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

AMENDMENT NO. 1
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
(State or other jurisdiction of
incorporation or organization)

3841
(Primary Standard Industrial
Classification Code Number)

20-5313323
(I.R.S. Employer
Identification Number)

**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)

**Sean E. Browne
President and Chief Executive 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:

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Emily Humbert, Esq.
Fox Rothschild LLP
222 South Ninth Street, Suite 2000
Minneapolis, Minnesota 55402-3338
(612) 607-7000**

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.

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.

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.

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.

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

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. []

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered⁽¹⁾	Proposed maximum aggregate offering price⁽²⁾	Amount of registration fee
Common Stock, par value \$0.000001 per share	\$ 15,000,000 ⁽³⁾	\$ 1,947
Non-transferable Rights to purchase Common Stock	—	— ⁽⁴⁾
Total	\$ 15,000,000	\$ 1,947⁽⁵⁾

- (1) This registration statement relates to (i) non-transferable subscription rights to purchase common stock of the registrant, which subscription rights are to be issued to holders of common stock of the registrant and (ii) shares of common stock issuable upon the exercise of the subscription rights. Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the shares of common stock 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.
- (2) Estimated solely for the purpose of calculating the amount of registration fee pursuant to Rule 457(o) under the Securities Act.
- (3) Represents the aggregate gross proceeds from the issuance of the maximum number of shares of common stock that may be issued pursuant to the exercise of rights.
- (4) Pursuant to Rule 457(g) under the Securities Act, no separate registration fee is payable with respect to the rights being offered because the subscription rights are being registered in the same registration statement as the shares of common stock underlying such rights.
- (5) Previously paid.

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.

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 30, 2020

PRELIMINARY PROSPECTUS

XTANT MEDICAL HOLDINGS, INC.

We are distributing to holders of our common stock, par value \$0.000001 per share, at no charge, non-transferable subscription rights to purchase up to an aggregate of approximately 14,018,690 shares of our common stock. We refer to the offering that is the subject of this prospectus as the Rights Offering.

In the Rights Offering, you will receive 0.194539 subscription rights for each share of our common stock held by you at 5:00 PM, Eastern Time, on November 5, 2020, the record date of the Rights Offering. Subscription rights will not be tradable.

Subscription rights may only be exercised in whole numbers, and we will not issue fractional shares. To the extent that the number of subscription rights that are distributed to you on the record date is not a whole number, the shares of our common stock issuable upon exercise of the subscription rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe. Each whole subscription right will entitle you to purchase one share at a subscription price per share of \$1.07. Each subscription right consists of a basic subscription right and an over-subscription privilege. The basic subscription rights will be distributed in proportion to stockholders' holdings on the record date. If you exercise your basic subscription rights in full, and other stockholders do not, you will be entitled to an over-subscription privilege to purchase a portion of the unsubscribed shares at the subscription price, subject to proration. OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP, as further discussed in this prospectus, have indicated that they do not intend to participate in the Rights Offering.

The subscription rights will expire if they are not exercised by 5:00 PM, Eastern Time, on December 4, 2020. We may extend the Rights Offering for additional periods in our sole discretion. Once made, all exercises of subscription rights are irrevocable.

There is no minimum amount of proceeds necessary in order for us to close the Rights Offering.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 5 of this prospectus. You should carefully consider these risk factors, as well as the information contained in this prospectus, before you invest.

This Rights Offering is being made directly by us. We are not using an underwriter or selling agent. EQ Shareowner Services will serve as the Subscription Agent for the Rights Offering, and Equiniti (US) Services LLC will serve as the Information 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, 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*" beginning on page 14.

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 American under the symbol "XTNT." On October 29, 2020, the last reported sale price of our common stock was \$1.36. The subscription rights are non-transferrable and will not be listed for trading on NYSE American 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.

	<u>Per Share</u>	<u>Total⁽¹⁾</u>
Subscription price	\$ 1.07	\$ 15,000,000
Proceeds to us, before expenses	\$ 1.07	\$ 15,000,000

(1) Assumes the Rights Offering is fully subscribed, including the full exercise of all over-subscription privileges.

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.

The date of this prospectus is _____, 2020.

TABLE OF CONTENTS

QUESTIONS AND ANSWERS RELATING TO THE RIGHTS OFFERING	iv
PROSPECTUS SUMMARY	1
RISK FACTORS	5
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	9
USE OF PROCEEDS	10
CAPITALIZATION	11
DILUTION	12
MARKET AND DIVIDEND INFORMATION FOR OUR COMMON STOCK	13
THE RIGHTS OFFERING	14
DESCRIPTION OF THE RESTRUCTURING TRANSACTIONS	20
MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES	22
DESCRIPTION OF SECURITIES	27
PLAN OF DISTRIBUTION	30
LEGAL MATTERS	30
EXPERTS	30
INCORPORATION OF CERTAIN INFORMATION BY REFERENCE	31
WHERE YOU CAN FIND MORE INFORMATION	31

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*” beginning on page 31 and “*Where You Can Find More Information*” beginning on page 31. 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, see “*Risk Factors*” beginning on page 5. These and other factors could cause our future performance to differ materially from our assumptions and estimates. See “*Cautionary Note Regarding Forward-Looking Statements*” beginning on page 9.

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.

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 shares 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 this Rights Offering to allow stockholders of the Company to purchase our common stock at the same per share price that was offered to OrbiMed Royalty Opportunities II, LP (“Royalty Opportunities”) and ROS Acquisition Offshore LP (“ROS”) (collectively, referred to as the “Lenders”), in exchange for the extinguishment of certain loans that the Lenders had provided to the Company in connection with a recent restructuring of our indebtedness, as described in more detail below under “*What are the Restructuring Transactions?*”

Net proceeds from the Rights Offering will be used primarily for capital expenditures, new product development activities, and to support other working capital needs.

What is the Rights Offering?

We are distributing, at no charge, to record holders of our common stock, non-transferable subscription rights (the “Subscription Rights”) to purchase up to approximately 14,018,690 shares of our common stock at a price per share of \$1.07 (the “Subscription Price”). The Subscription Rights will not be tradable. You will receive 0.194539 Subscription Rights for each share of our common stock that you owned as of 5:00 PM, Eastern Time, on November 5, 2020 (the “Record Date”). Each whole Subscription Right entitles the record holder to a basic subscription right (the “Basic Subscription Right”) and an over-subscription privilege (the “Over-Subscription Privilege”), as further discussed below. Subscription Rights may only be exercised in whole numbers, and we will not issue fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of our common stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe.

Who may participate in the Rights Offering?

Only stockholders of our Company as of 5:00 PM, Eastern Time, on the Record Date of November 5, 2020 may participate in the Rights Offering.

What are the Basic Subscription Rights?

For each whole share you own as of the Record Date, you will receive 0.194539 Basic Subscription Rights. Subscription Rights may only be exercised in whole numbers, and we will not issue fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of our common stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe. Therefore, stockholders holding at least six shares of our common stock as of the Record Date will be eligible to participate in the Rights Offering. Each whole subscription right will entitle you to purchase one share at the Subscription Price per share of \$1.07.

For example, if you owned 1,000 shares of our common stock as of the Record Date, you will receive 194.539 Subscription Rights and will have the right to purchase 194 shares of our common stock for a total purchase price of \$207.58. 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.

If you are a record holder, 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 0.194539 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 shares that the other record holders do not purchase through the exercise of their Basic Subscription Rights. The Lenders have indicated that they do not intend to participate in the Rights Offering. This means that if they do not exercise any of their subscription rights, there would be at least 14.0 million shares of common stock available for purchase pursuant to the Over-Subscription Privilege. 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 shares, if any, you would like to purchase pursuant to your Over-Subscription Privilege.

If sufficient shares are available, we will seek to honor your Over-Subscription Privilege request in full. If Over-Subscription Privilege requests exceed the number of shares available, however, we will allocate the available shares pro-rata among the record holders exercising the Over-Subscription Privilege in proportion to the number of shares of our common stock each of those record holders owned on the Record Date, relative to the number of shares owned on the Record Date by all record holders exercising the Over-Subscription Privilege. If this pro-rata allocation results in any record holders receiving a greater number of shares than the number for which the record holder subscribed pursuant to the exercise of the Over-Subscription Privilege, then such record holder will be allocated only that number of shares for which the record holder oversubscribed, and the remaining shares will be allocated among all other record holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all shares have been allocated. See “*The Rights Offering—Limitation on the Purchase of Shares*” beginning on page 14 for a description of certain limitations on purchase.

To properly exercise your Over-Subscription Privilege, you must deliver to the Subscription Agent your completed Subscription Rights Statement and the subscription payment related to your Over-Subscription Privilege before the Rights Offering expires. See “*The Rights Offering—The Subscription Rights—Over-Subscription Privilege*” beginning on page 14. To the extent you properly exercise your Over-Subscription Privilege for a number of shares that exceeds the number of unsubscribed shares 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.

EQ Shareowner Services, our Subscription Agent for the Rights Offering, will determine the Over-Subscription allocation based on the formula described above.

What are the Restructuring Transactions?

On August 10, 2020, we announced that we had entered into a Restructuring and Exchange Agreement (the “Restructuring Agreement”) with the Lenders, pursuant to which the parties thereto agreed, subject to the terms and conditions set forth therein, to take certain actions as set forth therein and as described in more detail below (collectively, the “Restructuring Transactions”) in furtherance of a restructuring of our outstanding indebtedness under that certain Second Amended and Restated Credit Agreement, dated as of March 29, 2019, by and among the Company, Bacterin International, Inc., Xtant Medical, Inc., X-spine Systems, Inc., and the Lenders, as amended (the “Second A&R Credit Agreement”).

The primary purpose of the Restructuring Transactions was to improve our capital structure by reducing our outstanding debt, which we expect will facilitate future access to capital markets for investment in our growth initiatives, and regain compliance with the NYSE American continued listing standards, which we did on October 5, 2020. The Restructuring Transactions included, among others:

1. the filing of an amendment to the Company’s Amended and Restated Certificate of Incorporation, as amended (the “Certificate of Incorporation”), to increase the number of authorized shares of our common stock from 75 million shares to 300 million (the “Charter Amendment”), which occurred on October 1, 2020;
2. the exchange by the Company of shares of our common stock for approximately \$40.8 million of the aggregate outstanding principal amount of the Loans (as defined in the Second A&R Credit Agreement) outstanding under the Second A&R Credit Agreement, as well as, without duplication, approximately \$21.1 million of the outstanding amount of PIK Interest (as defined in the Second A&R Credit Agreement) (such loans and PIK Interest, the “Exchanging Loans”), plus all other accrued and unpaid interest on the Exchanging Loans outstanding as of the closing date, at an exchange price of \$1.07 per share, representing the average closing price of our common stock over the 10 trading days immediately prior to the parties entering into the Restructuring Agreement, and resulting in the issuance of approximately 57.8 million shares of our common stock on October 1, 2020 (the “Share Issuance”);

3. the execution of an amendment to the Second A&R Credit Agreement by the parties thereto to change certain provisions therein, including extinguishing loans in an aggregate principal amount equal to the Exchanging Loans outstanding thereunder together with all accrued and unpaid interest thereon, adding loans in an aggregate principal amount equal to a portion of the prepayment fee payable thereunder in respect of the Exchanging Loans, with the remaining portion of the prepayment fee exchanged for an additional 0.9 million shares of our common stock, reducing the amount of credit availability thereunder, reducing the interest rate and eliminating certain financial covenants, which occurred on October 1, 2020; and
4. the launch by the Company of this Rights Offering.

Immediately after the execution of the Restructuring Agreement by the parties thereto, we solicited and obtained the written consent of Royalty Opportunities and ROS, the holders of an aggregate of 9,248,678 shares of our common stock as of August 7, 2020, representing a majority of the outstanding shares of our common stock as of such date (collectively, the “Consenting Majority Stockholders”), for the approval of the Charter Amendment and the Share Issuance, in accordance with applicable provisions of the Delaware General Corporation Law (the “DGCL”) and the Company’s Second Amended and Restated Bylaws (the “Bylaws”). The written consent of the Consenting Majority Stockholders was sufficient to approve the Charter Amendment and the Share Issuance. Therefore, no proxies or additional consents were solicited by us in connection with the Charter Amendment and the Share Issuance. Pursuant to Section 14(c) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the rules and regulations promulgated thereunder, on September 10, 2020, we sent a definitive information statement to all holders of our common stock as of August 7, 2020 for the purpose of informing such stockholders of the written actions taken by the Consenting Majority Stockholders (the “Information Statement”). In accordance with Exchange Act Rule 14c-2, the stockholder consent of the Consenting Majority Stockholders could not become effective until at least 20 calendar days following the mailing of the Information Statement.

On October 1, 2020 (the “Closing Date”), the closing of the Restructuring Transactions, other than the Rights Offering, occurred (the “Closing”), and in connection therewith, the following actions took place:

- The Charter Amendment was filed with the Office of the Secretary of State of the State of Delaware;
- The Share Issuance occurred;
- An amendment to the Second A&R Credit Agreement was executed by the parties thereto and in connection therewith the Company issued an additional 0.9 million shares of our common stock in exchange for a portion of the prepayment fee payable under the Second A&R Credit Agreement in respect of the Exchanging Loans; and
- A registration rights agreement was executed by the parties thereto.

As a result of the completion of these Restructuring Transactions, Royalty Opportunities and ROS own, in the aggregate, approximately 94.5% of our outstanding common stock and all other existing stockholders of the Company own approximately 5.5% of our outstanding common stock. As previously mentioned, under the terms of the Restructuring Agreement, we agreed to launch the Rights Offering to allow our stockholders to purchase our common stock at the same price per share as the \$1.07 per share exchange price used in the Share Issuance.

What effect will the Rights Offering have on our outstanding common stock?

On October 29, 2020, 72,061,034 shares of our common stock were outstanding. Based on the foregoing, and assuming no other transactions by us involving our common stock prior to the expiration of the Rights Offering, if the Rights Offering is fully subscribed, approximately 86,079,724 shares of our common stock will be issued and outstanding. The exact number of shares that we will issue in this Rights Offering will depend on the number of shares that are subscribed for in the Rights Offering.

How was the Subscription Price determined?

We are conducting the Rights Offering to allow stockholders of the Company to purchase our common stock at the same price per share as the \$1.07 per share exchange price used to exchange the Exchanging Loans into shares of our common stock as part of the Restructuring Transactions. In determining the exchange price for the Exchanging Loans, which is equivalent to the Subscription Price, our Board of Directors received a fairness opinion of Duff & Phelps, LLC, which stated that as of August 7, 2020, and subject to the limitations, qualifications and assumptions set forth therein, the exchange price for the Exchanging Loans was fair, from a financial point of view, to the stockholders of the Company unaffiliated with the Lenders, without giving effect to any impact of the Restructuring Transactions on any particular stockholder other than in its capacity as a stockholder. The Duff & Phelps fairness opinion was made solely in connection with the Restructuring Transactions and did not opine as to the fairness of the Subscription Price or any shares sold pursuant to the Rights Offering. Our Board of Directors also considered, among other things, our need for additional capital and liquidity and the cost of capital from other sources.

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.

Will fractional shares be issued upon exercise of Subscription Rights?

No. We will not issue fractional shares of our common stock upon exercise of Subscription Rights or cash in lieu of fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the number of shares of our common stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe.

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 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, assuming other stockholders decide to exercise their Basic Subscription Rights. 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 properly 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 December 4, 2020, 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 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 who receives the statement. The Subscription Rights will not be listed for trading on any stock exchange or market.

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

To the extent they hold shares of our common stock as of the Record Date, our directors, executive officers and significant stockholders will be entitled to participate in the Rights Offering on the same terms and conditions applicable to other Subscription Rights holders. However, there can be no guarantee that any such holders will participate. The Lenders have indicated that they do not intend to participate in the Rights Offering. Our directors and executive officers have not indicated whether they intend to participate in the Rights Offering.

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 who exercise Subscription Rights will incur investment risk on new money invested. We cannot predict the price at which shares of our common stock will trade after the Rights Offering. On October 29, 2020, the closing price of our common stock was \$1.36 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 in the future at the same price or a higher price. You should make your decision whether to exercise your Subscription Rights 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*” beginning on page 5 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) 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 December 4, 2020.

If you cannot deliver your Subscription Rights Statement to the Subscription Agent before the expiration of the Rights Offering, you may use the procedures for guaranteed delivery as described in this prospectus under “*The Rights Offering – Guaranteed Delivery Procedures*” beginning on page 16 of this prospectus.

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, Notice of Guaranteed Delivery (if applicable) and payment for the shares 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 shares, 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 shares 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 shares you requested, or if the number of shares 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?

The Subscription Agent will arrange for the issuance of our common stock as soon as practicable after the expiration of the Rights Offering, payment for the shares subscribed for has cleared, and all prorating calculations and reductions contemplated by the terms of the Rights Offering have been effected. All shares 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. 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.

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 shares at the Subscription Price.

How much will the Company receive from the Rights Offering?

Assuming that all shares are sold in the Rights Offering, including the exercise of all Over-Subscription Privileges, we estimate that the net proceeds from the Rights Offering will be approximately \$14.8 million, based on a Subscription Price of \$1.07 per share and after deducting other expenses payable by us.

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 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 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 herein. See “*Risk Factors*” beginning on page 5 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. We do not presently intend to extend the Rights Offering. We will notify stockholders 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 Subscription 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*” beginning on page 19.

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 to you if you exercise your Subscription Rights. If you exercise your Subscription Rights through a 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 if I do not exercise my Subscription Rights?

If you do not exercise your Subscription Rights before the Expiration Date, your Subscription Rights will automatically terminate. By not exercising your Subscription Rights in the Rights Offering, you will experience dilution in your proportionate interest in the Company if other stockholders of the Company exercise their Subscription Rights.

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*” beginning on page 22.

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, Notice of Guaranteed Delivery (if applicable) and subscription payment to that broker, dealer, bank, or other nominee. If you are the record holder, then you should send your Subscription Rights Statement, Notice of Guaranteed Delivery (if applicable) and payment of your Subscription Price to the Subscription Agent hand delivery, first class mail or courier service to:

**EQ Shareowner Services
1100 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120
Attn: Corporate Actions Dept.**

You or, if applicable, your nominee are solely responsible for completing delivery to the Subscription Agent of your subscription documents, Subscription Rights Statement, Notice of Guaranteed Delivery (if applicable) 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 December 4, 2020.

Whom should I contact if I have other questions?

If you have other questions or need assistance, please contact the Information Agent, Equiniti (US) Services LLC, at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this Rights 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 Rights Offering, we encourage you to read and consider the more detailed information included or incorporated by reference in this prospectus, including risk factors, see "Risk Factors" beginning on page 5, and our most recent consolidated financial statements and related notes.

About Xtant Medical Holdings, Inc.

