such Party's obligations hereunder.

9.4 *Relationship of the Parties*. Nothing in this Agreement is intended to create an exclusive business relationship between the Parties except as set out herein, nor will this Agreement be deemed or construed to constitute or create between the Parties a partnership, joint venture, agency, or other legal business entity.

9.5 *Governing Law*. This Agreement shall be governed by the laws of Delaware, without regard to conflicts of law principles. Venue for any dispute arising hereunder shall be as follows: (i) for suits, claims, and/or actions brought by OSI, venue shall be in the federal and/or state courts of competent jurisdiction located in Salt Lake City, Salt Lake County, Utah; and (ii) for suits, claims, and/or actions brought by Amedica, venue shall be in the federal and/or state courts of competent jurisdiction located in Bristol County, Massachusetts.

9.6 *Arbitration.* If the Parties are unable to resolve any dispute arising out of or relating to the performance of this Agreement, such dispute shall be submitted to final and binding arbitration in accordance with the rules for commercial arbitration of the American Arbitration Association (the "AAA") then in effect, before a three party panel of the AAA. Such arbitration proceedings shall take place in Boston, Massachusetts if initiated by Amedica and in Salt Lake City, Utah if initiated by OSI. Notwithstanding any rules of the AAA, the Parties shall be entitled to discovery in accordance with the Federal Rules of Civil Procedure. One member of the panel shall be selected by Amedica, one member of the panel shall be selected by OSI, and Amedica and OSI shall agree upon the third member from a proposed list of panelists submitted by the AAA, or, if they cannot agree on the third member, either Party may request the two selected panel members to appoint the third member, which appointment shall be binding upon the Parties. The arbitrators shall issue a reasoned written decision together with their award. Judgment on any arbitration award may be entered in any court of competent jurisdiction.

9.7 *Validity and Change in Law.* Should any provision of this Agreement be rendered unlawful or invalid because of any existing or subsequently enacted law or by a decree or order of a court of last resort, the remaining provisions will continue in full force and effect. The Parties agree to negotiate in good faith to reform any provision rendered unlawful or invalid and to preserve, as nearly as possible, the original intent of the Parties with respect to such provision.

9.8 *Force Majeure*. If during the term of this Agreement an event of force majeure should prevent either Party from fulfilling its obligations, the Party so affected shall be excused from any liability for non-performance during the period of such force majeure; provided however, if such force majeure continues for more than [***] then either Party may terminate this Agreement. For purposes of this Agreement force majeure includes but is not limited to acts of God, war, acts of terrorism, civil unrest, natural disasters, and any other unforeseen and/or uncontrollable event which affects either Party's ability to perform hereunder.

9.9 *Waiver.* Failure by one Party to notify the other Party of a breach of any provision of this Agreement shall not constitute a waiver of any continuing breach. Failure of one Party to enforce any of its rights under this Agreement shall not constitute a waiver of those rights. The waiver by either Party of a breach or violation of this Agreement, which waiver must be in writing and signed by the Party against whom the waiver is sought, shall not operate as, or be construed to be, a waiver of any subsequent breach of the same or any other provision hereof.

9.10 *Counterparts.* This Agreement shall be executed in multiple counterparts, each considered an original for any and all purposes and all of which together shall constitute one and the same document.

CONFIDENTIAL TREATMENT REQUESTED

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date. Both Parties represent and warrant that the individuals signing on behalf of each Party have the requisite authority to bind their respective Party to each and every of the terms and conditions contained in this Agreement.

AMEDICA CORPORATION	**ORTHOPAEDIC SYNERGY, INC.**
/s/ Ben Shappley	/s/ Richard D. Nikolaev
Ben Shappley, Chief Executive Officer	Richard D. Nikolaev, Chief Executive Officer

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

CONFIDENTIAL TREATMENT REQUESTED

Exhibit 10.8

DISTRIBUTION AGREEMENT

This **DISTRIBUTION AGREEMENT** (the "Agreement"), by and between **AMEDICA CORPORATION**, a Delaware corporation with a principal place of business at 1885 West 2100 South, Salt Lake, City, Utah 84119 ("Amedica") and Orthopaedic Synergy, Inc., a Delaware corporation with a principal place of business at 50 O'Connell Way #10, East Taunton, MA 02718 (the "OSI") is effective as of the 22nd day of February, 2010 (the "Effective Date"). Amedica and OSI are each referred to herein as a "Party" and collectively as the "Parties."

W I T N E S S E T H

WHEREAS, Amedica designs and manufactures implantable orthopedic medical products and devices to be marketed, sold and distributed worldwide;

WHEREAS, certain of Amedica's products are manufactured utilizing a material known as Silicon Nitride ("SiN") which material is known to have particularly unique properties with respect to strength, wear, and bone ingrowth;

WHEREAS, OSI manufacturers, markets, and sells implantable medical devices, including total hip and knee systems and related instrumentation;

WHEREAS, OSI wishes to use certain of Amedica's SiN components in the manufacture of certain of OSI's total implant systems; and

WHEREAS, Amedica desires to provide OSI with SiN components as more fully described herein pursuant to the terms and conditions of this Agreement.

NOW THEREFORE, in consideration of the mutual agreements hereinafter set forth, the Parties agree as follows:

1. DEFINITIONS. For the purpose of this Agreement, the following definitions will apply:

a. "Product" or "Products" means Amedica's SiN femoral head component in sizes to be determined by the Parties.

b. "Territory" means all [***].

c. "OSI Hip System" means the total hip system into which the Products will be incorporated and which OSI will sell in the Territory.

2. UNDERTAKINGS OF AMEDICA. Amedica agrees as follows:

a. Product Supply. Amedica shall make [***] to supply OSI with quantities and sizes of the Products as requested by OSI pursuant to written purchase orders. Purchase orders shall not be binding until accepted by Amedica and Amedica shall notify OSI promptly in the event that it rejects any purchase order.

b. [***]. [***].

c. Certain Technical Information. Amedica will inform OSI in the event of any changes in indications, applications and/or contraindications or any recalls or restrictions of usage issued by any regulatory agency and applicable to any of the Products.

d. Insurance. Amedica shall maintain products liability and other insurance in such amounts [***].

3. UNDERTAKINGS OF OSI. OSI agrees to:

a. vigorously promote within the Territory the distribution and sale of the OSI Hip System in a manner that [***];

b. assist Amedica as may be needed from time to time to comply with all applicable laws and regulations regarding the tracking and traceability of products and any other local applicable regulations in each and every jurisdiction where OSI sells the Products; and, comply with and keep Amedica timely advised with respect to all laws, licensing regulations and rulings of governmental bodies having jurisdiction over OSI's business concerning the sale of the Products;

c. exercise all necessary care in storing the Products to insure their merchantability as safe and effective products, and maintain errors and omissions, general liability and all risk insurance in such amounts as are reasonably acceptable to Amedica and provide proof of such insurance to Amedica upon request;

d. advise Amedica of any suit, claim, complaint or performance issues known to OSI resulting from the sale or use of any of the Products, as well as any recalls or restrictions of usage issued by a regulatory agency;

e. provide samples of all marketing and promotional materials which relate in any way to the Products to Amedica for Amedica's prior approval, which approval shall not be unreasonably withheld;

4. TERM AND TERMINATION.

a. Subject to the termination rights contained in this Agreement, the initial term of this Agreement shall be for period of five (5) years commencing on the Effective Date. Thereafter, the Parties may agree to extend the Agreement provided such agreement is committed to writing and signed by authorized representatives of both Parties.

b. This Agreement may be terminated for any of the following reasons:

(i) by either Party in the event that the other party breaches this Agreement and fails to cure such breach within thirty (30) days of its receipt of written notice from the non-breaching Party specifying the details of such breach;

(ii) by Amedica in the event that OSI fails to exercise reasonable best efforts in the distribution and sale of the Products pursuant to this Agreement;

(iii) either Party, by written notice to the other, may terminate this Agreement immediately if either Amedica or OSI (as applicable): (A) [***] its business, (B) becomes subject to any bankruptcy or insolvency proceeding under federal or state law, (C) becomes insolvent or becomes subject to direct control by a trustee, receiver or similar authority, or (D) has wound up or liquidated its business voluntarily or otherwise;

(iv) immediately by either Party if the other Party intentionally engages in wrongful acts which materially impair the goodwill or business of Amedica or cause material damage to Amedica's property, goodwill, or business; and

(v) immediately by either Party and upon written notice to the other in the event that a Party (or any of a Party's members, shareholders, directors, managers, employees or agents) is excluded from, debarred or otherwise subject to sanctions by the Medicare or Medicaid programs or is assessed any civil or criminal fines or penalties under such programs or under federal or state anti-kickback or Stark laws.

c. Any termination of this Agreement shall constitute a cancellation of all orders from OSI, whether received prior to or after such termination, but shall [***] which OSI may then have with Amedica; provided however, that after termination of this Agreement, OSI shall have the right to distribute and/or sell Products [***] or [***] until such products [***] or [***], whichever occurs first. Upon any such termination of this Agreement, Amedica shall [***] in any manner whatsoever on account of such [***]; furthermore, Amedica shall not, for any reason whatsoever, including but not limited to the breach, termination, cancellation or expiration of this Agreement, [***],[***], either on account of [***] or on account of any other thing or cause whatsoever, including, without limitation, [***], whether arising out of warranty or other contract, negligence or other tort, or otherwise.

5. INTELLECTUAL PROPERTY RIGHTS; COMPETING PRODUCTS; CONFIDENTIAL INFORMATION. The Parties agree that all trademarks, copyrights, patents, trade secrets, service marks, trade dress and other intellectual property and/or proprietary rights of Amedica and/or associated with the Products (the "Intellectual Property Rights") are the sole and exclusive property of Amedica unless otherwise provided herein or in that certain Joint Development Agreement executed by the Parties and dated February 8, 2010. No action of Amedica or any provision in this Agreement shall, at any time, be deemed as transferring any Intellectual Property Rights of Amedica to OSI or creating any other right in or to such Intellectual Property Rights in OSI.

6. TERMS AND CONDITIONS.

a. *Pricing and Revenue Share*. The Parties shall mutually agree on pricing for the OSI Hip System into which the Products are incorporated, which pricing shall depend upon all reasonable and customary factors including without limitation geographical area, availability of discounts and/or rebates, etc. Individual component pricing for the Products shall be agreed upon between the Parties prior to any sale to any third Party. All prices shall be committed to writing. The Parties shall share equally the Net Margin amount for each Product. Net Margin is defined as the actual sales price of each Product less (i) discounts and/or rebates; (ii) usual and customary manufacturing costs of all components, which costs shall be invoiced as provided in Section 6(c) below; (iii) commissions paid to sales personnel; and (iv) delivery costs.

b. *Right to Audit.* Either Party will have the right to audit all cost calculations upon reasonable notice in writing to the other Party, however in no event shall such right to audit be exercised more than once per calendar year. In the event that an audit evidences that such costs have been figured incorrectly and to the detriment of the Party requesting the audit, [***].

c. *Invoicing upon Shipment*. Amedica shall invoice OSI [***] upon shipment of same to OSI. Payment for all such invoices shall be [***] from the date on each invoice presented to OSI by Amedica.

d. *Quarterly* [***] *Reconciliation*. Within [***] of the end of each calendar quarter, OSI shall provide to Amedica a reconciliation of the [***] sold during each such calendar quarter. Payment due Amedica as evidenced by each reconciliation report shall be included with each reconciliation forwarded to Amedica pursuant to this Section 6(d).

e. *Orders and Deliveries*. All orders received by Amedica from OSI are subject to written acceptance by Amedica. Amedica may reject any order which it receives from OSI. OSI shall provide shipping instructions to Amedica.

7. PRODUCT WARRANTIES AND LIMITATIONS ON DAMAGES. OSI shall make no warranty or representation with respect to Amedica or any of the Products, whether express or implied, unless first approved by Amedica in writing, and in such case, provided that OSI shall be solely responsible for any claims made under, or with respect to, any such warranty. Amedica will likewise make no warranty or representation with respect to OSI's product offerings.

8. PRODUCT IDENTIFICATION. All Products incorporated into the OSI Hip System and sold by OSI shall name Amedica as manufacturer of the Products.

9. INDEMNITY.

a. *By Amedica*. To the extent not otherwise covered by insurance, Amedica shall defend, indemnify and hold harmless OSI from and against any liabilities, losses, damages, costs and expenses (including reasonable attorney fees and other costs and expenses) arising out of: (i) any claim or action brought against OSI for any claim that the Products infringe any United States patent, copyright, trademark or trade secret under United States law, provided that, OSI promptly notifies Amedica in writing of such claim and allows Amedica to control, and fully cooperates with Amedica in, the defense of any such claim or action and any settlement negotiations related thereto. Notwithstanding the above, Amedica shall have no liability for any settlement or compromise made without its express written consent. In the event of a claimed infringement, Amedica reserves the right to do any of the following: replace the Product with a non-infringing product or a product of equivalent functionality; modify the Product to make it non-infringing; procure for OSI the right to continue using said Product; or remove the Product and refund the price paid to Amedica for such Product. The foregoing constitutes Amedica's entire liability in the event of any claim of intellectual property infringement.

b. *By OSI*. OSI shall defend, indemnify and hold harmless Amedica from and against any claim, liabilities, losses, damages, costs and expenses (including reasonable attorney fees and other costs and expenses) associated with any claim or action that arises out of or relates to: (i) any acts or omissions of OSI or its employees, agents or other representatives; (ii) any claims arising from the marketing, promotion or distribution of the Products by OSI or its employees, agents or other representatives; (ii) any failure of OSI, or its employees, agents or other representatives, to comply with any obligation under this Agreement; (iii) any claim that arises out of any promises, representations or warranties that OSI, or its employees, agents or other representatives, make to customers or other persons or entities, express, implied or otherwise; (iv) any claim arising out of any sale by OSI or its employees, agents or other

representatives (except to the extent caused by Amedica's errors or omissions); or (v) any unauthorized use of the Products by any party obtaining the Products from OSI or its employees, agents or other representatives.

10. RECORD KEEPING; INSPECTION. OSI shall keep accurate, up-to-date records of all its transactions in purchasing and selling the Products, including, [***]. Such records shall be retained for at least a period of four (4) years following such record year, which record retention requirement shall survive the termination of this Agreement. [***], Amedica (and/or its designated agent) shall have the right to visit and inspect the place of business of OSI and to inspect such books at OSI's principal place of business during normal business hours during the Term of this Agreement and for a period of [***] following the termination or expiration of this Agreement.

11. MISCELLANEOUS.

a. *Entire Agreement and Modification.* This Agreement and the exhibits attached hereto constitute the entire understanding between the parties with respect to the subject matter hereof and supersedes all prior contemporaneous discussions, agreements or representations, written or oral, concerning the subject matter of this Agreement. No modification or amendment of this Agreement shall be binding unless in writing signed by both parties hereto.

b. *Governing Law.* This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to conflict of law provisions.

c. *Waiver.* No waiver of any provision of this Agreement shall be valid unless the same is in writing and signed by the party against whom such waiver is to be enforced. No failure, neglect or delay by a party to enforce any provision of this Agreement shall at any time be deemed a waiver of any other provision of this Agreement at such time or shall be deemed a waiver of such provision at any other time. Failure to enforce any provision of this Agreement, by either party, shall not be construed as a waiver of that provision.

d. *Notice.* Any notice or communication required or permitted to be given under this Agreement shall be in writing and shall be served on the Parties at the address of the recipient Party listed above or to such other address, as any Party may by written notice designate. Any notice or communication required, permitted or desired to be given by any provision of this Agreement shall be sent either (i) by prepaid certified or registered mail, return receipt requested, in which case notice shall be deemed received three business days after deposit, postage prepaid in the United States Mail; (ii) by nationally recognized overnight courier, in which case notice shall be deemed received one business day after deposit with such courier provided that such courier has written evidence of delivery to such Party's address; or (iii) by facsimile with appropriate electronic confirmation or receipt.

e. *Surviving Provisions.* The Parties expressly agree that the provisions contained in Section 6 regarding Price and Revenue Sharing relative to the Products shall survive the expiration and/or earlier termination of this Agreement unless otherwise agreed by the Parties or in the event of a breach of this Agreement by either Party. Additionally, the provisions of Section 5, 7, 6, 9, 10, and 11 shall survive the expiration of earlier termination of this Agreement.

f. *Assignment.* This Agreement is non-transferable except as permitted in this paragraph. Either Party to this Agreement may assign its interest under this Agreement to any entity controlling, controlled by or under common control with such Party or an entity which is succeeding to the entire business of Company; provided, however, that either Party must assign its rights and obligations under this Agreement to any purchaser of all or substantially all of the assets of said Party, in which case the purchaser shall remain liable for all of such Party's obligations hereunder.

g. *Relationship of the Parties*. Nothing in this Agreement is intended to create an exclusive business relationship between the Parties except as set out herein, nor will this Agreement be deemed or construed to constitute or create between the Parties a partnership, joint venture, agency, or other legal business entity.

h. *Provision Rendered Invalid*. If any provision of this Agreement is invalid, illegal or incapable of being enforced under any rule of law or public policy, Amedica may terminate this Agreement forthwith or, at its option, continue the Agreement as so modified by law or policy.

i. *Force Majeure*. If during the term of this Agreement an event of force majeure should prevent either party from fulfilling contractual obligations, the party so affected shall be excused from any liability for non-performance during the period of such force majeure; provided however, if such force majeure continues for more than thirty [***] then either party may terminate this Agreement.

j. *Ability to Contract.* The Parties represent and warrant to each other that they are not prohibited from entering into this Agreement, selling the Products or otherwise conducting business with each other as contemplated herein, whether due to any contract to which either is a party, or other commitment or obligation binding on either party.

k. *Production.* Nothing herein shall be deemed to require that Amedica continue the production of any Product. Amedica shall not be liable for delays in delivery or failure to perform any obligation hereunder due to force majeure or any other cause beyond its control, including, but not limited to, vendor problems, labor disputes, acts of war or terrorism, fire, delays in transportation or shortages of materials or transportation supplies.

l. *Confidential Nature of Terms and Provisions.* The Parties acknowledge and agree that the terms and provisions of this Agreement are confidential in nature and not to be disseminated to any third party unless required by law, court order, or other legal mandate. Notwithstanding the foregoing, the parties are free to reference the existence of the business relationships between them in press releases, company websites, and any other public forum provided that such information publicly disclosed be limited to the fact that the parties have entered into an agreement and the products made the subject matter of that agreement.

m. *Multiple Counterparts.* This Agreement may be executed in multiple counterparts, each of which shall be deemed to be an original instrument, but both such counterparts together shall constitute but one agreement.

n. *Compliance with Laws and Regulations.* The Parties represent and warrant that they: (i) will not violate or cause the other Party to violate any provision of United States law; (ii) shall comply at all times with all worldwide applicable laws, including, without limitation, those related to medical devices, health care fraud and abuse and all federal and state health care reimbursement programs,

advertising, warranties, environmental concerns, national security, registration of commercial representatives, and employment; (iii) shall comply with the regulatory requirements of each jurisdiction in which the Products are sold, to the extent that the same apply to the parties' respective obligations under this Agreement.

