Xtant Medical Holdings, Inc.
Form S-1/A
October 21, 2016

As filed with the Securities and Exchange Commission October 21, 2016

Registration Statement No. 333-213350

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Pre-effective
Amendment No. 4
to
FORM S-1
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

XTANT MEDICAL HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	3841	20-5313323
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

664 Cruiser Lane
Belgrade, Montana 59714
(406) 388-0480

(Address, including zip code, and telephone number, including area code, of registrant s principal executive offices)

John Gandolfo
Chief Financial Officer
Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714
(406) 388-0480

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Travis Leach
Ballard Spahr LLP
One East Washington Street, Suite 2300
Phoenix, Arizona 85004
(602) 798-5444

Approximate date of commencement of proposed sale to the public: As soon as practicable after this registration statement becomes effective.

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

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

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 effective registration statement for the same offering. o

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 effective registration statement for the same offering. o

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 o	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller Reporting Company þ

TABLE OF CONTENTS

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Proposed maximum aggregate offering price[1]	Amount of registration fee[5]
Units, each consisting of one share of common stock, par value $0.000001 per share (Common Stock) and one warrant (Warrant) to purchase one share of Common Stock (Units)	$ 15,000,000	$ 1,738.50
Non-transferable Rights to purchase Units[2]		
Common Stock, par value $0.000001 per share included as part of the Units[3]	Included with Units above	
Warrants included as part of the Units[3]	Included with Units above	
Common Stock issuable upon exercise of the Warrants included in the Units[4]	$ 18,000,000	$ 2,086.20
Pre-Funded Warrants in lieu of Common Stock included in Units[3]	Included with Units Above	
Common Stock issuable upon exercise of Pre-Funded Warrants[3][4]	Included with Units Above	
Total	$ 33,000,000	$ 3,824.70

(1) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) of the Securities Act of 1933 (the Securities Act).

(2) Non-transferable Rights to subscribe for Units are being issued without consideration.

(3) Pursuant to Rule 457(i) of and existing interpretations under the Securities Act, no separate registration fee is required for the Common Stock and Warrants because the Common Stock and Warrants are being registered at the same time as the Units.

(4) Pursuant to Rule 416 under the Securities Act, the shares being registered hereunder include such indeterminate number of shares as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.

(5) A total of $3,824.70 was previously paid on August 26, 2016, September 28, 2016 and October 17, 2016.

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

TABLE OF CONTENTS

The information in this 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 becomes effective. This prospectus is not an offer to sell these securities, and we are not soliciting offers to buy these securities in any state where the offer or sale of these securities is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 21, 2016

PRELIMINARY PROSPECTUS

XTANT MEDICAL HOLDINGS, INC.

Subscription Rights to Purchase Up to 15,000,000 Units
Consisting of an Aggregate of Up to 15,000,000 Shares of Common Stock
and Warrants to Purchase Up to 15,000,000 Shares of Common Stock
at a Subscription Price of $1.00 Per Unit

We are distributing to holders of our Common Stock and to holders of our outstanding convertible notes, at no charge, non-transferable subscription rights to purchase units. Each unit, which we refer to as a Unit, consists of one share of Common Stock and one Warrant representing the right to purchase one share of Common Stock, which we refer to as the Warrants. We refer to the offering that is the subject of this prospectus as the Rights Offering.

In the Rights Offering, you will receive two subscription rights for each share of Common Stock, or each share of Common Stock underlying our outstanding convertible notes, at 5:00 PM Eastern Time, on October 21, 2016, the record date of the Rights Offering, or the Record Date. The Common Stock and the Warrants comprising the Units will separate upon the effectiveness of the exercise of the rights and will be issued as separate securities, and the Units will not trade as a separate security. The subscription rights will not be tradable.

Each subscription right will entitle you to purchase one Unit, which we refer to as the Basic Subscription Right, at a subscription price per Unit of $1.00, which we refer to as the Subscription Price. The Warrants entitle the holder to purchase one share of Common Stock at an exercise price of $1.20 per share, 120% of the Unit price, from the date of issuance through its expiration five years after the date of issuance. If you exercise your Basic Subscription Rights in full, and other stockholders or convertible note holders do not, you will be entitled to an over-subscription privilege to purchase a portion of the unsubscribed Units at the Subscription Price, subject to proration, which we refer to as the Over-Subscription Privilege, provided that we will not sell in excess of $15 million of Units in this offering and the Over-Subscription Privilege will only apply in the event that we receive less than $15 million of subscriptions. In the event that stockholders exercise Subscription Rights for in excess of $15 million (not including the Over-Subscription Privilege), the amount subscribed for by each person will be proportionally reduced, based on the amount subscribed for by each person (not including any Over-Subscription Privilege subscribed for). Each subscription right consists of a Basic Subscription Right and an Over-Subscription Privilege, which we refer to as the Subscription Right.

For certain investors whose subscriptions may result in the purchaser beneficially owning more than 4.99% of our outstanding Common Stock, such investors may elect to receive in the Rights Offering, in lieu of shares of Common Stock, certain pre-funded warrants (which we refer to as the Pre-Funded Warrants) to purchase the same number of shares of Common Stock. If you do not wish to exceed the ownership threshold, you may elect to receive a

Pre-Funded Warrant in lieu of any share of Common Stock underlying the Units for which you have subscribed. You will not be eligible to elect to receive Pre-Funded Warrants, except to the extent that your beneficial ownership could exceed 4.99% of the shares of Common Stock outstanding following the consummation of the Rights Offering. Each Pre-Funded Warrant will have an exercise price of $0.01, and the subscription price per Unit for any such electing investors will be $0.99 (which equals the Subscription Price for the other Units sold in the Rights Offering, less the $0.01 exercise price for each Pre-Funded Warrant). The Pre-Funded Warrants do not confer upon the holder any voting or any other rights of a stockholder of the Company.

This prospectus also relates to the offering of the shares of Common Stock issuable upon exercise of these Pre-Funded Warrants.

The Subscription Rights will expire if they are not exercised by 5:00 PM Eastern Time, on November 11, 2016. We may extend the Rights Offering for additional periods in our sole discretion, provided, however, that we may not extend the expiration date of the rights offering more than thirty (30) days past the original expiration date. Once made, all exercises of Subscription Rights are irrevocable.

The Rights Offering is being conducted on a best-efforts basis. There is no minimum amount of proceeds necessary in order for us to close the Rights Offering. While none of our directors or executive officers has entered into any binding commitment or agreement to exercise Subscription Rights received in the Rights Offering, our director and Chief Executive Officer, Daniel Goldberger, and our director, Kent Swanson, have indicated interests in subscribing for up to an aggregate of $327,000 in the Rights Offering, subject to potential proration.

We have engaged Maxim Group LLC to act as dealer-manager in the Rights Offering.

Investing in our securities involves a high degree of risk. See the section entitled *Risk Factors* beginning on page 27 of this prospectus. You should carefully consider these risk factors, as well as the information contained in this prospectus, before you invest.

Corporate Stock Transfer, Inc. will serve as the Subscription Agent for the Rights Offering. The Subscription Agent will hold the funds we receive from subscribers until we complete, abandon or terminate the Rights Offering. If you want to participate in this Rights Offering and you are the record holder of your shares or convertible notes, we recommend that you submit your subscription documents to the Subscription Agent well before the deadline. If you want to participate in this Rights Offering and you hold shares through your broker, dealer, bank, or other nominee, you should promptly contact your broker, dealer, bank, or other nominee and submit your subscription documents in accordance with the instructions and within the time period provided by your broker, dealer, bank, or other nominee. For a more detailed discussion, see The Rights Offering The Subscription Rights.

Our board of directors reserves the right to terminate the Rights Offering for any reason any time before the completion of the Rights Offering. If we terminate the Rights Offering, all subscription payments received will be returned as soon as practicable, without interest or penalty.

Our Common Stock is listed on the NYSE MKT under the symbol XTNT. On October 20, 2016, the last reported sale price of our Common Stock was $0.90. We will seek to have the Warrants trade on the over-the-counter market, or the OTCBB promptly after the expiration of the Subscription Rights. If we regain compliance with NYSE MKT minimum listing criteria and the Warrants are eligible for listing on NYSE MKT, we intend to apply to list the Warrants on NYSE MKT. There is no guarantee that the Warrants will be accepted for trading on the OTCBB or, in the future, accepted for listing on NYSE MKT. The Subscription Rights are non-transferrable and will not be listed for trading on NYSE MKT or any other stock exchange or market. You are urged to obtain a current price quote for our Common Stock before exercising your Subscription Rights.