We are a global medical technology company focused on the design, development, and commercialization of a comprehensive portfolio of orthobiologics and spinal implant fixation systems to facilitate spinal fusion in complex spine, deformity, and degenerative procedures. Our products are used by orthopedic spine surgeons and neurosurgeons to treat a variety of spinal disorders in the cervical, thoracolumbar, and interbody spine.

We promote and sell our products in the United States largely through independent distributors and stocking agents, augmented by direct employees. We have an extensive distribution channel of commissioned independent agents and stocking agents in the United States representing some or all of our products. We also maintain a national accounts program to enable our agents to gain access to independent health delivery network hospitals and through group purchasing organizations ("GPOs"). We have biologics contracts with major GPOs, as well as extensive access to integrated delivery networks across the United States for both its biologics and spine hardware products. We promote and sell our products internationally through distribution partners in Canada, Mexico, South America, Europe, Australia, and certain Pacific region countries.

While we focused on improving our balance sheet and operational efficiencies during the past 18 months, we remain committed to continuing to develop and release new products, expand our marketing programs, including reengaging with our distribution network, and pursue operational improvements intended to assist us in our overall commercial performance. We have taken several actions in furtherance of these objectives, including:

- Rebuilt our senior management team by hiring a new Chief Executive Officer and Chief Financial Officer;
- Reengaged with our distribution network; and
- Introduced new products, including the Intice-C Titanium Cervical Interbody Spacer, Atrix-C Union Cervical Interbody Spacer, and the Calix-C PC Plasma Coated PEEK Implant, and committed resources to develop and introduce additional new products, especially in our orthobiologics business.

The address of our principal executive office is 664 Cruiser Lane Belgrade, Montana 59714 and our telephone number is (406) 388-0480.

Recent Developments

On August 10, 2020, we announced that we entered into a Restructuring and Exchange Agreement with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP, pursuant to which the parties thereto agreed, subject to the terms and conditions set forth therein, to take certain actions as set forth therein in furtherance of a restructuring of our outstanding indebtedness under the Second A&R Credit Agreement.

The Restructuring Transactions included, among others:

- an amendment to the Company's Certificate of Incorporation to increase the number of authorized shares of our common stock from 75 million to 300 million, which was effective on October 1, 2020;
- the exchange by the Company of shares of our common stock for approximately \$40.8 million of the aggregate outstanding principal amount of loans outstanding held by the Lenders under the Second A&R Credit Agreement, as well as, without duplication, approximately \$21.1 million of the outstanding amount of PIK Interest (as defined in the Second A&R Credit Agreement), plus all other accrued and unpaid interest on the Exchanging Loans outstanding as of the closing date, at an exchange price of \$1.07 per share, representing the average closing price of our common stock over the 10 trading days immediately prior to the parties entering into the Restructuring Agreement, and resulting in the issuance of approximately 57.8 million shares of our common stock on October 1, 2020;

- the execution of an amendment to the Second A&R Credit Agreement by the parties thereto to change certain provisions therein, including extinguishing loans in an aggregate principal amount equal to the Exchanging Loans outstanding thereunder together with all accrued and unpaid interest thereon, adding loans in an aggregate principal amount equal to a portion of the prepayment fee payable thereunder in respect of the Exchanging Loans, with the remaining portion of the prepayment fee exchanged for an additional 0.9 million shares of our common stock, reducing the amount of credit availability thereunder, decreasing the interest rate and eliminating certain financial covenants, which occurred on October 1, 2020; and
- the launch by the Company of this Rights Offering.

The Closing of the Restructuring Transactions occurred on October 1, 2020. The primary purpose of the restructuring was to improve our capital structure by reducing our outstanding debt, which we expect will facilitate future access to capital markets for investment in our growth initiatives, and regain compliance with the NYSE American continued listing standards, which we did on October 5, 2020.

As a result of the completion of these Restructuring Transactions, Royalty Opportunities and ROS own, in the aggregate, approximately 94.5% of our outstanding common stock and all other existing stockholders of the Company own approximately 5.5% of our outstanding common stock. As previously mentioned, under the terms of the Restructuring Agreement, we agreed to launch the Rights Offering to allow our stockholders to purchase our common stock at the same price per share as the \$1.07 per share exchange price used in the Share Issuance.

For a more detailed description of the Restructuring Transactions, see “*Description of the Restructuring Transactions*” beginning on page 20.

The Rights Offering

Securities to be offered:	We are distributing, at no charge, to holders of our common stock on the Record Date, either as a holder of record or, in the case of shares held of record by brokers, banks, or other nominees, on your behalf, as a beneficial owner of such shares, non-transferrable Subscription Rights to purchase up to an aggregate of approximately 14,018,690 shares of our common stock.
Subscription Price:	\$1.07 per share.
Record Date:	5:00 PM, Eastern Time, November 5, 2020.
Subscription Right:	Each Subscription Right consists of a Basic Subscription Right and an Over-Subscription Privilege. You are under no obligation to exercise your rights to subscribe for any shares in the Rights Offering. If you choose not to participate in the Rights Offering, you do not have to take any special action to decline to participate.
Basic Subscription Rights:	Each whole Basic Subscription Right will entitle you to purchase one share of our common stock at the Subscription Price. Subscription Rights may only be exercised in whole numbers, and we will not issue fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of our common stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe.
Over-Subscription Privilege:	If you exercise your Basic Subscription Rights in full, you may also choose to purchase a portion of any shares that are not purchased by our other stockholders through the exercise of their Basic Subscription Rights, subject to proration described elsewhere. The Lenders have indicated that they do not intend to participate in the Rights Offering. This means that if they do not exercise any of their Subscription Rights, there would be at least 14.0 million shares of our common stock available for purchase pursuant to the Over-Subscription Privilege.

Expiration date:	The Subscription Rights will expire at 5:00 PM, Eastern Time, on December 4, 2020. We reserve the right to extend the Expiration Date in our sole discretion.
Procedure for exercising Subscription Rights:	<p>To exercise your Subscription Rights, you must take the following steps:</p> <p>If you are a record holder of our common stock, you must deliver payment and a properly completed and signed Subscription Rights Statement to the Subscription Agent to be received before 5:00 PM, Eastern Time, on December 4, 2020. You may deliver the documents and payments by first class mail or courier service. If you use first class mail for this purpose, we recommend using registered mail, properly insured, with return receipt requested.</p> <p>If you are a beneficial owner of shares that are registered in the name of a broker, dealer, custodian bank, or other nominee, you should instruct your broker, dealer, custodian bank, or other nominee to exercise your Subscription Rights on your behalf. Please follow the instructions of your nominee, who may require that you meet a deadline earlier than 5:00 PM, Eastern Time, on December 4, 2020.</p>
Delivery of shares:	As soon as practicable after the expiration of the Rights Offering, the Subscription Agent will arrange for the issuance of the shares of our common stock purchased pursuant to the Rights Offering. All shares that are purchased in the Rights Offering will be issued in book-entry, or uncertificated, form meaning that you will receive a direct registration account statement from our transfer agent reflecting ownership of these securities if you are a holder of record of shares. If you hold your shares in the name of a custodian bank, broker, dealer, or other nominee, DTC will credit your account with your nominee with the securities you purchased in the Rights Offering.
Non-transferability of Subscription Rights:	The Subscription Rights may not be sold, transferred, assigned or given away to anyone. The Subscription Rights will not be listed for trading on any stock exchange or market.
No board recommendation:	Our Board of Directors is not making a recommendation regarding your exercise of the Subscription Rights. You are urged to make your decision to invest based on your own assessment of our business and the Rights Offering. See “ <i>Risk Factors</i> ” beginning on page 5 for a discussion of some of the risks involved in the Right Offering and investing in our securities.
No revocation:	All exercises of Subscription Rights are irrevocable, even if you later learn of information that you consider to be unfavorable to the exercise of your Subscription Rights.
Use of proceeds:	We intend to use the net proceeds from this Rights Offering primarily for capital expenditures, new product development activities, and to support other working capital needs.
Material U.S. federal income tax consequences:	For U.S. federal income tax purposes, we intend to take the position that you should not recognize income or loss upon receipt or exercise of a Subscription Right. You should consult your own tax advisor as to the tax consequences of the Rights Offering in light of your particular circumstances. See “ <i>Material U.S. Federal Income Tax Consequences</i> ” beginning on page 22.
Extension and termination:	Although we do not presently intend to do so, we may extend the Rights Offering for additional time in our sole discretion. Our Board of Directors may also choose to terminate the Rights Offering at any time, for any reason, before the completion of the Rights Offering.

Subscription Agent:	EQ Shareowner Services
Questions:	If you have other questions or need assistance, please contact the Information Agent, Equiniti (US) Services LLC, at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.
Market for common stock:	Our common stock is listed on NYSE American under the symbol “XTNT.”
Risk factors:	Before you exercise your Subscription Rights to purchase shares, you should be aware that there are risks associated with your investment, and you should carefully read and consider risks described herein, see “ <i>Risk Factors</i> ” beginning on page 5, together with all of the other information included in this prospectus.
Important dates to remember:	Set forth below are certain important dates for this offering, which are generally subject to extension: Record Date: November 5, 2020 Expiration Date: December 4, 2020 Deadline for Delivery of Subscription Rights Statements and Payment for Shares: December 4, 2020 Anticipated Delivery of Shares Purchased in Rights Offering: December 8, 2020

RISK FACTORS

Before making an investment decision, you should carefully consider the following risks and the risks described in the “Risk Factors” section of our most recent Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on March 5, 2020, and our most recent Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, filed with the SEC on October 29, 2020, and in any other documents incorporated by reference into this prospectus, as updated by our future filings. The occurrence of any of the events described below could have a material adverse effect on our business, financial condition, results of operations, cash flows, prospects or the value of our common stock. These risks are not the only ones that we face. Additional risks not currently known to us or that we currently deem immaterial also may impair our business.

Risks Related to the Rights Offering

This Rights Offering may cause the trading price of our common stock to decrease.

The Subscription Price represents a 21% discount to the closing sale price of our common stock, as reported by the NYSE American, of \$1.36 per share on October 29, 2020. The Subscription Price, together with the number of shares of our common stock we propose to issue and ultimately will issue if this Rights Offering is completed, may result in an immediate decrease in the market price of our common stock. This decrease may continue after the completion of this Rights Offering. If that occurs, you may have committed to buy shares of our common stock in the Rights Offering at a price greater than the prevailing market price. Further, if a substantial number of Subscription Rights are exercised and the holders of the shares received upon exercise of those Subscription Rights choose to sell some or all of the shares underlying the Subscription Rights, the resulting sales could depress the market price of our common stock. Following the exercise of your Subscription Rights you may not be able to sell your shares of our common stock at a price equal to or greater than the Subscription Price.

Your interest in the Company may be diluted as a result of this Rights Offering or due to other transactions.

Stockholders who do not fully exercise their Subscription Rights should expect that they will, at the completion of this offering, own a smaller proportional interest in the Company than would otherwise be the case had they fully exercised their Basic Subscription Right and Over-Subscription Privilege. On October 29, 2020, 72,061,034 shares of our common stock were outstanding. Additionally, as of October 29, 2020, we had 7,018,113 shares of common stock underlying outstanding stock options, restricted stock units and warrants. The conversion or exercise of all or a portion of these warrants or options or the vesting and issuance of the shares underlying the restricted stock units would result in additional dilution to your ownership interest. If we do not increase our revenue or reduce our expenses, we may need to raise additional capital, which may result in further dilution to our stockholders. We may also consider other options from time to time in order to improve our capital structure, including restructuring or amending the terms of our existing warrants, any of which may result in additional dilution to our stockholders.

Because the Subscription Price is substantially higher than the net tangible book value per share of our common stock, you may suffer substantial dilution in the net tangible book value of our common stock you purchase in the Rights Offering. If you purchase shares in the Rights Offering at the Subscription Price, you may suffer immediate and substantial dilution in the net tangible book value of our common stock. See “Dilution” beginning on page 12 for a more detailed discussion of the dilution which may incur in connection with the Rights Offering.

Stockholders who do not exercise their rights will experience dilution.

If you do not exercise your Subscription Rights in full and the Rights Offering is completed, you will experience dilution in your proportionate interest in the equity ownership of our common stock and the Company if other stockholders of the Company exercise their Subscription Rights. Additionally, you will relinquish any value inherent to the Subscription Rights.

Completion of the Rights Offering is not subject to us raising a minimum offering amount and we will still need additional funding to carry out our proposed operating activities after the Rights Offering.

Completion of the Rights Offering is not subject to us raising a minimum offering amount and, therefore, the net proceeds from the Rights Offering may be insufficient to meet our objectives, thereby increasing the risk to investors in this offering, including investing in a company that likely will continue to require capital.

Because the exercise of your Subscription Rights is not revocable, you could be committed to buying shares of our common stock above the prevailing market price.

Once you exercise your Subscription Rights, you may not revoke such exercise even if you later learn information that you consider to be unfavorable to the exercise of your Subscription Rights. The market price of our shares of common stock may decline prior to the expiration of the Rights Offering or a Subscribing Rights holder may not be able to sell shares of our common stock purchased in this offering at a price equal to or greater than the Subscription Price. Until shares of our common stock are delivered upon expiration of the Rights Offering, you will not be able to sell or transfer the shares of our common stock that you purchase in the Rights Offering. Any such delivery will occur as soon as practicable after the Rights Offering has expired, payment for the shares of our common stock has cleared, and all prorating calculations and reductions contemplated by the terms of the Rights Offering have been effected.

If we terminate this Rights Offering for any reason, we will have no obligation other than to return subscription payments as soon as practicable.

We may decide, in our sole discretion and for any reason, to cancel or terminate, in whole or in part, the Rights Offering at any time prior to the Expiration Date. If this Rights Offering is cancelled or terminated, in whole or in part, we will have no obligation with respect to Subscription Rights that have been exercised except to return as soon as practicable, without interest, the subscription payments deposited with the Subscription Agent. If we terminate this Rights Offering and you have not exercised any Subscription Rights, such Subscription Rights will expire.

Our common stock price may be volatile.

The trading price of our common stock may fluctuate substantially. The price of our common stock that will prevail in the market after this Rights Offering may be higher or lower than the Subscription Price depending on many factors, some of which are beyond our control and may not be directly related to our operating performance. These factors include, but are not limited to, the following:

- the terms of any potential future transaction(s) related to debt financing, debt restructuring or capital raising;
- our ability to make interest payments under our Second A&R Credit Agreement;
- our observance of covenants under our Second A&R Credit Agreement;
- announcements of technological innovations or new commercial products by us or our present or potential competitors;
- developments or disputes concerning patent or other proprietary rights;
- developments in our relationships with employees, suppliers, distributors, sales representatives and customers;
- acquisitions or divestitures;
- litigation and government proceedings;
- adverse legislation, including changes in governmental regulation;
- third-party reimbursement policies;
- additions or departures of key personnel;
- sales of our equity securities by our significant stockholders or management or sales of additional equity securities by our company;
- changes in securities analysts' recommendations;
- short selling;
- changes in health care policies and practices;
- the delisting of our common stock or halting or suspension of trading in our common stock by the NYSE American;
- economic and other external factors; and
- general market conditions.

Additionally, the stock market historically has experienced significant price and volume fluctuations. These fluctuations are often unrelated to the operating performance of particular companies. These broad market fluctuations, such as those caused by the global novel strain of coronavirus, or COVID-19, pandemic, may cause declines in the trading price and market value of our common stock.

The Subscription Price determined for this Rights Offering is not an indication of the fair value of our common stock.

In determining the Subscription Price, our Board of Directors considered a number of factors, including, but not limited to, the price per share at which shares were sold pursuant to the Restructuring Agreement, our need for additional capital and liquidity and the cost of capital from other sources. The Subscription Price does not necessarily bear any relationship to the book value of our assets, results of operations, cash flows, losses, financial condition or any other established criteria for value. You should not consider the Subscription Price as an indication of the fair value of our common stock. After the date of this prospectus, our common stock may trade at prices above or below the Subscription Price.

You will not have any rights in the shares of our common stock that you purchase until you actually receive such shares of common stock.

You will not have any rights in the shares that you purchase in the Rights Offering until such shares of our common stock are actually issued and received by you. We intend to issue the shares as soon as reasonably practicable after the expiration of the Rights Offering. However, there may be a delay between the Expiration Date of the Rights Offering and the date the shares of our common stock are actually issued and delivered to you. You may not be able to resell the shares that you purchase in the Rights Offering until you, or your broker, custodian bank or other nominee, if applicable, have actually received those shares.

If you do not act on a timely basis and follow the subscription instructions, your exercise of Subscription Rights may be rejected.

Holders of Subscription Rights who desire to purchase shares of our common stock in this Rights Offering must act on a timely basis to ensure that all required forms and payments are actually received by the Subscription Agent prior to 5:00 PM, Eastern Time, on the Expiration Date, unless extended. If you are a beneficial owner of shares of our common stock and you wish to exercise your Subscription Rights, you must act promptly to ensure that your broker, dealer, custodian bank, trustee or other nominee acts for you and that all required forms and payments are actually received by your broker, dealer, custodian bank, trustee or other nominee in sufficient time to deliver such forms and payments to the Subscription Agent to exercise the Subscription Rights granted in this Rights Offering that you beneficially own prior to 5:00 PM, Eastern Time, on the Expiration Date, as may be extended. We will not be responsible if your broker, dealer, custodian bank, trustee or other nominee fails to ensure that all required forms and payments are actually received by the Subscription Agent prior to 5:00 PM, Eastern Time, on the Expiration Date.

If you fail to complete and sign the required subscription forms, send an incorrect payment amount, or otherwise fail to follow the subscription procedures that apply to the exercise of your Subscription Rights in this Rights Offering, the Subscription Agent may, depending on the circumstances, reject your subscription or accept it only to the extent of the payment received. Neither we nor the Subscription Agent undertakes to contact you concerning an incomplete or incorrect subscription form or payment, nor are we under any obligation to correct such forms or payment. We have the sole discretion to determine whether a subscription exercise properly follows the subscription procedures.

You may not receive all of the shares for which you over-subscribe.

Holders who fully exercise their Basic Subscription Rights will be entitled to subscribe for an additional number of shares pursuant to the Over-Subscription Privilege. Over-Subscription Privileges will be allocated pro rata among Subscription Rights holders who over-subscribed, as described elsewhere in this prospectus. We cannot guarantee that you will receive any or the entire number of shares for which you over-subscribed. If the prorated number of shares allocated to you in connection with your Over-Subscription Privilege is less than your over-subscription request, then the excess funds held by the Subscription Agent on your behalf will be returned to you, without interest, as soon as practicable after the Rights Offering has expired and all prorating calculations and reductions contemplated by the terms of the Rights Offering have been effected, and we will have no further obligations to you.

The receipt of Subscription Rights may be treated as a taxable distribution to you.