NOW THEREFORE, the undersigned have executed this Agreement as of the Effective Date.

AMEDICA CORPORATION

/s/ Ben R. Shappley
Ben R. Shappley, CEO

ORTHOPAEDIC SYNERGY, INC.

Its: /s/ R.D. Nikolaev, CEO

R.D. Nikolaev, CEO

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

CONFIDENTIAL TREATMENT REQUESTED

FIRST AMENDMENT AND ADDENDUM

TO DISTRIBUTION AGREEMENT

DATED: To be Effective as of November 1, 2012 (the "Amendment Date").

PARTIES: The Parties, each individually a "Party", to this First Amendment and Addendum to Distribution Agreement (herein the "First Amendment") are:

(a) Orthopeadic Synergy Inc., a Delaware corporation ("OSI");

(b) Amedica Corporation, ("Amedica"). OSI and Amedica are collectively referred to as the "Parties."

RECITALS

OSI and Amedica entered into that certain Distribution Agreement dated February 22, 2010 (the "Agreement"). All capitalized terms in the Agreement which are not defined in this First Amendment will have the definitions ascribed to them in the Agreement.

OSI and Amedica desire to amend the Agreement, as more particularly set forth in this First Amendment.

The Parties therefore agree as follows:

1. Incorporation of Recitals. All of the forgoing Recitals are hereby incorporated as agreements of the Parties.

2. Amendments to the Agreement. OSI and Amedica hereby amend the Agreement as follows:

A. Section 1(b), in the Definition Section of the Agreement is replaced by the following Section 1(b), which amends, supersedes and replaces Section 1(b) of the Agreement in its entirety:

b. ***"Territory" means all countries in the world, including the USA.***

B. Section 2(a), in the Definition Section of the Agreement is replaced by the following Section 2(a), which amends, supersedes and replaces Section 2(a) of the Agreement in its entirety:

2(a) ***Distribution Product Supply. Subject to the terms and conditions of this Agreement, Amedica shall use reasonable efforts to supply OSI with quantities and sizes of the Products as requested by OSI pursuant to written purchase orders. Specifically, Amedica agrees to***

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

provide OSI with all requested Products before providing [***] ***to any other customer of Amedica. Purchase orders shall not be binding on Amedica until accepted by Amedica and Amedica shall notify OSI promptly in the event that it rejects any purchase order which Amedica may do in the event*** [***]**.**

C. Section 4(a) of the Agreement is replaced by the following Section 4(a), which amends, supersedes and replaces Section 4(a) of the Agreement in its entirety:

4(a) Term. The term of this Agreement shall begin upon the Effective Date and expire eight (8) years from regulatory approval or clearance of the Product unless earlier terminated (the "Term"). The Parties shall be free to mutually agree to any extension or renewal of this Agreement to the extent that same is memorialized in writing and signed by both Parties.

D. Sections 6(a), 6(b), 6(c) and 6(d) of the Agreement are replaced by the following Section 6(a-d), which amends, supersedes and replaces Sections 6(a), 6(b), 6(c) and 6(d) of the Agreement in their entirety:

(a-d) Pricing: The Parties agree that the pricing of the Products will [***]**.**

E. Section 9(b) of the Agreement is replaced by the following Section 9(b), which amends, supersedes and replaces Section 9(b) of the Agreement in its entirety:

9(b) By OSI. OSI shall defend, indemnify and hold harmless Amedica from and against any claim, liabilities, losses, damages, costs and expenses (including reasonable attorney fees and other costs and expenses) associated with any claim or action that arises out of or relates to: (i) any acts or omissions of OSI or its employees, agents or other representatives; (ii) any claims arising from the marketing, promotion or distribution of the Products by OSI or its employees, agents or other representatives; (iii) any failure of OSI, or its employees, agents or other representatives to comply with any obligation under this Agreement; (iv) any claim that arises out of any promises, representations or warranties that OSI, or its employees, agents or other representatives, make to customers or other persons or entities, express, implied or

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

otherwise; (v) any claim arising out of any sale by OSI or its employees, agents or other representatives (except to the extent caused by Amedica's errors or omissions); (vi) any unauthorized use of the Products by any party obtaining the Products from OSI or its employees, agents or other representatives; or (vii) any claim that the OSI Hip System infringes any United States patent, copyright, trademark or trade secret under United States law.

3. Addendums to the Agreement: OSI and Amedica hereby addend the Agreement as follows:

   A. The following Section, 3(f), is added by Addendum to the Agreement in its entirety:

      f. Regulatory Submission: SiN on Polyethylene

         (i) 510(k) Application: The Parties wish to proceed with a 510(k) application (the "510(k)") for the application of SiN with polyethylene. [***]**.**

         (ii) Ownership of 510(k). The 510(k) shall be owned by [***] ***to the extent permitted by law and the regulatory authorities, the rights, responsibilities, obligations with respect to the 510(k).***

   B. The following Section, 3(g), is added by Addendum to the Agreement in its entirety:

      3(g) Exclusivity Period: Amedica agrees that for a period of [***]***, which time period shall begin to run upon the Product's*** [***] ***in the US market (the "Exclusive License Period"), Amedica shall not*** [***] ***or otherwise*** [***] ***the SiN technology embodied in each such Product to any third party for use in hip and/or knee systems or components, worldwide***.

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

C. The following Section, 11(o), is added by Addendum to the Agreement in its entirety:

(o): ***Change of Control: In the event of a Change of Control as defined herein, the Parties acknowledge and agree that any successor entity to either Amedica or OSI shall be bound by each and every of the terms and provisions of this Agreement and that any failure of a successor entity to abide by same shall be considered a material breach of this Agreement.***

For purposes of this Agreement, Change of Control means:

(i) any public report or notice is filed with any authority in the United States, or any public announcement is made, that discloses that any person has become the beneficial owner, directly or indirectly, of 50 percent or more of the outstanding voting stock of Amedica or OSI;

(ii) any person purchases securities pursuant to an offer for cash or exchange of securities to acquire any voting stock of Amedica or OSI (or any securities convertible into voting stock of Amedica or OSI) and, immediately after consummation of that purchase, that person is the beneficial owner, directly or indirectly, of 50 percent or more of the outstanding voting stock of Amedica or OSI;

(iii) the consummation of

(a) a merger, stock exchange plan, consolidation or reorganization of Amedica or OSI with or into any other person if as a result of such merger, stock exchange plan, consolidation or reorganization, less than 50 percent of the combined voting power of the then-outstanding securities of such other person immediately after such merger, consolidation or reorganization are held in the aggregate by the holders of voting stock of Amedica or OSI immediately prior to such merger, stock exchange plan, consolidation or reorganization;

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

(b) any sale, lease, exchange or other transfer of all or substantially all the assets of Amedica or OSI and their respective consolidated subsidiaries to any other person if as a result of such sale, lease, exchange or other transfer, less than 50 percent of the combined voting power of the then-outstanding securities of such other person immediately after such sale, lease, exchange or other transfer are held in the aggregate by the holders of voting stock of Amedica or OSI immediately prior to such sale, lease, exchange or other transfer; or

(c) a transaction immediately after the consummation of which any person (within the meaning of Section 13(d) or Section l4(d)(2) of the Exchange Act) would be the beneficial owner (as that term is defined in Rule 13d-3or any successor rule or regulation promulgated under the Exchange Act), directly or indirectly, of more than 50 percent of the outstanding voting stock of Amedica or OSI; or

(iv) the dissolution of Amedica or OSI is approved in accordance with the laws of the jurisdiction of formation of the respective Party.

4. No Other Amendments. Except as provided in Section 2 and 3 of this First Amendment, the terms and provisions of the Agreement remain unmodified and in full force and effect.

5. Counterparts And Facsimile Signatures . This First Amendment may be executed in multiple counterparts, each of which is an original for any and all purposes and all of which together shall constitute one and the same instrument, and facsimile signatures shall be deemed sufficient to bind either Party hereto.

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

CONFIDENTIAL TREATMENT REQUESTED

IN WITNESS WHEREOF, the Parties have executed this First Amendment as of the Amendment Date.

Orthopaedic Synergy, Inc.	Amedica Corporation
By: /s/ [Illegible]	By: /s/ Eric K. Olson
Name: Illegible	Name: Eric K. Olson
Title:	Title: President / CEO

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Secretary of the Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 406 of the Securities Act of 1933, as amended.

Exhibit 10.13.1

Award No. RSU-150

AMEDICA CORPORATION
Restricted Stock Unit Award Notice
under the Company's
2012 Employee, Director and Consultant
Equity Incentive Plan

1.	Name and Address of Participant:	Jay Moyes 1633 Stone Ridge Drive Bountiful, UT 84010
2.	Date of Award:	October 30, 2013
3.	Type of Grant:	Restricted Stock Unit
4.	Number of RSUs:	1,500,000

Amedica Corporation, a Delaware corporation (the "Company") hereby grants to the above named Participant the aggregate number of RSUs shown above (the "Restricted Stock Unit Award") which represents a contingent entitlement of the Participant to receive shares of the Company's common stock, on the terms and conditions and subject to all the limitations set forth herein and in the 2012 Employee, Director and Consultant Equity Incentive Plan (the "Plan"), which is incorporated herein by reference. The Participant acknowledges receipt of a copy of the Plan.

The Company and the Participant hereby acknowledge receipt of this Grant and agree to the terms of the Restricted Stock Unit Agreement attached hereto and incorporated by reference herein, the Plan and the terms of this Restricted Stock Unit Award as set forth above.

AMEDICA CORPORATION

By: /s/ Kevin Ontiveros
Name: Kevin Ontiveros
Title: Chief Legal Officer

PARTICIPANT:

/s/ Jay Moyes
Jay Moyes

NOW, THEREFORE, in consideration of the promises and the mutual covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

1. Grant of Award. The Company hereby grants to the Participant an aggregate number of RSUs as set forth in the Restricted Stock Unit Award Notice (the "Award") which represents a contingent entitlement of the Participant to receive shares of Common Stock, on the terms and conditions and subject to all the limitations set forth herein and in the Plan, which is incorporated herein by reference. The Participant acknowledges receipt of a copy of the Plan. The Company and the Participant understand and agree that any terms used and not defined herein have the meanings ascribed to such terms in the Plan.

2. Vesting and Forfeiture of Award. The Award granted hereby shall become vested as to the number of RSUs set forth below as of the applicable Event Vesting Date provided that the Participant is employed by the Company on the Event Vesting Date:

Event Vesting Date	Number of RSUs
On the first day of Participant's employment with the Company	500,000 units
Upon the successful restructuring of GE capital debt provided that such event occurs prior to January 31, 2014	500,000 units
Upon the pricing of an IPO provided that such event occurs prior to June 30, 2014	500,000 units

As of the date on which the Participant's employment with the Company terminates, all unvested RSUs subject to the Award shall immediately be forfeited to the Company.

Notwithstanding the foregoing, the Award shall be deemed fully vested as to all of the RSUs subject to the Award upon the first to occur of the following events:

(i) On the day of and immediately prior to a Change in Control (as defined below) provided that the Participant is employed by the Company or an Affiliate on such date; or

(ii) On the day of a termination of Executive's employment due to Executive's Disability (as defined below) or death.

"Change of Control" means any person (as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")) becomes the "beneficial owner" (as defined in Rule 13d-3 under the Act), directly or indirectly, of securities of the Company representing 50% or more of the total voting power represented by the Company's then outstanding voting securities (excluding for this purpose any such voting securities held by the Company or its Affiliates or by any employee benefit plan of the Company) pursuant to a transaction or a series of related transactions of which the Board does not approve; (ii) a merger or consolidation of the Company, whether or not approved by the Board, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or the parent of

such corporation) more than 50% of the total voting power represented by the voting securities of the Company or such surviving entity or parent of such corporation, as the case may be, outstanding immediately after such merger or consolidation; or (iii) the stockholders of the Company approve an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets. "Change in Control" shall be interpreted in a manner, and limited to the extent necessary, so that it will not cause adverse tax consequences for either party with respect to Section 409A of the Code and the rules and regulations thereunder ("Section 409A").

"Disability" shall mean the inability of the Participant to perform the principal functions of his duties due to a physical or mental impairment, but only if such inability has lasted or is reasonably expected to last for at least sixty (60) consecutive days or an aggregate of one hundred twenty (120) days during any twelve-month period. Whether the Participant has a Disability will be determined by a majority of the Board based on evidence provided by one or more physicians selected by the Board and approved by the Participant, which approval shall not be unreasonably withheld.

(c) Issuance of Shares. The Participant shall not be entitled to receive shares for any vested RSUs until the first to occur of the following (the "Release Date"):

(i) A Change in Control; or

(ii) a separation from service from the Company for any reason in compliance with Section 409A of the Code.

Subject to Section 8 hereof, the Company shall issue on the Release Date to the Participant (or, in the event of the Participant's death, to the Participant's Survivor) in certificated or uncertificated form shares of Common Stock equal to the number of vested RSUs. Notwithstanding the foregoing, if the Participant is deemed at the time of the Participant's separation from service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, the issuance of the shares of Common Stock may be delayed in order to avoid an additional tax under Section 409A(a)(1)(B) of the Code and the shares of Common Stock shall not be issued to the Participant until the earlier of (a) the first business day following the expiration of the six-month period measured from the date of the Participant's separation from service, (b) the date of the Participant's death, or (c) such earlier date that shall avoid the imposition of the additional tax under Section 409A(a)(1)(B).

3. Limitations on Transfer and Sale.

(a) Prohibitions on Transfer of Award. This Award (including any additional RSUs received by the Participant as a result of stock dividends, stock splits or any other similar transaction affecting the Company's securities without receipt of consideration) shall not be transferable by the Participant otherwise than by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order as defined by the Code or Title I of the Employee Retirement Income Security Act or the rules thereunder. Except as provided in the previous sentence, the shares of Common Stock to be issued pursuant to this Agreement shall be issued, during the Participant's lifetime, only to the Participant (or, in the event of legal incapacity or incompetence, to the Participant's guardian or representative). This Award shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of this Award or of any rights granted hereunder contrary to the provisions of this Section 3, or the levy of any attachment or similar process upon this Award shall be null and void.

(b) Limitations on Sale of Shares. The shares of Common Stock issued to the Participant hereunder (the "Issued Shares") shall not be transferred by the Participant except as permitted in this Section 3 and Section 5.

(c) The Participant agrees that in the event the Company proposes to offer for sale to the public any of its equity securities and such Participant is requested by the Company and any underwriter engaged by the Company in connection with such offering to sign an agreement restricting the sale or other transfer of the shares of Common Stock (or any shares into which such Common Stock has been converted), then it will promptly sign such agreement and will not transfer, whether in privately negotiated transactions or to the public in open market transactions or otherwise, any shares of Common Stock or other securities of the Company held by him or her during such period as is determined by the Company and the underwriters, not to exceed 180 days following the closing of the offering, plus such additional period of time as may be required to comply with NASD Marketplace Rule 2711 or similar rules thereto (such period, the "Lock-Up Period"). Such agreement shall be in writing and in form and substance reasonably satisfactory to the Company and such underwriter and pursuant to customary and prevailing terms and conditions. Notwithstanding whether the Participant has signed such an agreement, the Company may impose stop-transfer instructions with respect to the shares of Common Stock or other securities of the Company subject to the foregoing restrictions until the end of the Lock-Up Period.