	Per Unit	Total[2]
Subscription price	$1.000	$15,000,000
Dealer-Manager fees and expenses[1]	$0.075	$1,125,000
Proceeds to us, before expenses	$0.925	$13,875,000

(1) In connection with this Rights Offering, we have agreed to pay to the dealer-manager a cash fee equal to 7% of the gross proceeds received by us directly from exercises of Subscription Rights. We will reimburse the dealer-manager up to $75,000 for expenses incurred in connection with the Rights Offering. We advanced $30,000 of this $75,000 allowance to Maxim Group LLC upon its engagement as a dealer-manager; provided that Maxim Group LLC will promptly reimburse to us any portion of the advance not used for actual out-of-pocket expenses. See Plan of Distribution.

(2) Assumes the Rights Offering is fully subscribed, but excludes proceeds from the exercise of Warrants included within the Units.

Our board of directors is making no recommendation regarding your exercise of the Subscription Rights. You should carefully consider whether to exercise your Subscription Rights before the expiration date. You may not revoke or revise any exercises of Subscription Rights once made unless we terminate the Rights Offering.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

Dealer-Manager

Maxim Group LLC

The date of this Prospectus is , 2016

TABLE OF CONTENTS

TABLE OF CONTENTS

You should read this prospectus, the documents incorporated by reference into this prospectus, and any prospectus supplement or free writing prospectus that we may authorize for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus entitled Incorporation of Certain Information by Reference and Where You Can Find More Information. These documents contain important information that you should consider when making your investment decision.

We are only responsible for the information contained in, or incorporated by reference into, this prospectus, in any prospectus supplement or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We have not authorized anyone to provide any information other than that contained in this prospectus, in any prospectus supplement or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We are offering to sell, and seeking offers to buy, securities only in jurisdictions where such offers and sales are permitted. The information in this prospectus, in any prospectus supplement or any free writing prospectus is accurate only as of its date, regardless of its time of delivery or of any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in Risk Factors. These and other factors could cause our future performance to differ materially from our assumptions and estimates. See Cautionary Note Regarding Forward-Looking Statements.

i

TABLE OF CONTENTS

Solely for convenience, trademarks and trade names referred to in this prospectus may appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or that the applicable owner will not assert its rights, to these trademarks and tradenames.

Except as otherwise indicated herein or as the context otherwise requires, references in this prospectus to Xtant, the Company, we, us, our and similar references refer to Xtant Medical Holdings, Inc. and its subsidiaries.

TABLE OF CONTENTS

QUESTIONS AND ANSWERS RELATING TO THE RIGHTS OFFERING

The following are examples of what we anticipate will be common questions about the Rights Offering. The answers are based on selected information included elsewhere in this prospectus. The following questions and answers do not contain all of the information that may be important to you and may not address all of the questions that you may have about the Rights Offering. This prospectus and the documents incorporated by reference into this prospectus contain more detailed descriptions of the terms and conditions of the Rights Offering and provide additional information about us and our business, including potential risks related to the Rights Offering, the Units offered hereby, and our business. We urge you to read this entire prospectus and the documents incorporated by reference into this prospectus.

Why are we conducting the Rights Offering?

We are conducting the Rights Offering to raise additional capital:

to provide equity capital to support the continuing execution of the Company s growth strategy, specifically to increase surgical instruments and fixation and biologics inventory, and
for general corporate purposes, including research and development, business development and operational purposes.

What is the Rights Offering?

We are distributing, at no charge, to record holders of our Common Stock and to holders of our outstanding convertible notes, non-transferable Subscription Rights to purchase Units at a price per Unit of $1.00. The Subscription Rights will not be tradable. Each Unit consists of one share of Common Stock and one Warrant representing the right to purchase one share of Common Stock at an exercise price of $1.20 per share, 120% of the per Unit price. Upon the effectiveness of the exercise of the Subscription Rights, the Common Stock and Warrants will immediately separate and will be issued as separate securities. We will seek to have the Warrants trade on the OTCBB promptly after the expiration of the Subscription Rights. You will receive two Subscription Rights for each share of Common Stock or each share of Common Stock underlying the convertible notes that you owned as of 5:00 PM Eastern Time, on the Record Date. Each Subscription Right entitles the record holder or holder of a convertible note to a Basic Subscription Right and an Over-Subscription Privilege.

For certain investors whose subscriptions may result in the purchaser beneficially owning more than 4.99% of our outstanding Common Stock, such investors may elect to receive in the Rights Offering, in lieu of shares of Common Stock, certain pre-funded warrants (which we refer to as the Pre-Funded Warrants) to purchase the same number of shares of Common Stock. If you do not wish to exceed the ownership threshold, you may elect to receive a Pre-Funded Warrant in lieu of any share of Common Stock underlying the Units for which you have subscribed. You will not be eligible to elect to receive Pre-Funded Warrants, except to the extent that your beneficial ownership could exceed 4.99% of the shares of Common Stock outstanding following the consummation of the Rights Offering. Each Pre-Funded Warrant will have an exercise price of $0.01, and the subscription price per Unit for any such electing investors will be $0.99 (which equals the Subscription Price for the other Units sold in the Rights Offering, less the $0.01 exercise price for each Pre-Funded Warrant). The Pre-Funded Warrants do not confer upon the holder any voting or any other rights of a stockholder of the Company.

What are the Basic Subscription Rights?

For each whole share you owned or whole share underlying the convertible notes you owned as of the Record Date, you will receive two Basic Subscription Rights, each which gives you the opportunity to purchase one share of our Common Stock and to receive one Warrant to purchase one additional share of our Common Stock for a price of $1.00 per Unit. For example, if you owned 50 shares of Common Stock as of the Record Date, you will receive 100 Subscription Rights and will have the right to purchase 100 shares of our Common Stock and 100 Warrants to purchase one additional share of our Common Stock for $1.00 per whole Unit (or a total payment of $100.00). You may exercise all or a portion of your Basic Subscription Rights or you may choose not to exercise any Basic Subscription Rights at all. Notwithstanding the foregoing, we will not sell in excess of $15 million of Units in this Rights Offering. In the event that stockholders exercise subscription

TABLE OF CONTENTS

rights for in excess of $15 million (not including the Over-Subscription Privilege) the amount subscribed for by each person will be proportionally reduced, based on the amount subscribed for by each person (not including any Over-Subscription Privilege subscribed for).

If you are a record holder or a holder of convertible notes, the number of shares you may purchase pursuant to your Basic Subscription Rights is indicated on the enclosed Subscription Rights Statement. If you hold your shares in the name of a broker, dealer, bank, or other nominee who uses the services of the Depository Trust Company, or DTC, you will not receive a Subscription Rights Statement. Instead, DTC will issue two Subscription Rights to your nominee record holder for each share of our Common Stock that you own as of the Record Date. If you are not contacted by your nominee, you should contact your nominee as soon as possible.

What is the Over-Subscription Privilege?

If you exercise your Basic Subscription Rights in full, you may also choose to exercise your Over-Subscription Privilege to purchase a portion of any Units that the other record holders and convertible note holders do not purchase through the exercise of their Basic Subscription Rights, provided that we will not sell in excess of $15 million of Units in this Rights Offering and the Over-Subscription Privilege will only apply in the event that we receive less than $15 million of subscriptions. You should indicate on your Subscription Rights Statement, or the form provided by your nominee if your shares are held in the name of a nominee, how many additional Units you would like to purchase pursuant to your Over-Subscription Privilege.

If sufficient Units are available, we will seek to honor your Over-Subscription request in full. If Over-Subscription requests exceed the number of Units available, however, we will allocate the available Units pro-rata among the record holders and convertible note holders exercising the Over-Subscription Privilege in proportion to the number of shares of our Common Stock each of those record holders owned and the number of shares of our Common Stock underlying the convertible notes held by each of those convertible note holders on the Record Date, relative to the number of shares owned and the number of shares underlying convertible notes held on the Record Date by all record holders and convertible note holders exercising the Over-Subscription Privilege. If this pro-rata allocation results in any record holders or convertible note holders receiving a greater number of Units than the record holder subscribed for pursuant to the exercise of the Over-Subscription Privilege, then such record holder or convertible note holder will be allocated only that number of Units for which the record holder or convertible note holder oversubscribed, and the remaining Units will be allocated among all other record holders and convertible note holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all Units have been allocated. See The Rights Offering Limitation on the Purchase of Units for a description of certain limitations on purchase.