We believe the distribution of the Subscription Rights in this Rights Offering should be a non-taxable distribution to holders of shares of our common stock under Section 305(a) of the Internal Revenue Code of 1986, as amended (the "Code"). See "Material U.S. Federal Income Tax Consequences" beginning on page 22. This position is not binding on the Internal Revenue Service, or the courts, however. If this Rights Offering is deemed to be part of a "disproportionate distribution" under Section 305 of the Code, your receipt of Subscription Rights in this Rights Offering may be treated as the receipt of a taxable distribution to you equal to the fair market value of the Subscription Rights. Any such distribution would be treated as dividend income to the extent of our current and accumulated earnings and profits, if any, with any excess being treated as a return of capital to the extent thereof and then as capital gain. Each holder of shares of our common stock is urged to consult his, her or its own tax advisor with respect to the particular tax consequences of this Rights Offering.

The Subscription Rights are not transferable, and there is no market for the Subscription Rights.

You may not sell, transfer, assign or give away your Subscription Rights. Because the Subscription Rights are non-transferable, there is no market or other means for you to directly realize any value associated with the Subscription Rights. You must exercise the Subscription Rights to realize any potential value from your Subscription Rights.

We do not know how many stockholders will participate in the Rights Offering.

We have no agreements or understandings with any persons or entities with respect to their exercise of the Subscription Rights or their participation as an underwriter, broker or dealer in the Rights Offering. We, therefore, do not know how many stockholders, if any, will participate in the Rights Offering. Assuming stockholders exercise all Subscription Rights we are offering, we would receive gross proceeds of approximately \$15.0 million and net proceeds, after payment of estimated expenses, of approximately \$14.8 million.

Our management will retain broad discretion over the use of any net proceeds from the Rights Offering and utilization of the proceeds may not increase the value of the Company.

While we currently intend to use any net proceeds from the Rights Offering primarily for capital expenditures, new product development activities, and to support other working capital needs, our management team will have broad discretion to allocate the proceeds from the Rights Offering as circumstances warrant. In addition, there is no assurance that utilization of the proceeds will increase the value of the Company and/or your investment.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements contained in or incorporated by reference into this prospectus, or filings with the SEC and our public releases, that are not purely historical are forward-looking statements within the meaning of applicable securities laws. Our forward-looking statements include, but are not limited to, statements regarding our “expectations,” “hopes,” “beliefs,” “intentions” or “strategies” regarding the future. In addition, any statements that refer to projections, forecasts, or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “possible,” “potential,” “predict,” “project,” “should” and “would,” as well as similar expressions, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward looking. Forward-looking statements contained in or incorporated by reference into this prospectus may include, for example, statements about:

- our ability to service our debt and comply with the covenants in the Second A&R Credit Agreement;
- our ability to maintain sufficient liquidity to fund our operations and obtain financing on reasonable terms when needed;
- our future financial performance, including our ability to increase or maintain revenue;
- the effect of the COVID-19 pandemic on our business, operating results and financial condition, including disruption to our customers, distributors, independent sales representatives, contract manufacturers and suppliers, as well as the global economy and financial and credit markets;
- our ability to remain competitive;
- our ability to innovate and develop new products;
- our ability to obtain donor cadavers for our products from a limited number of third-party suppliers;
- public acceptance of biologics products;
- our ability to engage and retain qualified technical personnel and members of our management team;
- product liability claims and any litigation to which we may be subjected;
- our ability to successfully integrate future business combinations or acquisitions;
- our ability to retain and recruit independent sales agents and the impact of the termination of an advisory agreement with an entity that provided services to some of our customers;
- the ability of our sales force to achieve expected results;
- the impact of worldwide economic conditions, which could adversely affect our revenue, financial condition, or results of operations;
- our ability to use our net operating loss carry-forwards to offset future taxable income;
- the effect of government regulations, our ability to obtain and maintain regulatory approvals in the United States and abroad and government and third-party coverage and reimbursement for our products;
- timing and results of clinical studies;
- product recalls and defects;
- our ability to remain accredited with the American Association of Tissue Banks; and
- our ability to obtain and protect our intellectual property and proprietary rights and operate without infringing the intellectual property rights of others.

The forward-looking statements contained in this prospectus or in any documents incorporated by reference are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties, or assumptions, many of which are beyond our control, which may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in this prospectus, see “*Risk Factors*” beginning on page 5, and our most recent Annual Report on Form 10-K, filed with the SEC on March 5, 2020, and our most recent Quarterly Report on Form 10-Q, filed with the SEC on October 29, 2020.

Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those projected in these forward-looking statements. We caution you that the forward-looking statements contained in this prospectus are not guarantees of future performance, and we cannot assure you that those statements will be realized or that the forward-looking events and circumstances will occur. All forward-looking statements speak only as of the date of this prospectus. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required under applicable securities laws. The cautionary statements qualify all forward-looking statements attributable to us or persons acting on our behalf.

You should also read carefully the factors described in the “*Risk Factors*” in our most recent Annual Report on Form 10-K for the year ended December 31, 2020, filed with the SEC on March 5, 2020, and our most recent Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2020, filed with the SEC on October 29, 2020, and in any other documents incorporated by reference into this prospectus, as updated by our future filings, to better understand significant risks and uncertainties inherent in our business and underlying any forward-looking statements. As a result of these factors, actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements in this report and you should not place undue reliance on any forward-looking statements.

USE OF PROCEEDS

Assuming that all shares of our common stock are sold in the Rights Offering, including the full exercise of all Over-Subscription Privileges, we estimate that the net proceeds from the Rights Offering will be approximately \$14.8 million, based on the Subscription Price of \$1.07 per share after deducting estimated expenses payable by us.

We intend to use any net proceeds from the Rights Offering primarily for capital expenditures, new product development activities, and to support other working capital needs.

Our management will have broad discretion in the application of the net proceeds from the Rights Offering, and investors will be relying on the judgment of our management with regard to the use of these net proceeds.

CAPITALIZATION

The following table presents our cash, cash equivalents and capitalization, as of September 30, 2020:

- on an actual basis;
- on a pro forma basis to give effect to the Restructuring Transactions completed on October 1, 2020; and
- on a pro forma as adjusted basis to give effect to the Restructuring Transactions and assuming the sale by us in this Rights Offering of the maximum number of shares of common stock, including the full exercise of all Over-Subscription Privileges, at the Subscription Price of \$1.07 per share, and our receipt of the net proceeds from that sale, after deducting estimated offering expenses.

The pro forma as adjusted information set forth below is illustrative only and will be adjusted based on the number of shares actually sold. You should read this information in conjunction with our consolidated financial statements and notes thereto incorporated by reference into this prospectus.

	As of September 30, 2020		
	Actual (Unaudited)	Pro Forma (Unaudited)	Pro Forma as Adjusted (Unaudited)
Cash, cash equivalents and trade accounts receivable	\$ 10,058	\$ 8,808	\$ 23,631
Long-term debt, plus premium and less issuance costs	79,627	17,112	17,112
Lease liability, less current portion	1,417	1,417	1,417
Total long-term debt	81,044	18,529	18,529
Stockholders' equity			
Preferred stock, \$0.000001 par value per share; 10,000,000 shares authorized, no shares issued and outstanding, actual and pro forma and pro forma as adjusted	0	0	0
Common stock, \$0.000001 par value per share; 75,000,000 shares authorized, 13,240,831 shares issued and outstanding, actual; and 300,000,000 shares authorized, 71,995,226 shares issued and outstanding, pro forma, and 86,013,916 shares issued and outstanding, pro forma as adjusted	0	0	0
Additional paid-in capital	181,649	243,632	258,455
Accumulated deficit	(229,630)	(230,348)	(230,348)
Total stockholders' (deficit) equity	(47,981)	13,284	28,107
Total capitalization	\$ 33,063	\$ 31,813	\$ 46,636

The number of outstanding shares of our common stock in the table above excludes the following as of September 30, 2020:

- 722,112 shares issuable upon the exercise of outstanding stock options with a weighted average exercise price of \$4.37 per share;
- 1,100,648 shares issuable upon the vesting of restricted stock units;
- 5,261,162 shares issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$1.53 per share; and
- 894,575 shares available for issuance under the Xtant Medical Holdings, Inc. 2018 Equity Incentive plan, as amended.

DILUTION

Purchasers of our common stock in the Rights Offering will experience an immediate dilution of the net tangible book value per share of our common stock. Our historical net tangible book value as of September 30, 2020, was negative \$51.7 million, or \$(3.90) per share of our common stock. Net tangible book value per share is equal to our total net tangible book value, which is our total tangible assets less our total liabilities, divided by the number of shares of our outstanding common stock. Dilution per share equals the difference between the amount per share paid by purchasers of shares of our common stock in the Rights Offering and the net tangible book value per share of our common stock immediately after the Rights Offering. Our pro forma net tangible book value as of September 30, 2020 was \$9.6 million, or \$0.13 per share, based on the total number of shares of our common stock outstanding as of September 30, 2020, after giving effect to the issuance of 58.8 million shares in the Restructuring Transactions.

Based on the sale by us in this Rights Offering of a maximum of approximately 14.0 million shares, at the Subscription Price of \$1.07 per share, and after deducting estimated offering expenses payable by us of approximately \$177,000, our pro forma as-adjusted net tangible book value as of September 30, 2020 would have been approximately \$24.4 million, or \$0.28 per share. This represents an immediate increase in pro forma net tangible book value to existing stockholders of \$0.15 per share and an immediate dilution to purchasers in the Rights Offering of \$0.79 per share.

The following table illustrates this per-share dilution on a pro forma as adjusted basis, after giving effect to the completion of the Restructuring Transactions and assuming a fully subscribed for Rights Offering, including the exercise of all Over-Subscription Privileges, of 14,018,690 shares at the Subscription Price of \$1.07 per share.

Subscription Price		\$	1.07
Net tangible book value per share as of September 30, 2020	\$	(3.90)	
Pro forma net tangible book value per share as of September 30, 2020, after giving effect to the Restructuring Transactions	\$	0.13	
Increase in pro forma net tangible book value per share attributable to Rights Offering	\$	0.15	
Pro forma as-adjusted net tangible book value per share as of September 30, 2020, after giving effect to Rights Offering	\$	0.28	
Dilution in net tangible book value per share to purchasers		\$	0.79

The information above is as of September 30, 2020 and excludes the following:

- 722,112 shares issuable upon the exercise of outstanding stock options with a weighted average exercise price of \$4.37 per share;
- 1,100,648 shares issuable upon the vesting of restricted stock units;
- 5,261,162 shares issuable upon the exercise of outstanding warrants with a weighted average exercise price of \$1.53 per share; and
- 894,575 shares available for issuance under the Xtant Medical Holdings, Inc. 2018 Equity Incentive plan, as amended.

Each decrease of 1,000,000 shares subscribed for in this Rights Offering would decrease the pro forma as-adjusted net tangible book value per share as of September 30, 2020 by approximately \$0.01 per share and increase the dilution in net tangible book value per share to purchasers by \$0.01. To the extent that outstanding options or warrants are exercised or restricted stock units vest and are settled, the investors purchasing our common stock in this Rights Offering will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations. To the extent that additional capital is raised through the sale of securities, the issuance of those securities could result in further dilution to our stockholders.

MARKET AND DIVIDEND INFORMATION FOR OUR COMMON STOCK

Market Information

Our common stock is listed on NYSE American under the ticker symbol “XTNT.”

Holders of Record

As of October 29, 2020, we had 175 holders of record. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. This number of holders of record also does not include stockholders whose common stock may be held in trust or by other entities.

Dividends

We have not paid any cash dividends and do not expect to do so in the foreseeable future. In addition, our Second A&R Credit Agreement with the Lenders precludes us from paying dividends.

THE RIGHTS OFFERING

The Subscription Rights

We are distributing to the record holders, at no charge, non-transferable Subscription Rights to purchase up to an aggregate of approximately 14,018,690 shares of our common stock. Each whole Basic Subscription Right will entitle you to purchase one share of our common stock from the date of issuance through its expiration at 5:00 PM, Eastern Time, on December 4, 2020, unless extended. Each record holder will receive 0.194539 Subscription Rights for each whole share of our common stock owned by such record holder as of the Record Date. Therefore, stockholders holding at least six shares of our common stock as of the Record Date will be eligible to participate in the Rights Offering. Each Subscription Right entitles the record holder to a Basic Subscription Right and an Over-Subscription Privilege.

Basic Subscription Rights

Each whole Basic Subscription Right will entitle you to purchase one share of our common stock. For example, if you owned 1,000 shares of our common stock as of the Record Date, you will receive 194.539 Subscription Rights and will have the right to purchase 194 shares of our common stock for a total purchase price of \$207.58. 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. If you do not exercise your Basic Subscription Rights in full, you will not be entitled to exercise your Over-Subscription Privilege.

Over-Subscription Privilege

If you exercise your Basic Subscription Rights in full, you may also choose to exercise your Over-Subscription Privilege. Subject to proration, if applicable, we will seek to honor the Over-Subscription Privilege requests in full. If Over-Subscription Privilege requests exceed the number of shares available, however, we will allocate the available shares pro-rata among the record holders exercising the Over-Subscription Privilege in proportion to the number of shares of our common stock each of those record holders owned on the Record Date, relative to the number of shares owned on the Record Date by all record holders exercising the Over-Subscription Privilege. If this pro rata allocation results in any record holder receiving a greater number of shares than the number for which the record holder subscribed pursuant to the exercise of the Over-Subscription Privilege, then such record holder will be allocated only that number of shares for which the record holder oversubscribed, and the remaining shares will be allocated among all other record holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all shares have been allocated.

The Company and EQ Shareowner Services, the Subscription Agent for the Rights Offering, will determine the over-subscription allocation based on the formula described above.

To the extent the aggregate subscription payment of the actual number of unsubscribed shares available to you pursuant to the Over-Subscription Privilege is less than the amount you actually paid in connection with the exercise of the Over-Subscription Privilege, you will be allocated only the number of unsubscribed shares available to you, and any excess subscription payments will be returned to you, without interest or penalty, as soon as practicable after expiration of the Rights Offering.

We can provide no assurances that you will actually be entitled to purchase the number of shares issuable upon the exercise of your Over-Subscription Privilege in full at the expiration of the Rights Offering. We will not be able to satisfy any requests for shares pursuant to the Over-Subscription Privilege if all of our stockholders exercise their Basic Subscription Rights in full, and we will only honor an Over-Subscription Privilege to the extent sufficient shares are available following the exercise of Basic Subscription Rights.

Limitation on the Purchase of Shares

You may only purchase the number of whole shares purchasable upon exercise of the number of Basic Subscription Rights distributed to you in the Rights Offering, plus the Over-Subscription Privilege, if any. We will not issue fractional shares. To the extent that the number of shares of our common stock issuable upon exercise of the Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of our common stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of our common stock for which you may subscribe.

Accordingly, the number of shares that you may purchase in the Rights Offering is limited by the number of shares of our common stock you held on the Record Date and by the extent to which other stockholders exercise their Basic Subscription Rights and Over-Subscription Privileges, which we cannot determine prior to completion of the Rights Offering.

Subscription Price

The Subscription Price per share is \$1.07. The Subscription Price does not necessarily bear any relationship to our past or expected future results of operations, cash flows, current financial condition, or any other established criteria for value. No change will be made to the Subscription Price by reason of changes in the trading price of our common stock or other factor prior to the expiration of this Rights Offering.

Determination of Subscription Price

We are conducting the Rights Offering to allow stockholders of the Company to purchase our common stock at the same price per share as the \$1.07 per share exchange price used to exchange the Exchanging Loans into our common stock as part of the Restructuring Transactions. In determining the exchange price for the Exchanging Loans, which is equivalent to the Subscription Price, our Board of Directors received a fairness opinion of Duff & Phelps, LLC, which stated that as of August 7, 2020, and subject to the limitations, qualifications and assumptions set forth therein, the exchange price for the Exchanging Loans was fair, from a financial point of view, to the stockholders of the Company unaffiliated with the Lenders. The Duff & Phelps fairness opinion was made solely in connection with the Restructuring Transactions and did not opine as to the fairness of the Subscription Price or any shares sold pursuant to the Rights Offering. Our Board of Directors also considered, among other things, our need for additional capital and liquidity and the cost of capital from other sources.

The Subscription Price does not necessarily bear any relationship to any established criteria for value. No valuation consultant or investment banker has opined upon the fairness or adequacy of the Subscription Price. You should not consider the Subscription Price as an indication of actual value of the Company or our common stock. You should not assume or expect that, after the Rights Offering, our shares of common stock will trade at or above the Subscription Price in any given time period. The market price of our common stock may decline during or after the Rights Offering. We cannot assure you that you will be able to sell the shares of our common stock purchased during the Rights Offering at a price equal to or greater than the Subscription Price. 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.

Non-Transferability of Subscription Rights

The Subscription Rights are non-transferable (other than by operation of law) and, therefore, you may not sell, transfer, assign or give away your Subscription Rights to anyone. The Subscription Rights will not be listed for trading on any stock exchange or market.

Expiration Date; Extension

The subscription period, during which you may exercise your Subscription Rights, expires at 5:00 PM, Eastern Time, on December 4, 2020, which is the expiration of the Rights Offering. We will not be required to issue shares to you if the Subscription Agent receives your Subscription Rights Statement or your subscription payment after that time. We have the option to extend the Rights Offering in our sole discretion, although we do not presently intend to do so. We may extend the Rights Offering by giving oral or written notice to the Subscription Agent before the Rights Offering expires. If we elect to extend the Rights Offering, we will issue a press release announcing the extension no later than 9:00 AM, Eastern Time, on the next business day after the most recently announced expiration date of the Rights Offering.

If you hold your shares of our common stock in the name of a broker, dealer, custodian bank or other nominee, the nominee will exercise the Subscription Rights on your behalf in accordance with your instructions. Please note that the nominee may establish a deadline that may be before 5:00 PM, Eastern Time, on December 4, 2020, which is the Expiration Date that we have established for the Rights Offering.

Rights Offering May Be Terminated at Any Time

We may terminate the Rights Offering at any time and for any reason prior to the completion of the Rights Offering. If we terminate the Rights Offering, we will issue a press release notifying stockholders and the public of the termination.

Return of Funds upon Completion or Termination

The Subscription Agent will hold funds received in payment for shares in a segregated account pending completion of the Rights Offering. The Subscription Agent will hold this money until the Rights Offering is completed or is terminated. To the extent you properly exercise your Over-Subscription Privilege for a number of shares that exceeds the number of unsubscribed shares 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. If the Rights Offering is terminated for any reason, all subscription payments received by the Subscription Agent will be returned as soon as practicable, without interest or penalty.