(d) The Participant acknowledges and agrees that neither the Company nor, its shareholders nor its directors and officers, has any duty or obligation to disclose to the Participant any material information regarding the business of the Company or affecting the value of the shares of Common Stock before, at the time of, or following the Participant's termination, including, without limitation, any information concerning plans for the Company to make a public offering of its securities or to be acquired by or merged with or into another firm or entity.

4. Adjustments. The Plan contains provisions covering the treatment of RSUs and shares of Common Stock in a number of contingencies such as stock splits and mergers. Provisions in the Plan for adjustment with respect to this Award and the related provisions with respect to successors to the business of the Company are hereby made applicable hereunder and are incorporated herein by reference.

5. Purchase for Investment; Securities Law Compliance. The Participant hereby represents and warrants that he or she is acquiring the RSUs for his or her own account, for investment, and not with a view to, or for sale in connection with, the distribution of any Common Stock. The Participant specifically acknowledges and agrees that any sales of Common Stock shall be made in accordance with the requirements of the Securities Act of 1933, as amended, in a transaction as to which the Company shall have received an opinion of counsel satisfactory to it confirming such compliance. The Participant shall be bound by the provisions of the following legend which shall be endorsed upon the certificate(s) evidencing the Common Stock:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN TAKEN FOR INVESTMENT AND THEY MAY NOT BE SOLD OR OTHERWISE TRANSFERRED BY ANY PERSON, INCLUDING A PLEDGEE, UNLESS (1) EITHER (A) A REGISTRATION STATEMENT WITH RESPECT TO SUCH SHARES SHALL BE EFFECTIVE UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) THE COMPANY SHALL HAVE RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO IT THAT AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT IS THEN AVAILABLE, AND (2) THERE SHALL HAVE BEEN COMPLIANCE WITH ALL APPLICABLE STATE SECURITIES LAWS."

The Participant acknowledges that if the Participant is not a United States employee, he or she has been informed that the Common Stock or other securities of the Company to be received by the Participant under this Agreement are subject to restrictions on resale under securities laws applicable to such Participant based on the jurisdiction of such Participant. The Participant agrees not to sell any such Common Stock or other securities except in accordance with such laws.

6. Rights as a Stockholder. The Participant shall have no right as a stockholder, including voting and dividend rights, with respect to the RSUs subject to this Agreement.

7. Incorporation of the Plan. The Participant specifically understands and agrees that this Award and the shares of Common Stock to be issued under the Plan are being issued to the Participant pursuant to the Plan, a copy of which Plan the Participant acknowledges he or she has read and understands and by which Plan he or she agrees to be bound. The provisions of the Plan are incorporated herein by reference.

8. Tax Liability of the Participant and Payment of Taxes.

The Participant acknowledges and agrees that any income or other taxes, fees or other amounts due from the Participant with respect to this Award or the shares of Common Stock to be issued pursuant to this Agreement or otherwise sold shall be the Participant's responsibility. The Participant shall pay to the Company, or make provision satisfactory to the Company for payment of, any taxes or other amounts required to be withheld by the Company in accordance with applicable law or regulation no later than the date of the event creating the tax liability.

Any taxes or other amounts required to be withheld by the Company by applicable law or regulation shall be paid, at the option of the Company as follows:

(i) through reducing the number of shares of Common Stock actually issued to the Participant in an amount equal to the statutory minimum of the Participant's total tax and other withholding obligations due and payable by the Company. Fractional shares will not be retained to satisfy any portion of the Company's withholding obligation. Accordingly, the Participant agrees that in the event that the amount of withholding required would result in a fraction of a share being owed, that amount will be satisfied by withholding the fractional amount from the Participant's paycheck;

(ii) requiring the Participant to deposit with the Company an amount of cash equal to the amount determined by the Company to be required to be withheld with respect to the statutory minimum amount of the Participant's total tax and other withholding obligations due and payable by the Company or otherwise withholding from the Participant's paycheck an amount equal to such amounts due and payable by the Company; or

(iii) if the Company believes that the sale of shares can be made in compliance with applicable securities laws, authorizing, at a time when the Participant is not in possession of material nonpublic information, the sale by the Participant on the date of vesting of the RSUs such number of shares of Common Stock as the Company instructs a broker to sell to satisfy the Company's withholding obligation, after deduction of the broker's commission, and the broker shall remit to the Company the cash necessary in order for the Company to satisfy its withholding obligation. To the extent the proceeds of such sale exceed the Company's withholding obligation the Company agrees to pay such excess cash to the Participant as soon as practicable. In addition, if such sale is not sufficient to pay the Company's withholding obligation the Participant agrees to pay to the Company as soon as practicable, including through additional payroll withholding, the amount of any withholding obligation that is not satisfied by the sale of shares of Common Stock. The Participant agrees to hold the Company and the broker harmless from all costs, damages or expenses relating to any such sale. The Participant acknowledges that the Company and the broker are under no obligation to arrange for such sale at any particular price. In connection with such sale of shares of Common Stock, the Participant shall execute any such documents requested by the broker in order to effectuate the sale of shares of Common Stock and payment of the withholding obligation to the Company. The Participant acknowledges that this paragraph is intended to comply with Section 10b5-1(c)(1)(i)(B) under the Exchange Act.

The Company shall not deliver any shares of Common Stock to the Participant until it is satisfied that all required withholdings have been made.

9. No Obligation to Maintain Relationship. The Participant acknowledges that: (i) the Company is not by the Plan, this Award or this Agreement obligated to continue the Participant as an Employee, director or Consultant of the Company or an Affiliate; (ii) the Plan is discretionary in nature and may be suspended or terminated by the Company at any time; (iii) the grant of this Award is a one-time benefit which does not create any contractual or other right to receive any other award under the Plan, or benefits in lieu of awards or any other benefits in the future; (iv) the Participant's participation in the Plan is voluntary and future awards, if any, will be at the sole discretion of the Company, including, but not limited to, the timing of any grant, the amount of any award, vesting provisions and purchase price, if any; (vi) the value of this Award is an extraordinary item of compensation which is outside the scope of the Participant's employment contract, if any; and (vii) the Award is not part of normal or expected compensation for purposes of calculating any severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments.

10. Notices. Any notices required or permitted by the terms of this Agreement or the Plan shall be given by recognized courier service, facsimile, registered or certified mail, return receipt requested, addressed as follows:

If to the Company:

Amedica Corporation
1885 W 2100 South
Attn: Chief Legal Officer
Salt Lake City, UT 84119

If to the Participant:

To the address set forth in the Company's records.

or to such other address or addresses of which notice in the same manner has previously been given. Any such notice shall be deemed to have been given on the earliest of receipt, one business day following delivery by the sender to a recognized courier service, or three business days following mailing by registered or certified mail.

11. Benefit of Agreement. Subject to the provisions of the Plan and the other provisions hereof, this Agreement shall be for the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

12. Governing Law. This Agreement shall be construed and enforced in accordance with the laws of the State of Delaware, without giving effect to the conflict of law principles thereof. For the purpose of litigating any dispute that arises under this Agreement, whether at law or in equity, the parties hereby consent to exclusive jurisdiction in Utah and agree that such litigation shall be conducted in the state courts of Salt Lake City, Utah or the federal courts of the United States for the District of Utah.

13. Severability. If any provision of this Agreement is held to be invalid or unenforceable by a court of competent jurisdiction, then such provision or provisions shall be modified to the extent necessary to make such provision valid and enforceable, and to the extent that this is impossible, then such provision shall be deemed to be excised from this Agreement, and the validity, legality and enforceability of the rest of this Agreement shall not be affected thereby.

14. Entire Agreement. This Agreement, together with the Plan, constitutes the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement not expressly set forth in this Agreement shall affect or be used to interpret, change or restrict the express terms and provisions of this Agreement provided, however, in any event, this Agreement shall be subject to and governed by the Plan.

15. Modifications and Amendments; Waivers and Consents. The terms and provisions of this Agreement may be modified or amended as provided in the Plan. Except as provided in the Plan, the terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent shall be deemed to be or shall constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent shall be effective only in the specific instance and for the purpose for which it was given, and shall not constitute a continuing waiver or consent.

16. Counterparts. This Agreement may be executed in one or more counterparts, and by different parties hereto on separate counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

17. Data Privacy. By entering into this Agreement, the Participant: (i) authorizes the Company and each Affiliate, and any agent of the Company or any Affiliate administering the Plan or providing Plan record keeping services, to disclose to the Company or any of its Affiliates such information and data as the Company or any such Affiliate shall request in order to facilitate the issuance of the Award or shares of Common Stock and the administration of the Plan; (ii) consents to the collection, use and disclosure of personal information (which may include name, home and business contact information, personal identifiers such as a date of birth and social insurance number for tax reporting purposes, employment, position and compensation) by the Company for the purpose of administering the Plan, providing Plan recordkeeping services and facilitating the grant of Stock Rights under the Plan including this Award of Restricted Stock Units and consents to the disclosure of this information by the Company to any Affiliate of the Company for such purposes; and (iii) authorizes the Company and each Affiliate to store and transmit such information in electronic form. The Company is located in, and the Plan will be administered (in whole or in part) in the United States and some or all of the personal information may become subject to the laws of, and accessible to, the authorities of the United States.

18. Section 409A. The Award of RSUs evidenced by this Agreement is intended to comply with the nonqualified deferred compensation rules of Section 409A of the Code and shall be construed accordingly. In any event, the Company makes no representations or warranties and will have no liability to the Participant or to any other person, if any of the provisions of or payments under this Agreement is determined to constitute nonqualified deferred compensation subject to Section 409A of the Code but that do not satisfy the requirements of that Section.

Exhibit 10.15

AMEDICA CORPORATION

AMENDED AND RESTATED 2012 EQUITY INCENTIVE PLAN

1. DEFINITIONS.

Unless otherwise specified or unless the context otherwise requires, the following terms, as used in this Amedica Corporation Amended and Restated 2012 Equity Incentive Plan, have the following meanings:

Administrator means the Board of Directors, unless it has delegated power to act on its behalf to the Committee, in which case the Administrator means the Committee.

Affiliate means a corporation which, for purposes of Section 424 of the Code, is a parent or subsidiary of the Company, direct or indirect.

Agreement means an agreement between the Company and a Participant delivered pursuant to the Plan and pertaining to a Stock Right, in such form as the Administrator shall approve.

Board of Directors means the Board of Directors of the Company.

Cause means, with respect to a Participant, (i) the commission by the Participant of an act of fraud or embezzlement against the Company or any Affiliate, (ii) a breach of one or more of the following duties to the Company or any Affiliate: (A) the duty of loyalty, (B) the duty not to take willful actions which would reasonably be viewed by the Company as placing a Participant' s interest in a position adverse to the interest of the Company, (C) the duty not to engage in self-dealing with respect to the Company's assets, properties or business opportunities, except as approved in writing by the Board, (D) the duty of honesty or (E) any other fiduciary duty which the Participant owes to the Company or any Affiliate, (iii) a conviction of the Participant (or a plea of nolo contendere in lieu thereof) for (A) a felony or (B) a crime involving fraud, dishonesty or moral turpitude, (iv) intentional misconduct with respect to his duties to the Company or an Affiliate, including, but not limited to, knowing and intentional violation by a Participant of written policies of the Company, including policies regarding confidential information and non-competition, or specific directions of the Board or superior officers of the Company, which policies or directives are neither illegal (or do not involve illegal conduct) nor do they require a Participant to violate reasonable business ethical standards, or (v) the failure of a Participant, after written notice from the Company, to render services to the Company in accordance with his employment or other relationship with the Company, which failure is not cured within 10 days of receipt of such notice; provided, however, that any provision in an agreement between a Participant and the Company or an Affiliate, which contains a conflicting definition of Cause for termination and which is in effect at the time of such termination, shall supersede this definition with respect to that Participant. The determination of the Administrator as to the existence of Cause will be conclusive on the Participant and the Company.

Code means the United States Internal Revenue Code of 1986, as amended including any successor statute, regulation and guidance thereto.

Committee means the committee of the Board of Directors to which the Board of Directors has delegated power to act under or pursuant to the provisions of the Plan.

Common Stock means shares of the Company's common stock, $.01 par value per share.

Company means Amedica Corporation, a Delaware corporation.

Consultant means any natural person who is an advisor or consultant that provides bona fide services to the Company or its Affiliates, provided that such services are not in connection with the offer or sale of securities in a capital raising transaction, and do not directly or indirectly promote or maintain a market for the Company's or its Affiliates' securities.

Disability or Disabled means permanent and total disability as defined in Section 22(e)(3) of the Code.

Employee means any employee of the Company or of an Affiliate (including, without limitation, an employee who is also serving as an officer or director of the Company or of an Affiliate), designated by the Administrator to be eligible to be granted one or more Stock Rights under the Plan.

Exchange Act means the Securities Exchange Act of 1934, as amended.

Fair Market Value of a Share of Common Stock means:

(1) If the Common Stock is listed on a national securities exchange or traded in the over-the-counter market and sales prices are regularly reported for the Common Stock, the closing or, if not applicable, the last price of the Common Stock on the composite tape or other comparable reporting system for the trading day on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date;

(2) If the Common Stock is not traded on a national securities exchange but is traded on the over-the-counter market, if sales prices are not regularly reported for the Common Stock for the trading day referred to in clause (1), and if bid and asked prices for the Common Stock are regularly reported, the mean between the bid and the asked price for the Common Stock at the close of trading in the over-the-counter market for the trading day on which Common Stock was traded on the applicable date and if such applicable date is not a trading day, the last market trading day prior to such date; and

(3) If the Common Stock is neither listed on a national securities exchange nor traded in the over-the-counter market, such value as the Administrator, in good faith, shall determine.

ISO means an option intended to qualify as an incentive stock option under Section 422 of the Code.

Non-Qualified Option means an option which is not intended to qualify as an ISO.

Option means an ISO or Non-Qualified Option granted under the Plan.

Participant means an Employee, director or Consultant of the Company or an Affiliate to whom one or more Stock Rights are granted under the Plan. As used herein, "Participant" shall include "Participant's Survivors" where the context requires.

Plan means this Amedica Corporation Amended and Restated 2012 Equity Incentive Plan.

Securities Act means the Securities Act of 1933, as amended.

Shares means shares of the Common Stock as to which Stock Rights have been or may be granted under the Plan or any shares of capital stock into which the Shares are changed or for which they are exchanged within the provisions of Paragraph 3 of the Plan. The Shares issued under the Plan may be authorized and unissued shares or shares held by the Company in its treasury, or both.

Stock-Based Award means a grant by the Company under the Plan of an equity award or an equity based award which is not an Option or a Stock Grant.

Stock Grant means a grant by the Company of Shares under the Plan.

Stock Right means a right to Shares or the value of Shares of the Company granted pursuant to the Plan — an ISO, a Non-Qualified Option, a Stock Grant or a Stock-Based Award.

Survivor means a deceased Participant's legal representatives and/or any person or persons who acquired the Participant's rights to a Stock Right by will or by the laws of descent and distribution.

2. PURPOSES OF THE PLAN.

The Plan is intended to encourage ownership of Shares by Employees and directors of and certain Consultants to the Company and its Affiliates in order to attract and retain such people, to induce them to work for the benefit of the Company or of an Affiliate and to provide additional incentive for them to promote the success of the Company or of an Affiliate. The Plan provides for the granting of ISOs, Non-Qualified Options, Stock Grants and Stock-Based Awards.

3. SHARES SUBJECT TO THE PLAN.

(a) The number of Shares which may be issued from time to time pursuant to this Plan shall be the sum of: (i) [ ] shares of Common Stock and (ii) any shares of Common Stock that are represented by awards granted under the Company's 2003 Stock Option Plan that are forfeited, expire or are cancelled without delivery of shares of Common Stock or which result in the forfeiture of shares of Common Stock back to the Company on or after September 30, 2013, or the equivalent of such number of Shares after the Administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with Paragraph 24 of this Plan; provided, however, that no more than [ ] Shares shall be added to the Plan pursuant to subsection (ii).

(b) Notwithstanding Subparagraph (a) above, on the first day of each fiscal year of the Company during the period beginning in fiscal year 2014, and ending on the second day of fiscal year 2022, the number of Shares that may be issued from time to time pursuant to the Plan, shall be increased by an amount equal to the lesser of (i) [ ] or the equivalent of such number of Shares after the Administrator, in its sole discretion, has interpreted the effect of any stock split, stock dividend, combination, recapitalization or similar transaction in accordance with Paragraph 24 of the Plan; (ii) 5% of the number of outstanding shares of Common Stock on such date; and (iii) an amount determined by the Board. However, in no event shall the number of Shares available for issuance under this Plan be increased as set forth in this Subparagraph (b) to the extent such increase, in addition to any other increases proposed by the Board in the number of shares of Common Stock available for issuance under all other employee or director stock plans, including, without limitation, employee stock purchase plans, would result in the total number of shares of Common Stock then available for issuance under all employee and director stock plans exceeding 25% of the outstanding shares of the Company on the first day of the applicable fiscal year.