To properly exercise your Over-Subscription Privilege, you must deliver to the Subscription Agent the subscription payment related to your Over-Subscription Privilege before the Rights Offering expires. See The Rights Offering The Subscription Rights Over-Subscription Privilege. To the extent you properly exercise your Over-Subscription Privilege for a number of Units that exceeds the number of unsubscribed Units available to you, any excess subscription payments will be returned to you as soon as practicable after the expiration of the Rights Offering, without interest or penalty.

Corporate Stock Transfer, Inc., our Subscription Agent for the Rights Offering, will determine the Over-Subscription allocation based on the formula described above.

What are the terms of the Warrants?

Each Warrant entitles the holder to purchase one share of Common Stock at an exercise price of $1.20 per share, 120% of the per Unit price, from the date of issuance through its expiration five years after the date of issuance. The Warrants will be exercisable by paying the exercise price in cash, or, solely during any period when a registration statement for the exercise of the Warrants is not in effect, exercisable on a cashless basis. After the one-year anniversary of issuance, we may redeem the Warrants for $0.01 per Warrant if the volume weighted average price of our Common Stock is above $3.00 per share, for each of 10 consecutive trading days. Subject to certain exceptions, a holder may not exercise any portion of the Warrant to the extent that the holder would beneficially own more than 4.99% of the outstanding Common Stock after exercise.

TABLE OF CONTENTS

May I sell my Warrants?

We will seek to have the Warrants quoted on the OTCBB promptly after the expiration of the Subscription Rights. If we regain compliance with NYSE MKT minimum listing criteria and the Warrants are eligible for listing on NYSE MKT, we intend to apply to list the Warrants on NYSE MKT. We cannot assure you that we will be able to list the Warrant on the OTCBB or NYSE MKT, that there will be a market to sell the Warrants, or the price at which you will be able to sell your Warrants. In addition, following the closing of the Rights Offering, the Warrants may not be immediately tradable until the securities exchange to which we may apply makes a decision with respect to the listing applications in respect of the Warrants. As a result, even if the listing application with respect to the Warrants is successful, the Warrants may not be listed immediately following the closing of the Rights Offering.

What are the terms of the Pre-Funded Warrants?

The Pre-Funded Warrants will only be issued to certain investors whose subscriptions for Units in the Rights Offering may result in the purchaser beneficially owning more than 4.99% of our outstanding Common Stock following the consummation of the Rights Offering, and who elect to receive Pre-Funded Warrants in lieu of shares of Common Stock underlying the Units for which the investors have subscribed. You will not be eligible to elect to receive Pre-Funded Warrants except to the extent that your beneficial ownership could exceed 4.99% of the shares of Common Stock outstanding following the consummation of the Rights Offering.

Each Pre-Funded Warrant entitles the holder to purchase one share of Common Stock at an exercise price of $0.01 per share, and the subscription price per Unit for any such electing investors will be $0.99 (which equals the Subscription Price for the other Units sold in the Rights Offering, less the $0.01 exercise price for each Pre-Funded Warrant). Each Pre-Funded Warrant will be exercisable from the date of issuance through its expiration 12 years after the date of issuance. The Pre-Funded Warrants will be exercisable by paying the exercise price in cash or on a cashless basis in accordance with the terms of the Pre-Funded Warrants. The Pre-Funded Warrants will not be listed for trading on any stock exchange or market. The Pre-Funded Warrants do not confer upon the holder any voting or any other rights of a stockholder of the Company.

Will fractional shares be issued upon exercise of Subscription Rights or upon the exercise of Warrants?

No. We will not issue fractional shares of Common Stock in the Rights Offering. Rights holders will only be entitled to purchase a number of Units representing a whole number of shares of Common Stock, rounded down to the nearest whole number of Units a holder would otherwise be entitled to purchase. Any excess subscription payments received by the Subscription Agent will be returned as soon as practicable after expiration of the Rights Offering, without interest or penalty. Similarly, no fractional shares of Common Stock will be issued in connection with the exercise of a Warrant. If, upon exercise of a Warrant, the holder thereof would be entitled to receive a fractional share of Common Stock, upon exercise, the holder will only be entitled to receive a whole number of shares of Common Stock, rounded down to the nearest whole number.

What effect will the Rights Offering have on our outstanding Common Stock?

On October 20, 2016, 12,193,970 shares of our Common Stock were outstanding and there was $70,238,167 of outstanding convertible notes ($68,000,000 of which converts at $3.883 per share (for a total of 17,511,108 shares) and $2,238,167 of which converts at $2.90 per share (for a total of 771,781 shares)). Based on the foregoing, and assuming no other transactions by us involving our Common Stock or convertible notes prior to the expiration of the Rights Offering, if the Rights Offering is fully subscribed, approximately 27,193,970 shares of our Common Stock will be issued and outstanding and Warrants to purchase approximately 15,000,000 additional shares of our Common Stock will be outstanding (excluding the currently outstanding warrants). The exact number of shares and Warrants that we will issue in this Rights Offering will depend on the number of Units that are subscribed for in the Rights Offering.

How is the Subscription Price determined?

In determining the Subscription Price, our board of directors is expected to consider, among other things, the following factors:

- the current and historical trading prices of our Common Stock;

TABLE OF CONTENTS

the price at which stockholders might be willing to participate in the Rights Offering;
the value of the Warrant being issued as a component of the Unit;
our need for additional capital and liquidity;
the cost of capital from other sources; and
comparable precedent transactions, including the percentage of shares offered, the terms of the subscription rights being offered, the subscription price and the discount that the subscription price represented to the immediately prevailing closing prices for those offerings.

In conjunction with the review of these factors, our board of directors will also review our history and prospects, including our past and present earnings and cash requirements, our prospects for the future, the outlook for our industry and our current financial condition. Our board of directors believes that the Subscription Price should be designed to provide an incentive to our current stockholders and holders of the convertible notes to participate in the Rights Offering and exercise their Basic Subscription Right and their Over-Subscription Privilege.

The Subscription Price does not necessarily bear any relationship to any established criteria for value. You should not consider the Subscription Price as an indication of actual value of the Company or our Common Stock. We cannot assure you that the market price of our Common Stock will not decline during or after the Rights Offering. You should obtain a current price quote for our Common Stock before exercising your Subscription Rights and make your own assessment of our business and financial condition, our prospects for the future, and the terms of this Rights Offering. Once made, all exercises of Subscription Rights are irrevocable.

Am I required to exercise all of the Basic Subscription Rights I receive in the Rights Offering?

No. You may exercise any number of your Basic Subscription Rights, or you may choose not to exercise any Basic Subscription Rights. If you do not exercise any Basic Subscription Rights, the number of shares of our Common Stock or number of shares underlying our convertible notes you own will not change. However, if you choose to not exercise your Basic Subscription Rights in full, your proportionate ownership interest in the Company will decrease. If you do not exercise your Basic Subscription Rights in full, you will not be entitled to exercise your Over-Subscription Privilege.

How soon must I act to exercise my Subscription Rights?

If you received a Subscription Rights Statement and elect to exercise any or all of your Subscription Rights, the Subscription Agent must receive your completed and signed Subscription Rights Statement and payment for both your Basic Subscription Rights and any Over-Subscription Privilege you elect to exercise, including final clearance of any uncertified check, before the Rights Offering expires on November 11, 2016, at 5:00 PM Eastern Time. If you hold your shares in the name of a broker, dealer, custodian bank, or other nominee, your nominee may establish a deadline before the expiration of the Rights Offering by which you must provide it with your instructions to exercise your Subscription Rights, along with the required subscription payment.

May I transfer my Subscription Rights?

No. The Subscription Rights may be exercised only by the stockholders or convertible note holders to whom they are distributed, and they may not be sold, transferred, assigned or given away to anyone else, other than by operation of law. As a result, a Subscription Rights Statement may be completed only by the stockholder or convertible note holder who receives the statement. The Subscription Rights will not be listed for trading on any stock exchange or market.

Will our directors and executive officers participate in the Rights Offering?

To the extent they hold Common Stock as of the Record Date, our directors and executive officers will be entitled to participate in the Rights Offering on the same terms and conditions applicable to other Rights holders. While none of our directors or executive officers has entered into any binding commitment or agreement to exercise Subscription Rights received in the Rights Offering, our director and Chief Executive

TABLE OF CONTENTS

Officer, Daniel Goldberger, and our director, Kent Swanson, have indicated interests in subscribing for up to an aggregate of $327,000 in the Rights Offering, subject to potential proration.

Has the board of directors made a recommendation to stockholders regarding the Rights Offering?