Shares of Our Common Stock Outstanding After the Rights Offering

On October 29, 2020, after giving effect to the Restructuring Transactions (other than the Rights Offering), 72,061,034 shares of our common stock were outstanding. Based on the foregoing, and assuming no other transactions by us involving our common stock prior to the expiration of the Rights Offering, if the Rights Offering is fully subscribed, approximately 86,079,724 shares of our common stock will be issued and outstanding. The exact number of shares that we will issue in the Rights Offering will depend on the number of shares that are subscribed for in the Rights Offering.

Methods for Exercising Subscription Rights

The exercise of Subscription Rights is irrevocable and may not be cancelled or modified. You may exercise your Subscription Rights as follows:

Subscription by Record Holders

If you are a stockholder of record, the number of shares you may purchase pursuant to your Subscription Rights is indicated on the enclosed Subscription Rights Statement. You may exercise your Subscription Rights by properly completing and executing the Subscription Rights Statement and Notice of Guaranteed Delivery (if applicable) and forwarding such documents, together with your full payment, to the Subscription Agent at the address given below under "Subscription Agent," to be received before 5:00 PM, Eastern Time, on December 4, 2020.

Subscription by Beneficial Owners

If you are a beneficial owner of shares of our common stock that are registered in the name of a broker, dealer, custodian bank, or other nominee, you will not receive a Subscription Rights Statement. Instead, we will issue 0.194539 Subscription Rights to such nominee record holder for each share of our common stock held by such nominee at the Record Date. If you are not contacted by your nominee, you should promptly contact your nominee in order to subscribe for shares in the Rights Offering and follow the instructions provided by your nominee.

To properly exercise your Over-Subscription Privilege, you must deliver the subscription payment related to your Over-Subscription Privilege before the Rights Offering expires. Because we will not know the total number of unsubscribed shares before the Rights Offering expires, if you wish to maximize the number of shares you purchase pursuant to your Over-Subscription Privilege, you will need to deliver payment in an amount equal to the aggregate subscription payment for the maximum number of shares that you wish to purchase.

Guaranteed Delivery Procedures

If you do not have adequate time to deliver the Subscription Rights Statement evidencing your rights to the Subscription Agent prior to the expiration of the Rights Offering, you may still participate in the Rights Offering if you follow the guaranteed delivery procedures set forth below prior to the expiration of the Rights Offering:

- Deliver your payment to the Subscription Agent covering all rights that you are exercising in accordance with the procedures set forth below;
- Deliver your Notice of Guaranteed Delivery to the Subscription Agent; and
- Within two business days following the date you submitted your Notice of Guaranteed Delivery, deliver to the Subscription Agent the complete and properly signed Subscription Rights Statement.

The Notice of Guaranteed Delivery may be delivered to the Subscription Agent in the same manner as the Subscription Rights Statement at the address set forth below.

If you have any questions or comments regarding completion or delivery of the Notice of Guaranteed Delivery, please contact the Information Agent.

Payment Method

Payments must be made in full in U.S. currency by cashier's check or by wire transfer, and payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc." You must timely pay the full subscription payment, including payment for the Over-Subscription Privilege, for the full number of shares that you wish to acquire pursuant to the exercise of Subscription Rights by delivering a:

- cashier's check, drawn on a U.S. bank payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc."; or
- wire transfer of immediately available funds directly to the account maintained by EQ Shareowner Services, as Subscription Agent, for purposes of accepting subscriptions in this Rights Offering at Wells Fargo Bank, N.A., Credit: Corporate Stock Transfer as Rights Agent for Xtant Medical Holdings, Inc., for further credit to Xtant Medical Holdings, Inc., and name of the Subscription Rights holder.

You should read the instruction letter accompanying the Subscription Rights Statement carefully and strictly follow it. **DO NOT SEND SUBSCRIPTION RIGHTS STATEMENTS OR PAYMENTS DIRECTLY TO US.** We will not consider your subscription received until the Subscription Agent has received delivery of a properly completed and duly executed Subscription Rights Statement and payment of the full subscription amount.

The method of delivery of Subscription Rights Statements and payment of the subscription amount to the Subscription Agent will be at the risk of the holders of Subscription Rights. If sent by mail, we recommend that you send those statements and payments by registered mail, properly insured, with return receipt requested, or by overnight courier, and that you allow a sufficient number of days to ensure delivery to the Subscription Agent before the Rights Offering expires.

Missing or Incomplete Subscription Forms or Payment

If you fail to complete and sign the Subscription Rights Statement or otherwise fail to follow the subscription procedures that apply to the exercise of your Subscription Rights before the Rights Offering expires, the Subscription Agent will reject your subscription or accept it to the extent of the payment received. Neither we nor our Subscription Agent undertakes any responsibility or action to contact you concerning an incomplete or incorrect subscription form, nor are we under any obligation to correct such forms. We have the sole discretion to determine whether a subscription exercise properly complies with the subscription procedures.

If you send a payment that is insufficient to purchase the number of shares you requested, or if the number of shares 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. Any excess subscription payments received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the expiration of the Rights Offering.

Issuance of Common Stock

The shares of our common stock that are purchased in the Rights Offering will be issued in book-entry, or uncertificated, form meaning that you will receive a direct registration account statement from our transfer agent reflecting ownership of these securities if you are a holder of record of shares. If you hold your shares of our common stock in the name of a custodian bank, broker, dealer, or other nominee, DTC will credit your account with your nominee with the shares you purchased in the Rights Offering.

Subscription Agent

The Subscription Agent for the Rights Offering is EQ Shareowner Services. The address to which Subscription Rights Statements and payments should be mailed or delivered by overnight courier is provided below. If sent by mail, we recommend that you send documents and payments by registered mail, properly insured, with return receipt requested, and that you allow a sufficient number of days to ensure delivery to the Subscription Agent before the Rights Offering expires. Do not send or deliver these materials to us.

By Mail or Hand or Overnight Courier:

**EQ Shareowner Services
1100 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120
Attn: Corporate Actions Dept.**

If you deliver the Subscription Rights Statements in a manner different than that described in this prospectus, they may not be received and, if received, we may not honor the exercise of your Subscription Rights.

Questions

You should direct any questions or requests for assistance concerning the method of subscribing for the shares of our common stock or for additional copies of this prospectus to the Information Agent, Equiniti (US) Services LLC, at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

No Fractional Shares

We will not issue fractional shares of our common stock in the Rights Offering. Rights holders will only be entitled to purchase a whole number of shares of our common stock, rounded down to the nearest whole number of shares 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.

Notice to Brokers and Nominees

If you are a broker, dealer, bank, or other nominee holder that holds shares of our common stock for the account of others on the Record Date, you should notify the beneficial owners of the shares for whom you are the nominee of the Rights Offering as soon as possible to learn their intentions with respect to exercising their Subscription Rights. If a beneficial owner of our common stock so instructs, you should complete the Subscription Rights Statement and submit it to the Subscription Agent with the proper subscription payment by the Expiration Date. You may exercise the number of Subscription Rights to which all beneficial owners in the aggregate otherwise would have been entitled had they been direct holders of our common stock on the Record Date, provided that you, as a nominee record holder, make a proper showing to the Subscription Agent by submitting the form entitled "Nominee Holder Certification," which is provided with your Rights Offering materials. If you did not receive this form, you should contact our Subscription Agent to request a copy.

Validity of Subscriptions

We will resolve all questions regarding the validity and form of the exercise of your Subscription Rights, including time of receipt and eligibility to participate in the Rights Offering. Our determination will be final and binding. Once made, subscriptions are irrevocable; we will not accept any alternative, conditional, or contingent subscriptions. We reserve the absolute right to reject any subscriptions not properly submitted or the acceptance of which would be unlawful. You must resolve any irregularities in connection with your subscriptions before the Expiration Date of the Rights Offering, unless we waive them in our sole discretion. Neither we nor the Subscription Agent is under any duty to notify you or your representative of defects in your subscriptions. A subscription will be considered accepted, subject to our right to withdraw or terminate the Rights Offering, only when the Subscription Agent receives a properly completed and duly executed Subscription Rights Statement and any other required documents and the full subscription payment. Our interpretations of the terms and conditions of the Rights Offering will be final and binding.

Stockholder Rights

You will have no rights as a holder of the shares of our common stock you purchase in the Rights Offering until shares are issued in book-entry form or your account at your broker, dealer, bank, or other nominee is credited with the shares of our common stock purchased in the Rights Offering.

Foreign Stockholders

We will not mail this prospectus or Subscription Rights Statements to stockholders with addresses that are outside the United States or that have an army post office or foreign post office address. The Subscription Agent will hold these Subscription Rights Statements for their account. To exercise Subscription Rights, our foreign stockholders must notify the Subscription Agent prior 5:00 PM, Eastern Time, on December 1, 2020, the third business day prior to the Expiration Date, of your exercise of Subscription Rights and provide evidence satisfactory to us, such as a legal opinion from local counsel, that the exercise of such Subscription Rights does not violate the laws of the jurisdiction in which such stockholder resides and payment by a U.S. bank in U.S. dollars before the expiration of the offer. If no notice is received by such time or the evidence presented is not satisfactory to us, the Subscription Rights represented thereby will expire.

No Revocation or Change

Once you submit the Subscription Rights Statement or have instructed your nominee of your subscription request, you are not allowed to revoke or change the exercise or request a refund of monies paid. All exercises of Subscription Rights are irrevocable, even if you learn information about us that you consider to be unfavorable. You should not exercise your Subscription Rights unless you are certain that you wish to purchase shares of our common stock at the Subscription Price.

U.S. Federal Income Tax Treatment of Rights Distribution

For U.S. federal income tax purposes, we intend to take the position that holders of shares of our common stock should not recognize income or loss upon receipt or exercise of a Subscription Right. See “*Material U.S. Federal Income Tax Consequences*” beginning on page 22.

No Recommendation to Rights Holders

Our Board of Directors is not making a recommendation regarding your exercise of the Subscription Rights. Stockholders who exercise Subscription Rights risk investment loss on money invested. We cannot assure you that the market price of our common stock will reach or exceed the Subscription Price, and even if it does so, that it will not decline during or after the Rights Offering. We also cannot assure you that you will be able to sell shares of our common stock purchased in the Rights Offering at a price equal to or greater than the Subscription Price. You should make your investment decision based on your assessment of our business and financial condition, our prospects for the future and the terms of this Rights Offering. See “*Risk Factors*” beginning on page 5 for a discussion of some of the risks involved in investing in our common stock.

Fees and Expenses

We will pay all fees charged by the Subscription Agent and Information Agent. You are responsible for paying any other commissions, fees, taxes or other expenses incurred in connection with the exercise of your Subscription Rights.

Listing

The Subscription Rights may not be sold, transferred, assigned or given away to anyone, and will not be listed for trading on any stock exchange or market.

Important

Please follow the directions regarding delivery of Subscription Rights Statements and payments described above. Do not send Subscription Rights Statements directly to us. You are responsible for choosing the payment and delivery method for your Subscription Rights Statement and you bear the risks associated with such delivery. If you choose to deliver your Subscription Rights Statement and payment by mail, we recommend that you use registered mail, properly insured, with return receipt requested. We also recommend that you allow a sufficient number of days to ensure delivery to the Subscription Agent prior to the Expiration Date.

DESCRIPTION OF THE RESTRUCTURING TRANSACTIONS

Below is a summary of the material terms of the Restructuring Transactions. This summary is subject to and qualified in its entirety by copies of the Restructuring Agreement, the Charter Amendment, the Second Amendment to the Second A&R Credit Agreement and the Registration Rights Agreement, which are filed as Exhibits 10.17, 3.3, 10.15 and 4.15, respectively, to the registration statement that includes this prospectus. You should review these documents in their entirety.

Restructuring and Exchange Agreement

On August 7, 2020, the Company entered into a Restructuring and Exchange Agreement with Royalty Opportunities and ROS, pursuant to which the parties thereto agreed, subject to the terms and conditions set forth therein, to take certain actions as set forth therein and as described below in furtherance of a restructuring of our outstanding indebtedness under the Second A&R Credit Agreement.

The Restructuring Transactions included, among others:

- an amendment to the Company's Certificate of Incorporation to increase the number of authorized shares of our common stock from 75 million to 300 million, which was effective on October 1, 2020;
- the exchange by the Company of shares of our common stock for approximately \$40.8 million of the aggregate outstanding principal amount of loans outstanding held by the Lenders under the Second A&R Credit Agreement, as well as, without duplication, approximately \$21.1 million of the outstanding amount of PIK Interest (as defined in the Second A&R Credit Agreement), plus all other accrued and unpaid interest on the Exchanging Loans outstanding as of the closing date, at an exchange price of \$1.07 per share, representing the average closing price of our common stock over the 10 trading days immediately prior to the parties entering into the Restructuring Agreement, and resulting in the issuance of approximately 57.8 million shares of our common stock on October 1, 2020;
- the execution of an amendment to the Second A&R Credit Agreement by the parties thereto to change certain provisions therein, including extinguishing loans in an aggregate principal amount equal to the Exchanging Loans outstanding thereunder together with all accrued and unpaid interest thereon, adding loans in an aggregate principal amount equal to a portion of the prepayment fee payable thereunder in respect of the Exchanging Loans, with the remaining portion of the prepayment fee exchanged for an additional 0.9 million shares of our common stock, reducing the amount of credit availability thereunder, decreasing the interest rate and eliminating certain financial covenants, as described in more detail below; and
- the launch by the Company of this Rights Offering.

The primary purpose of the Restructuring Transactions was to improve our capital structure by reducing our outstanding debt, which we expect will facilitate future access to capital markets for investment in our growth initiatives, and regain compliance with the NYSE American continued listing standards, which we did on October 5, 2020.

Immediately after the execution of the Restructuring Agreement by the parties thereto, we solicited and obtained the written consent of Royalty Opportunities and ROS, the holders of an aggregate of 9,248,678 shares of our common stock as of August 7, 2020, representing a majority of the outstanding shares of our common stock as of such date, for the approval of the Charter Amendment and the Share Issuance, in accordance with applicable provisions of the DGCL and the Company's Bylaws. The written consent of the Consenting Majority Stockholders was sufficient to approve the Charter Amendment and the Share Issuance. Therefore, no proxies or additional consents were solicited by us in connection with the Charter Amendment and the Share Issuance. Pursuant to Section 14(c) of the Exchange Act, and the rules and regulations promulgated thereunder, on September 10, 2020, we sent a definitive information statement to all holders of our common stock as of August 7, 2020 for the purpose of informing such stockholders of the written actions taken by the Consenting Majority Stockholders. In accordance with Exchange Act Rule 14c-2, the stockholder consent of the Consenting Majority Stockholders could not become effective until at least 20 calendar days following the mailing of the Information Statement.

On October 1, 2020, the Closing of the Restructuring Transactions, other than the Rights Offering, occurred, and in connection therewith, the following actions took place:

- The Charter Amendment was filed with the Office of the Secretary of State of the State of Delaware;
- The Share Issuance occurred;
- An amendment to the Second A&R Credit Agreement was executed by the parties thereto and in connection therewith the Company issued an additional 0.9 million shares of our common stock in exchange for a portion of the prepayment fee payable under the Second A&R Credit Agreement in respect of the Exchanging Loans; and
- A registration rights agreement was executed by the parties thereto.

As a result of the completion of these Restructuring Transactions, Royalty Opportunities and ROS own, in the aggregate, approximately 94.5% of our outstanding common stock and all other existing stockholders of the Company own approximately 5.5% of our outstanding common stock. As previously mentioned, under the terms of the Restructuring Agreement, we agreed to launch the Rights Offering to allow our stockholders to purchase our common stock at the same price per share as the \$1.07 per share exchange price used in the Share Issuance.

Second Amendment to Second Amended and Restated Credit Agreement

As a condition to the closing of the Restructuring Transactions, on October 1, 2020, the Company and the Lenders entered into a Second Amendment to the Second Amended and Restated Credit Agreement, which amended the Second A&R Credit Agreement as follows:

- extinguished loans in an aggregate principal amount equal to the Exchanging Loans outstanding under the Second A&R Credit Agreement on the closing date of the Credit Agreement Amendment, immediately prior to the Closing, together with all accrued and unpaid interest thereon;
- added loans in an aggregate principal amount equal to a portion of the prepayment fee payable under the Second A&R Credit Agreement in respect of the Exchanging Loans and exchanged the remaining portion of the prepayment fee for an additional 0.9 million shares of our common stock;
- removed the availability of the Additional Delayed Draw Loans and reduced the Additional Second Delayed Draw Commitment Amount (as such terms are defined in the Second A&R Credit Agreement) to \$5.0 million;
- provided that beginning on October 1, 2020 through the maturity date of the Second A&R Credit Agreement, interest payable in cash will accrue on the loans thereunder at a rate per annum equal to the sum of (i) 7.00% plus (ii) the higher of (x) the LIBO Rate (as such term is defined in the Second A&R Credit Agreement) and (y) 1.00%; and
- eliminated the Revenue Base financial covenant.

Registration Rights Agreement

As a condition to the closing of the Restructuring Transactions, on October 1, 2020, we entered into a Registration Rights Agreement with the Lenders. The Registration Rights Agreement requires us to, among other things, file with the SEC a shelf registration statement covering the resale, from time to time, of the shares of our common stock issuable upon exchange of the Exchanging Loans no later than the 90th day after the Closing Date and use our best efforts to cause the shelf registration statement to become effective under the Securities Act of 1933, as amended, no later than the 180th day after the Closing Date.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following discussion is a summary of material U.S. federal income tax consequences relating to the receipt and exercise (or expiration) of the Subscription Rights acquired through the Rights Offering and the ownership and disposition of shares of our common stock acquired upon exercise of the Subscription Rights. The legal conclusions as to matters of U.S. federal income tax law included in the following discussion constitute the opinion of our counsel, Fox Rothschild LLP. In this section, all references to “we” and “our” refer to the Company and not to Fox Rothschild LLP.

This summary deals only with Subscription Rights acquired through the Rights Offering and shares of our common stock acquired upon exercise of Subscription Rights that are held, in each case, as capital assets. This discussion does not address all aspects of U.S. federal income taxation that may be relevant to such a beneficial owner in light of their personal circumstances, including the alternative minimum tax and the Medicare contribution tax on investment income. This discussion also does not address tax consequences to holders that may be subject to special tax rules, including, without limitation, insurance companies, real estate investment trusts, regulated investment companies, grantor trusts, tax-exempt organizations, employee stock purchase plans, partnerships and other pass-through entities, persons holding Subscription Rights or shares of our common stock as part of a hedging, integrated, conversion or constructive sale transaction or a straddle, financial institutions, brokers, dealers in securities or currencies, traders that elect to mark-to-market their securities, persons that acquired Subscription Rights or shares of our common stock in connection with employment or other performance of services, U.S. Holders (as defined below) that have a functional currency other than the U.S. dollar, U.S. expatriates, and certain former citizens or residents of the United States. In addition, the discussion does not describe any tax consequences arising out of the tax laws of any state, local or foreign jurisdiction, or any U.S. federal tax considerations other than income taxation (such as estate, generation skipping or gift taxation).