(c) If an Option ceases to be "outstanding", in whole or in part (other than by exercise), or if the Company shall reacquire (at not more than its original issuance price) any Shares issued pursuant to a Stock Grant or Stock-Based Award, or if any Stock Right expires or is forfeited, cancelled, or otherwise terminated or results in any Shares not being issued, the unissued or reacquired Shares which were subject to such Stock Right shall again be available for issuance from time to time pursuant to this Plan. Notwithstanding the foregoing, if a Stock Right is exercised, in whole or in part, by tender of Shares or if the Company or an Affiliate's tax withholding obligation is satisfied by withholding Shares, the number of Shares deemed to have been issued under the Plan for purposes of the limitation set forth in Paragraph 3(a) above shall be the number of Shares that were subject to the Stock Right or portion thereof, and not the net number of Shares actually issued. However, in the case of ISOs, the foregoing provisions shall be subject to any limitations under the Code.

4. ADMINISTRATION OF THE PLAN.

The Administrator of the Plan will be the Board of Directors, except to the extent the Board of Directors delegates its authority to the Committee, in which case the Committee shall be the Administrator. Subject to the provisions of the Plan, the Administrator is authorized to:

(a) Interpret the provisions of the Plan and all Stock Rights and to make all rules and determinations which it deems necessary or advisable for the administration of the Plan;

(b) Determine which Employees, directors and Consultants shall be granted Stock Rights;

(c) Determine the number of Shares for which a Stock Right or Stock Rights shall be granted, provided, however, that in no event shall Stock Rights with respect to more than [ ] Shares be granted to any Participant in any fiscal year;

(d) Specify the terms and conditions upon which a Stock Right or Stock Rights may be granted;

(e) Amend any term or condition of any outstanding Stock Right, including, without limitation, to reduce or increase the exercise price or purchase price, accelerate the vesting schedule or extend the expiration date, provided that (i) such term or condition as amended is permitted by the Plan; (ii) any such amendment shall not impair the rights of a Participant under any Stock Right previously granted without such Participant's consent or in the event of death of the Participant the Participant's Survivors; and (iii) any such amendment shall be made only after the Administrator determines whether such amendment would cause any adverse tax consequences to the Participant, including, but not limited to, the annual vesting limitation contained in Section 422(d) of the Code and described in Paragraph 6(b)(iv) below with respect to ISOs and pursuant to Section 409A of the Code;

(f) Buy out for a payment in cash or Shares, a Stock Right previously granted and/or cancel any such Stock Right and grant in substitution therefor other Stock Rights, covering the same or a different number of Shares and having an exercise price or purchase price per share which may be lower or higher than the exercise price or purchase price of the cancelled Stock Right, based on such terms and conditions as the Administrator shall establish and the Participant shall accept; and

(g) Adopt any sub-plans applicable to residents of any specified jurisdiction as it deems necessary or appropriate in order to comply with or take advantage of any tax or other laws applicable to the Company, any Affiliate or to Participants or to otherwise facilitate the administration of the Plan, which sub-plans may include additional restrictions or conditions applicable to Stock Rights or Shares issuable pursuant to a Stock Right;

provided, however, that all such interpretations, rules, determinations, terms and conditions shall be made and prescribed in the context of not causing any adverse tax consequences under Section 409A of the Code and preserving the tax status under Section 422 of the Code of those Options which are designated as ISOs. Subject to the foregoing, the interpretation and construction by the Administrator of any provisions of the Plan or of any Stock Right granted

under it shall be final, unless otherwise determined by the Board of Directors, if the Administrator is the Committee. In addition, if the Administrator is the Committee, the Board of Directors may take any action under the Plan that would otherwise be the responsibility of the Committee.

To the extent permitted under applicable law, the Board of Directors or the Committee may allocate all or any portion of its responsibilities and powers to any one or more of its members and may delegate all or any portion of its responsibilities and powers to any other person selected by it. The Board of Directors or the Committee may revoke any such allocation or delegation at any time. Notwithstanding the foregoing, only the Board of Directors or the Committee shall be authorized to grant a Stock Right to any director of the Company or to any "officer" of the Company as defined by Rule 16a-1 under the Exchange Act.

5. ELIGIBILITY FOR PARTICIPATION.

The Administrator will, in its sole discretion, name the Participants in the Plan; provided, however, that each Participant must be an Employee, director or Consultant of the Company or of an Affiliate at the time a Stock Right is granted. Notwithstanding the foregoing, the Administrator may authorize the grant of a Stock Right to a person not then an Employee, director or Consultant of the Company or of an Affiliate; provided, however, that the actual grant of such Stock Right shall be conditioned upon such person becoming eligible to become a Participant at or prior to the time of the execution of the Agreement evidencing such Stock Right. ISOs may be granted only to Employees who are deemed to be residents of the United States for tax purposes. Non-Qualified Options, Stock Grants and Stock-Based Awards may be granted to any Employee, director or Consultant of the Company or an Affiliate. The granting of any Stock Right to any individual shall neither entitle that individual to, nor disqualify him or her from, participation in any other grant of Stock Rights or any grant under any other benefit plan established by the Company or any Affiliate for Employees, directors or Consultants.

6. TERMS AND CONDITIONS OF OPTIONS.

Each Option shall be set forth in writing in an Option Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Administrator may provide that Options be granted subject to such terms and conditions, consistent with the terms and conditions specifically required under this Plan, as the Administrator may deem appropriate including, without limitation, subsequent approval by the shareholders of the Company of this Plan or any amendments thereto. The Option Agreements shall be subject to at least the following terms and conditions:

(a) Non-Qualified Options: Each Option intended to be a Non-Qualified Option shall be subject to the terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards for any such Non-Qualified Option:

(i) Exercise Price: Each Option Agreement shall state the exercise price (per share) of the Shares covered by each Option, which exercise price shall be determined by the Administrator and shall be at least equal to the Fair Market Value per share of Common Stock on the date of grant of the Option.

(ii) Number of Shares: Each Option Agreement shall state the number of Shares to which it pertains.

(iii) Option Periods: Each Option Agreement shall state the date or dates on which it first is exercisable and the date after which it may no longer be exercised, and may provide that the Option rights accrue or become exercisable in installments over a period of months or years, or upon the occurrence of certain conditions or the attainment of stated goals or events.

(iv) Option Conditions: Exercise of any Option may be conditioned upon the Participant's execution of a Share purchase agreement in form satisfactory to the Administrator providing for certain protections for the Company and its other shareholders, including requirements that:

A. The Participant's or the Participant's Survivors' right to sell or transfer the Shares may be restricted; and

B. The Participant or the Participant's Survivors may be required to execute letters of investment intent and must also acknowledge that the Shares will bear legends noting any applicable restrictions.

(v) Term of Option: Each Option shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide.

(b) ISOs: Each Option intended to be an ISO shall be issued only to an Employee who is deemed to be a resident of the United States for tax purposes, and shall be subject to the following terms and conditions, with such additional restrictions or changes as the Administrator determines are appropriate but not in conflict with Section 422 of the Code and relevant regulations and rulings of the Internal Revenue Service:

(i) Minimum standards: The ISO shall meet the minimum standards required of Non-Qualified Options, as described in Paragraph 6(a) above, except clause (i) and (v) thereunder.

(ii) Exercise Price: Immediately before the ISO is granted, if the Participant owns, directly or by reason of the applicable attribution rules in Section 424(d) of the Code:

A. 10% or less of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 100% of the Fair Market Value per share of the Common Stock on the date of grant of the Option; or

B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, the exercise price per share of the Shares covered by each ISO shall not be less than 110% of the Fair Market Value per share of the Common Stock on the date of grant of the Option.

(iii) Term of Option: For Participants who own:

A. 10% or less of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than ten years from the date of the grant or at such earlier time as the Option Agreement may provide; or

B. More than 10% of the total combined voting power of all classes of stock of the Company or an Affiliate, each ISO shall terminate not more than five years from the date of the grant or at such earlier time as the Option Agreement may provide.

(iv) Limitation on Yearly Exercise: The Option Agreements shall restrict the amount of ISOs which may become exercisable in any calendar year (under this or any other ISO plan of the Company or an Affiliate) so that the aggregate Fair Market Value (determined on the date each ISO is granted) of the stock with respect to which ISOs are exercisable for the first time by the Participant in any calendar year does not exceed $100,000.

7. TERMS AND CONDITIONS OF STOCK GRANTS.

Each Stock Grant to a Participant shall state the principal terms in an Agreement duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company, subject to the following minimum standards:

(a) Each Agreement shall state the purchase price per share, if any, of the Shares covered by each Stock Grant, which purchase price shall be determined by the Administrator but shall not be less than the minimum consideration required by the Delaware General Corporation Law, if any, on the date of the grant of the Stock Grant;

(b) Each Agreement shall state the number of Shares to which the Stock Grant pertains; and

(c) Each Agreement shall include the terms of any right of the Company to restrict or reacquire the Shares subject to the Stock Grant, including the time and events upon which such rights shall accrue and the purchase price therefor, if any.

8. TERMS AND CONDITIONS OF OTHER STOCK-BASED AWARDS.

The Administrator shall have the right to grant other Stock-Based Awards based upon the Common Stock having such terms and conditions as the Administrator may determine, including, without limitation, the grant of Shares based upon certain conditions, the grant of securities convertible into Shares and the grant of stock appreciation rights, phantom stock awards or stock units. The principal terms of each Stock-Based Award shall be set forth in an Agreement, duly executed by the Company and, to the extent required by law or requested by the Company, by the Participant. The Agreement shall be in a form approved by the Administrator and shall contain terms and conditions which the Administrator determines to be appropriate and in the best interest of the Company.

The Company intends that the Plan and any Stock-Based Awards granted hereunder be exempt from the application of Section 409A of the Code or meet the requirements of paragraphs (2), (3) and (4) of subsection (a) of Section 409A of the Code, to the extent applicable, and be operated in accordance with Section 409A so that any compensation deferred under any Stock-Based Award (and applicable investment earnings) shall not be included in income under Section 409A of the Code. Any ambiguities in the Plan shall be construed to effect the intent as described in this Paragraph 8.

9. EXERCISE OF OPTIONS AND ISSUE OF SHARES.

An Option (or any part or installment thereof) shall be exercised by giving written notice to the Company or its designee (in a form acceptable to the Administrator, which may include electronic notice), together with provision for payment of the aggregate exercise price in accordance with this Paragraph for the Shares as to which the Option is being exercised, and upon compliance with any other condition(s) set forth in the Option Agreement. Such notice shall be signed by the person exercising the Option (which signature may be provided electronically in a form acceptable to the Administrator), shall state the number of Shares with respect to which the Option is being exercised and shall contain any representation required by the Plan or the Option Agreement. Payment of the exercise price for the Shares as to which such Option is being exercised shall be made (a) in United States dollars in cash or by check, or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) having a Fair Market Value equal as of the date of the exercise to the aggregate cash exercise price for the number of Shares as to which the Option is being exercised, or (c) at the discretion of the Administrator, by having the Company retain from the Shares otherwise issuable upon exercise of the Option, a number of Shares having a Fair Market Value equal as of the date of exercise to the aggregate exercise price for the number of Shares as to which the Option is being exercised, or (d) at the discretion of the Administrator (after consideration of applicable securities, tax and accounting implications), by delivery of the grantee's personal recourse note bearing interest payable not less than annually at no less than 100% of the applicable Federal rate, as defined in Section 1274(d) of the Code, or (e) at the discretion of the Administrator, in accordance with a cashless exercise program established with a securities brokerage firm, and approved by the Administrator, or (f) at the discretion of the Administrator, by any combination of (a), (b), (c), (d) and (e) above or (g) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine. Notwithstanding the foregoing, the Administrator shall accept only such payment on exercise of an ISO as is permitted by Section 422 of the Code.

The Company shall then reasonably promptly deliver the Shares as to which such Option was exercised to the Participant (or to the Participant's Survivors, as the case may be). In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance. The Shares shall, upon delivery, be fully paid, non-assessable Shares.

10. PAYMENT IN CONNECTION WITH THE ISSUANCE OF STOCK GRANTS AND STOCK-BASED AWARDS AND ISSUE OF SHARES.

Any Stock Grant or Stock-Based Award requiring payment of a purchase price for the Shares as to which such Stock Grant or Stock-Based Award is being granted shall be made (a) in United States dollars in cash or by check, or (b) at the discretion of the Administrator, through delivery of shares of Common Stock held for at least six months (if required to avoid negative accounting treatment) and having a Fair Market Value equal as of the date of payment to the purchase price of the Stock Grant or Stock-Based Award, or (c) at the discretion of the Administrator (after consideration of applicable securities, tax and accounting implications), by delivery of the grantee's personal recourse note bearing interest payable not less than annually at no less than 100% of the applicable Federal rate, as defined in Section 1274(d) of the Code, or (d) at the discretion of the Administrator, by any combination of (a), (b) and (c) above; or (e) at the discretion of the Administrator, by payment of such other lawful consideration as the Administrator may determine.

The Company shall when required by the applicable Agreement, reasonably promptly deliver the Shares as to which such Stock Grant or Stock-Based Award was made to the Participant (or to the Participant's Survivors, as the case may be), subject to any escrow provision set forth in the applicable Agreement. In determining what constitutes "reasonably promptly," it is expressly understood that the issuance and delivery of the Shares may be delayed by the Company in order to comply with any law or regulation (including, without limitation, state securities or "blue sky" laws) which requires the Company to take any action with respect to the Shares prior to their issuance.

11. RIGHTS AS A SHAREHOLDER.

No Participant to whom a Stock Right has been granted shall have rights as a shareholder with respect to any Shares covered by such Stock Right except after due exercise of an Option or issuance of Shares as set forth in any Agreement, tender of the aggregate exercise or purchase price, if any, for the Shares being purchased and registration of the Shares in the Company's share register in the name of the Participant.

12. ASSIGNABILITY AND TRANSFERABILITY OF STOCK RIGHTS.

By its terms, a Stock Right granted to a Participant shall not be transferable by the Participant other than (i) by will or by the laws of descent and distribution, or (ii) as approved by the Administrator in its discretion and set forth in the applicable Agreement provided that no Stock Right may be transferred by a Participant for value. Notwithstanding the foregoing, an ISO transferred except in compliance with clause (i) above shall no longer qualify as an ISO. The designation of a beneficiary of a Stock Right by a Participant, with the prior approval of the Administrator and in such form as the Administrator shall prescribe, shall not be deemed a transfer prohibited by this Paragraph. Except as provided above during the Participant's lifetime a Stock Right shall only be exercisable by or issued to such Participant (or his or her legal representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of any Stock Right or of any rights granted thereunder contrary to the provisions of this Plan, or the levy of any attachment or similar process upon a Stock Right, shall be null and void.

13. EFFECT ON OPTIONS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE OR DEATH OR DISABILITY.

Except as otherwise provided in a Participant's Option Agreement, in the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate before the Participant has exercised an Option, the following rules apply:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate (for any reason other than termination for Cause, Disability, or death for which events there are special rules in Paragraphs 14, 15, and 16, respectively), may exercise any Option granted to him or her to the extent that the Option is exercisable on the date of such termination of service, but only within such term as the Administrator has designated in a Participant's Option Agreement.

(b) Except as provided in Subparagraph (c) below, or Paragraph 15 or 16, in no event may an Option intended to be an ISO, be exercised later than three months after the Participant's termination of employment.

(c) The provisions of this Paragraph, and not the provisions of Paragraph 15 or 16, shall apply to a Participant who subsequently becomes Disabled or dies after the termination of employment, director status or consultancy; provided, however, in the case of a Participant's Disability or death within three months after the termination of employment, director status or consultancy, the Participant or the Participant's Survivors may exercise the Option within one year after the date of the Participant's termination of service, but in no event after the date of expiration of the term of the Option.

(d) Notwithstanding anything herein to the contrary, if subsequent to a Participant's termination of employment, termination of director status or termination of consultancy, but prior to the exercise of an Option, the Administrator determines that, either prior or subsequent to the Participant's termination, the Participant engaged in conduct which would constitute Cause, then such Participant shall forthwith cease to have any right to exercise any Option.

(e) A Participant to whom an Option has been granted under the Plan who is absent from the Company or an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide; provided, however, that, for ISOs, any leave of absence granted by the Administrator of greater than ninety days, unless pursuant to a contract or statute that guarantees the right to reemployment, shall cause such ISO to become a Non-Qualified Option on the 181*st* day following such leave of absence.

(f) Except as required by law or as set forth in a Participant's Option Agreement, Options granted under the Plan shall not be affected by any change of a Participant's status within or among the Company and any Affiliates, so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

14. EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR CAUSE.

Except as otherwise provided in a Participant's Option Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause prior to the time that all his or her outstanding Options have been exercised:

(a) All outstanding and unexercised Options as of the time the Participant is notified his or her service is terminated for Cause will immediately be forfeited.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service but prior to the exercise of an Option, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute Cause, then the right to exercise any Option is forfeited.

15. EFFECT ON OPTIONS OF TERMINATION OF SERVICE FOR DISABILITY.

Except as otherwise provided in a Participant's Option Agreement:

(a) A Participant who ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability may exercise any Option granted to such Participant:

(i) To the extent that the Option has become exercisable but has not been exercised on the date of the Participant's termination of service due to Disability; and

(ii) In the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of the Participant's termination of service due to Disability of any additional vesting rights that would have accrued on the next vesting date had the Participant not become Disabled. The proration shall be based upon the number of days accrued in the current vesting period prior to the date of the Participant's termination of service due to Disability.