No. Our board of directors is not making a recommendation regarding your exercise of the Subscription Rights. Stockholders and holders of the convertible notes who exercise Subscription Rights will incur investment risk on new money invested. We cannot predict the price at which our shares of Common Stock will trade after the Rights Offering. On October 20, 2016, the closing price of our Common Stock was $0.90 per share. The market price for our Common Stock may be above the Subscription Price or may be below the Subscription Price. If you exercise your Subscription Rights, you may not be able to sell the underlying shares of our Common Stock or Warrants in the future at the same price or a higher price. You should make your decision based on your assessment of our business and financial condition, our prospects for the future, the terms of the Rights Offering and the information contained in this prospectus. See Risk Factors for discussion of some of the risks involved in investing in our securities.

How do I exercise my Subscription Rights?

If you are a stockholder of record (meaning you hold your shares of our Common Stock in your name and not through a broker, dealer, bank, or other nominee) or a holder of the convertible notes and you wish to participate in the Rights Offering, you must deliver a properly completed and signed Subscription Rights Statement, together with payment of the Subscription Price for both your Basic Subscription Rights and any Over-Subscription Privilege you elect to exercise, to the Subscription Agent before 5:00 PM Eastern Time, on November 11, 2016. If you are exercising your Subscription Rights through your broker, dealer, bank, or other nominee, you should promptly contact your broker, dealer, bank, or other nominee and submit your subscription documents and payment for the Units subscribed for in accordance with the instructions and within the time period provided by your broker, dealer, bank or other nominee.

What if my shares are held in street name ?

If you hold your shares of our Common Stock in the name of a broker, dealer, bank, or other nominee, then your broker, dealer, bank, or other nominee is the record holder of the shares you own. The record holder must exercise the Subscription Rights on your behalf. Therefore, you will need to have your record holder act for you.

If you wish to participate in this Rights Offering and purchase Units, please promptly contact the record holder of your shares. We will ask the record holder of your shares, who may be your broker, dealer, bank, or other nominee, to notify you of this Rights Offering.

What form of payment is required?

You must timely pay the full Subscription Price for the full number of Units you wish to acquire pursuant to the exercise of Subscription Rights by delivering to the Subscription Agent a:

cashier s check drawn on a U.S. bank; or
wire transfer.

If you send a payment that is insufficient to purchase the number of Units you requested, or if the number of Units you requested is not specified in the forms, the payment received will be applied to exercise your Subscription Rights to the fullest extent possible based on the amount of the payment received.

When will I receive my new shares of Common Stock and Warrants?

The Subscription Agent will arrange for the issuance of the Common Stock and Warrants as soon as practicable after the expiration of the Rights Offering, payment for the Units subscribed for has cleared, and all prorating calculations and reductions contemplated by the terms of the Rights Offering have been effected. All shares and Warrants that you purchase in the Rights Offering will be issued in book-entry, or uncertificated, form meaning that you will receive a direct registration (DRS) account statement from our transfer agent reflecting ownership of these securities if you are a holder of record of shares or convertible notes. If you hold your shares in the name of a broker, dealer, bank, or other nominee, DTC will credit your account with your nominee with the securities you purchase in the Rights Offering.

TABLE OF CONTENTS

When will I receive my Pre-Funded Warrants?

If you elect to receive any Pre-Funded Warrants, the Subscription Agent will arrange for the issuance of the Pre-Funded Warrants as soon as practicable after the expiration of the Rights Offering, payment for the Units subscribed for has cleared, and all prorating calculations and reductions contemplated by the terms of the Rights Offering have been effected. All Pre-Funded Warrants will be issued in physical form.

After I send in my payment and Subscription Rights Statement to the Subscription Agent, may I cancel my exercise of Subscription Rights?

No. Exercises of Subscription Rights are irrevocable unless the Rights Offering is terminated, even if you later learn information that you consider to be unfavorable to the exercise of your Subscription Rights. You should not exercise your Subscription Rights unless you are certain that you wish to purchase Units at the Subscription Price.

How much will the Company receive from the Rights Offering?

Assuming that all Units are sold in the Rights Offering, we estimate that the net proceeds from the Rights Offering will be approximately $13.7 million, based on a Subscription Price of $1.00 per Unit, after deducting fees and expenses payable to the dealer-manager, and after deducting other expenses payable by us and excluding any proceeds received upon exercise of any Warrants issued in the Rights Offering.

Are there risks in exercising my Subscription Rights?

Yes. The exercise of your Subscription Rights involves risks. Exercising your Subscription Rights involves the purchase of additional shares of our Common Stock and Warrants to purchase Common Stock and you should consider this investment as carefully as you would consider any other investment. We cannot assure you that the market price of our Common Stock will exceed the Subscription Price, nor can we assure you that the market price of our Common Stock will not further decline during or after the Rights Offering. We also cannot assure you that you will be able to sell shares of our Common Stock or Warrants purchased in the Rights Offering at a price equal to or greater than the Subscription Price. In addition, you should carefully consider the risks described under the heading Risk Factors for discussion of some of the risks involved in investing in our securities.

Can the board of directors terminate or extend the Rights Offering?

Yes. Our board of directors may decide to terminate the Rights Offering at any time and for any reason before the expiration of the Rights Offering. We also have the right to extend the Rights Offering for additional periods in our sole discretion, provided, however, that we may not extend the expiration date of the rights offering more than thirty (30) days past the original expiration date. We do not presently intend to extend the Rights Offering. We will notify stockholders and convertible note holders if the Rights Offering is terminated or extended by issuing a press release.

If the Rights Offering is not completed or is terminated, will my subscription payment be refunded to me?

Yes. The Subscription Agent will hold all funds it receives in a segregated bank account until completion of the Rights Offering. If we do not complete the Rights Offering, all subscription payments received by the Subscription Agent will be returned as soon as practicable after the termination or expiration of the Rights Offering, without interest or penalty. If you own shares in street name, it may take longer for you to receive your subscription payment because the Subscription Agent will return payments through the record holder of your shares.

How do I exercise my Rights if I live outside the United States?

The Subscription Agent will hold Subscription Rights Statements for stockholders having addresses outside the United States. To exercise Subscription Rights, foreign stockholders must notify the Subscription Agent and timely follow other procedures described in the section entitled The Rights Offering Foreign Stockholders on page 46.

What fees or charges apply if I purchase shares in the Rights Offering?

We are not charging any fee or sales commission to issue Subscription Rights to you or to issue shares or Warrants to you if you exercise your Subscription Rights. If you exercise your Subscription Rights through a

TABLE OF CONTENTS

broker, dealer, custodian bank, or other nominee, you are responsible for paying any fees your broker, dealer, bank, or other nominee may charge you.

What are the U.S. federal income tax consequences of exercising my Subscription Rights?

For U.S. federal income tax purposes, we do not believe you should recognize income or loss in connection with the receipt or exercise of Subscription Rights in the Rights Offering. You should consult your tax advisor as to the tax consequences of the Rights Offering in light of your particular circumstances. For a more detailed discussion, see Material U.S. Federal Income Tax Consequences on page 48.

To whom should I send my forms and payment?

If your shares are held in the name of a broker, dealer, bank, or other nominee, then you should send your subscription documents and subscription payment to that broker, dealer, bank, or other nominee. If you are the record holder or a holder of convertible notes, then you should send your Subscription Rights Statement and payment of your subscription price to the Subscription Agent hand delivery, first class mail or courier service to:

By Mail or Hand or Overnight Courier:
Corporate Stock Transfer, Inc.
3200 Cherry Creek Drive South, Suite 430
Denver, Colorado 80209

You or, if applicable, your nominee are solely responsible for completing delivery to the Subscription Agent of your subscription documents, Subscription Rights Statement and payment. You should allow sufficient time for delivery of your subscription materials to the Subscription Agent before the expiration of the Rights Offering at 5:00 PM Eastern Time on November 11, 2016.

Whom should I contact if I have other questions?

If you have other questions or need assistance, please contact the dealer-manager for the Rights Offering:

Maxim Group LLC
405 Lexington Avenue
New York, New York 10174
Attention Syndicate Department
Email: syndicate@maximgrp.com
Telephone: (212) 895-3745

Who is the dealer-manager?

Maxim Group LLC will act as dealer-manager for the Rights Offering. Under the terms and subject to the conditions contained in the dealer-manager agreement, the dealer-manager will use its best efforts to solicit the exercise of Subscription Rights. We have agreed to pay the dealer-manager certain fees for acting as dealer-manager and an accountable expense allowance in connection with this offering. The dealer-manager is not underwriting or placing any of the Subscription Rights or the Units, shares of Common Stock or Warrants being issued in this offering, and does not make any recommendation with respect to such Subscription Rights (including with respect to the exercise or expiration of such Subscription Rights), Units, shares of Common Stock or Warrants. See Plan of Distribution on page 60 for a discussion of the fees and expenses to be paid to the dealer-manager in connection with this Rights Offering.