The discussion below is based upon the provisions of the Internal Revenue Code of 1986, as amended, or the Code, the United States Treasury regulations promulgated thereunder, rulings and judicial decisions, as of the date hereof, and such authorities may be repealed, revoked or modified, perhaps retroactively. We have not sought, and will not seek, any rulings from the Internal Revenue Service, or the IRS, regarding the matters discussed below. There can be no assurance that the IRS or a court (if the matter were contested) will not take positions that are different from those discussed below concerning (i) the tax consequences of the receipt of Subscription Rights acquired through the Rights Offering by persons holding shares of our common stock, (ii) the exercise (or expiration) of the Subscription Rights, or (iii) the acquisition, ownership and disposition of shares of our common stock.

As used herein, a “U.S. Holder” means a beneficial owner of shares of our common stock or Subscription Rights, that is for U.S. federal income tax purposes: (1) an individual who is a citizen or resident of the United States; (2) a domestic corporation; (3) an estate the income of which is subject to U.S. federal income taxation regardless of its source; or (4) a trust, (a) the administration of which is subject to the primary supervision of a court within the United States and one or more United States persons have authority to control all substantial decisions of the trust or (b) that has a valid election under the Treasury Regulations in effect to be treated as a United States person. A “Non-U.S. Holder” is such a beneficial owner (other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes) that is not a U.S. Holder.

If any entity or arrangement that is treated as a partnership for U.S. federal income tax purposes is the record owner, the U.S. federal income tax treatment of a partner generally will depend upon the status of the partner and the activities of the partnership. Holders that are partnerships (and partners in such partnerships) are urged to consult their own tax advisors.

HOLDERS OF SHARES OF OUR COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE CONSEQUENCES UNDER FEDERAL ESTATE AND GIFT TAX LAWS, FOREIGN, STATE AND LOCAL LAWS AND TAX TREATIES OF THE RECEIPT, OWNERSHIP AND EXERCISE OF SUBSCRIPTION RIGHTS AND THE ACQUISITION, OWNERSHIP AND DISPOSITION OF SHARES OF OUR COMMON STOCK.

Tax Consequences to U.S. Holders

Taxation of Subscription Rights

Receipt of Subscription Rights

Although the authorities governing transactions such as this Rights Offering are complex and do not speak directly to the consequences of certain aspects of this Rights Offering or the distribution of Subscription Rights and the effects of the Over-Subscription Privilege, we do not believe your receipt of Subscription Rights pursuant to the Rights Offering should be treated as a taxable distribution with respect to your existing shares of our common stock for U.S. federal income tax purposes. Pursuant to Section 305(a) of the Code, in general, the receipt by a stockholder of a right to acquire stock should not be included in the taxable income of the recipient. The general rule of non-recognition in Section 305(a) is subject to exceptions in Section 305(b), which include “disproportionate distributions.” A disproportionate distribution is a distribution or a series of distributions, including deemed distributions, that has the effect of the receipt of cash or other property by some stockholders or holders of debt instruments convertible into stock and an increase in the proportionate interest of other stockholders in a corporation’s assets or earnings and profits. During the last 36 months, we have not made any distributions of cash or non-stock property with respect to our common stock. In addition, within the last 36 months, we have not made any distributions of cash or non-stock property on previously outstanding convertible notes. Currently we do not intend to make any future distributions of cash or non-stock property with respect to our common stock; however, there is no guarantee that we will not make such distributions in the future. Further, the fact that we have outstanding options could cause, under certain circumstances that cannot currently be predicted (such as a failure to properly adjust the option price in connection with a stock distribution), the receipt of Subscription Rights pursuant to this Rights Offering to be part of a disproportionate distribution, as contemplated in Section 305(b) of the Code.

Our position regarding the tax-free treatment of the Subscription Rights distribution is not binding on the IRS or the courts. If this position is finally determined by the IRS or a court to be incorrect, whether on the basis that the issuance of the Subscription Rights is a “disproportionate distribution” or otherwise, the fair market value of the Subscription Rights will be taxable to holders of our common stock as a dividend to the extent of the holder’s pro rata share of our current and accumulated earnings and profits, if any. Any excess will be treated as a return of capital to the extent thereof and then as capital gain. Although no assurance can be given, it is anticipated that we will not have current and accumulated earnings and profits through the end of 2020.

The following discussion is based upon the treatment of the Subscription Rights issuance as a non-taxable distribution with respect to your existing shares of our common stock for U.S. federal income tax purposes.

Tax Basis in the Subscription Rights

If the fair market value of the Subscription Rights you receive is less than 15% of the fair market value of your existing shares of our common stock (with respect to which the Subscription Rights are distributed) on the date you receive the Subscription Rights, the Subscription Rights will be allocated a zero dollar basis for U.S. federal income tax purposes, unless you elect to allocate your basis in your existing shares of our common stock between your existing shares of our common stock and the Subscription Rights in proportion to the relative fair market values of the existing shares of our common stock and the Subscription Rights, determined on the date of receipt of the Subscription Rights. If you choose to allocate basis between your existing shares of our common stock and the Subscription Rights, you must make this election on a statement included with your timely filed tax return (including extensions) for the taxable year in which you receive the Subscription Rights. Such an election is irrevocable.

However, if the fair market value of the Subscription Rights you receive is 15% or more of the fair market value of your existing shares of our common stock on the date you receive the Subscription Rights, then you must allocate your basis in your existing shares of our common stock between those shares and the Subscription Rights you receive in proportion to their fair market values determined on the date you receive the Subscription Rights.

The fair market value of the Subscription Rights on the date that the Subscription Rights are distributed is uncertain, and we have not obtained, and do not intend to obtain, an appraisal of the fair market value of the Subscription Rights on that date. In determining the fair market value of the Subscription Rights, you should consider all relevant facts and circumstances, including any difference between the Subscription Price of the Subscription Rights and the trading price of our shares of common stock on the date that the Subscription Rights are distributed, the length of the period during which the Subscription Rights may be exercised and the fact that the Subscription Rights are non-transferable.

Holders of shares of our common stock should consult with their own tax advisors regarding their tax basis in shares of our common stock and Subscription Rights received.

Exercise of Subscription Rights

Generally, you will not recognize gain or loss upon the exercise of a Subscription Right acquired in the Rights Offering. Your initial tax basis in our common stock acquired pursuant to the exercise of a Subscription Right will equal the subscription price you pay, plus the tax basis, if any, in the subscription right you exercised, determined as described above. See “*Taxation of Subscription Rights – Tax Basis in the Subscription Rights*” beginning on page 23. The holding period of shares of our common stock acquired upon exercise of a Subscription Right in the Rights Offering will begin on the date of exercise.

If you exercise a Subscription Right received in the Rights Offering after disposing of the shares of our common stock with respect to which such Subscription Right is received, then certain aspects of the tax treatment of the exercise of the Subscription Right are unclear, including (1) the allocation of the tax basis between the shares of our common stock previously sold and the Subscription Right, (2) the impact of such allocation on the amount and timing of gain or loss recognized with respect to the shares of our common stock previously sold and (3) the impact of such allocation on the tax basis of the shares of our common stock acquired upon exercise of the Subscription Right. Furthermore, if you exercise the Subscription Rights and sell other shares of our common stock within the 61-day period beginning 30 days before the exercise date and ending 30 days after the exercise date, the “wash sale” rules may disallow the recognition of any loss upon the sale of our common stock. If you exercise a Subscription Right received in the Rights Offering after disposing of shares of our common stock with respect to which the Subscription Right is received or within 30 days before disposing of shares of our common stock, you should consult with your own tax advisor.

Expiration of Subscription Rights

If you allow Subscription Rights received in the Rights Offering to expire, you should not recognize any gain or loss for U.S. federal income tax purposes, and you should re-allocate any portion of the tax basis in your existing common stock previously allocated to the Subscription Rights that have expired to the existing common stock.

Taxation of Common Stock

Distributions

Distributions with respect to shares of our common stock acquired upon exercise of Subscription Rights will be taxable as dividend income when actually or constructively received to the extent of our current or accumulated earnings and profits as determined for U.S. federal income tax purposes.

Dividend income received by certain non-corporate U.S. Holders with respect to shares of our common stock generally will be “qualified dividends” subject to preferential rates of U.S. federal income tax, provided that the U.S. Holder meets applicable holding period and other requirements. Subject to similar exceptions for short-term and hedged positions, dividend income on our shares of common stock paid to U.S. Holders that are domestic corporations generally will qualify for the dividends-received deduction. To the extent that the amount of a distribution exceeds our current and accumulated earnings and profits, such distribution will be treated first as a tax-free return of capital to the extent of your adjusted tax basis in such shares of our common stock and thereafter as capital gain.

Dispositions

If you sell or otherwise dispose of shares of our common stock acquired upon exercise of Subscription Rights in a taxable transaction, you will generally recognize capital gain or loss equal to the difference between the amount realized and your adjusted tax basis in the shares. Such capital gain or loss will be long-term capital gain or loss if your holding period for such shares is more than one year at the time of disposition. Long-term capital gain of a non-corporate U.S. Holder is generally taxed at preferential rates of U.S. federal income tax. The deductibility of capital losses is subject to limitations.

Information Reporting and Backup Withholding

You may be subject to information reporting and backup withholding with respect to the gross proceeds from the disposition of shares of our common stock acquired through the exercise of Subscription Rights or dividend payments. Backup withholding (currently at the rate of 24%) may apply under certain circumstances if you (1) fail to furnish a correct social security or other taxpayer identification number, or TIN, (2) fail to report interest or dividends properly or (3) fail to provide a certified statement, signed under penalty of perjury, that the TIN provided is correct, that you are not subject to backup withholding and that you are a U.S. person for U.S. federal income tax purposes on IRS Form W-9. Any amount withheld from a payment under the backup withholding rules is allowable as a credit against (and may entitle you to a refund with respect to) your U.S. federal income tax liability, provided that the required information is timely furnished to the IRS. Certain persons are exempt from information reporting and backup withholding, including corporations and certain financial institutions, provided that they demonstrate this fact, if requested. You are urged to consult your own tax advisor as to your qualification for exemption from backup withholding and the procedure for obtaining such exemption.

Tax Consequences to Non-U.S. Holders

Taxation of Subscription Rights

The discussion below assumes that the receipt of Subscription Rights will be treated as a non-taxable distribution. See “*Tax Consequences to U.S. Holders—Taxation of Subscription Rights—Receipt of Subscription Rights*” beginning on page 23. You will not be subject to the U.S. federal income tax for exercise or expiration of the Subscription Rights. See “*Tax Consequences to U.S. Holders—Taxation of Subscription Rights—Exercise of Subscription Rights*” beginning on page 23 and “*Tax Consequences to U.S. Holders—Taxation of Subscription Rights—Expiration of Subscription Rights*” beginning on page 24.

Taxation of Distributions on Common Stock

Any distributions of cash or property made with respect to our common stock generally will be subject to withholding tax to the extent paid out of our current or accumulated earnings and profits as determined for U.S. federal income tax purposes, if any, at a rate of 30% (or a lower rate prescribed by an applicable income tax treaty). In order to obtain a reduced withholding tax rate, if applicable, you will be required to provide a properly completed IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable, certifying your entitlement to benefits under a treaty. In addition, you will not be subject to withholding tax if you provide an IRS Form W-8ECI certifying that the distributions are effectively connected with your conduct of a trade or business within the United States (and, if an applicable income tax treaty so provides, are attributable to a permanent establishment within the United States); instead, you generally will be subject to U.S. federal income tax, net of certain deductions, with respect to such income at the same rates applicable to U.S. persons. If you are a corporation, a “branch profits tax” of 30% (or a lower rate prescribed by an applicable income tax treaty) also may apply to effectively connected earnings and profits.

Any distribution will also be subject to the discussion below. See “*Information Reporting and Backup Withholding*” beginning on page 26 and “*FATCA*” beginning on page 26.

Sale or Other Disposition of Our Common Stock

Subject to the discussion below regarding backup withholding and FATCA, you generally will not be subject to U.S. federal income tax on any gain realized on a sale or other disposition of shares of our common stock unless:

- the gain is effectively connected with your conduct of a trade or business within the United States (and, if an applicable income tax treaty so provides, is attributable to a permanent establishment in the United States);
- you are an individual, you hold your Subscription Rights and shares of our common stock as capital assets, you are present in the United States for 183 days or more in the taxable year of disposition and certain other conditions are met (in which case you will be subject to a 30% tax, or such lower rate as may be specified by an applicable income tax treaty, on the net gain derived from the disposition, which may be offset by your U.S.-source capital losses, if any); or
- we are, or have been, a “United States real property holding corporation,” or USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition and your holding period for our common stock (the “relevant period”) and you (i) dispose of our common stock during a calendar year when our common stock is no longer regularly traded on an established securities market or (ii) owned (directly, indirectly, and constructively) more than 5% of our common stock at any time during the relevant period (in which case you will be subject to tax on the gain on the disposition of shares of our common stock generally as if the gain were effectively connected with the conduct of a trade or business in the United States, except that the “branch profits tax” will not apply).

Gain that is effectively connected with your conduct of a trade or business within the United States (and, if an applicable income tax treaty so provides, is attributable to a permanent establishment within the United States) generally will be subject to U.S. federal income tax, net of certain deductions, at the same rates applicable to U.S. persons. If you are a corporation, a “branch profits tax” of 30% (or a lower rate prescribed in an applicable income tax treaty) also may apply to such effectively connected gain.

A domestic corporation is treated as a USRPHC if the fair market value of its United States real property interests equals or exceeds 50% of the sum of (1) the fair market value of its United States real property interests, (2) the fair market value of its non-United States real property interests and (3) the fair market value of any other of its assets which are used or held for use in a trade or business. We believe that we are not currently, and have not been within the relevant period, a USRPHC. However, no assurance can be given that we will not become a USRPHC in the future. You are urged to consult your own tax advisor regarding the U.S. federal income tax considerations that could result if we are, or become, a USRPHC.

Information Reporting and Backup Withholding

Distributions on our common stock paid to each Non-U.S. Holder and the amount of tax withheld, if any, with respect to such distributions will generally be subject to information reporting. Copies of these reports may be made available to tax authorities in the country where the Non-U.S. Holder resides. If you comply with certification procedures to establish that you are not a United States person, backup withholding should not generally apply to distributions on our common stock and information reporting and backup withholding should not generally apply to the proceeds from a sale or other disposition of our common stock. Generally, a Non-U.S. Holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or W-8BEN-E, as applicable, (or other applicable IRS Form W-8) or otherwise meets documentary evidence requirements for establishing that it is a Non-U.S. Holder, or otherwise establishes an exemption. The amount of any backup withholding will generally be allowed as a refund or credit against your U.S. federal income tax liability, provided that the required information is timely furnished to the IRS.

FATCA

Under sections of the Code commonly referred to as the “Foreign Account Tax Compliance Act,” or FATCA, withholding taxes may be imposed on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, payments of dividends on our common stock to Non-U.S. Holders will be subject to a 30% withholding tax if the Non-U.S. Holder fails to provide the withholding agent with documentation sufficient to show that it is compliant with FATCA. In general, withholding will apply unless (i) if the foreign entity is a “foreign financial institution,” such foreign entity undertakes certain due diligence, reporting, withholding and certification obligations, (ii) if the foreign entity is not a “foreign financial institution,” such foreign entity identifies certain of its U.S. investors, if any, or certifies it does not have any “substantial United States owners” (as defined in the Code) or (iii) the foreign entity is otherwise exempt under FATCA. Such withholding may also apply to payments of gross proceeds of sales or other dispositions of our common stock, or constructive distributions deemed paid, if any, with respect to our warrants, although under 2019 proposed U.S. Treasury Regulations (the preamble to which specifies that taxpayers are permitted to rely on such proposed U.S. Treasury Regulations pending finalization), no withholding will apply to such payments of gross proceeds. If the payee is a foreign financial institution and is subject to the diligence and reporting requirements in clause (i) above, it must enter into an agreement with the U.S. Department of the Treasury requiring, among other things, that it undertake to identify accounts held by certain “specified United States persons” or “United States-owned foreign entities” (each as defined in the Code), annually report certain information about such accounts, and withhold 30% on certain payments to non-compliant foreign financial institutions and certain other account holders. Under certain circumstances, a non-U.S. Holder may be eligible for refunds or credits of this withholding tax. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Generally such documentation demonstrating an exemption is provided on an executed and properly completed IRS Form W-8BEN or IRS Form W-8BEN-E, as applicable. If dividends are subject to the 30% withholding tax under FATCA, they will not be subject to the general 30% withholding tax described above. See “*Tax Consequences to Non-U.S. Holders—Taxation of Distributions on Common Stock*” beginning on page 25. Non-U.S. Holders should consult their tax advisors regarding the possible implications of FATCA on their investment in our common stock and the entities through which they hold our common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30% withholding tax under FATCA.

THE PRECEDING DISCUSSION OF MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES IS NOT TAX ADVICE. HOLDERS OF SUBSCRIPTION RIGHTS OR SHARES OF OUR COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE CONSEQUENCES UNDER FEDERAL ESTATE AND GIFT TAX LAWS, FOREIGN, STATE AND LOCAL LAWS AND TAX TREATIES OF THE RECEIPT, OWNERSHIP AND EXERCISE OF SUBSCRIPTION RIGHTS AND THE ACQUISITION, OWNERSHIP AND DISPOSITION OF SHARES OF OUR COMMON STOCK.

DESCRIPTION OF SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes the material terms and provisions of our common stock and preferred stock and does not purport to be complete. It is subject to and qualified in its entirety by reference to the provisions of our Certificate of Incorporation, Bylaws and the Investor Rights Agreement dated as of February 14, 2018, by and among the Company and certain stockholders (the “Investor Rights Agreement”), which are filed as exhibits to the registration statement that includes this prospectus and are incorporated by reference herein. We encourage you to read our Certificate of Incorporation, our Bylaws, the Investor Rights Agreement and the applicable provisions of the DGCL for additional information.

Authorized and Outstanding Capital Stock

Our Certificate of Incorporation provides that we have authority to issue (i) 300 million shares of our common stock, par value \$0.000001 per share, 72,061,034 of which are issued and outstanding as of October 29, 2020, after giving effect to the Restructuring Transactions and (ii) 10,000,000 shares of preferred stock, par value \$0.000001 per share, none of which are issued and outstanding as of the date of this prospectus. As of October 29, 2020, after giving effect to the Restructuring Transactions (other than the Rights Offering), we had outstanding warrants to purchase approximately 5,261,162 shares of our common stock, stock options to purchase 707,413 shares of our common stock and restricted stock unit awards covering 1,034,839 shares of our common stock under the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan, as amended, options to purchase 14,699 shares of our common stock under our prior equity compensation plan, and 894,575 shares authorized for issuance under the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan, as amended.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote per share on each matter submitted to a vote at a meeting of stockholders, including in all elections for directors. Stockholders are not entitled to cumulative voting in the election of directors. Subject to applicable law and the rights, if any, of the holders of outstanding shares of any series of preferred stock we may designate and issue in the future, holders of our common stock are entitled to vote on all matters on which stockholders are generally entitled to vote.