(b) A Disabled Participant may exercise the Option only within the period ending one year after the date of the Participant's termination of service due to Disability, notwithstanding that the Participant might have been able to exercise the Option as to some or all of the Shares on a later date if the Participant had not been terminated due to Disability and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

(c) The Administrator shall make the determination both of whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

16. EFFECT ON OPTIONS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.

Except as otherwise provided in a Participant's Option Agreement:

(a) In the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate, such Option may be exercised by the Participant's Survivors:

(i) To the extent that the Option has become exercisable but has not been exercised on the date of death; and

(ii) In the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of death of any additional vesting rights that would have accrued on the next vesting date had the Participant not died. The proration shall be based upon the number of days accrued in the current vesting period prior to the Participant's date of death.

(b) If the Participant's Survivors wish to exercise the Option, they must take all necessary steps to exercise the Option within one year after the date of death of such Participant, notwithstanding that the decedent might have been able to exercise the Option as to some or all of the Shares on a later date if he or she had not died and had continued to be an Employee, director or Consultant or, if earlier, within the originally prescribed term of the Option.

17. EFFECT OF TERMINATION OF SERVICE ON STOCK GRANTS AND STOCK-BASED AWARDS.

In the event of a termination of service (whether as an Employee, director or Consultant) with the Company or an Affiliate for any reason before the Participant has accepted a Stock Grant or a Stock-Based Award and paid the purchase price, if required, such grant shall terminate.

For purposes of this Paragraph 17 and Paragraph 18 below, a Participant to whom a Stock Grant has been issued under the Plan who is absent from work with the Company or with an Affiliate because of temporary disability (any disability other than a Disability as defined in Paragraph 1 hereof), or who is on leave of absence for any purpose, shall not, during the period of any such absence, be deemed, by virtue of such absence alone, to have terminated such Participant's employment, director status or consultancy with the Company or with an Affiliate, except as the Administrator may otherwise expressly provide.

In addition, for purposes of this Paragraph 17 and Paragraph 18 below, any change of employment or other service within or among the Company and any Affiliates shall not be treated as a termination of employment, director status or consultancy so long as the Participant continues to be an Employee, director or Consultant of the Company or any Affiliate.

18. EFFECT ON STOCK GRANTS OF TERMINATION OF SERVICE OTHER THAN FOR CAUSE OR DEATH OR DISABILITY.

Except as otherwise provided in a Participant's Stock Grant Agreement, in the event of a termination of service (whether as an Employee, director or Consultant), other than termination for Cause, Disability, or death for which events there are special rules in Paragraphs 19, 20, and 21, respectively, before all forfeiture provisions or Company rights of repurchase shall have lapsed, then the Company shall have the right to cancel or repurchase that number of Shares subject to a Stock Grant as to which the Company's forfeiture or repurchase rights have not lapsed.

19. EFFECT ON STOCK GRANTS OF TERMINATION OF SERVICE FOR CAUSE.

Except as otherwise provided in a Participant's Stock Grant Agreement, the following rules apply if the Participant's service (whether as an Employee, director or Consultant) with the Company or an Affiliate is terminated for Cause:

(a) All Shares subject to any Stock Grant whether or not then subject to forfeiture or repurchase shall be immediately subject to repurchase by the Company at par value.

(b) Cause is not limited to events which have occurred prior to a Participant's termination of service, nor is it necessary that the Administrator's finding of Cause occur prior to termination. If the Administrator determines, subsequent to a Participant's termination of service, that either prior or subsequent to the Participant's termination the Participant engaged in conduct which would constitute Cause, then all Shares subject to any Stock Grant that remained subject to forfeiture provisions or as to which the Company had a repurchase right on the date of termination shall be immediately forfeited to the Company.

20. EFFECT ON STOCK GRANTS OF TERMINATION OF SERVICE FOR DISABILITY.

Except as otherwise provided in a Participant's Stock Grant Agreement, the following rules apply if a Participant ceases to be an Employee, director or Consultant of the Company or of an Affiliate by reason of Disability: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of Disability, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant through the date of Disability as would have lapsed had the Participant not become Disabled. The proration shall be based upon the number of days accrued prior to the date of Disability.

The Administrator shall make the determination both as to whether Disability has occurred and the date of its occurrence (unless a procedure for such determination is set forth in another agreement between the Company and such Participant, in which case such procedure shall be used for such determination). If requested, the Participant shall be examined by a physician selected or approved by the Administrator, the cost of which examination shall be paid for by the Company.

21. EFFECT ON STOCK GRANTS OF DEATH WHILE AN EMPLOYEE, DIRECTOR OR CONSULTANT.

Except as otherwise provided in a Participant's Stock Grant Agreement, the following rules apply in the event of the death of a Participant while the Participant is an Employee, director or Consultant of the Company or of an Affiliate: to the extent the forfeiture provisions or the Company's rights of repurchase have not lapsed on the date of death, they shall be exercisable; provided, however, that in the event such forfeiture provisions or rights of repurchase lapse periodically, such provisions or rights shall lapse to the extent of a pro rata portion of the Shares subject to such Stock Grant through the date of death as would have lapsed had the Participant not died. The proration shall be based upon the number of days accrued prior to the Participant's date of death.

22. PURCHASE FOR INVESTMENT.

Unless the offering and sale of the Shares shall have been effectively registered under the Securities Act, the Company shall be under no obligation to issue Shares under the Plan unless and until the following conditions have been fulfilled:

(a) The person who receives a Stock Right shall warrant to the Company, prior to the receipt of Shares, that such person is acquiring such Shares for his or her own account, for investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person acquiring such Shares shall be bound by the provisions of the following legend (or a legend in substantially similar form) which shall be endorsed upon the certificate evidencing the Shares issued pursuant to such exercise or such grant:

> "The shares represented by this certificate have been taken for investment and they may not be sold or otherwise transferred by any person, including a pledgee, unless (1) either (a) a Registration Statement with respect to such shares shall be effective under the Securities Act of 1933, as amended, or (b) the Company shall have received an opinion of counsel satisfactory to it that an exemption from registration under such Act is then available, and (2) there shall have been compliance with all applicable state securities laws."

(b) At the discretion of the Administrator, the Company shall have received an opinion of its counsel that the Shares may be issued in compliance with the Securities Act without registration thereunder.

23. DISSOLUTION OR LIQUIDATION OF THE COMPANY.

Upon the dissolution or liquidation of the Company, all Options granted under this Plan which as of such date shall not have been exercised and all Stock Grants and Stock-Based Awards which have not been accepted, to the extent required under the applicable Agreement, will terminate and become null and void; provided, however, that if the rights of a Participant or a Participant's Survivors have not otherwise terminated and expired, the Participant or the Participant's Survivors will have the right immediately prior to such dissolution or liquidation to exercise or accept any Stock Right to the extent that the Stock Right is exercisable or subject to acceptance as of the date immediately prior to such dissolution or liquidation. Upon the dissolution or liquidation of the Company, any outstanding Stock-Based Awards shall immediately terminate unless otherwise determined by the Administrator or specifically provided in the applicable Agreement.

24. ADJUSTMENTS.

Upon the occurrence of any of the following events, a Participant's rights with respect to any Stock Right granted to him or her hereunder shall be adjusted as hereinafter provided, unless otherwise specifically provided in a Participant's Agreement:

(a) Stock Dividends and Stock Splits. If (i) the shares of Common Stock shall be subdivided or combined into a greater or smaller number of shares or if the Company shall issue any shares of Common Stock as a stock dividend on its outstanding Common Stock, or (ii) additional shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such shares of Common Stock, each Stock Right and the number of shares of Common Stock deliverable thereunder shall be appropriately increased or decreased proportionately, and appropriate adjustments shall be made including, in the exercise or purchase price per share, to reflect such events. The number of Shares subject to the limitations in Paragraph 3(a), 3(b) and 4(c) shall also be proportionately adjusted upon the occurrence of such events.

(b) Corporate Transactions. If the Company is to be consolidated with or acquired by another entity in a merger, consolidation, or sale of all or substantially all of the Company's assets other than a transaction to merely change the state of incorporation (a "Corporate Transaction"), the Administrator or the board of directors of any entity assuming the obligations of the Company hereunder (the "Successor Board"), shall, as to outstanding Options, either (i) make appropriate provision for the continuation of such Options by substituting on an equitable basis for the Shares then subject to such Options either the consideration payable with respect to the outstanding shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity; or (ii) upon written notice to the Participants, provide that such Options must be exercised (either (A) to the extent then exercisable or, (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph), within a specified number of days of the date of such notice, at the end of which period such Options which have not been exercised shall terminate; or (iii) terminate such Options in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock into which such Option would have been exercisable (either (A) to the extent then exercisable or, (B) at the discretion of the Administrator, any such Options being made partially or fully exercisable for purposes of this Subparagraph) less the aggregate exercise price thereof. For purposes of determining the payments to be made pursuant to Subclause (iii) above, in the case of a Corporate Transaction the consideration for which, in whole or in part, is other than cash, the consideration other than cash shall be valued at the fair value thereof as determined in good faith by the Board of Directors.

With respect to outstanding Stock Grants, the Administrator or the Successor Board, shall make appropriate provision for the continuation of such Stock Grants on the same terms and conditions by substituting on an equitable basis for the Shares then subject to such Stock Grants either the consideration payable with respect to the outstanding Shares of Common Stock in connection with the Corporate Transaction or securities of any successor or acquiring entity. In lieu of the foregoing, in connection with any Corporate Transaction, the Administrator may provide that, upon consummation of the Corporate Transaction, each outstanding Stock Grant shall be terminated in exchange for payment of an amount equal to the consideration payable upon consummation of such Corporate Transaction to a holder of the number of shares of Common Stock comprising such Stock Grant (to the extent such Stock Grant is no longer subject to any forfeiture or repurchase rights then in effect or, at the discretion of the Administrator, all forfeiture and repurchase rights being waived upon such Corporate Transaction).

In taking any of the actions permitted under this Paragraph 24(b), the Administrator shall not be obligated by the Plan to treat all Stock Rights, all Stock Rights held by a Participant, or all Stock Rights of the same type, identically.

(c) Recapitalization or Reorganization. In the event of a recapitalization or reorganization of the Company other than a Corporate Transaction pursuant to which securities of the Company or of another corporation are issued with respect to the outstanding shares of Common Stock, a Participant upon exercising an Option or accepting a Stock Grant after the recapitalization or reorganization shall be entitled to receive for the price paid upon such exercise or acceptance if any, the number of replacement securities which would have been received if such Option had been exercised or Stock Grant accepted prior to such recapitalization or reorganization.

(d) Adjustments to Stock-Based Awards. Upon the happening of any of the events described in Subparagraphs (a), (b) or (c) above, any outstanding Stock-Based Award shall be appropriately adjusted to reflect the events described in such Subparagraphs. The Administrator or the Successor Board shall determine the specific adjustments to be made under this Paragraph 24, including, but not limited to the effect of any, Corporate Transaction and, subject to Paragraph 4, its determination shall be conclusive.

(e) Modification of Options. Notwithstanding the foregoing, any adjustments made pursuant to Subparagraph (a), (b) or (c) above with respect to Options shall be made only after the Administrator determines whether such adjustments would (i) constitute a "modification" of any ISOs (as that term is defined in Section 424(h) of the Code) or (ii) cause any adverse tax consequences for the holders of Options, including, but not limited to, pursuant to Section 409A of the Code. If the Administrator determines that such adjustments made with respect to Options would constitute a modification or other adverse tax consequence, it may refrain from making such adjustments, unless the holder of an Option specifically agrees in writing that such adjustment be made and such writing indicates that the holder has full knowledge of the consequences of such "modification" on his or her income tax treatment with respect to the Option. This paragraph shall not apply to the acceleration of the vesting of any ISO that would cause any portion of the ISO to violate the annual vesting limitation contained in Section 422(d) of the Code, as described in Paragraph 6(b)(iv).

25. ISSUANCES OF SECURITIES.

Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of shares subject to Stock Rights. Except as expressly provided herein, no adjustments shall be made for dividends paid in cash or in property (including without limitation, securities) of the Company prior to any issuance of Shares pursuant to a Stock Right.

26. FRACTIONAL SHARES.

No fractional shares shall be issued under the Plan and the person exercising a Stock Right shall receive from the Company cash in lieu of such fractional shares equal to the Fair Market Value thereof.

27. CONVERSION OF ISOS INTO NON-QUALIFIED OPTIONS; TERMINATION OF ISOS.

The Administrator, at the written request of any Participant, may in its discretion take such actions as may be necessary to convert such Participant's ISOs (or any portions thereof) that have not been exercised on the date of conversion into Non-Qualified Options at any time prior to the expiration of such ISOs, regardless of whether the Participant is an Employee of the Company or an Affiliate at the time of such conversion. At the time of such conversion, the Administrator (with the consent of the Participant) may impose such conditions on the exercise of the resulting Non-Qualified Options as the Administrator in its discretion may determine, provided that such conditions shall not be inconsistent with this Plan. Nothing in the Plan shall be deemed to give any Participant the right to have such Participant's ISOs converted into Non-Qualified Options, and no such conversion shall occur until and unless the Administrator takes appropriate action. The Administrator, with the consent of the Participant, may also terminate any portion of any ISO that has not been exercised at the time of such conversion.

28. WITHHOLDING.

In the event that any federal, state, or local income taxes, employment taxes, Federal Insurance Contributions Act ("F.I.C.A.") withholdings or other amounts are required by applicable law or governmental regulation to be withheld from the Participant's salary, wages or other remuneration in connection with the issuance of a Stock Right or Shares under the Plan or for any other reason required by law, the Company may withhold from the Participant's compensation, if any, or may require that the Participant advance in cash to the Company, or to any Affiliate of the Company which employs or employed the Participant, the statutory minimum amount of such withholdings unless a different withholding arrangement, including the use of shares of the Company's Common Stock or a promissory note, is authorized by the Administrator (and permitted by law). For purposes hereof, the fair market value of the shares withheld for purposes of payroll withholding shall be determined in the manner set forth under the definition of Fair Market Value provided in Paragraph 1 above, as of the most recent practicable date prior to the date of exercise. If the Fair Market Value of the shares withheld is less than the amount of payroll withholdings required, the Participant may be required to advance the difference in cash to the Company or the Affiliate employer. The Administrator in its discretion may condition the exercise of an Option for less than the then Fair Market Value on the Participant's payment of such additional withholding.

29. NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION.

Each Employee who receives an ISO must agree to notify the Company in writing immediately after the Employee makes a Disqualifying Disposition of any Shares acquired pursuant to the exercise of an ISO. A Disqualifying Disposition is defined in Section 424(c) of the Code and includes any disposition (including any sale or gift) of such Shares before the later of (a) two years after the date the Employee was granted the ISO, or (b) one year after the date the Employee acquired Shares by exercising the ISO, except as otherwise provided in Section 424(c) of the Code. If the Employee has died before such Shares are sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

30. TERMINATION OF THE PLAN.

The Plan will terminate on September 6, 2022, the date which is ten years from the earlier of the date of its adoption by the Board of Directors and the date of its approval by the shareholders of the Company. The Plan may be terminated at an earlier date by vote of the shareholders or the Board of Directors of the Company; provided, however, that any such earlier termination shall not affect any Agreements executed prior to the effective date of such termination. Termination of the Plan shall not affect any Stock Rights theretofore granted.

31. AMENDMENT OF THE PLAN AND AGREEMENTS.

The Plan may be amended by the shareholders of the Company. The Plan may also be amended by the Administrator, including, without limitation, to the extent necessary to qualify any or all outstanding Stock Rights granted under the Plan or Stock Rights to be granted under the Plan for favorable federal income tax treatment as may be afforded incentive stock options under Section 422 of the Code (including deferral of taxation upon exercise), and to the extent necessary to qualify the Shares issuable under the Plan for listing on any national securities exchange or quotation in any national automated quotation system of securities dealers. Any amendment approved by the Administrator which the Administrator determines is of a scope that requires shareholder approval shall be subject to obtaining such shareholder approval. Any modification or amendment of the Plan shall not, without the consent of a Participant, adversely affect his or her rights under a Stock Right previously granted to him or her. With the consent of the Participant affected, the Administrator may amend outstanding Agreements in a manner which may be adverse to the Participant but which is not inconsistent with the Plan. In the discretion of the Administrator, outstanding Agreements may be amended by the Administrator in a manner which is not adverse to the Participant.

32. EMPLOYMENT OR OTHER RELATIONSHIP.

Nothing in this Plan or any Agreement shall be deemed to prevent the Company or an Affiliate from terminating the employment, consultancy or director status of a Participant, nor to prevent a Participant from terminating his or her own employment, consultancy or director status or to give any Participant a right to be retained in employment or other service by the Company or any Affiliate for any period of time.

33. GOVERNING LAW.

This Plan shall be construed and enforced in accordance with the law of the State of Delaware.

Exhibit 10.16

Option No.