TABLE OF CONTENTS

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained in the prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our Common Stock. For a more complete understanding of the Company and this offering, we encourage you to read and consider the more detailed information in the prospectus, including Risk Factors and the financial statements and related notes.

About Xtant Medical Holdings, Inc.

We operate through our subsidiaries Bacterin International, Inc. (Bacterin) and X-spine Systems, Inc. (X-spine). Through Bacterin, we develop, manufacture and market biologics products to domestic and international markets. Our bone graft products are used in a variety of applications including enhancing fusion in spine surgery, relief of back pain through facet joint stabilization, promotion of bone growth in foot and ankle surgery, promotion of skull healing following neurosurgery and subchondral bone repair in knee and other joint surgeries. Our acellular dermis scaffolds are utilized in wound care and plastic and reconstructive procedures. Bacterin also develops custom surgical instruments for use with our allografts, and we produce and distribute OsteoSelect® DBM putty, an osteoinductive product used by surgeons as a bone void filler in the extremities and pelvis. X-spine is a global developer, manufacturer and marketer of implants and instruments for surgery of the spine and sacroiliac joint. X-spine s product emphasis is the minimally invasive approach to the treatment of degenerative spine disorders. X-spine s global strategy is to advance minimally invasive technologies for the treatment of degenerative spinal disorders, while supporting established spinal fusion markets.

We are a Delaware corporation. Our principal executive offices are located at 664 Cruiser Lane, Belgrade, Montana 59714. Our telephone number is (406) 388-0480 and our website address is *www.xtantmedical.com*. Information contained in, or that can be accessed through, our website is not part of this prospectus.

The following description of our business should be read in conjunction with the section titled Business in Item 1, Part I of our Annual Report on Form 10-K for the year ended December 31, 2015, which is incorporated by reference into this prospectus.

Overview of Our Business

Xtant believes the following competitive strengths will be key drivers of future growth of Xtant:

Portfolio of Proprietary Technologies: Xtant has developed a comprehensive portfolio of products that address a broad array of spinal pathologies, anatomies and surgical approaches in the complex spine and minimally invasive surgery (MIS) markets. To protect company innovative technologies and techniques, Xtant maintains and continues to grow its intellectual property portfolio, with over 100 issued patents globally and over 40 patent applications pending.

Customer Focus: Responding quickly and efficiently to the needs of patients, surgeons and hospitals is central to corporate culture and critical to success. Our supply chain and customer service teams make sure that the right product and instrumentation is in the right place at the right time through vertically integrated processes, we are able to meet the changing needs of our customers.

Multi-channel Distribution Network: Xtant has built a hybrid sales and distribution function calling on Orthopedic Surgeons, Neuro Surgeons, their staff and the hospital administrators that support them. Approximately 300 field agents and distributors in the United States represent some or all of Xtant s products. The distribution channel consists of multiple sub-channels including direct sales, consignment agents, reseller distributors, and private label distributors and technology licensees.

Our Offices

Our headquarter office and manufacturing facility are located at 664 Cruiser Lane, Belgrade, Montana 59714. Our telephone number is (406) 388-0480 and our fax number is (406) 388-1354. We also have two other facilities on the Montana campus, located at 600 Cruiser Lane, Belgrade, Montana 59714, and at 732 Cruiser Lane, Belgrade, Montana 59714, a Colorado office located at 363 Centennial Parkway, Louisville, Colorado 80112, and one Ohio facility at 452 Alexandersville Road, Miamisburg, Ohio 45342. All our properties are leased.

TABLE OF CONTENTS

Our History

We began operations in 1998 as a spinout of the Center for Biofilm Engineering at Montana State University, or the CBE, and we eventually incorporated as Bacterin, Inc. in the state of Montana in January 2000. In March 2004, Bacterin, Inc. s stockholders entered into a share exchange agreement with a company called Oil & Gas Seekers, Inc., a Nevada corporation, which subsequently changed its name to Bacterin International, Inc., to become a publicly-traded corporation. As a result of this transaction, the stockholders of Bacterin, Inc., the Montana corporation, became stockholders of Bacterin International, Inc., the Nevada corporation, and Bacterin, Inc., the Montana corporation, became a wholly owned subsidiary of Bacterin International, Inc., the Nevada corporation. In May 2005, we merged Bacterin, Inc., the Montana corporation, up and into Bacterin International, Inc., the Nevada corporation.

We began as a biomaterials testing laboratory and have systematically expanded our strategic vision towards the development of Bacterin-labeled products. Our revenues were initially derived from testing services and milestone payments from collaborative product development agreements with various medical manufacturers. Today we generate most of our revenue from biologics products we manufacture.

On June 30, 2010, Bacterin International, Inc. merged with and into a wholly-owned Nevada subsidiary of Bacterin International Holdings, Inc. f/k/a K-Kitz Incorporated, a Delaware corporation, and as a result, Bacterin International, Inc. became a wholly owned subsidiary of the Company.

Before the reverse merger, Bacterin International Holdings, Inc. was known as K-Kitz, Incorporated, with a trading symbol of KKTZ.OB. On June 29, 2010, K-Kitz Incorporated changed its corporate name to Bacterin International Holdings, Inc. which name change became effective for trading purposes on July 1, 2010, following the reverse merger transaction. Effective July 21, 2010, our trading symbol was changed from KKTZ.OB to BIHI.OB. On March 7, 2011, our common stock began trading on the NYSE Amex under the ticker symbol BONE.

On July 31, 2015, we acquired all of the outstanding capital stock of X-Spine for approximately $60 million in cash, repayment of approximately $13 million of X-spine debt, and approximately 4.24 million shares of Xtant common stock. X-spine is engaged in the development, manufacturing and sale of medical devices for use in orthopedic spinal surgeries. As a result of this transaction, X-Spine became a wholly owned subsidiary of the Company.

Concurrently with the acquisition, we completed an offering of $65.0 million aggregate principal amount of the notes in a private offering to qualified institutional buyers, as defined in Rule 144A under the Securities Act. Certain private investment funds for which OrbiMed Advisors LLC (OrbiMed), one of our existing stockholders, serves as the investment manager (the OrbiMed purchasers) purchased $52.0 million aggregate principal amount of the notes directly from us in the offering. The investment banking firm acting as initial purchaser in the offering (the initial purchaser) purchased the remaining $13.0 million aggregate principal amount of the notes. We granted the initial purchaser a 30-day option to purchase up to an additional $9.75 million aggregate principal amount of the notes from us. On August 10, 2015, the initial purchaser exercised its option with respect to an additional $3.0 million aggregate principal amount of the notes. Additionally, concurrently with the acquisition, we borrowed an additional $18.0 million under an amended and restated credit agreement with ROS Acquisition Offshore LP (ROS).

At the close of business on July 31, 2015, we changed our corporate name to Xtant Medical Holdings, Inc. On August 6, 2015 Xtant formed a new wholly owned subsidiary, Xtant Medical, Inc., a Delaware corporation to facilitate the integration of Bacterin and X-spine. On October 15, 2015, our Common Stock began trading on NYSE MKT under the ticker symbol XTNT. X-spine is engaged in the development, manufacturing and sale of medical devices for use

in orthopedic spinal surgeries. Xtant, Bacterin and X-spine are jointly referred to herein as the Company .

Industry and Market Overview

The orthopedic biomaterials market consists of materials that are organic, inorganic or synthetic in nature. These materials are implanted or applied in or near the indicated bone to facilitate healing, encourage bone tissue augmentation, compensate in areas where bone tissue is depleted and restore structure to allow for repair. Orthopedic biomaterials are capable of producing specific biological action or regenerative responses

TABLE OF CONTENTS

that are beyond what is observed in normal healing. These materials are often used as substitutes to autograft materials, which are taken from a harvest site in the patient to patch or repair the wounded or unhealthy site. Bone is a biologically active tissue and may or may not regenerate depending on the condition of the patient. The damage may be significant enough that a scaffold may be necessary to help regenerate the surgical site.

Fixation is often instrumental in allowing the body to heal and regenerate tissue. It provides the constructive support necessary for reestablishing stability, by immobilizing the regenerative site, and relieving stress. Fixation can also help hold the biomaterial in place in order to achieve a better outcome. Examples of fixation products can include, but is not limited to, plates, screws, pins, rods, spacers, and staples, and may be made from various metals and polymer materials.