Our stockholders may vote either in person or by proxy. At all meetings of stockholders for the election of directors at which a quorum is present, a plurality of the votes cast shall be sufficient to elect. All other elections and questions presented to the stockholders at a meeting at which a quorum is present shall, unless otherwise provided by our Certificate of Incorporation, our Bylaws, the rules or regulations of any stock exchange applicable to us or applicable law or pursuant to any regulation applicable to us or our securities, be decided by the affirmative vote of the holders of a majority in voting power of the shares of our stock that are present in person or by proxy and entitled to vote thereon.

Dividends

Our Board of Directors may authorize, and we may make, distributions to our stockholders, subject to any restriction in our Certificate of Incorporation, and to those limitations prescribed by law and contractual restrictions. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock will be entitled to share equally, identically and ratably in any dividends that the Board of Directors may determine to issue from time to time.

Liquidation Rights

Upon liquidation, dissolution or winding up, all holders of our common stock are entitled to participate pro rata in our assets available for distribution, subject to applicable law and the rights, if any, of the holders of any class of preferred stock then outstanding.

Other Rights and Preferences

Under the terms of our Certificate of Incorporation and Bylaws, holders of our common stock have no preemptive rights, conversion rights or subscription rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that the Board of Directors may designate and issue in the future. Our Certificate of Incorporation and Bylaws do not restrict the ability of a holder of our common stock to transfer his, her or its shares of our common stock. All shares of our common stock currently outstanding are fully paid and non-assessable.

Transfer Agent

The transfer agent for our common stock is EQ Shareowner Services.

Principal Market for our Common Stock

Our common stock is listed on NYSE American under the symbol "XTNT."

Preferred Stock

Our preferred stock may be issued from time to time in one or more series. The Board of Directors is authorized, by resolution or resolutions, to fix the number of shares of any series of preferred stock and to determine the designation, powers, rights, preferences, qualifications, limitations, privileges and restrictions, if any, of any wholly unissued series of preferred stock, including without limitation, authority to fix by resolution or resolutions the dividend rights, dividend rate, conversion rights, voting rights, rights and terms of redemption (including sinking fund provisions), redemption price or prices and liquidation preferences of any such series, and the number of shares constituting any such series and the designation thereof, or any of the foregoing.

Anti-Takeover Provisions

Anti-takeover provisions in our Certificate of Incorporation, Bylaws and Investor Rights Agreement and our status as a controlled company may discourage or prevent a change in control, even if such a sale could be beneficial to our stockholders.

Certificate of Incorporation and Bylaws

Our Certificate of Incorporation and Bylaws contain the following anti-takeover provisions that may have an anti-takeover effect of delaying, deferring or preventing a change in control of the Company:

- We have shares of common stock and preferred stock available for issuance without stockholder approval. The existence of unissued and unreserved common stock and preferred stock may enable the Board of Directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management.
- Shares of our common stock do not have cumulative voting rights in the election of directors, so our stockholders holding a majority of the shares of our common stock outstanding will be able to elect all of our directors.
- Special meetings of the stockholders may be called only by the Board of Directors, the chairman of the Board of Directors or the chief executive officer.
- The Board of Directors may adopt, alter, amend or repeal our Bylaws without stockholder approval.
- Unless otherwise provided by law, any newly created directorship or any vacancy occurring on the Board of Directors for any cause may be filled by the affirmative vote of a majority of the remaining members of the Board of Directors, even if such majority is less than a quorum, and any director so elected shall hold office until the expiration of the term of office of the director whom he or she has replaced or until his or her successor is elected and qualified.
- The affirmative vote of the holders of at least two-thirds of the voting power of the then outstanding shares of our capital stock entitled to vote generally in the election of directors, voting together as a single class, is required to amend or repeal the provisions of our Certificate of Incorporation related to the amendment of our Bylaws, the Board of Directors and our stockholders as well as the general provisions of our Certificate of Incorporation.
- Stockholders must follow advance notice procedures to submit nominations of candidates for election to the Board of Directors at an annual or special meeting of our stockholders and must follow advance notice procedures to submit other proposals for business to be brought before an annual meeting of our stockholders.
- Unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Company to us or our stockholders, (iii) any action asserting a claim arising under any provision of the DGCL, our Certificate of Incorporation, or our Bylaws, or (iv) any action asserting a claim governed by the internal-affairs doctrine.

Investor Rights Agreement

We are party to an Investor Rights Agreement, which includes certain provisions that may have an anti-takeover effect of delaying, deferring or preventing a change in control of the Company. The Investor Rights Agreement includes director nomination rights, which provide that so long as the Ownership Threshold (as defined in the Investor Rights Agreement) is met, Royalty Opportunities and ROS are entitled to nominate such individuals to the Board of Directors constituting a majority of the directors. In addition, under the Investor Rights Agreement, so long as the Ownership Threshold is met, certain matters require the approval of Royalty Opportunities and ROS to proceed with such a transaction, including without limitation, the sale, transfer or other disposition of assets or businesses of the Company or its subsidiaries with a value in excess of \$250,000 in the aggregate during any fiscal year (other than sales of inventory or supplies in the ordinary course of business, sales of obsolete assets (excluding real estate), sale-leaseback transactions and accounts receivable factoring transactions).

Controlled Company Status

We are a “controlled company” as defined in section 801(a) of the NYSE American Company Guide because more than 50% of the combined voting power of all of our outstanding common stock is beneficially owned by OrbiMed Advisors LLC. Our status as a controlled company may have an anti-takeover effect of delaying, deferring or preventing a change in control of the Company.

Section 203 of the Delaware General Corporation Law

We have elected to be subject to Section 203 of the Delaware General Corporation Law (“Section 203”), and we are prohibited from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the Board of Directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting shares outstanding at the time the transaction began, excluding for purposes of determining the voting shares outstanding (but not the outstanding voting shares owned by the interested stockholder) those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or after such date, the business combination is approved by the Board of Directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting shares that are not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the Company and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the Company involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the Company of any shares of the Company to the interested stockholder;
- any transaction involving the Company that has the effect of increasing the proportionate share of the shares or any class or series of shares of the Company beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the Company.

In general, by reference to Section 203, an “interested stockholder” is an entity or person who, together with the person’s affiliates and associates, beneficially owns, or within three years prior to the time of determination of interested stockholder status owned, 15% or more of the outstanding voting shares of the Company.

PLAN OF DISTRIBUTION

On or about November 6, 2020, we will distribute the Subscription Rights, Subscription Rights Statements and copies of this prospectus to the holders of our common stock on the Record Date. If your shares are held in the name of a broker, dealer, bank, or other nominee, then you should send your subscription documents, Notice of Guaranteed Delivery (if applicable) and subscription payment to that broker, dealer, bank, or other nominee. If you are the record holder, then you should send your Subscription Rights Statement, Notice of Guaranteed Delivery (if applicable) and payment of your Subscription Price to the Subscription Agent hand delivery, first class mail or courier service to:

**EQ Shareowner Services
1100 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120
Attn: Corporate Actions Dept.**

See “*The Rights Offering—Methods for Exercising Subscription Rights*” beginning on page 16.

If you have any questions, you should contact the Information Agent, Equiniti (US) Services LLC, at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

The Subscription Rights are non-transferrable and will not be listed for trading on NYSE American or any other stock exchange or market. The shares of our common stock issuable upon exercise of the Subscription Rights are listed on the NYSE American under the symbol “XTNT.”

We have agreed to pay the Subscription Agent and Information Agent customary fees plus certain expenses in connection with the Rights Offering. We have not employed any brokers, dealers or underwriters in connection with the solicitation of exercise of Subscription Rights, and we do not know of any existing agreements between any stockholder, broker, dealer, underwriter or agent relating to the sale or distribution of our common stock underlying the Subscription Rights. Except as described in this section, we are not paying any other commissions, underwriting fees or discounts in connection with the Rights Offering. Some of our employees may solicit responses from you as a holder of Subscription Rights, but we will not pay our employees any commissions or compensation for these services other than their normal employment compensation. We estimate that our total expenses in connection with the Rights Offering will be approximately \$175,000.

LEGAL MATTERS

The validity of the Subscription Rights and our common stock issuable upon exercise of the Subscription Rights offered by this prospectus and certain U.S. federal income tax considerations pertaining to the Subscription Rights offered by this prospectus were passed upon for us by Fox Rothschild LLP, Minneapolis, Minnesota.

EXPERTS

The financial statements for the years ended December 31, 2019 and 2018 incorporated by reference into this prospectus and registration statement have been audited by Plante & Moran, PLLC, an independent registered public accounting firm, as set forth in their report thereon, dated March 5, 2020, appearing in our most recent Annual Report on Form 10-K, filed with the SEC on March 5, 2020, and incorporated by reference into this prospectus and registration statement, and such report is included in reliance upon the authority of such firm as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus.

We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below (File No. 001-34951) that we have filed with the SEC:

- our [Annual Report on Form 10-K for the year ended December 31, 2019, filed on March 5, 2020](#);
- our [Definitive Proxy Statement for our 2020 Annual Meeting of Stockholders, filed on September 10, 2020](#);
- our [Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, filed on May 7, 2020](#);
- our [Quarterly Report on Form 10-Q for the quarter ended June 30, 2020, filed on August 3, 2020](#);
- our [Quarterly Report on Form 10-Q for the quarter ended September 30, 2020, filed on October 29, 2020](#);
- our Current Reports on Form 8-K (other than portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits accompanying such reports that are related to such items) filed on [March 25, 2020](#), [April 13, 2020](#), [August 10, 2020](#), [October 1, 2020](#), [October 6, 2020](#), [October 22, 2020](#) and [October 28, 2020](#);
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, after the date of the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness of such registration statement; and
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and before we stop offering the securities under this prospectus.

We are not, however, incorporating by reference any documents, or portions of documents, which are not deemed “filed” with the SEC.

You can obtain a copy of any or all of the documents incorporated by reference in this prospectus (other than an exhibit to a document unless that exhibit is specifically incorporated by reference into that document) from the SEC on its website at www.sec.gov. You may also obtain these documents from us, free of charge, by visiting our internet website www.xtantmedical.com or by writing to us or calling us at the following address and phone number:

Xtant Medical Holdings, Inc.
600 Cruiser Lane
Belgrade, Montana 59714
Attn: Corporate Secretary
(406) 388-0480

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement under the Securities Act of 1933, as amended, that registers the distribution of the securities offered under this prospectus. The registration statement, including the attached exhibits and schedules and the information incorporated by reference, contains additional relevant information about us and the securities. The rules and regulations of the SEC allow us to omit from this prospectus certain information included in the registration statement. In addition, we file annual, quarterly and current reports, proxy statements and other information with the SEC.

You may also obtain the documents that we file electronically on the SEC’s website at www.sec.gov or on our website at www.xtantmedical.com. Information contained on our website is not incorporated by reference herein and does not constitute part of this prospectus.

XTANT MEDICAL HOLDINGS, INC.

PROSPECTUS

Subscription Rights to Purchase Up to 14,018,690 Shares of Common Stock

, 2020

PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the sale of our common stock being registered. All the amounts shown are estimates except the SEC registration fee.

	<u>Amount to be paid</u>
SEC registration fee	\$ 1,947
Subscription and Information Agent expenses	25,000
Printing expenses	5,000
Accounting fees and expenses	10,000
Legal fees and expenses	125,000
Miscellaneous	10,000
Total	<u>\$ 176,947</u>

Item 14. Indemnification of Directors and Officers.

Delaware General Corporation Law

Section 145(a) of the General Corporation Law of the State of Delaware provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that the person's conduct was unlawful.

Section 145(b) of the DGCL states that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which the person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, the person is fairly and reasonably entitled to indemnity for such expenses as the Delaware Court of Chancery or such other court shall deem proper.

Section 145(c) of the DGCL provides that to the extent that a present or former director or officer of a corporation has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith.

Section 145(d) of the DGCL states that any indemnification under subsections (a) and (b) of Section 145 (unless ordered by a court) shall be made by the corporation only as authorized in the specific case upon a determination that indemnification of the present or former director, officer, employee or agent is proper in the circumstances because the person has met the applicable standard of conduct set forth in subsections (a) and (b) of Section 145. Such determination shall be made with respect to a person who is a director or officer at the time of such determination (1) by a majority vote of the directors who are not parties to such action, suit or proceeding, even though less than a quorum, (2) by a committee of such directors designated by majority vote of such directors, even though less than a quorum, (3) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion or (4) by the stockholders.

Section 145(f) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, the other subsections of Section 145 shall not be deemed exclusive of any other rights to which those seeking indemnification or advancement of expenses may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding such office.

Section 145(g) of the DGCL provides that a corporation shall have the power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against any liability asserted against such person and incurred by such person in any such capacity or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under the provisions of Section 145.

Section 145(j) of the DGCL states that the indemnification and advancement of expenses provided by, or granted pursuant to, Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

Certificate of Incorporation

The Company has adopted provisions in its Certificate of Incorporation that limit director liability to the maximum extent permitted under the DGCL.

Bylaws

The Company's Bylaws provide for the indemnification of directors and officers to the fullest extent permitted by applicable law.

Indemnification Agreements

We have entered into agreements with our directors and executive officers that require us to indemnify them against certain liabilities that may arise by reason of their status or service as directors or executive officers to the fullest extent not prohibited by Delaware law.

Insurance Policies

We have purchased an insurance policy that purports to insure our directors and officers against certain liabilities incurred by them in the discharge of their functions as directors and officers.

The foregoing description of our Certificate of Incorporation, Bylaws, and Section 145 of the DGCL is only a summary and is qualified in its entirety by the full text of each of the foregoing.

We have been advised that it is the position of the Securities and Exchange Commission that insofar as the foregoing provisions may be invoked to disclaim liability for damages arising under the Securities Act, that such provisions are against public policy as expressed in the Securities Act and are therefore unenforceable.

Item 15. Recent Sales of Unregistered Securities

Other Sales of Unregistered Securities

During the past three years, we issued unregistered securities as outlined below. Unless otherwise specifically noted, no commissions were paid in connection with the issuances described below and each issuance was effected pursuant to Section 4(a)(2) of the Securities Act, as a transaction by an issuer not involving any public offering, and/or Regulation D promulgated thereunder.

- (1) Effective January 17, 2017, we issued in a private placement to the Lenders an aggregate principal amount of approximately \$1.6 million of 6.00% convertible senior unsecured promissory notes due in 2021. On January 17, 2018, the Lenders converted the aggregate principal amount of such notes, plus accrued and unpaid interest, into 189,645 shares.
- (2) On February 14, 2018, we entered into a Securities Purchase Agreement (the "Private Placement SPA") with the Lenders. Pursuant to the Private Placement SPA, on February 14, 2018, the Lenders purchased from the Company a total of 945,819 shares of our common stock at a price of \$7.20 per share, for aggregate proceeds of \$6,809,896. Under the Private Placement SPA, 603,687 of such shares of our common stock were issued to ROS and 342,132 of such shares of our common stock were issued to Royalty Opportunities.
- (3) On September 17, 2018, we entered into the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement by and between Bacterin International, Inc. and ROS (the "25th Amendment"). As a condition to the effectiveness of the 25th Amendment, on September 17, 2018, we issued warrants to purchase an aggregate of 1.2 million shares of our common stock to the Lenders with an exercise price of \$0.01 per share and an expiration date of August 1, 2028.
- (4) On March 29, 2019, we entered into the Second A&R Credit Agreement with the Lenders. As a condition to the effectiveness of the Second A&R Credit Agreement, on April 1, 2019, we issued warrants to purchase an aggregate of 1.2 million shares of our common stock to the Lenders with an exercise price of \$0.01 per share and an expiration date of April 1, 2029.
- (5) On May 6, 2020, we entered into the First Amendment to the Second Amended and Restated Credit Agreement with the Lenders (the "First Amendment"). As a condition to the effectiveness of the First Amendment, on May 6, 2020, we issued warrants to purchase an aggregate of 2.4 million shares of our common stock to the Lenders, with an exercise price of \$0.01 per share and an expiration date of May 6, 2030.
- (6) After completion of the Restructuring Transactions, following approval by the stockholders, on October 1, 2020, we exchanged shares of our common stock for approximately \$40.8 million of the aggregate outstanding principal amount of Loans (as defined in the Second A&R Credit Agreement) outstanding under the Second A&R Credit Agreement as well as approximately \$21.1 million of the outstanding amount of PIK Interest (as defined in the Second A&R Credit Agreement), plus all other accrued and unpaid interest on the Exchanging Loans outstanding as of the closing date, at an exchange price of \$1.07 per share, representing the average closing price of our common stock over the 10 business days immediately prior to the parties entering into the Restructuring Agreement, and resulting in the issuance of approximately 57.8 million shares of our common stock. In addition, on October 1, 2020, we also issued to one of the Lenders 0.9 million shares of common stock in exchange for a portion of the prepayment fee payable under the Second A&R Credit Agreement in respect of the Exchanging Loans.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits

Exhibit No.	Description
2.1**	<u>Stock Purchase Agreement dated July 27, 2015 among Bacterin International Holdings, Inc., X-spine Systems, Inc. and the sellers named therein (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 28, 2015 (SEC File No. 001-34951) and incorporated by reference herein)</u>
3.1**	<u>Amended and Restated Certificate of Incorporation of Xtant Medical Holdings, Inc. (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 13, 2018 (SEC File No. 001-34951) and incorporated by reference herein)</u>
3.2**	<u>Certificate of Amendment of the Amended and Restated Certificate of Incorporation of Xtant Medical Holdings, Inc. (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 31, 2019 (SEC File No. 001-34951) and incorporated by reference herein)</u>

Exhibit No.	Description
3.3**	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of Xtant Medical Holdings, Inc. (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 1, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
3.4**	Second Amended and Restated Bylaws of Xtant Medical Holdings, Inc. (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.1**	Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934 (filed as Exhibit 4.1 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2019 (File No. 001-34951) and incorporated herein)
4.2**	Form of Common Stock Certificate (filed as Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 filed with the SEC on December 21, 2015 (SEC File No. 333-208677) and incorporated by reference herein)
4.3**	Form of Warrant to Purchase Common Stock (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on June 5, 2013 (SEC File No. 001-34951) and incorporated by reference herein)
4.4**	Form of Warrant Certificate for Warrants underlying Units (filed as Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2016 (SEC File No. 001-34951) and incorporated by reference herein)
4.5**	Form of Warrant Agreement (filed as Exhibit 4.2 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2016 (SEC File No. 001-34951) and incorporated by referenced herein)
4.6**	Warrant dated as of September 17, 2018 issued by Xtant Medical Holdings, Inc. to ROS Acquisition Offshore LP (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.7**	Warrant dated as of September 17, 2018 issued by Xtant Medical Holdings, Inc. to OrbiMed Royalty Opportunities II, LP (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed with the SEC on September 17, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.8**	Warrant dated as of April 1, 2019 issued by Xtant Medical Holdings, Inc. to ROS Acquisition Offshore LP (filed as Exhibit 4.11 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.9**	Warrant dated as of April 1, 2019 issued by Xtant Medical Holdings, Inc. to OrbiMed Royalty Opportunities II, LP (filed as Exhibit 4.12 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.10**	Warrant dated as of May 6, 2020 issued by Xtant Medical Holdings, Inc. to ROS Acquisition Offshore LP (filed as Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2020 (SEC File No. 001-34951) and incorporated by reference herein)