AMEDICA CORPORATION

Stock Option Grant Notice
Stock Option Grant under the Company's
2012 Equity Incentive Plan

1. Name and Address of Participant: _____

2. Date of Option Grant: _____

3. Type of Grant: _____

4. Maximum Number of Shares for which this Option is exercisable: _____

5. Exercise (purchase) price per share: _____

6. Option Expiration Date: _____

7. Vesting Start Date[1]: _____

8. Vesting Schedule: This Option shall become exercisable (and the Shares issued upon exercise shall be vested) as follows provided the Participant is an Employee, director or Consultant of the Company or of an Affiliate on the applicable vesting date:

[Insert Vesting Schedule - sample below]

[On the first anniversary of the Vesting Start Date	**up to**	**Shares[2]**
On the second anniversary of the Vesting Start Date	**an additional**	**Shares**
On the third anniversary of the Vesting Start Date	**an additional**	**Shares]**

1 This date is only necessary if a company has decided to trigger vesting from a date that is different from the date of option grant such as a hire date and is to be used a point of reference for future vesting only.

2 If the agreement does not set forth a vesting schedule as to a specific number of shares and a % is used instead consider adding the following to the end of the vesting schedule to address the potential vesting of fractional shares:

"provided that the number of shares vesting on each date shall be rounded down to the nearest whole number, whilst the number of shares vesting on the final date shall be the remaining unvested balance of the Shares."

The foregoing rights are cumulative and are subject to the other terms and conditions of this Agreement and the Plan.

The Company and the Participant acknowledge receipt of this Stock Option Grant Notice and agree to the terms of the Stock Option Agreement attached hereto and incorporated by reference herein, the Company's 2012 Equity Incentive Plan and the terms of this Option Grant as set forth above.

AMEDICA CORPORATION

By: _____

Name: _____

Title: _____

_____

Participant

AMEDICA CORPORATION

STOCK OPTION AGREEMENT - INCORPORATED TERMS AND CONDITIONS

AGREEMENT made as of the date of grant set forth in the Stock Option Grant Notice by and between Amedica Corporation (the "Company"), a Delaware corporation, and the individual whose name appears on the Stock Option Grant Notice (the "Participant").

WHEREAS, the Company desires to grant to the Participant an Option to purchase shares of its common stock, $0.01 par value per share (the "Shares"), under and for the purposes set forth in the Company's 2012 Equity Incentive Plan (the "Plan");

WHEREAS, the Company and the Participant understand and agree that any terms used and not defined herein have the same meanings as in the Plan; and

WHEREAS, the Company and the Participant each intend that the Option granted herein shall be of the type set forth in the Stock Option Grant Notice.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth and for other good and valuable consideration, the parties hereto agree as follows:

1. GRANT OF OPTION.

The Company hereby grants to the Participant the right and option to purchase all or any part of an aggregate of the number of Shares set forth in the Stock Option Grant Notice, on the terms and conditions and subject to all the limitations set forth herein, under United States securities and tax laws, and in the Plan, which is incorporated herein by reference. The Participant acknowledges receipt of a copy of the Plan.

2. EXERCISE PRICE.

The exercise price of the Shares covered by the Option shall be the amount per Share set forth in the Stock Option Grant Notice, subject to adjustment, as provided in the Plan, in the event of a stock split, reverse stock split or other events affecting the holders of Shares after the date hereof (the "Exercise Price"). Payment shall be made in accordance with Paragraph 9 of the Plan.

3. EXERCISABILITY OF OPTION.

Subject to the terms and conditions set forth in this Agreement and the Plan, the Option granted hereby shall become vested and exercisable as set forth in the Stock Option Grant Notice and is subject to the other terms and conditions of this Agreement and the Plan.

[Notwithstanding the foregoing, in the event of a Change of Control (as defined below), % of the Shares which would have vested in each vesting installment remaining

under this Option will be vested and exercisable for purposes of Paragraph 24(b) of the Plan unless this Option has otherwise expired or been terminated pursuant to its terms or the terms of the Plan.

Change of Control means the occurrence of any of the following events:

(i) Ownership. Any "Person" (as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended) becomes the "Beneficial Owner" (as defined in Rule 13d-3 under said Act), directly or indirectly, of securities of the Company representing 50% or more of the total voting power represented by the Company's then outstanding voting securities (excluding for this purpose any such voting securities held by the Company or its Affiliates or any employee benefit plan of the Company) pursuant to a transaction or a series of related transactions which the Board of Directors does not approve; or

(ii) Merger/Sale of Assets. (A) A merger or consolidation of the Company whether or not approved by the Board of Directors, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or the parent of such corporation) more than 50% of the total voting power represented by the voting securities of the Company or such surviving entity or parent of such corporation, as the case may be, outstanding immediately after such merger or consolidation; or (B) the sale or disposition by the Company of all or substantially all of the Company's assets in a transaction requiring stockholder approval; or

(iii) Change in Board Composition. A change in the composition of the Board of Directors, as a result of which fewer than a majority of the directors are Incumbent Directors. "Incumbent Directors" shall mean directors who either (A) are directors of the Company as of [*INSERT DATE OF PLAN ADOPTION*], or (B) are elected, or nominated for election, to the Board of Directors with the affirmative votes of at least a majority of the Incumbent Directors at the time of such election or nomination (but shall not include an individual whose election or nomination is in connection with an actual or threatened proxy contest relating to the election of directors to the Company).

(iv) "Change of Control" shall be interpreted, if applicable, in a manner, and limited to the extent necessary, so that it will not cause adverse tax consequences under Section 409A of the Code.]

4. TERM OF OPTION.

This Option shall terminate on the Option Expiration Date as specified in the Stock Option Grant Notice and, if this Option is designated in the Stock Option Grant Notice as an ISO and the Participant owns as of the date hereof more than 10% of the total combined voting power of all classes of capital stock of the Company or an Affiliate, such date may not be more than five years from the date of this Agreement, but shall be subject to earlier termination as provided herein or in the Plan.

If the Participant ceases to be an Employee, director or Consultant of the Company or of an Affiliate for any reason other than the death or Disability of the Participant, or termination of the Participant for Cause (the "Termination Date"), the Option to the extent then vested and exercisable pursuant to Section 3 hereof as of the Termination Date, and not previously terminated in accordance with this Agreement, may be exercised within three months after the Termination Date, or on or prior to the Option Expiration Date as specified in the Stock Option Grant Notice, whichever is earlier, but may not be exercised thereafter except as set forth below. In such event, the unvested portion of the Option shall not be exercisable and shall expire and be cancelled on the Termination Date.

If this Option is designated in the Stock Option Grant Notice as an ISO and the Participant ceases to be an Employee of the Company or of an Affiliate but continues after termination of employment to provide service to the Company or an Affiliate as a director or Consultant, this Option shall continue to vest in accordance with Section 3 above as if this Option had not terminated until the Participant is no longer providing services to the Company. In such case, this Option shall automatically convert and be deemed a Non-Qualified Option as of the date that is three months from termination of the Participant's employment and this Option shall continue on the same terms and conditions set forth herein until such Participant is no longer providing service to the Company or an Affiliate.

Notwithstanding the foregoing, in the event of the Participant's Disability or death within three months after the Termination Date, the Participant or the Participant's Survivors may exercise the Option within one year after the Termination Date, but in no event after the Option Expiration Date as specified in the Stock Option Grant Notice.

In the event the Participant's service is terminated by the Company or an Affiliate for Cause, the Participant's right to exercise any unexercised portion of this Option even if vested shall cease immediately as of the time the Participant is notified his or her service is terminated for Cause, and this Option shall thereupon terminate. Notwithstanding anything herein to the contrary, if subsequent to the Participant's termination, but prior to the exercise of the Option, the Administrator determines that, either prior or subsequent to the Participant's termination, the Participant engaged in conduct which would constitute Cause, then the Participant shall immediately cease to have any right to exercise the Option and this Option shall thereupon terminate.

In the event of the Disability of the Participant, as determined in accordance with the Plan, the Option shall be exercisable within one year after the Participant's termination of service due to Disability or, if earlier, on or prior to the Option Expiration Date as specified in the Stock Option Grant Notice. In such event, the Option shall be exercisable:

(a) to the extent that the Option has become exercisable but has not been exercised as of the date of the Participant's termination of service due to Disability; and

(b) in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of the Participant's termination of service due to Disability of any additional vesting rights that would have accrued on the next vesting date had the Participant not become Disabled. The proration shall be based upon the number of days accrued in the current vesting period prior to the date of the Participant's termination of service due to Disability.

In the event of the death of the Participant while an Employee, director or Consultant of the Company or of an Affiliate, the Option shall be exercisable by the Participant's Survivors within one year after the date of death of the Participant or, if earlier, on or prior to the Option Expiration Date as specified in the Stock Option Grant Notice. In such event, the Option shall be exercisable:

(x) to the extent that the Option has become exercisable but has not been exercised as of the date of death; and

(y) in the event rights to exercise the Option accrue periodically, to the extent of a pro rata portion through the date of death of any additional vesting rights that would have accrued on the next vesting date had the Participant not died. The proration shall be based upon the number of days accrued in the current vesting period prior to the Participant's date of death.

5. METHOD OF EXERCISING OPTION.

Subject to the terms and conditions of this Agreement, the Option may be exercised by written notice to the Company or its designee, in substantially the form of Exhibit A attached hereto (or in such other form acceptable to the Company, which may include electronic notice). Such notice shall state the number of Shares with respect to which the Option is being exercised and shall be signed by the person exercising the Option (which signature may be provided electronically in a form acceptable to the Company). Payment of the Exercise Price for such Shares shall be made in accordance with Paragraph 9 of the Plan. The Company shall deliver such Shares as soon as practicable after the notice shall be received, provided, however, that the Company may delay issuance of such Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including, without limitation, state securities or "blue sky" laws). The Shares as to which the Option shall have been so exercised shall be registered in the Company's share register in the name of the person so exercising the Option (or, if the Option shall be exercised by the Participant and if the Participant shall so request in the notice exercising the Option, shall be registered in the

Company's share register in the name of the Participant and another person jointly, with right of survivorship) and shall be delivered as provided above to or upon the written order of the person exercising the Option. In the event the Option shall be exercised, pursuant to Section 4 hereof, by any person other than the Participant, such notice shall be accompanied by appropriate proof of the right of such person to exercise the Option. All Shares that shall be purchased upon the exercise of the Option as provided herein shall be fully paid and nonassessable.

6. PARTIAL EXERCISE.

Exercise of this Option to the extent above stated may be made in part at any time and from time to time within the above limits, except that no fractional share shall be issued pursuant to this Option.

7. NON-ASSIGNABILITY.

The Option shall not be transferable by the Participant otherwise than by will or by the laws of descent and distribution. If this Option is a Non-Qualified Option then it may also be transferred pursuant to a qualified domestic relations order as defined by the Code or Title I of the Employee Retirement Income Security Act or the rules thereunder. Except as provided above in this paragraph, the Option shall be exercisable, during the Participant's lifetime, only by the Participant (or, in the event of legal incapacity or incompetency, by the Participant's guardian or representative) and shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of the Option or of any rights granted hereunder contrary to the provisions of this Section 7, or the levy of any attachment or similar process upon the Option shall be null and void.

8. NO RIGHTS AS STOCKHOLDER UNTIL EXERCISE.

The Participant shall have no rights as a stockholder with respect to Shares subject to this Agreement until registration of the Shares in the Company's share register in the name of the Participant. Except as is expressly provided in the Plan with respect to certain changes in the capitalization of the Company, no adjustment shall be made for dividends or similar rights for which the record date is prior to the date of such registration.

9. ADJUSTMENTS.

The Plan contains provisions covering the treatment of Options in a number of contingencies such as stock splits and mergers. Provisions in the Plan for adjustment with respect to stock subject to Options and the related provisions with respect to successors to the business of the Company are hereby made applicable hereunder and are incorporated herein by reference.

10. TAXES.

The Participant acknowledges and agrees that (i) any income or other taxes due from the Participant with respect to this Option or the Shares issuable upon exercise of this Option shall be the Participant's responsibility; (ii) the Participant was free to use professional advisors of his or her choice in connection with this Agreement, has received advice from his or her professional advisors in connection with this Agreement, understands its meaning and import, and is entering into this Agreement freely and without coercion or duress; (iii) the Participant has not received and is not relying upon any advice, representations or assurances made by or on behalf of the Company or any Affiliate or any Employee of or counsel to the Company or any Affiliate regarding any tax or other effects or implications of the Option, the Shares or other matters contemplated by this Agreement and (iv) neither the Administrator, the Company, its Affiliates, nor any of its officers or directors, shall be held liable for any applicable costs, taxes, or penalties associated with the Option if, in fact, the Internal Revenue Service were to determine that the Option constitutes deferred compensation under Section 409A of the Code.

If this Option is designated in the Stock Option Grant Notice as a Non-Qualified Option or if the Option is an ISO and is converted into a Non-Qualified Option and such Non-Qualified Option is exercised, the Participant agrees that the Company may withhold from the Participant's remuneration, if any, the minimum statutory amount of federal, state and local withholding taxes attributable to such amount that is considered compensation includable in such person's gross income. At the Company's discretion, the amount required to be withheld may be withheld in cash from such remuneration, or in kind from the Shares otherwise deliverable to the Participant on exercise of the Option. The Participant further agrees that, if the Company does not withhold an amount from the Participant's remuneration sufficient to satisfy the Company's income tax withholding obligation, the Participant will reimburse the Company on demand, in cash, for the amount under-withheld.

11. PURCHASE FOR INVESTMENT.

Unless the offering and sale of the Shares to be issued upon the particular exercise of the Option shall have been effectively registered under the Securities Act of 1933, as now in force or hereafter amended (the "1933 Act"), the Company shall be under no obligation to issue the Shares covered by such exercise unless the Company has determined that such exercise and issuance would be exempt from the registration requirements of the 1933 Act and until the following conditions have been fulfilled:

(a) The person(s) who exercise the Option shall warrant to the Company, at the time of such exercise, that such person(s) are acquiring such Shares for their own respective accounts, for investment, and not with a view to, or for sale in connection with, the distribution of any such Shares, in which event the person(s) acquiring such Shares shall be bound by the provisions of the following legend which shall be endorsed upon any certificate(s) evidencing the Shares issued pursuant to such exercise:

"The shares represented by this certificate have been taken for investment and they may not be sold or otherwise transferred by any person, including a pledgee, unless (1) either (a) a Registration Statement with respect to such shares shall be effective under the Securities Act of 1933, as amended, or (b) the Company shall have received an opinion of counsel satisfactory to it that an exemption from registration under such Act is then available, and (2) there shall have been compliance with all applicable state securities laws;" and

(b) If the Company so requires, the Company shall have received an opinion of its counsel that the Shares may be issued upon such particular exercise in compliance with the 1933 Act without registration thereunder. Without limiting the generality of the foregoing, the Company may delay issuance of the Shares until completion of any action or obtaining of any consent, which the Company deems necessary under any applicable law (including without limitation state securities or "blue sky" laws).

12. RESTRICTIONS ON TRANSFER OF SHARES.

12.1 The Shares acquired by the Participant pursuant to the exercise of the Option granted hereby shall not be transferred by the Participant except as permitted herein.

12.2 In the event of the Participant's termination of service for any reason, the Company shall have the option, but not the obligation, to repurchase all or any part of the Shares issued pursuant to this Agreement (including, without limitation, Shares purchased after termination of service, Disability or death in accordance with Section 4 hereof). In the event the Company does not, upon the termination of service of the Participant (as described above), exercise its option pursuant to this Section 12.2, the restrictions set forth in the balance of this Agreement shall not thereby lapse, and the Participant for himself or herself, his or her heirs, legatees, executors, administrators and other successors in interest, agrees that the Shares shall remain subject to such restrictions. The following provisions shall apply to a repurchase under this Section 12.2:

(i) The per share repurchase price of the Shares to be sold to the Company upon exercise of its option under this Section 12.2 shall be equal to the Fair Market Value of each such Share determined in accordance with the Plan as of the date of repurchase provided, however, in the event of a termination by the Company for Cause, the per share repurchase price of the Shares to be sold to the Company upon exercise of its option under this Section 12.2 shall be equal to $.01.

(ii) The Company's option to repurchase the Participant's Shares in the event of termination of service shall be valid for a period of 18 months commencing with the date of such termination of service.

(iii) In the event the Company shall be entitled to and shall elect to exercise its option to repurchase the Participant's Shares under this Section 12.2, the Company shall

notify the Participant, or in case of death, his or her Survivor, in writing of its intent to repurchase the Shares. Such written notice may be mailed by the Company up to and including the last day of the time period provided for in Section 12.2(ii) for exercise of the Company's option to repurchase.

(iv) The written notice to the Participant shall specify the address at, and the time and date on, which payment of the repurchase price is to be made (the "Closing"). The date specified shall not be less than ten days nor more than 60 days from the date of the mailing of the notice, and the Participant or his or her successor in interest with respect to the Shares shall have no further rights as the owner thereof from and after the date specified in the notice. At the Closing, the repurchase price shall be delivered to the Participant or his or her successor in interest and the Shares being purchased, duly endorsed for transfer, shall, to the extent that they are not then in the possession of the Company, be delivered to the Company by the Participant or his or her successor in interest.

12.3 It shall be a condition precedent to the validity of any sale or other transfer of any Shares by the Participant that the following restrictions be complied with (except as otherwise provided in this Section 12):

(i) No Shares owned by the Participant may be sold, pledged or otherwise transferred (including by gift or devise) to any person or entity, voluntarily, or by operation of law, except in accordance with the terms and conditions hereinafter set forth.