Products and Services

Our biomaterial products include OsteoSponge®, OsteoSponge® SC, OsteoSelect® DBM putty, OsteoSelect Plus DBM putty, OsteoWrap®, BacFast® HD, OsteoSTX®, hMatrix® and our new line of 3Demin® products, as well as other allografts described below:

OsteoSponge is a form of demineralized bone matrix made from 100% human bone. Derived from trabecular (cancellous) bone, OsteoSponge provides a natural scaffold for cellular in-growth and exposes bone-forming proteins to the healing environment. The malleable properties of OsteoSponge enable it to conform to, and fill, most defects. Upon compressing the allograft, OsteoSponge springs back to completely fill the void. Its unique mechanical and biological properties make OsteoSponge an ideal bone graft for use in various orthopedic practices including spine, neurology, cranial/maxillofacial, trauma, plastic/reconstruction and general procedures where new bone growth is needed.

OsteoSponge SC is a form of OsteoSponge designed to fill bony defects in the subchondral region of joints. We have received permission from the Food and Drug Administration (FDA), which is a federal agency of the United States Department of Health and Human Services, to market this product as a subchondral bone void filler, and are currently marketing it as such.

OsteoSelect DBM Putty is engineered with the surgeon in mind. With outstanding handling characteristics, OsteoSelect can be easily molded into any shape and compressed into bony voids. Bacterin has validated a low-dose, low-temperature gamma sterilization process to provide maximum osteoinductive potential while still affording device level sterility. Every production batch of OsteoSelect is tested for osteoinductive bone growth characteristics allowing us to make that unique marketing claim.

Combining the exceptional cohesive characteristics of OsteoSelect DBM Putty with demineralized cortical chunks, OsteoSelect PLUS delivers differentiated handling properties and insures patient safety through validated, terminal sterilization. Each lot of OsteoSelect PLUS DBM is tested for osteoinductivity *in vivo* prior to being released. OsteoSelect PLUS is indicated as a bone void filler and bone graft substitute in the pelvis, extremities, and posterolateral spine.

OsteoWrap is 100% human cortical bone demineralized through a proprietary process to make the graft flexible while maintaining allograft integrity. This product has various applications in orthopedic, neurological, trauma, oral/maxillofacial and reconstructive procedures. OsteoWrap can wrap around non-union fractures to assist with fusion, can act as a biologic plate or can be used in conjunction with a hardware plate system. Additionally, this product provides the surgeon with superior handling characteristics as the allograft can be easily sized using surgical scissors or a scalpel, and will withhold sutures or staples for fixation.

BacFast HD facet stabilization dowel is designed with a focus on osteoconductivity and osteoinductive potential. BacFast HD is hyper-demineralized to expose the growth factors and BMPs inherent to cortical bone. With the benefits of HD technology and increased collagen surface area, BacFast® HD also provides the graft with

osteoinductive properties without compromising the structural integrity of the graft. These characteristics, coupled with an osteoconductive design through increased surface contact and locking edges to prevent migration, BacFast® HD is engineered with a focus on fusion as well as facet stabilization.

10

TABLE OF CONTENTS

OsteoSTX are demineralized cortical sticks processed from human allograft bone. Utilizing our patented demineralization technology, the grafts are flexible and feature osteoinductive properties. The nature of demineralized cortical bone provides all the necessary elements for bone regeneration. OsteoSTX are designed for posterolateral spine surgery applications ranging from one-level to multi-level fusions, including scoliosis procedures. This is a new addition to Bacterin s biologic products portfolio launched in March 2014.

hMatrix dermal scaffold is an extension of Bacterin s core biologics technology. hMatrix is an acellular matrix made from donated human dermal tissue that is used to replace a patient s damaged tissue. hMatrix provides a natural collagen tissue scaffold that promotes cellular ingrowth, tissue vascularization and regeneration, and reabsorbs into the patient s dermal tissue for a biocompatible, natural repair.

3Demin is a family of allografts that maximizes osteoconductivity and the osteoinductive potential of human bone. They consist of 100% demineralized cortical bone with excellent, malleable handling characteristics, and are distributed as a sterile allograft. Bacterin s 3Demin products are easily hydrated with any biocompatible liquid, making them an ideal option for various bone grafting applications. They are most commonly used in spinal fusion procedures.

All of the Company s biologics are terminally sterilized and packaged to enhance the safety of our grafts for our physician customers and their patients.

We also process and distribute (i) sports allografts which are processed specifically for anterior and posterior cruciate ligament repairs, anterior cruciate ligament reconstruction and meniscal repair, (ii) milled spinal allografts which are comprised of cortical bone milled to desired shapes and dimensions, and (iii) traditional allografts for multi-disciplinary applications including orthopedics, neurology, podiatry, oral/maxillofacial, genitourinary and plastic/reconstructive.

The Company s related biologic products are described in multiple physician-initiated studies that continue to prove expanded indications for their use.

In our fixation portfolio, there are numerous product families that are used to treat a variety of spinal and sacroiliac conditions, including trauma, degeneration, deformity and tumor, with an emphasis on Minimally Invasive Surgery (MIS). Some of our key product lines include:

The Axle® Interspinous Fusion System is a fully modular interspinous device that is matched to the patient s individual anatomy and is available in multiple implantable configurations.

The Silex® Sacroiliac Joint Fusion System is a sacroiliac fixation system that actively compresses across the SI joint. Sacroiliac dysfunction is increasingly recognized as a frequent contributor to chronic low back pain.

The Xpress™ Minimally Invasive Pedicle Screw System combines minimally invasive functionality to the most common lumbar fixation procedures pedicle screw fixation.

The Certex™ Spinal Fixation System consists of screws, hooks, rods, and cross connectors. Various sizes of these implants are available so that adaptations can be made to take into account pathology and individual patient anatomy. It is intended to promote fusion of the subaxial cervical spine and cervico-thoracic junction (C3 T3 inclusive).

The Butrex® Anterior Lumbar Buttress Plating System utilizes the patented Resilient Locking Arm Technology to prevent screw back out, while providing repeatable and reliable results. The low profile design, and two point fixation ensures minimal disruption to the local anatomy and high cantilever expulsion resistance. The Butrex System also features an all-in-one drill guide with a plate retaining feature to allow for greater control during plate placement, and to protect adjacent structures.

Calix® is a family of PEEK interbody spacers and precision instruments for both Cervical and Thoracolumbar applications. Calix PC is a frictional titanium plasma-coated PEEK implant that provides additional biomechanical performance and end-plate visualization.

TABLE OF CONTENTS

Spider® Cervical Plating System. The Spider Cervical Plating System consists of a simple, single step locking mechanism. Three forms of locking feedback provide confidence in the Spider System construct and performance. Self-drilling screws preserve cancellous bone for secure screw purchase. If drilling is desired, instruments offer optional drill guides and drill bits. A full sweep of 15° angulation can be achieved with Spider System variable screws.

The Zyfix™ Facet Fusion System is a minimally invasive facet fusion system featuring a hollow fenestrated titanium compression screw for bone graft introduction. It is intended for bilateral, transfacet fixation of the facet joint in order to provide stability for fusion.

The Fixcet® Spinal Facet Screw System is a percutaneous facet screw system offering dual-compression thread and single-thread screws. It is intended for posterior fixation to the lumbar spine (L1 S1 inclusive). It enables a bilateral, transfacet fixation of the facet joint in order to provide stability for fusion.

The Fortex® Pedicle Screw System consists of titanium alloy bone screws, rods, cross-connectors and associated instruments. The system is indicated for attachment to the pedicles of the thoracic, lumbar, and sacral spine.

The X90® Pedicle Screw System combines unique rotary locking technology and maximum biomechanical performance allowing for simple rod locking without a separate locking cap or set screw. Through its unified design, the X90 Pedicle Screw System is designed to avoid the problems of cross threading, head splay, and cap loosening, endemic to cap type pedicle screw systems.

The Irix-A™ Lumbar Integrated Fusion System consists of an integrated titanium ring, surrounded by an outer PEEK ring and three screws. It is intended for spinal fusion procedures at one or two contiguous levels of the lumbosacral spine (L2 S1 inclusive) in skeletally mature patients for the treatment of degenerative disc disease.

The Irix-C™ Cervical Integrated Fusion System consists of an integrated titanium ring surrounded by an outer PEEK ring and two screws. It is intended for spinal fusion procedures at one level (C3 T1 inclusive) in skeletally mature patients for the treatment of degenerative disc disease.

The Axle-X™ Interspinous Fusion System is an internal fixation device for spinal surgery in the non-cervical spine (T1 S1 inclusive). It is a minimally invasive, modular interspinous fusion system with angled spikes that allows for adequate L5 S1 engagement and other variations in patient anatomy. The Axle-X Interspinous Fusion System is designed to provide spinal stability for lumbar fusion procedures, including the treatment of degenerative disc disease, spinal tumors and trauma.