Exhibit No.	Description
4.11**	Warrant dated as of May 6, 2020 issued by Xtant Medical Holdings, Inc. to OrbiMed Royalty Opportunities II, LP (filed as Exhibit 4.2 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
4.12**	Registration Rights Agreement (for Common Stock underlying the Indenture Notes) dated January 17, 2017 among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.9 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 001-34951) and incorporated by reference herein)
4.13**	Registration Rights Agreement (for Common Stock underlying the PIK Notes) dated January 17, 2017 among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.13 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 001-34951) and incorporated by reference herein)
4.14**	Registration Rights Agreement (for Common Stock issued upon the exchange of the Notes and pursuant to the Private Placement) dated as of February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Telemetry Securities, L.L.C., Bruce Fund, Inc., Park West Investors Master Fund, Limited, and Park West Partners International, Limited (filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.15**	Registration Rights Agreement dated October 1, 2020 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, and ROS Acquisition Offshore LP (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on October 1, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
4.16**	Investor Rights Agreement dated February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Park West Partners International, Limited and Park West Investors Master Fund, Limited (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.17*	Form of Subscription Rights Statement
5.1*	Opinion of Fox Rothschild LLP
8.1*	Opinion of Fox Rothschild LLP as to Certain Tax Matters
10.1**	Xtant Medical Holdings, Inc. Amended and Restated 2018 Equity Incentive Plan (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 28, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
10.2**	Form of Employee Stock Option Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.3**	Form of Employee Restricted Stock Unit Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.4**	Form of Non-Employee Director Restricted Stock Unit Award Agreement for use with the Xtant Medical Holdings, Inc. 2018 Equity Incentive Plan (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarter ended September 30, 2019 (SEC File No. 001-34951) and incorporated by reference herein)

Exhibit No.	Description
10.5**	Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.8 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2015 (SEC File No. 001-34951) and incorporated by reference herein)
10.6**	Form of Stock Option Agreement under Amended and Restated Xtant Medical Equity Incentive Plan (filed as Exhibit 10.23 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (SEC File No. 001-34951) and incorporated by reference herein)
10.7**	Form of Indemnification Agreement for Directors and Officers (filed as Exhibit 10.6 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2017 (SEC File No. 001-34951) and incorporated by reference herein)
10.8**	Employment Agreement dated as of October 7, 2019 between Xtant Medical Holdings, Inc. and Sean E. Browne (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 7, 2019 (SEC File No. 001-34951) and incorporated by reference herein)
10.9**	Employment Agreement effective as of July 9, 2018 between Xtant Medical Holdings, Inc. and Kevin D. Brandt (filed as Exhibit 10.18 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.10**	Amended and Restated Employment Agreement effective as of August 8, 2019 between Xtant Medical Holdings, Inc. and Greg Jensen (filed as Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2019 (SEC File No. 001-34951) and incorporated by reference herein)
10.11**	Restructuring and Exchange Agreement dated as of January 11, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Bruce Fund, Inc., Park West Partners International, Limited, Park West Investors Master Fund, Limited, and Telemetry Securities, L.L.C. (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on January 12, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.12**	Securities Purchase Agreement dated as of February 14, 2018 among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.13**	Second Amended and Restated Credit Agreement dated March 29, 2019 among Xtant Medical Holdings, Inc., Bacterin International, Inc., Xtant Medical, Inc., X-spine Systems, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.47 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
10.14**	First Amendment to Second Amended and Restated Credit Agreement effective as of April 1, 2020 among Xtant Medical Holdings, Inc., Bacterin International, Inc., Xtant Medical, Inc., X-spine Systems, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2020 (SEC File No. 001-34951) and incorporated by reference herein)

Exhibit No.	Description
10.15**	Second Amendment to Second Amended and Restated Credit Agreement effective as of October 1, 2020 among Xtant Medical Holdings, Inc., Bacterin International, Inc., Xtant Medical, Inc., X-spine Systems, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 1, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
10.16**	Distribution Agreement dated January 23, 2014 between X-spine Systems, Inc. and Zimmer Spine, Inc., as amended (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 3, 2015 (SEC File No. 001-34951) and incorporated by reference herein)
10.17**	Restructuring and Exchange Agreement, dated August 7, 2020, by and among ROS Acquisition Offshore LP, OrbiMed Royalty Opportunities II, LP, Bruce Fund, Inc. (filed as Exhibit 10.1 to Form 8-K filed on July 10, 2020 (SEC File No. 001-34951) and incorporated by reference herein)
16.1**	Letter from EKS&H LLLP to the SEC dated October 8, 2018 (filed as Exhibit 16.1 to the Registrant's Current Report on Form 8-K filed with the SEC on October 9, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
21.1**	Subsidiaries of the Registrant (filed as Exhibit 21.1 to the Registrant's Post-Effective Amendment No. 1 to Form S-1 Registration Statement filed with the SEC on August 25, 2015 (SEC File No. 333-203492) and incorporated by reference herein)
23.1*	Consent of Independent Registered Public Accounting Firm, Plante & Moran, PLLC
23.2*	Consent of Fox Rothschild LLP (included in Exhibits 5.1 and 8.1)
24.1**	Power of Attorney (included on signature page)
99.1*	Form of Instructions as to Use of Subscription Rights Statements
99.2*	Form of Letter to Stockholders who are Record Holders
99.3*	Form of Letter to Brokers, Dealers, Banks and Other Nominees
99.4*	Form of Broker Letter to Clients who are Beneficial Holders
99.5*	Form of Beneficial Owner Election Form
99.6*	Form of Nominee Holder Certification
99.7*	Form of Notice of Important Tax Information
99.8*	Form of Notice of Guaranteed Delivery

* Filed herewith
** Previously filed

(b) Financial Statement Schedules

Schedules have been omitted because the information required to be set forth therein is not applicable or is shown in the financial statements or notes thereto.

Item 17. Undertakings

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 Securities and Exchange Commission 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.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) (§230.424(b) of this chapter) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment 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.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of this offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser: if the registrant is subject to Rule 430C (§230.430C of this chapter), each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A (§230.430A of this chapter), shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424 (§230.424 of this chapter);

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement 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.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the 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 Act and will be governed by the final adjudication of such issue.

(d) The undersigned registrant hereby undertakes that:

(1) 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 shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) 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.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this amendment to the registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Belgrade, State of Montana, on October 30, 2020.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ Sean E. Browne

Name: Sean E. Browne

Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this amendment to this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Sean E. Browne</u> Sean E. Browne	President and Chief Executive Officer and Director (Principal Executive Officer)	October 30, 2020
<u>/s/ Greg Jensen</u> Greg Jensen	Vice President, Finance and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	October 30, 2020
<u>*</u> John K. Bakewell	Director	October 30, 2020
<u>*</u> Michael Eggenberg	Director	October 30, 2020
<u>*</u> Robert McNamara	Director	October 30, 2020
<u>*</u> Jeffrey Peters	Director	October 30, 2020
<u>*</u> Matthew Rizzo	Director	October 30, 2020
<u>*By: /s/ Sean E. Browne</u> Sean E. Browne	Attorney-in-Fact	October 30, 2020

Subscription Rights Statement

IMPORTANT: Retain a copy of this statement for your investment, tax and cost-basis records.

Account Summary

Subscription Rights

[Date]

Account # 999999999

1110 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120-4100

DATE	Transaction Type	Number of Rights
[]/[]/20	Issuance	[]

THE TERMS AND CONDITIONS OF THE RIGHTS OFFERING ARE SET FORTH IN THE COMPANY'S PROSPECTUS DATED _____, 2020 (THE "PROSPECTUS") AND ARE INCORPORATED HEREIN BY REFERENCE. COPIES OF THE PROSPECTUS ARE AVAILABLE THROUGH THE SEC'S INTERNET SITE AT [HTTP://WWW.SEC.GOV](http://www.sec.gov) AND AS SET FORTH IN THE "INSTRUCTIONS AS TO USE OF XTANT MEDICAL HOLDINGS, INC. SUBSCRIPTION RIGHTS STATEMENT" ACCOMPANYING THIS RIGHTS STATEMENT.

THE SUBSCRIPTION RIGHTS WILL EXPIRE IF NOT EXERCISED ON OR BEFORE 5:00 P.M., EASTERN TIME, ON DECEMBER 4, 2020, SUBJECT TO EXTENSION OR EARLIER TERMINATION

THIS CERTIFIES THAT the registered owner whose name is inscribed hereon is the owner of the number of subscription rights ("Subscription Rights") set forth above. Each Subscription Right entitles the holder thereof to subscribe for and purchase (the "Basic Subscription Right") 0.194539 shares of common stock, par value \$0.000001 ("Common Stock"), of Xtant Medical Holdings, Inc., a Delaware corporation, at a subscription price of \$1.07 per share (the "Subscription Price"), pursuant to a rights offering (the "Rights Offering"), on the terms and subject to the conditions set forth in the Prospectus and the "Instructions as to Use of Subscription Rights Statements" accompanying this Rights Statement. Holders who fully exercise their Basic Subscription Rights are entitled to subscribe for additional shares of Common Stock that remain unsubscribed for as a result of any unexercised Basic Subscription Rights pursuant to the terms and conditions of the Rights Offering, subject to proration, as described in the Prospectus (the "Over-subscription Privilege"). The Subscription Rights represented by this Rights Statement may be exercised by completing the appropriate forms on the reverse side hereof and by returning the full payment of the subscription price for each share of Common Stock. If the subscriber attempts to exercise its Over-subscription Privilege and the Company is unable to issue the subscriber the full amount of shares of Common Stock requested, the Subscription Agent will return to the subscriber any excess funds submitted as soon as practicable, without interest or deduction. The Subscription Rights may be exercised by duly completing Section 1 on the reverse side hereof and by returning the full payment of the exercise price. THE RIGHTS EVIDENCED BY THIS RIGHTS STATEMENT MAY NOT BE EXERCISED UNLESS THE REVERSE SIDE HEREOF IS PROPERLY COMPLETED AND DULY SIGNED, WITH A SIGNATURE MEDALLION GUARANTEE, IF APPLICABLE.

By completing and delivering this rights statement, the registered owner represents and warrants that they have the right, power and authority, and have taken all action necessary, to exercise these rights pursuant to the rights offering and to execute, deliver and exercise the rights, and that they are not a person otherwise prevented by legal or regulatory restrictions from exercising or acting on behalf of any such person on a non-discretionary basis.

- Please change my address as indicated.
All registered holders MUST sign in Section 2 on reverse of statement.
-

SECTION 1. EXERCISE OF RIGHTS TO PURCHASE

The registered holder of this Subscription Rights Certificate is entitled to exercise the number of Subscription Rights shown in the upper right hand corner of the Rights Statement and may subscribe for additional shares of Common Stock upon the terms and conditions specified in the Prospectus. The undersigned hereby notifies the Subscription Agent of its irrevocable election to subscribe for shares of Common Stock in the following amounts. To subscribe for shares of Common Stock pursuant to your Basic Subscription Right, please complete lines (a) and (c) below. To subscribe for additional shares of Common Stock pursuant to your Over-subscription Privilege, please also complete line (b).

(a) EXERCISE OF BASIC SUBSCRIPTION RIGHT:

Basic Subscription Right: _____ X _____ \$1.07 = \$ _____
 Shares of Common Stock Subscription price Payment enclosed

(b) EXERCISE OF OVER-SUBSCRIPTION PRIVILEGE: If you have exercised your Basic Subscription Right in full, you may subscribe for additional shares of Common Stock pursuant to your Over-subscription Privilege

Over-Subscription Privilege: _____ X _____ \$1.07 = \$ _____
 Shares of Common Stock Subscription price Payment enclosed

Method of Payment:

A cashier's check, drawn against a U.S. bank payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc."

Wire transfer of immediately available funds directly to the account maintained by EQ Shareowner Services, as Subscription Agent, for purposes of accepting subscriptions in this Rights Offering at Wells Fargo Bank, N.A., ABA # 121000248, Credit: Stock Transfer Clearing Account, Account # 000-10-67-899, for further credit to Xtant Medical Holdings, Inc., and name of Subscription Rights holder.

FULL PAYMENT MUST ACCOMPANY THIS FORM AND MUST BE MADE IN UNITED STATES DOLLARS BY A CASHIER'S CHECK DRAWN AGAINST A U.S. BANK PAYABLE TO THE RIGHTS AGENT OR A WIRE TRANSFER MUST BE RECEIVED IN ACCORDANCE WITH THE ENCLOSED INSTRUCTIONS. PERSONAL CHECKS WILL NOT BE ACCEPTED.

SECTION 2. SIGNATURE(S)

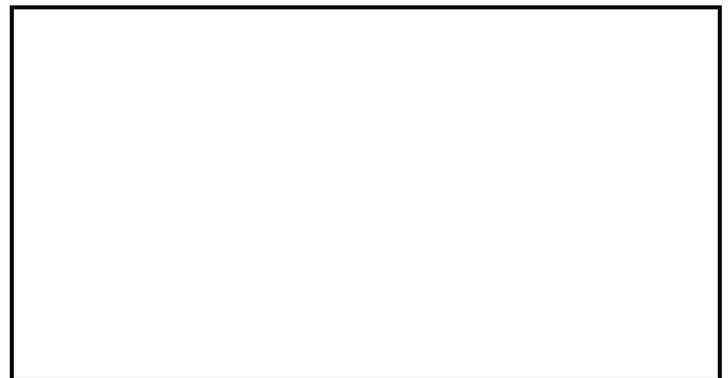
IMPORTANT: THE SIGNATURE(S) MUST CORRESPOND IN EVERY PARTICULAR, WITHOUT ALTERATION, WITH THE NAME(S) AS PRINTED ON THE FRONT OF THIS RIGHTS STATEMENT. IF YOU ARE SIGNING ON BEHALF OF A REGISTERED SHAREHOLDER OR ENTITY, YOU MUST SIGN IN YOUR LEGAL CAPACITY WITH YOUR SIGNATURE MEDALLION GUARANTEED. YOUR GUARANTOR (BANK/BROKER) WILL REQUIRE PROOF OF YOUR AUTHORITY TO ACT. CONSULT YOUR GUARANTOR FOR THEIR SPECIFIC REQUIREMENTS. YOU OR YOUR GUARANTOR MAY ACCESS THE SECURITIES TRANSFER ASSOCIATION (STA) RECOMMENDED REQUIREMENTS ON-LINE AT www.stai.org.

APPLY MEDALLION GUARANTEE STAMP HERE

 Signature(s) of Subscriber(s)

Name(s): _____

Capacity (Full Title): _____



OVERNIGHT DELIVERY TO THE STREET ADDRESS BELOW BEST ENSURES RECEIPT BY THE EXPIRATION DATE.

EQ Shareowner Services
 1110 Centre Pointe Curve, Suite 101
 Mendota Heights, MN 55120
 Attn: Corporate Actions Dept.



Campbell Mithun Tower
222 South Ninth Street
Suite 2000
Minneapolis, MN 55402-3338
Tel (612) 607-7000 Fax (612) 607-7100
www.foxrothschild.com

October 30, 2020

Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714

Ladies and Gentlemen:

We have acted as counsel to Xtant Medical Holdings, Inc. (the “Company”) in connection with the proposed registration by the Company of 14,018,690 shares (the “Shares”) of its common stock, par value \$0.000001 per share (the “Common Stock”), pursuant to a Registration Statement on Form S-1, originally filed with the Securities and Exchange Commission (the “Commission”) on September 11, 2020, under the Securities Act of 1933, as amended (the “Act”), as amended on the date hereof (such Registration Statement, as amended or supplemented, is hereinafter referred to as the “Registration Statement”), issuable upon exercise of non-transferable rights (the “Rights”) to be distributed to holders of record of the Company’s Common Stock as described in the prospectus (the “Prospectus”) forming part of the Registration Statement.

In connection with this opinion, we have examined the Registration Statement, the Company’s Amended and Restated Certificate of Incorporation, as amended, and Second Amended and Restated Bylaws, as currently in effect, resolutions adopted by the Board of Directors of the Company pertaining to the approval of the issuance of the Rights and the sale of the Shares, and such other documents, records, certificates, memoranda and instruments as we have deemed necessary as a basis for this opinion. In rendering this opinion, we have assumed the genuineness and authenticity of all signatures on original documents, including signatures made and/or transmitted using electronic signature technology (e.g., via DocuSign or similar electronic signature technology), that any such signed electronic record shall be valid and as effective to bind the party so signing as a paper copy bearing such party’s handwritten signature; the legal capacity of all natural persons; the authenticity of all documents submitted to us as originals; the conformity to originals of all documents submitted to us as certified or photocopies; the authenticity of the originals of such latter documents; the accuracy and completeness of all documents and records reviewed by us; the accuracy, completeness and authenticity of certificates issued by any governmental official, office or agency and the absence of change in the information contained therein from the effective date of any such certificate; and the due authorization, execution and delivery of all documents where authorization, execution and delivery are prerequisites to the effectiveness of such documents.

October 30, 2020

Page 2

On the basis of the foregoing, and in reliance thereon, we are of the opinion that:

1. The Rights have been duly authorized, and when issued, will be the valid and binding obligations of the Company, enforceable against the Company in accordance with their terms, except to the extent that enforcement thereof may be limited by (a) bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws now or hereafter in effect relating to creditors' rights generally and (b) general principles of equity (regardless of whether enforceability is considered in a proceeding at law or in equity).
2. The Shares have been duly authorized, and when issued and delivered against payment therefore upon due exercise of the Rights as contemplated by the Prospectus, will be validly issued, fully paid and non-assessable.

Our opinion herein is expressed solely with respect to the General Corporation Law of the State of Delaware (including the statutory provisions, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the foregoing) and the laws of the State of New York and is based on these laws as in effect on the date hereof. We express no opinion herein as to any other statutes, rules or regulations. We express no opinion herein as to whether the laws of any jurisdiction are applicable to the subject matter hereof. We are not rendering any opinion as to compliance with any federal or other state law, rule or regulation relating to securities, or to the sale or issuance thereof. We express no opinion as to the validity, binding effect and enforceability of provisions in the Rights relating to the choice of forum for resolving disputes.