(ii) Before selling or otherwise transferring all or part of the Shares, the Participant shall give written notice of such intention to the Company, which notice shall include the name of the proposed transferee, the proposed purchase price per share, the terms of payment of such purchase price and all other matters relating to such sale or transfer and shall be accompanied by a copy of the binding written agreement of the proposed transferee to purchase the Shares of the Participant. Such notice shall constitute a binding offer by the Participant to sell to the Company such number of the Shares then held by the Participant as are proposed to be sold in the notice at the monetary price per share designated in such notice, payable on the terms offered to the Participant by the proposed transferee (provided, however, that the Company shall not be required to meet any non-monetary terms of the proposed transfer, including, without limitation, delivery of other securities in exchange for the Shares proposed to be sold). The Company shall give written notice to the Participant as to whether such offer has been accepted in whole by the Company within 60 days after its receipt of written notice from the Participant. The Company may only accept such offer in whole and may not accept such offer in part. Such acceptance notice shall fix a time, location and date for the Closing on such purchase ("Closing Date") which shall not be less than ten nor more than sixty days after the giving of the acceptance notice, provided, however, if any of the Shares to be sold pursuant to this Section 12.3 have been held by the Participant for less than six months, then the Closing Date may be extended by the Company until no more than ten days after such

Shares have been held by the Participant for six months if required under applicable accounting rules in effect at the time. The place for such Closing shall be at the Company's principal office. At such Closing, the Participant shall accept payment as set forth herein and shall deliver to the Company in exchange therefor certificates for the number of Shares stated in the notice accompanied by duly executed instruments of transfer.

(iii) If the Company shall fail to accept any such offer, the Participant shall be free to sell all, but not less than all, of the Shares set forth in his or her notice to the designated transferee at the price and terms designated in the Participant's notice, provided that (i) such sale is consummated within six months after the giving of notice by the Participant to the Company as aforesaid, and (ii) the transferee first agrees in writing to be bound by the provisions of this Section 12 so that such transferee (and all subsequent transferees) shall thereafter only be permitted to sell or transfer the Shares in accordance with the terms hereof. After the expiration of such six months, the provisions of this Section 12.3 shall again apply with respect to any proposed voluntary transfer of the Participant's Shares.

(iv) The restrictions on transfer contained in this Section 12.3 shall not apply to (a) transfers by the Participant to his or her spouse or children or to a trust for the benefit of his or her spouse or children, (b) transfers by the Participant to his or her guardian or conservator, and (c) transfers by the Participant, in the event of his or her death, to his or her executor(s) or administrator(s) or to trustee(s) under his or her will (collectively, "Permitted Transferees"); provided however, that in any such event the Shares so transferred in the hands of each such Permitted Transferee shall remain subject to this Agreement, and each such Permitted Transferee shall so acknowledge in writing as a condition precedent to the effectiveness of such transfer.

(v) The provisions of this Section 12.3 may be waived by the Company. Any such waiver may be unconditional or based upon such conditions as the Company may impose.

12.4 In the event that the Participant or his or her successor in interest fails to deliver the Shares to be repurchased by the Company under this Agreement, the Company may elect (a) to establish a segregated account in the amount of the repurchase price, such account to be turned over to the Participant or his or her successor in interest upon delivery of such Shares, and (b) immediately to take such action as is appropriate to transfer record title of such Shares from the Participant to the Company and to treat the Participant and such Shares in all respects as if delivery of such Shares had been made as required by this Agreement. The Participant hereby irrevocably grants the Company a power of attorney which shall be coupled with an interest for the purpose of effectuating the preceding sentence.

12.5 If the Company shall pay a stock dividend or declare a stock split on or with respect to any of its Common Stock, or otherwise distribute securities of the Company to the holders of its Common Stock, the number of shares of stock or other securities of the Company

issued with respect to the shares then subject to the restrictions contained in this Agreement shall be added to the Shares subject to the Company's rights to repurchase pursuant to this Agreement. If the Company shall distribute to its stockholders shares of stock of another corporation, the shares of stock of such other corporation, distributed with respect to the Shares then subject to the restrictions contained in this Agreement, shall be added to the Shares subject to the Company's rights to repurchase pursuant to this Agreement.

12.6 If the outstanding shares of Common Stock of the Company shall be subdivided into a greater number of shares or combined into a smaller number of shares, or in the event of a reclassification of the outstanding shares of Common Stock of the Company, or if the Company shall be a party to a merger, consolidation or capital reorganization, there shall be substituted for the Shares then subject to the restrictions contained in this Agreement such amount and kind of securities as are issued in such subdivision, combination, reclassification, merger, consolidation or capital reorganization in respect of the Shares subject immediately prior thereto to the Company's rights to repurchase pursuant to this Agreement.

12.7 The Company shall not be required to transfer any Shares on its books which shall have been sold, assigned or otherwise transferred in violation of this Agreement, or to treat as owner of such Shares, or to accord the right to vote as such owner or to pay dividends to, any person or organization to which any such Shares shall have been so sold, assigned or otherwise transferred, in violation of this Agreement.

12.8 The provisions of Sections 12.1, 12.2 and 12.3 shall terminate upon the effective date of the registration of the Shares pursuant to the Securities Exchange Act of 1934.

12.9 The Participant agrees that in the event the Company proposes to offer for sale to the public any of its equity securities and such Participant is requested by the Company and any underwriter engaged by the Company in connection with such offering to sign an agreement restricting the sale or other transfer of Shares, then it will promptly sign such agreement and will not transfer, whether in privately negotiated transactions or to the public in open market transactions or otherwise, any Shares or other securities of the Company held by him or her during such period as is determined by the Company and the underwriters, not to exceed 180 days following the closing of the offering, plus such additional period of time as may be required to comply with NASD Rule 2711 or similar rules thereto (such period, the "Lock-Up Period"). Such agreement shall be in writing and in form and substance reasonably satisfactory to the Company and such underwriter and pursuant to customary and prevailing terms and conditions. Notwithstanding whether the Participant has signed such an agreement, the Company may impose stop-transfer instructions with respect to the Shares or other securities of the Company subject to the foregoing restrictions until the end of the Lock-Up Period.

12.10 The Participant acknowledges and agrees that neither the Company, its shareholders nor its directors and officers, has any duty or obligation to disclose to the Participant any material information regarding the business of the Company or affecting the value of the Shares before, at the time of, or following a termination of the service of the Participant by the Company, including, without limitation, any information concerning plans for the Company to make a public offering of its securities or to be acquired by or merged with or into another firm or entity.

12.11 All certificates representing the Shares to be issued to the Participant pursuant to this Agreement shall have endorsed thereon a legend substantially as follows: "The shares represented by this certificate are subject to restrictions set forth in a Stock Option Agreement dated , 201 with this Company, a copy of which Agreement is available for inspection at the offices of the Company or will be made available upon request."

13. NO OBLIGATION TO MAINTAIN RELATIONSHIP.

The Participant acknowledges that: (i) the Company is not by the Plan or this Option obligated to continue the Participant as an Employee, director or Consultant of the Company or an Affiliate; (ii) the Plan is discretionary in nature and may be suspended or terminated by the Company at any time; (iii) the grant of the Option is a one-time benefit which does not create any contractual or other right to receive future grants of options, or benefits in lieu of options; (iv) all determinations with respect to any such future grants, including, but not limited to, the times when options shall be granted, the number of shares subject to each option, the option price, and the time or times when each option shall be exercisable, will be at the sole discretion of the Company; (v) the Participant's participation in the Plan is voluntary; (vi) the value of the Option is an extraordinary item of compensation which is outside the scope of the Participant's employment or consulting contract, if any; and (vii) the Option is not part of normal or expected compensation for purposes of calculating any severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments.

14. IF OPTION IS INTENDED TO BE AN ISO.

If this Option is designated in the Stock Option Grant Notice as an ISO so that the Participant (or the Participant's Survivors) may qualify for the favorable tax treatment provided to holders of Options that meet the standards of Section 422 of the Code then any provision of this Agreement or the Plan which conflicts with the Code so that this Option would not be deemed an ISO is null and void and any ambiguities shall be resolved so that the Option qualifies as an ISO. The Participant should consult with the Participant's own tax advisors regarding the tax effects of the Option and the requirements necessary to obtain favorable tax treatment under Section 422 of the Code, including, but not limited to, holding period requirements.

Notwithstanding the foregoing, to the extent that the Option is designated in the Stock Option Grant Notice as an ISO and is not deemed to be an ISO pursuant to Section 422(d) of the Code because the aggregate Fair Market Value (determined as of the Date of Option Grant) of any of the Shares with respect to which this ISO is granted becomes exercisable for the first time during any calendar year in excess of $100,000, the portion of the Option representing such excess value shall be treated as a Non-Qualified Option and the Participant shall be deemed to have taxable income measured by the difference between the then Fair Market Value of the Shares received upon exercise and the price paid for such Shares pursuant to this Agreement.

Neither the Company nor any Affiliate shall have any liability to the Participant, or any other party, if the Option (or any part thereof) that is intended to be an ISO is not an ISO or for any action taken by the Administrator, including without limitation the conversion of an ISO to a Non-Qualified Option.

15. NOTICE TO COMPANY OF DISQUALIFYING DISPOSITION OF AN ISO.

If this Option is designated in the Stock Option Grant Notice as an ISO then the Participant agrees to notify the Company in writing immediately after the Participant makes a Disqualifying Disposition of any of the Shares acquired pursuant to the exercise of the ISO. A Disqualifying Disposition is defined in Section 424(c) of the Code and includes any disposition (including any sale) of such Shares before the later of (a) two years after the date the Participant was granted the ISO or (b) one year after the date the Participant acquired Shares by exercising the ISO, except as otherwise provided in Section 424(c) of the Code. If the Participant has died before the Shares are sold, these holding period requirements do not apply and no Disqualifying Disposition can occur thereafter.

16. NOTICES.

Any notices required or permitted by the terms of this Agreement or the Plan shall be given by recognized courier service, facsimile, registered or certified mail, return receipt requested, addressed as follows:

If to the Company:

Amedica Corporation
1885 West 2100 South
Salt Lake City, UT 84119
Attention: Chief Financial Officer

If to the Participant at the address set forth on the Stock Option Grant Notice

or to such other address or addresses of which notice in the same manner has previously been given. Any such notice shall be deemed to have been given upon the earlier of receipt, one business day following delivery to a recognized courier service or three business days following mailing by registered or certified mail.

17. GOVERNING LAW.

This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without giving effect to the conflict of law principles thereof. For the purpose of litigating any dispute that arises under this Agreement, the parties hereby consent to exclusive jurisdiction in Utah and agree that such litigation shall be conducted in the state courts of Salt Lake City, Utah or the federal courts of the United States for the District of Utah.

18. BENEFIT OF AGREEMENT.

Subject to the provisions of the Plan and the other provisions hereof, this Agreement shall be for the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

19. ENTIRE AGREEMENT.

This Agreement, together with the Plan, embodies the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement not expressly set forth in this Agreement shall affect or be used to interpret, change or restrict, the express terms and provisions of this Agreement, provided, however, in any event, this Agreement shall be subject to and governed by the Plan.

20. MODIFICATIONS AND AMENDMENTS.

The terms and provisions of this Agreement may be modified or amended as provided in the Plan.

21. WAIVERS AND CONSENTS.

Except as provided in the Plan, the terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent shall be deemed to be or shall constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent shall be effective only in the specific instance and for the purpose for which it was given, and shall not constitute a continuing waiver or consent.

22. DATA PRIVACY.

By entering into this Agreement, the Participant: (i) authorizes the Company and each Affiliate, and any agent of the Company or any Affiliate administering the Plan or providing Plan recordkeeping services, to disclose to the Company or any of its Affiliates such information and data as the Company or any such Affiliate shall request in order to facilitate the grant of options and the administration of the Plan; and (ii) authorizes the Company and each Affiliate to store and transmit such information in electronic form for the purposes set forth in this Agreement.

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Exhibit A

NOTICE OF EXERCISE OF STOCK OPTION

[Form for Unregistered Shares]

To: Amedica Corporation

Ladies and Gentlemen:

I hereby exercise my Stock Option to purchase shares (the "Shares") of the common stock, $0.01 par value, of Amedica Corporation (the "Company"), at the exercise price of $ per share, pursuant to and subject to the terms of that certain Stock Option Agreement between the undersigned and the Company dated , 201 .

I am aware that the Shares have not been registered under the Securities Act of 1933, as amended (the "1933 Act"), or any state securities laws. I understand that the reliance by the Company on exemptions under the 1933 Act is predicated in part upon the truth and accuracy of the statements by me in this Notice of Exercise.

I hereby represent and warrant that (1) I have been furnished with all information which I deem necessary to evaluate the merits and risks of the purchase of the Shares; (2) I have had the opportunity to ask questions concerning the Shares and the Company and all questions posed have been answered to my satisfaction; (3) I have been given the opportunity to obtain any additional information I deem necessary to verify the accuracy of any information obtained concerning the Shares and the Company; and (4) I have such knowledge and experience in financial and business matters that I am able to evaluate the merits and risks of purchasing the Shares and to make an informed investment decision relating thereto.

I hereby represent and warrant that I am purchasing the Shares for my own personal account for investment and not with a view to the sale or distribution of all or any part of the Shares.

I understand that because the Shares have not been registered under the 1933 Act, I must continue to bear the economic risk of the investment for an indefinite time and the Shares cannot be sold unless the Shares are subsequently registered under applicable federal and state securities laws or an exemption from such registration requirements is available.

I agree that I will in no event sell or distribute or otherwise dispose of all or any part of the Shares unless (1) there is an effective registration statement under the 1933 Act and applicable state securities laws covering any such transaction involving the Shares or (2) the Company receives an opinion of my legal counsel (concurred in by legal counsel for the Company) stating that such transaction is exempt from registration or the Company otherwise satisfies itself that such transaction is exempt from registration.

I consent to the placing of a legend on my certificate for the Shares stating that the Shares have not been registered and setting forth the restriction on transfer contemplated hereby and to the placing of a stop transfer order on the books of the Company and with any transfer agents against the Shares until the Shares may be legally resold or distributed without restriction.

I understand that at the present time Rule 144 of the Securities and Exchange Commission (the "SEC") may not be relied on for the resale or distribution of the Shares by me. I understand that the Company has no obligation to me to register the sale of the Shares with the SEC and has not represented to me that it will register the sale of the Shares.

I understand the terms and restrictions on the right to dispose of the Shares set forth in the 2012 Equity Incentive Plan and the Stock Option Agreement, both of which I have carefully reviewed. I consent to the placing of a legend on my certificate for the Shares referring to such restriction and the placing of stop transfer orders until the Shares may be transferred in accordance with the terms of such restrictions.

I have considered the Federal, state and local income tax implications of the exercise of my Option and the purchase and subsequent sale of the Shares.

I am paying the option exercise price for the Shares as follows:

_____

Please issue the Shares (check one):

☐ to me; or

☐ to me and , as joint tenants with right of survivorship

and mail the certificate to me at the following address:

_____

_____

_____

My mailing address for shareholder communications, if different from the address listed above is:

Very truly yours,

Participant (signature)

Print Name

Date

Social Security Number

Exhibit A-3

Exhibit B

NOTICE OF EXERCISE OF STOCK OPTION

[Form for Shares Registered in the United States]

To: Amedica Corporation

IMPORTANT NOTICE: This form of Notice of Exercise may only be used at such time as the Company has filed a Registration Statement with the Securities and Exchange Commission under which the issuance of the Shares for which this exercise is being made is registered and such Registration Statement remains effective.

Ladies and Gentlemen:

I hereby exercise my Stock Option to purchase shares (the "Shares") of the common stock, $0.01 par value, of Amedica Corporation (the "Company"), at the exercise price of $ per share, pursuant to and subject to the terms of that Stock Option Grant Notice dated , 201 .

I understand the nature of the investment I am making and the financial risks thereof. I am aware that it is my responsibility to have consulted with competent tax and legal advisors about the relevant national, state and local income tax and securities laws affecting the exercise of the Option and the purchase and subsequent sale of the Shares.

I am paying the option exercise price for the Shares as follows:

_____

Please issue the Shares (check one):

☐ to me; or

☐ to me and , as joint tenants with right of survivorship,

at the following address:

_____

_____

_____

My mailing address for shareholder communications, if different from the address listed above, is:

Very truly yours,

Participant (signature)

Print Name

Date

Social Security Number

Exhibit B-2

Exhibit 10.17

Award No.

AMEDICA CORPORATION
Restricted Stock Award
under the Company's
2012 Equity Incentive Plan

1.	Name and Address of Participant:	[NAME] [STREET] [CITY, STATE ZIP]
2.	Date of Award:	[AWARD DATE]
3.	Type of Grant:	Restricted Stock Unit
4.	Number of RSUs:	[NUMBER OF SHARES]
4.	Expiration Date:	[EXPIRATION DATE] (Calculate 3 years from date of award)

Amedica Corporation, a Delaware corporation (the "Company") hereby grants to the above named Participant the aggregate number of RSUs shown above (the "Restricted Stock Award") which represents a contingent entitlement of the Participant to receive shares of Common Stock, on the terms and conditions and subject to all the limitations set forth herein and in the 2012 Employee, Director and Consultant Equity Incentive Plan (the "Plan"), which is incorporated herein by reference. The Participant acknowledges receipt of a copy of the Plan.