The X-PORT™ tissue-sparing instrumentation system was designed to maximize surgical access and visualization while minimizing tissue disruption. An ideal partner to the X-spine Fortex pedicle screw system, the radiolucent X-PORT retractor component is integrated with a siderail mounted flexible arm for accurate localization and stability. The X-PORT system includes integral tissue-sparing instrumentation to allow for compression, distraction and rod placement while maintaining anatomic visualization through the retractor component.

Technology and Intellectual Property

Patents, trademarks and other proprietary rights are very important to our business. We also rely upon trade secrets, manufacturing know-how, continuing technological innovations and licensing opportunities to maintain and improve our competitive position. We review third-party proprietary rights, including patents and patent applications, as available, in an effort to develop an effective intellectual property strategy, avoid infringement of third-party proprietary rights, identify licensing opportunities and monitor the intellectual property owned by others.

Patents

Our biomaterial patent efforts are focused on the development of innovative and novel, engineered tissue implants or constructs which employ acellular tissue and processes, and enhanced demineralized bone matrix products. On November 5, 2013, the United States (U.S.) Patent and Trademark Office issued U.S. Patent

TABLE OF CONTENTS

No. 8,574,825 entitled Process for Demineralization of Bone Matrix with Preservation of Natural Growth Factors. The issued claims in the patent are for a method to produce a demineralized cancellous bone matrix, such as Bacterin s OsteoSponge® product line. Bacterin has a pending divisional application in the United States to pursue protection of other aspects of its bone demineralization technology and is pursuing related applications in Canada, Europe and Korea. We have other provisional applications pending in the United States and other countries that relate to aspects of the technology used in many of our products. Our policy is to file patent applications in the United States and other countries when we believe it is commercially advantageous to do so. We do not consider our business to be materially dependent upon any individual patent.

We also held patents related to our medical device coatings business. At the end of 2014, the Company made the strategic decision to exit the medical device coatings business and sold the coating equipment and the coating intellectual property in 2015.

The fixation product portfolio includes over 50 issued patents globally and over 30 patent applications pending. In addition to current product offerings, Xtant continues to invest in the research and development necessary to design, develop and commercialize new surgical solutions for unmet clinical needs.

We believe our patent filings and patent position will facilitate growth and enhance our proprietary core competencies. We expect that additional patent applications will be filed and prosecuted as inventions are discovered, technological improvements and processes are developed and specific applications are identified. There can be no assurance that we will be able to obtain final approval of any patents.

Trademarks

We have registered, and continue to seek registration, of trademarks and continuously monitor and aggressively pursue users of names and marks that potentially infringe upon our registered trademarks. We currently own the following registered trademarks under the Bacterin name: OsteoSponge®, OsteoWrap®, OsteoLock®, BacFast®, OsteoSelect®, Elutia®, OsteoSTX®, hMatrix®, 3Demin®, BACTERINSE®, and Circle of Life®. Under the X-spine name, we own the following registered trademarks: SILEX®, X-SPINE®, IRIX®, CAPLESS®, CERTEX®, CALIX®, H-GRAFT®, SPIDER, X90®, HYDRAGRAFT®, BUTREX®, FORTEX®, AXLE®, FIXCET®, Capless® and X-spine s square design logo.

Trade Secrets

To safeguard our proprietary knowledge and technology, we rely upon trade secret protection and non-disclosure/confidentiality agreements with employees, consultants and third party collaboration partners with access to our confidential information. There can be no assurance, however, that these measures will adequately protect against the unauthorized disclosure or use of confidential information, or that third parties will not be able to independently develop similar technology. Additionally, there can be no assurance that any agreements concerning confidentiality and non-disclosure will not be breached, or if breached, that we will have an adequate remedy to protect us against losses. Although we believe our proprietary technology has value, because of rapid technological changes in the medical industry, we also believe that proprietary protection is of less significance than factors such as the intrinsic knowledge and experience of our management, advisory board, consultants and personnel and their ability to identify unmet market needs and to create, invent, develop and market innovative and differentiated products.

Donor Procurement

We have agreements with multiple recovery agencies and we continue to expand our network for access to donor tissue in anticipation of increased demand. We expect to be able to continue to build our network for donor tissue as our processing capabilities and sales increase.

Relationship with Zimmer Spine, Inc.

In January 2014, X-spine entered into a license agreement with Zimmer, under which Zimmer granted to X-spine a royalty-bearing, non-exclusive license under certain Zimmer patents to make, have made, use, practice, offer for sale, sell, export and import certain spinal screw, anchor and rod implants. X-spine is required to pay a royalty in the mid-single digits on gross sales of products covered by the in-licensed patents.

TABLE OF CONTENTS

X-spine s license agreement with Zimmer continues so long as there is an enforceable claim in the in-licensed patents. Either X-spine or Zimmer may terminate the agreement for any material breach by the other party that is not cured within a specified time period or in the event of the other party s insolvency.

Also, in January 2014, X-spine entered into a distribution agreement with Zimmer, under which X-spine granted Zimmer a co-exclusive right to distribute certain X-spine products worldwide. X-spine is entitled to receive a royalty in the low-single digits on net sales of products. X-spine also obtained a non-exclusive, perpetual, worldwide license under certain Zimmer patents to distribute certain of X-spine s products. In consideration for the rights granted to X-spine under the agreement, X-spine will be required to pay a royalty on net sales of certain products in the range of 4.0% to 6.5% depending on the product.

Sales and Marketing

We promote our product in the United States through a hybrid distribution network including direct employees, sales agents and independent distributors.

Our international footprint includes distribution partners in Canada, Mexico, South America, Europe, Middle East, Australia, Korea, and Taiwan. Xtant continues to evaluate new, global market opportunities and expects to expand the number of international markets served.

Growth Strategy

In an effort to capitalize on our core markets, as well as new market opportunities, we have diversified our supply of donor tissue, expanded our processing capabilities and developed a hybrid sales force. We have focused our United States sales activities on Orthopedic Surgeons and Neuro Surgeons performing spine procedures, and are working to cover call points with strategic distribution relationships.

We are pursuing a high-level, national effort to present our products as a value proposition to hospital systems and other purchasing organizations. To this end, we have entered into agreements with Banner Hospitals, Dignity Health, OhioHealth, Franciscan Health System, the Hospital for Special Surgery, Beaumont Health, Providence, Sutter, Community Health Services, Sharp Healthcare, Franciscan Alliance, Pinnacle Health Systems, Proliance Surgeons, Baptist Health South Florida, MedAssets, Novation, Premier, ROi, Health Trust Purchasing Group, Scripps and Bon Secours among others. These agreements are paving the way for our sales representatives to call on additional physicians, as the hospital process has already been approved.

Competition

There are various public and private organizations that offer both, fixation and orthobiologics to their customers. With the growing market, and ongoing pressures to expand and make product portfolios more robust, we expect several new products and new companies will emerge over the coming years. We consider our direct competitors to be orthopedic companies that offer both spinal fixation and biologics, such as NuVasive, RTI Surgical, SeaSpine, Medtronic, OrthoFix, Stryker, Alphatec, Zimmer Biomet, DePuy/Synthes, Medtronic, K2 Medical, and Globus Medical. We also compete with some hardware companies that do not currently market a biologic, such as LDR Holding Company, and tissue banks that do not specialize in spinal fixation materials, such as AlloSource, Lifenet Health, and MTF.

Government Regulation

We are registered with the FDA as a manufacturer of human cellular and tissue products (HCT/Ps) as well as medical devices, and we are an accredited member of the American Association of Tissue Banks in good standing. We meet all licensing requirements for the distribution of HCT/Ps in states with licensing requirements, including Florida, California, Delaware, Illinois, Louisiana, Maryland, Oregon, and New York. Our industry is highly regulated and we cannot predict the impact of future regulations on either us or our customers.

Our fixation products and instrumentation systems are regulated as medical devices and therefore are subject to extensive regulation by the FDA, as well as by other domestic and international regulatory bodies. These regulations govern multiple activities that Xtant and suppliers, licensors and partners perform and will continue to perform. These regulated activities include product design and development, testing,

TABLE OF CONTENTS

manufacturing, labeling, storage, safety, premarket clearance, advertising and promotion, product marketing, sales and distribution, post-market surveillance and post-market adverse event reporting. All products currently marketed by Xtant are regulated as HCT/Ps or have received 510(k) clearances.