The Company and the Participant hereby acknowledge receipt of this Grant and agree to the terms of the Restricted Stock Unit Agreement attached hereto and incorporated by reference herein, the Plan and the terms of this Restricted Stock Award as set forth above.

AMEDICA CORPORATION

By: _____
Name: Kevin Ontiveros
Title: Chief Legal Officer

PARTICIPANT:

_____
[NAME]

NOW, THEREFORE, in consideration of the promises and the mutual covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

1. Grant of Award. The Company hereby grants to the Participant an aggregate of RSUs (the "Award") which represents a contingent entitlement of the Participant to receive shares of Common Stock, on the terms and conditions and subject to all the limitations set forth herein and in the Plan, which is incorporated herein by reference. The Participant acknowledges receipt of a copy of the Plan.

2. Vesting and Forfeiture of Award.

(a) Generally. Unless otherwise set forth in this Section 2, the Award granted hereby shall be and remain unvested and forfeitable unless and until one of the conditions set forth in subsection (b) has occurred after which the shares of Common Stock subject to the Award shall be delivered as set forth in Section 2(c) provided that if the Participant ceases to be employed for any reason by the Company or an Affiliate prior to the satisfaction of the vesting conditions set forth in subsection(b) of this Section 2, then as of the date on which the Participant's employment with the Company or an Affiliate terminates, this Award shall immediately be forfeited in full and no shares of Common Stock shall be issued hereunder.

(b) Event-Based Vesting. The conditions of this subsection (b) shall be satisfied upon the first to occur prior to the Participant ceasing to be employed by the Company or an Affiliate:

(i) the date of the expiration of the lock up period imposed on the Participant after completion of the closing of an underwritten initial public offering of shares of the Company; or

(ii) the date of the closing of a Change of Control of the Company.

"Change of Control" means the occurrence of any of the following events:

(a) Ownership. Any "Person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "Beneficial Owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing 50% or more of the total voting power represented by the Company's then outstanding voting securities (excluding for this purpose any such voting securities held by the Company or its Affiliates or by any employee benefit plan of the Company) pursuant to a transaction or a series of related transactions which the Board of Directors does not approve; or

(b) Merger/Sale of Assets. (A) A merger or consolidation of the Company whether or not approved by the Board of Directors, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or the parent of such corporation) more than 50% of the total voting power represented by the voting securities of the Company or such surviving entity or parent of such corporation, as the case may be, outstanding immediately after such merger or consolidation; or (B) the sale or disposition by the Company of all or substantially all of the Company's assets in a transaction requiring stockholder approval; or

If an event set forth in (i) or (ii) above does not occur within three (3) years of the Grant Date, this Award shall be forfeited in full and no shares of Common Stock shall be issued hereunder.

(c) Issuance of Shares. On the date that the Award vests in accordance with subsection (b) above, the Participant shall be entitled to receive such number of shares of Common Stock equivalent to the number of RSUs vas provided in Section (1) above. Such shares of Common Stock shall thereafter be delivered by the Company to the Participant in accordance with this Agreement and in all events such shares of Common Stock shall be delivered by the date which is two and one-half months following the close of the calendar year in which such vesting occurs.

3. Limitations on Transfer and Sale.

(a) Prohibitions on Transfer of Award. This Award (including any additional RSUs received by the Participant as a result of stock dividends, stock splits or any other similar transaction affecting the Company's securities without receipt of consideration) shall not be transferable by the Participant otherwise than by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order as defined by the Code or Title I of the Employee Retirement Income Security Act or the rules thereunder. Except as provided in the previous sentence, the shares of Common Stock to be issued pursuant to this Agreement shall be issued, during the Participant's lifetime, only to the Participant (or, in the event of legal incapacity or incompetence, to the Participant's guardian or representative). This Award shall not be assigned, pledged or hypothecated in any way (whether by operation of law or otherwise) and shall not be subject to execution, attachment or similar process. Any attempted transfer, assignment, pledge, hypothecation or other disposition of this Award or of any rights granted hereunder contrary to the provisions of this Section 3, or the levy of any attachment or similar process upon this Award shall be null and void.

(b) Limitations on Sale of Shares. The shares of Common Stock issued to the Participant hereunder (the "Issued Shares") shall not be transferred by the Participant except as permitted in this Section 3 and Section 5.

(c) The Participant agrees that in the event the Company proposes to offer for sale to the public any of its equity securities and such Participant is requested by the Company and any underwriter engaged by the Company in connection with such offering to sign an agreement restricting the sale or other transfer of the shares of Common Stock (or any shares into which such Common Stock has been converted), then it will promptly sign such agreement and will not transfer, whether in privately negotiated transactions or to the public in open market transactions or otherwise, any shares of Common Stock or other securities of the Company held by him or her during such period as is determined by the Company and the underwriters, not to exceed 180 days following the closing of the offering, plus such additional period of time as may be required to comply with NASD Marketplace Rule 2711 or similar rules thereto (such period, the "Lock-Up Period"). Such agreement shall be in writing and in form and substance reasonably satisfactory to the Company and such underwriter and pursuant to customary and prevailing terms and conditions. Notwithstanding whether the Participant has signed such an agreement, the Company may impose stop-transfer instructions with respect to the shares of Common Stock or other securities of the Company subject to the foregoing restrictions until the end of the Lock-Up Period.

(d) The Participant acknowledges and agrees that neither the Company nor, its shareholders nor its directors and officers, has any duty or obligation to disclose to the Participant any material information regarding the business of the Company or affecting the value of the shares of Common Stock before, at the time of, or following the Participant's termination, including, without limitation, any information concerning plans for the Company to make a public offering of its securities or to be acquired by or merged with or into another firm or entity.

4. Adjustments. The Plan contains provisions covering the treatment of RSUs and shares of Common Stock in a number of contingencies such as stock splits and mergers. Provisions in the Plan for adjustment with respect to this Award and the related provisions with respect to successors to the business of the Company are hereby made applicable hereunder and are incorporated herein by reference.

5. Purchase for Investment; Securities Law Compliance. The Participant hereby represents and warrants that he or she is acquiring the RSUs for his or her own account, for investment, and not with a view to, or for sale in connection with, the distribution of any Common Stock. The Participant specifically acknowledges and agrees that any sales of Common Stock shall be made in accordance with the requirements of the Securities Act of 1933, as amended, in a transaction as to which the Company shall have received an opinion of counsel satisfactory to it confirming such compliance. The Participant shall be bound by the provisions of the following legend which shall be endorsed upon the certificate(s) evidencing the Common Stock:

"THE SHARES REPRESENTED BY THIS CERTIFICATE HAVE BEEN TAKEN FOR INVESTMENT AND THEY MAY NOT BE SOLD OR OTHERWISE TRANSFERRED BY ANY PERSON, INCLUDING A PLEDGEE, UNLESS (1) EITHER (A) A REGISTRATION STATEMENT WITH RESPECT TO SUCH SHARES SHALL BE EFFECTIVE UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR (B) THE COMPANY SHALL HAVE RECEIVED AN OPINION OF COUNSEL SATISFACTORY TO IT THAT AN EXEMPTION FROM REGISTRATION UNDER SUCH ACT IS THEN AVAILABLE, AND (2) THERE SHALL HAVE BEEN COMPLIANCE WITH ALL APPLICABLE STATE SECURITIES LAWS."

The Participant acknowledges that if the Participant is not a United States employee, he or she has been informed that the Common Stock or other securities of the Company to be received by the Participant under this Agreement are subject to restrictions on resale under securities laws applicable to such Participant based on the jurisdiction of such Participant. The Participant agrees not to sell any such Common Stock or other securities except in accordance with such laws.

6. Rights as a Stockholder. The Participant shall have no right as a stockholder, including voting and dividend rights, with respect to the RSUs subject to this Agreement.

7. Incorporation of the Plan. The Participant specifically understands and agrees that this Award and the shares of Common Stock to be issued under the Plan are being issued to the Participant pursuant to the Plan, a copy of which Plan the Participant acknowledges he or she has read and understands and by which Plan he or she agrees to be bound. The provisions of the Plan are incorporated herein by reference.

8. Tax Liability of the Participant and Payment of Taxes.

The Participant acknowledges and agrees that any income or other taxes, fees or other amounts due from the Participant with respect to this Award or the shares of Common Stock to be issued pursuant to this Agreement or otherwise sold shall be the Participant's responsibility. The Participant shall pay to the Company, or make provision satisfactory to the Company for payment of, any taxes or other amounts required to be withheld by the Company in accordance with applicable law or regulation no later than the date of the event creating the tax liability.

Any taxes or other amounts required to be withheld by the Company by applicable law or regulation shall be paid, at the option of the Company as follows:

(i) through reducing the number of shares of Common Stock actually issued to the Participant in an amount equal to the statutory minimum of the Participant's total tax and other withholding obligations due and payable by the Company. Fractional shares will not be retained to satisfy any portion of the Company's withholding obligation. Accordingly, the Participant agrees that in the event that the amount of withholding required would result in a fraction of a share being owed, that amount will be satisfied by withholding the fractional amount from the Participant's paycheck;

(ii) requiring the Participant to deposit with the Company an amount of cash equal to the amount determined by the Company to be required to be withheld with respect to the statutory minimum amount of the Participant's total tax and other withholding obligations due and payable by the Company or otherwise withholding from the Participant's paycheck an amount equal to such amounts due and payable by the Company; or

(iii) if the Company believes that the sale of shares can be made in compliance with applicable securities laws, authorizing, at a time when the Participant is not in possession of material nonpublic information, the sale by the Participant on the date of vesting of the RSUs such number of shares of Common Stock as the Company instructs a broker to sell to satisfy the Company's withholding obligation, after deduction of the broker's commission, and the broker shall remit to the Company the cash necessary in order for the Company to satisfy its withholding obligation. To the extent the proceeds of such sale exceed the Company's withholding obligation the Company agrees to pay such excess cash to the Participant as soon as practicable. In addition, if such sale is not sufficient to pay the Company's withholding obligation the Participant agrees to pay to the Company as soon as practicable, including through additional payroll withholding, the amount of any withholding obligation that is not satisfied by the sale of shares of Common Stock. The Participant agrees to hold the Company and the broker harmless from all costs, damages or expenses relating to any such sale. The Participant acknowledges that the Company and the broker are under no obligation to arrange for such sale at any particular price. In connection with such sale of shares of Common Stock, the Participant shall execute any such documents requested by the broker in order to effectuate the sale of shares of Common Stock and payment of the withholding obligation to the Company. The Participant acknowledges that this paragraph is intended to comply with Section 10b5-1(c)(1)(i)(B) under the Exchange Act.

The Company shall not deliver any shares of Common Stock to the Participant until it is satisfied that all required withholdings have been made.

9. No Obligation to Maintain Relationship. The Participant acknowledges that: (i) the Company is not by the Plan, this Award or this Agreement obligated to continue the Participant as an Employee, director or Consultant of the Company or an Affiliate; (ii) the Plan is discretionary in nature and may be suspended or terminated by the Company at any time; (iii) the grant of this Award is a one-time benefit which does not create any contractual or other right to receive any other award under the Plan, or benefits in lieu of awards or any other benefits in the future; (iv) the Participant's participation in the Plan is voluntary and future awards, if any, will be at the sole discretion of the Company, including, but not limited to, the timing of any grant, the amount of any award, vesting provisions and purchase price, if any; (vi) the value of this Award is an extraordinary item of compensation which is outside the scope of the Participant's employment contract, if any; and (vii) the Award is not part of normal or expected compensation for purposes of calculating any severance, resignation, redundancy, end of service payments, bonuses, long-service awards, pension or retirement benefits or similar payments.

10. Notices. Any notices required or permitted by the terms of this Agreement or the Plan shall be given by recognized courier service, facsimile, registered or certified mail, return receipt requested, addressed as follows:

If to the Company:

Amedica Corporation
1885 W 2100 South
Attn: Chief Legal Officer
Salt Lake City, UT 84119

If to the Participant:

To the address set forth in the Company's records.

or to such other address or addresses of which notice in the same manner has previously been given. Any such notice shall be deemed to have been given on the earliest of receipt, one business day following delivery by the sender to a recognized courier service, or three business days following mailing by registered or certified mail.

11. Benefit of Agreement. Subject to the provisions of the Plan and the other provisions hereof, this Agreement shall be for the benefit of and shall be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

12. Governing Law. This Agreement shall be construed and enforced in accordance with the laws of the State of Delaware, without giving effect to the conflict of law principles thereof. For the purpose of litigating any dispute that arises under this Agreement, whether at law or in equity, the parties hereby consent to exclusive jurisdiction in Utah and agree that such litigation shall be conducted in the state courts of Salt Lake City, Utah or the federal courts of the United States for the District of Utah.

13. Severability. If any provision of this Agreement is held to be invalid or unenforceable by a court of competent jurisdiction, then such provision or provisions shall be modified to the extent necessary to make such provision valid and enforceable, and to the extent that this is impossible, then such provision shall be deemed to be excised from this Agreement, and the validity, legality and enforceability of the rest of this Agreement shall not be affected thereby.

14. Entire Agreement. This Agreement, together with the Plan, constitutes the entire agreement and understanding between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings relating to the subject matter hereof. No statement, representation, warranty, covenant or agreement not expressly set forth in this Agreement shall affect or be used to interpret, change or restrict the express terms and provisions of this Agreement provided, however, in any event, this Agreement shall be subject to and governed by the Plan.

15. Modifications and Amendments; Waivers and Consents. The terms and provisions of this Agreement may be modified or amended as provided in the Plan. Except as provided in the Plan, the terms and provisions of this Agreement may be waived, or consent for the departure therefrom granted, only by written document executed by the party entitled to the benefits of such terms or provisions. No such waiver or consent shall be deemed to be or shall constitute a waiver or consent with respect to any other terms or provisions of this Agreement, whether or not similar. Each such waiver or consent shall be effective only in the specific instance and for the purpose for which it was given, and shall not constitute a continuing waiver or consent.

16. Counterparts. This Agreement may be executed in one or more counterparts, and by different parties hereto on separate counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

17. Data Privacy. By entering into this Agreement, the Participant: (i) authorizes the Company and each Affiliate, and any agent of the Company or any Affiliate administering the Plan or providing Plan record keeping services, to disclose to the Company or any of its Affiliates such information and data as the Company or any such Affiliate shall request in order to facilitate the issuance of the Award or shares of Common Stock and the administration of the Plan; (ii) consents to the collection, use and disclosure of personal information (which may include name, home and business contact information, personal identifiers such as a date of birth and social insurance number for tax reporting purposes, employment, position and compensation) by the Company for the purpose of administering the Plan, providing Plan recordkeeping services and facilitating the grant of Stock Rights under the Plan including this Award of Restricted Stock Units and consents to the disclosure of this information by the Company to any Affiliate of the Company for such purposes; and (iii) authorizes the Company and each Affiliate to store and transmit such information in electronic form. The Company is located in, and the Plan will be administered (in whole or in part) in the United States and some or all of the personal information may become subject to the laws of, and accessible to, the authorities of the United States.

18. Section 409A. The Award of RSUs evidenced by this Agreement is intended to be exempt from the nonqualified deferred compensation rules of Section 409A of the Code as a “short term deferral” (as that term is used in the final regulations and other guidance issued under Section 409A of the Code, including Treasury Regulation Section 1.409A-1(b)(4)(i)), and shall be construed accordingly.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" and to the use of our report dated September 23, 2013 (except for the last paragraph of Note 1, as to which the date is February XX, 2014) (which contains an explanatory paragraph describing the conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the financial statements), in Amendment No. 3 to the Registration Statement (Form S-1 No. 333-192232) and related Prospectus of Amedica Corporation for the registration of shares of its common stock.

Ernst & Young LLP
Salt Lake City, Utah

The foregoing consent is in the form that will be signed upon the effectiveness of the reverse stock split as described in the last paragraph of Note 1 to the financial statements.

/s/ Ernst & Young LLP

Salt Lake City, Utah
January 28, 2014

Exhibit 24.2

POWER OF ATTORNEY

I, Jeffrey S. White, the undersigned director of Amedica Corporation (the "**Company**"), do hereby severally constitute and appoint Eric K. Olson, Jay M. Moyes and Kevin Ontiveros, and each of them singly, as my true and lawful attorneys and agents, with full power of substitution, to do any and all acts and things in our names and on our behalf in my capacity as a director and to execute any and all instruments for me and in my name in the capacity indicated below, which said attorneys and agents, or any of them, may deem necessary or advisable to enable the Company to comply with the Securities Act of 1933, as amended, and any rules, regulations and requirements of the Securities and Exchange Commission, in connection with the registration statement on Form S-1 (File No. 333-192232), with all exhibits thereto and other documents in connection therewith, including specifically, but without limitation, power and authority to sign for me in my name in the capacity indicated below, such Registration Statement and any and all amendments (including post-effective amendments and any related registration statement pursuant to Rule 462(b) under the Securities Act of 1933, as amended) thereto and I do hereby ratify and confirm that said attorneys and agents, or any of them, shall do or cause to be done by virtue hereof.

This Power of Attorney shall be effective as of the signature date set forth below and it shall remain in full force and effect until revoked by the undersigned in a signed writing delivered to said attorneys-in-fact and agents, or any of them.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed on the date set forth below.

/s/ Jeffrey S. White	Director	January 28, 2014
Jeffrey S. White		