Human Tissue

Human tissue products have been regulated by the FDA since 1993. In May 2005, three new comprehensive regulations went into effect that address manufacturing activities associated with HCT/Ps. The first requires that companies that produce and distribute HCT/Ps register with the FDA. The second provides criteria that must be met for donors to be eligible to donate tissues and is referred to as the Donor Eligibility rule. The third rule governs the processing and distribution of the tissues and is often referred to as the Current Good Tissue Practices rule. Together, they are designed to ensure that sound, high quality practices are followed to reduce the risk of tissue contamination and communicable disease transmission to recipients. Several of our products including OsteoSponge and OsteoWrap are regulated as HCT/Ps as determined by the Tissue Reference Group and regulated under Section 361 of the Public Health Service Act (PHSA) and 21 CFR Part 1271.

Medical Devices

Our medical devices require the clearance of the FDA prior to sale within the United States. The FDA process requires a premarket notification, or a 510(k) submission, to the FDA to demonstrate that the medical device is safe and effective and is substantially equivalent to a legally marketed device that is not subject to premarket approval. Applicants must compare the device to one or more similar devices that are commercially available in the United States (known as the predicate device), and make and support a claim of substantial equivalency to such predicate device. Support for such claims must include descriptive data and, when necessary, performance data. In some cases, data from clinical trials must also be submitted in support of a 510(k) submission. The FDA must then issue an order finding substantial equivalency before the devices may be commercially distributed in the United States. The Center for Devices and Radiological Health Division of the FDA governs HCT/Ps that are regulated as medical devices, including our OsteoSelect DBM putty.

Our medical devices require the clearance of the FDA prior to sale within the United States. The FDA process requires a premarket notification, or a 510(k) submission, to the FDA to demonstrate that the medical device is safe and effective and is substantially equivalent to another legally marketed device that was on the market prior to 1976 (known as a Pre-amendments device) or was cleared after 1976 as a 510(k) device. The device(s) to which a substantial equivalence comparison is made is called a predicate device. A company cannot claim substantial equivalence to a device approved by FDA under the lengthier, more extensive Premarket Approval process (PMA). The standard for approving a PMA device is to establish reasonable assurance of safety and effectiveness in an independent and absolute sense, i.e. not by comparing the applicant s device to another device as with a 510(k). The PMA process is typically required for devices that are deemed to pose the greatest risk, such as life-sustaining, life-supporting or implantable devices. The 510(k) process is reserved for low to moderate risk devices. Under the 510(k) process applicants must demonstrate that their device is safe and effective in a comparative sense by comparing itself to a predicate 510(k) device that has been on the market safely and effectively for some time. To establish substantial equivalence to a predicate device, an applicant must demonstrate that it has the 1) same intended use, 2) the same technological characteristics, and 3) if the technological characteristics are different, the applicant must show those differences do not raise different questions of safety and effectiveness. Making this case to FDA requires an extensive submission with a lot of written, telephonic and sometimes face-to-face dialogue with FDA. The applicant must provide data to demonstrate that their device does not diminish safety and effectiveness in comparison to the predicate device. The type of data necessary for a clearance differs for each type of device and the claims the company seeks to make and FDA s expectations for data are often unclear and do change. Companies submit

performance data, e.g., bench testing, in vitro and in vivo data, biocompatibility, animal data, etc. The quality and quantity of data needed is usually discussed and negotiated with FDA. In some cases, data from human clinical trials must also be submitted in support of a 510(k) submission.

The discussion of what data are needed is sometimes conducted in a formal process called the Pre-Submission process whereby companies meet with FDA to discuss the data needed for clearance. If the FDA finds the

TABLE OF CONTENTS

applicant s device is substantially equivalent to the predicate device it will send a letter to the applicant stating that fact. This allows the applicant s device to be commercially distributed in the United States. The Center for Devices and Radiological Health division of the FDA governs the clearance of conventional medical devices such as our spinal hardware as well as some of the HCT/Ps that are also regulated as medical devices, such as our OsteoSelect DBM putty.

Another procedure for obtaining marketing authorization for a medical device is the de novo classification procedure. If the FDA agrees that the device is substantially equivalent to a predicate device currently on the market, it will grant 510(k) clearance to commercially market the device. If the FDA determines that the device is not substantially equivalent to a previously cleared device, the device is automatically designated as a Class III device. The device sponsor must then fulfill more rigorous PMA requirements, or can request a risk-based classification determination for the device in accordance with the de novo process, which is a route to market for novel medical devices that are low to moderate risk and are not substantially equivalent to a predicate device. A company files for a de novo approval when it does not have a predicate to which it can claim substantial equivalence. Once a de novo application is reviewed and approved, it results in the device having a Class II status and future devices from the company or a competitor may use the company de novo-approved device as a 510(k) predicate. A de novo approval is reserved for Class II moderate risk devices and a company must show that special controls can be created which subsequent applicants can follow to obtain a 510(k) clearance. The advantage of the de novo approval is that it requires less data than a PMA. The disadvantage is that it may require more data than a 510(k) and most often will include human clinical data. FDA is increasingly moving devices with slightly different proposed indication statements or different technological features off the 510(k) path and on to the de novo path resulting in more time and expense for the company.

The process of obtaining regulatory clearances or approvals to market a medical device can be costly and time-consuming, and we may not be able to obtain these clearances or approvals on a timely basis, if at all. Products that are approved through a PMA application generally need FDA approval before they can be modified. Similarly, some modifications made to products cleared through a 510(k) may require a new 510(k) or a PMA.

In the future, Xtant may decide to strategically commercialize products in the United States that would require a PMA, but there are no plans to do so at the present time. Clinical trials are almost always required to support a PMA.

Ongoing FDA Regulation

After a device is placed on the market, numerous FDA and other regulatory requirements continue to apply. These include: establishment registration and device listing with the FDA; the current Good Manufacturing Regulations and Quality Systems Regulations (together the QSR), which requires manufacturers to follow stringent design, testing, process control, documentation and other quality assurance procedures; labeling regulations, which prohibit the promotion of products for unapproved, i.e. off-label, uses and impose other restrictions on labeling; Medical Device Reporting regulations, which require that manufacturers report to the FDA if their device may have caused or contributed to a death or serious injury or malfunctioned in a way that would likely cause or contribute to a death or serious injury if it were to recur; corrections and removal reporting regulations, which require that manufacturers report to the FDA field corrections and product recalls or removals if undertaken to reduce a risk to health posed by the device or to remedy a violation of the Federal Food, Drug, and Cosmetic Act (the FDCA) that may present a risk to health; and requirements to conduct post-market surveillance studies to establish continued safety data.

The FDA enforces these requirements by inspection and market surveillance. Failure to comply with applicable regulatory requirements may result in enforcement action by the FDA, which may include one or more of the following sanctions:

untitled letters or warning letters;
fines, injunctions and civil penalties;
mandatory recall or seizure of our products;

TABLE OF CONTENTS

administrative detention or banning of our products;
operating restrictions, partial suspension or total shutdown of production;
refusing our request for 510(k) clearance or PMA of new product versions;
revocation of 510(k) clearance or PMAs previously granted; and
criminal prosecution and penalties.

International Regulation

Many foreign countries have regulatory bodies and restrictions similar to the FDA. International sales are subject to foreign government regulation, the requirements of which vary substantially from country to country. The time required to obtain approval in a foreign country or to obtain a CE Certificate of Conformity may be longer or shorter than that required for FDA approval and the related requirements may differ. Some third-world countries accept CE Certificates of Conformity or FDA clearance or approval as part of applications of approval for marketing of medical devices in their territory. Other countries, including Brazil, Canada, Australia and Japan, require separate regulatory filings.

Healthcare Fraud and Abuse

Healthcare fraud and abuse laws apply to Xtant s business when a customer submits a claim for an item or service that is reimbursed under Medicare, Medicaid or most other federally-funded healthcare programs. The Federal Anti-Kickback Statute prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, items or services for which payment may be made, in whole or in part, under federal health care programs, such as by Medicare or Medicaid. The concerns that the Anti-Kickback Statute addresses are multiple, but primary among them are, first, that the federal government pays/reimburses health care providers for the true acquisition cost of goods and services provided to patients served by government programs. The government does not want, for example, health care providers obtaining manufacturer discounts which are not disclosed to the government on cost report forms submitted for reimbursement to the government. The government wants to be the beneficiary of such discounts. Second, for that reason, the government wants transparency in the billing process which discloses such discounts to the government. Third, the government does not want purchasing, prescription or referral decisions for medical devices biased by economics unrelated to the best choices for a patient.

The Federal Anti-Kickback Statute is subject to evolving interpretations and has been applied by government enforcement officials to a