This opinion letter has been prepared for your use in connection with the issuance of the Rights and the Shares. This opinion is expressed as of the date hereof, and we disclaim any undertaking to advise you of any subsequent changes in the facts stated or assumed herein or of any subsequent changes in applicable law.



October 30, 2020

Page 3

We consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the reference to this firm under the caption “Legal Matters” in the prospectus contained therein. In giving this consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Fox Rothschild LLP



Campbell Mithun Tower
222 South Ninth Street
Suite 2000
Minneapolis, MN 55402-3338
Tel (612) 607-7000 Fax (612) 607-7100
www.foxrothschild.com

October 30, 2020

Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714

Ladies and Gentlemen:

We have acted as counsel to Xtant Medical Holdings, Inc. (the "Company"), a Delaware corporation, in connection with the distribution by the Company to holders of its outstanding common stock, par value \$0.000001 per share (the "Common Stock"), at no charge, of nontransferable subscription rights ("Rights") to purchase an aggregate of up to 14,018,690 shares of Common Stock (the "Transaction"). The Common Stock is traded on the NYSE American exchange under the symbol "XTNT." The Company does not have any authorized or outstanding shares of capital stock, other than shares of Common Stock.

In the Transaction, each holder of shares of Common Stock will receive, at no charge, a fixed number of Rights for each share of Common Stock owned by the holder at 5:00 p.m., New York City time, as of the November 5, 2020 record date. The subscription price will be payable in cash and must be received by the subscription agent before the expiration of the Rights offering. Each whole subscription right will include a basic subscription right to purchase one share of Common Stock, which must be purchased with each Right exercised. If a holder of shares of Common Stock exercises the basic subscription right for all shares of Common Stock such holder owns, the holder may exercise an oversubscription privilege to purchase at the same subscription price a portion of any Rights offering shares of Common Stock not purchased by other stockholders exercising their basic subscription rights in full, subject to certain limits. No fractional Shares will be issued in the Rights offering.

As to all matters of fact (including factual conclusions and characterizations and descriptions of purpose, intention or other state of mind), we have relied, with your permission, entirely upon (a) the representations and warranties of the parties set forth in the Transaction Documents (as defined below) and (b) certificates of certain of the officers of the parties, and have assumed, without independent inquiry, the accuracy of those representations, warranties, and certificates.

October 30, 2020

Page 2

In connection with this opinion letter, we have examined originals or copies or final drafts of the following documents (the “Transaction Documents”):

- i. Registration Statement on Form S-1, originally filed with the Securities and Exchange Commission on September 11, 2020, under the Securities Act of 1933, as amended, as amended on the date hereof (such Registration Statement, as amended or supplemented, is hereinafter referred to as the “Registration Statement”);
- ii. Restructuring and Exchange Agreement, by and among the Company, OrbiMed Royalty Opportunities II, LP, and ROS Acquisition Offshore LP, dated as of August 7, 2020 (the “Restructuring Agreement”);
- iii. Subscription Agent Agreement, by and between the Company and Equiniti Trust Company, dated as of October 23, 2020 (the “Subscription Agent Agreement”); and
- iv. Information Agent Agreement, by and between the Company and Equiniti (US) Services LLC, dated as of October 5, 2020 (the “Information Agent Agreement”).

We have also examined such other records and agreements, instruments, certificates and other documents as we have deemed necessary or appropriate for the purposes of this opinion letter.

In addition, we have made such investigations of such matters of law as we deemed appropriate as a basis for the opinions expressed below. We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such other documents, certificates, papers, statutes, authorities and records as we have deemed relevant or necessary as a basis for the opinions set forth herein. In all such examinations made by us in connection with this opinion letter, we have assumed the genuineness of all signatures, including electronic signatures, that any signature purported to be made by an attorney in fact pursuant to a power of attorney has been effectively made pursuant to a valid power of attorney executed by the principal, the completeness and authenticity of all records and all documents submitted to us as originals, and the conformity with the originals of all documents submitted to us as copies thereof. With your permission, we have assumed that each party to the Restructuring Agreement, Subscription Agent Agreement and Information Agent Agreement has the power and authority, corporate or other, to enter into and perform all obligations thereunder, has authorized the execution, delivery and performance of such agreement, has duly executed and delivered such agreement, and will fully comply with the terms of such agreement.

Except as expressly set forth in this opinion letter, we have not undertaken any independent investigation to determine the existence or absence of the facts that are material to our opinions, and no inference as to our knowledge concerning such facts should be drawn from our reliance on the representations and statements of the Company and others in connection with the preparation and delivery of this letter.

October 30, 2020

Page 3

Based on the foregoing and in consideration of such other matters as we have deemed appropriate, we are of the opinion that as of the date hereof, the statements in the Registration Statement under the heading “Material U.S. Federal Income Tax Consequences,” insofar as they describe certain U.S. federal income tax consequences of the Transaction, are correct. Please note that as stated therein, there is lack of authority directly addressing application of Section 305(a) of the Internal Revenue Code of 1986, as amended, to rights offerings.

In rendering the foregoing opinions, we do not express any opinion as to any laws other than the federal income tax laws of the United States of America.

The opinion in this opinion letter is based on the existing provisions of the Internal Revenue Code of 1986, as amended, and Treasury regulations issued or proposed thereunder, published Revenue Rulings and releases of the Internal Revenue Service, and existing case law, any of which could be changed at any time. Any such changes may be retroactive in application and could modify the legal conclusions on which our opinions are based. This opinion letter is rendered as of today and we undertake no obligation to update this opinion letter or advise you of any changes if there is any change in legal authorities, facts, assumptions, or documents on which this opinion letter is based (including the taking of any action by any party to the documents pursuant to any opinion of counsel or a waiver), or any inaccuracy in any of the assumptions on which we have relied in rendering this opinion letter unless we are specifically engaged to do so in writing. This opinion letter was not written and is not intended to be used and cannot be used by any taxpayer for purposes of avoiding United States federal income tax penalties that may be imposed.

We consent to the filing of this opinion letter as an exhibit to the Registration Statement and to the reference to this firm under the captions “Legal Matters” and “Material U.S. Federal Income Tax Consequences” in the prospectus contained therein. In giving this consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act of 1933, as amended, or the rules and regulations of the Securities and Exchange Commission thereunder.

Very truly yours,

/s/ Fox Rothschild LLP

CONSENT OF INDEPENDENT REGISTERED ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Amendment No. 1 to Form S-1 of our report dated March 5, 2020, with respect to the consolidated financial statements of Xtant Medical Holdings, Inc. included in its Annual Report on Form 10-K as of and for the years ended December 31, 2019 and 2018. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ PLANTE & MORAN, PLLC

Denver, Colorado
October 30, 2020

**FORM OF
INSTRUCTIONS AS TO USE OF SUBSCRIPTION RIGHTS STATEMENTS
XTANT MEDICAL HOLDINGS, INC.**

Please consult Equiniti (US) Services LLC
or your bank or broker as to any questions.

The following instructions relate to a rights offering (the "Rights Offering") by Xtant Medical Holdings, Inc., a Delaware corporation ("Xtant"), to the holders of record of its common stock, \$0.000001 par value (the "Common Stock"), as described in Xtant's prospectus dated _____, 2020 (the "Prospectus"). Each holder of record of Common Stock at the close of business on November 5, 2020 (the "Record Date") will receive, at no charge, 0.194539 non-transferable subscription rights (the "Subscription Rights") for each share of Common Stock held at the Record Date.

Subscription Rights exercisable up to an aggregate of 14,018,690 shares of Xtant Common Stock are being distributed in connection with the Rights Offering. Each whole Subscription Right is exercisable, upon payment of \$1.07 in cash (the "Subscription Price"), to purchase one (1) share of Common Stock (the "Basic Subscription Right"). In addition, each Subscription Right also carries the right to subscribe at the Subscription Price for additional shares of Common Stock that are not purchased by other holders pursuant to their Basic Subscription Right (to the extent available, and subject to proration) (the "Over-Subscription Privilege"). A holder is entitled to exercise an Over-Subscription Privilege only if the holder fully exercises the Basic Subscription Right. See "The Rights Offering" in the Prospectus.

Subscription Rights may only be exercised in whole numbers, and Xtant will not issue fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which you may subscribe. No cash will be paid in lieu of any fractional Subscription Rights.

The Subscription Rights will expire at 5:00 PM Eastern Time on December 4, 2020 (as it may be extended, the "Expiration Date"), unless extended. If you do not exercise your Subscription Rights before that time, your Subscription Rights will expire and will no longer be exercisable. Xtant will not be required to issue shares to you if EQ Shareholder Services (the "Subscription Agent") receives your Subscription Rights Statement or your subscription payment after that time. Xtant has the option to extend the Rights Offering in its sole discretion, although it does not presently intend to do so. Xtant may extend the Rights Offering by giving oral or written notice to the Subscription Agent before the Expiration Date. If Xtant elects to extend the Rights Offering, Xtant will issue a press release announcing the extension no later than 9:00 AM Eastern Time on the next business day after the most recently announced Expiration Date of the Rights Offering.

The number of Subscription Rights to which you are entitled is printed on the face of your Subscription Rights Statement. You should indicate your wishes with regard to the exercise of your Subscription Rights by completing the appropriate section on the back of your Subscription Rights Statement and returning the Subscription Rights Statement with your payment to the Subscription Agent in the envelope provided.

YOUR PROPERLY COMPLETED AND EXECUTED SUBSCRIPTION RIGHTS STATEMENT MUST BE RECEIVED BY THE SUBSCRIPTION AGENT ON OR BEFORE THE EXPIRATION DATE AND TIME. PAYMENT OF THE SUBSCRIPTION PRICE OF ALL SUBSCRIPTION RIGHTS EXERCISED, INCLUDING SUBSCRIPTION RIGHTS PURSUANT TO THE OVER-SUBSCRIPTION PRIVILEGE, MUST BE RECEIVED BY THE SUBSCRIPTION AGENT ON OR BEFORE THE EXPIRATION DATE AND TIME. ONCE YOU EXERCISE YOUR SUBSCRIPTION RIGHTS, YOU CANNOT REVOKE THE EXERCISE OF SUCH SUBSCRIPTION RIGHTS. SUBSCRIPTION RIGHTS NOT VALIDLY EXERCISED PRIOR TO THE EXPIRATION DATE OF THE RIGHTS OFFERING WILL EXPIRE. IN CASE YOU HOLD SUBSCRIPTION RIGHTS THROUGH A BROKER OR OTHER NOMINEE, YOU SHOULD VERIFY WITH YOUR BROKER OR NOMINEE BY WHEN YOU MUST DELIVER YOUR INSTRUCTION.

1. Subscription Rights. To exercise Subscription Rights, complete your Subscription Rights Statement and send your properly completed and executed Subscription Rights Statement, together with payment in full of the Subscription Price for each Share subscribed for pursuant to the Basic Subscription Right and the Over-Subscription Privilege, to the Subscription Agent. **PLEASE DO NOT SEND SUBSCRIPTION RIGHTS STATEMENTS OR PAYMENTS TO XTANT.** The method of delivery of the Subscription Rights Statement and the payment of the Subscription Price to the Subscription Agent is at your election and risk. Properly completed and executed Subscription Rights Statements and payments must be received by the Subscription Agent prior to the Expiration Date and Time. If you send your Subscription Rights Statement and payment by mail, then they should be sent by registered mail, to arrive before the Expiration Date. If more Shares are subscribed for pursuant to the Over-Subscription Privilege than are available for sale, additional Shares will be allocated pro rata among holders, as described in the Prospectus. The Subscription Rights are non-transferable and may not be sold, transferred, assigned or given away to anyone.

2. Acceptance of Payments. Payments will be deemed to have been received by the Subscription Agent only upon the (i) receipt of a cashier's check drawn against a U.S. bank payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc." or (ii) receipt of a wire transfer of immediately available funds directly to the account maintained by EQ Shareowner Services, as Subscription Agent for purposes of accepting subscriptions in this Rights Offering at Wells Fargo Bank, N.A., ABA # 121000248, Credit: Stock Transfer Clearing Account, Account # 000-10-67-899, for further credit to Xtant Medical Holdings, Inc., and name of Subscription Rights holder.

3. Contacting the Subscription Agent or Equiniti (US) Services LLC. The address of the Subscription Agent is shown below. Delivery to an address other than shown below does not constitute valid delivery.

By Mail, Hand or Overnight Courier
EQ Shareowner Services
1100 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120
Attn: Corporate Actions Dept.

If you have other questions or need assistance, please contact Equiniti (US) Services LLC at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

4. Partial Exercises; Effect of Over-Payments and Under-Payments. If you exercise less than all of the Subscription Rights evidenced by your Subscription Rights Statement and make the choice to submit an additional exercise request, you must contact the Subscription Agent for a new Subscription Rights Statement. If you choose to have a new Subscription Rights Statement sent to you, you may not receive any such new Subscription Rights Statement in sufficient time to permit exercise of the Subscription Rights evidenced thereby. If you do not indicate the number of Shares to be subscribed for on your Subscription Rights Statement, or if you indicate a number of Shares that does not correspond with the aggregate Subscription Price payment you delivered, you will be deemed to have subscribed for the maximum number of Shares that may be subscribed for, under both the Basic Subscription Right and the Over-Subscription Privilege, for the aggregate Subscription Price you delivered. If the Subscription Agent does not apply your full Subscription Price payment to your purchase of Shares, then the Subscription Agent will return the excess amount to you, without interest or deduction, as soon as practicable after the Expiration Date. If you subscribe for fewer than all of the Shares represented by your Subscription Rights Statement, then the unexercised Subscription Rights will become null and void on the Expiration Date.

5. Deliveries to Holders. The following deliveries and payments to you will be made to the address shown on the face of your Subscription Rights Statement:

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

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

(c) Excess Payments. If you exercised your Over-Subscription Privilege and are allocated less than all of the Shares for which you wished to over-subscribe, then your excess Subscription Price payment for Shares that were not allocated to you will be returned by the Subscription Agent to you, without interest or deduction, as soon as practicable after the Expiration Date.

6. Execution.

(a) Execution by Registered Holder. The signature on the Subscription Rights Statement must correspond with the name of the registered holder exactly as it appears on the face of the Subscription Rights Statement without any alteration or change whatsoever. Persons who sign the Subscription Rights Statement in a representative or other fiduciary capacity must indicate their capacity when signing.

(b) Execution by Person Other than Registered Holder. If the Subscription Rights Statement is executed by a person other than the holder named on the face of the Subscription Rights Statement, YOU MUST SIGN IN YOUR LEGAL CAPACITY WITH YOUR SIGNATURE MEDALLION GUARANTEED. YOUR GUARANTOR (BANK/BROKER) WILL REQUIRE PROOF OF YOUR AUTHORITY TO ACT. CONSULT YOUR GUARANTOR FOR THEIR SPECIFIC REQUIREMENTS. YOU OR YOUR GUARANTOR MAY ACCESS THE SECURITIES TRANSFER ASSOCIATION (STA) RECOMMENDED REQUIREMENTS ONLINE AT www.stai.org.

7. Method of Delivery. The method of delivery of Subscription Rights Statements and payment of the Subscription Price to the Subscription Agent will be at the election and risk of the Subscription Rights holder. If sent by mail, it is recommended that they be sent by registered mail, with return receipt requested, and that a sufficient number of days be allowed to ensure delivery to and receipt by the Subscription Agent prior to the Expiration Date.

8. No Revocation. If you exercise any of your Basic Subscription Rights or Over-Subscription Privilege, you will not be permitted to revoke or change the exercise or request a refund of monies paid. You should not exercise your Subscription Rights unless you are sure that you wish to purchase Shares at the Subscription Price. Once you exercise your Subscription Rights, you cannot revoke the exercise of such Subscription Rights, even if you later learn information that you consider to be unfavorable and even if the market price of our Common Stock is below the Subscription Price.

9. Special Provisions Relating to the Exercise of Subscription Rights through the Depository Trust Company. In the case of Subscription Rights that are held of record through The Depository Trust Company (“DTC”), exercises of the Subscription Rights may be effected by instructing DTC to transfer Subscription Rights from the DTC account of such holder to the DTC account of the Subscription Agent, together with certification as to the aggregate number of Subscription Rights exercised pursuant to the Subscription Right by each beneficial owner of Subscription Rights on whose behalf such nominee is acting, and payment of the Subscription Price for each Share subscribed for. Banks, brokers and other nominee holders of Subscription Rights who exercise the Basic Subscription Right and the Over-Subscription Privilege on behalf of beneficial owners of Subscription Rights will be required to certify to the Subscription Agent and Xtant as to the aggregate number of Subscription Rights that have been exercised, and the number of Shares that are being subscribed for pursuant to the Over-Subscription Privilege, by each beneficial owner of Subscription Rights (including such nominee itself) on whose behalf such nominee holder is acting. In the event such certification is not delivered in respect of a Subscription Rights Statement, the Subscription Agent shall for all purposes (including for purposes of any allocation in connection with the Over-Subscription Privilege) be entitled to assume that such Statement is exercised on behalf of a single beneficial owner.

10. Questions and Request for Additional Materials. For questions regarding the Rights Offering, assistance regarding the method of exercising Subscription Rights or for additional copies of relevant documents, please contact Equiniti (US) Services LLC at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

**FORM OF
LETTER TO STOCKHOLDERS WHO ARE RECORD HOLDERS
XTANT MEDICAL HOLDINGS, INC.**

Subscription Rights to Purchase Shares Offered Pursuant to Subscription Rights Distributed to
Stockholders of Xtant Medical Holdings, Inc.

, 2020

Dear Stockholder:

This letter is being distributed by Xtant Medical Holdings, Inc. (the "Company") to all holders of record of shares of its common stock, \$0.000001 par value per share (the "Common Stock"), as of 5:00 PM Eastern Time on November 5, 2020 (the "Record Date"), in connection with a distribution in a rights offering (the "Rights Offering") of non-transferable subscription rights (the "Subscription Rights") to subscribe for and purchase shares of Common Stock ("Shares"). The Subscription Rights and Shares are described in the prospectus dated _____, 2020 (a copy of which accompanies this notice) (the "Prospectus").

Pursuant to the Rights Offering, the Company is issuing Subscription Rights to subscribe for up to an aggregate of 14,018,690 Shares on the terms and subject to the conditions described in the Prospectus, at a subscription price of \$1.07 per Share (the "Subscription Price").

The Subscription Rights may be exercised at any time during the subscription period, which commences on November 6, 2020 and ends at 5:00 PM Eastern Time on December 4, 2020 (as it may be extended, the "Expiration Date"), unless extended by the Company in its sole discretion.

As described in the Prospectus, holders will receive 0.194539 Subscription Rights for each share of Common Stock owned on the Record Date, evidenced by non-transferable Subscription Rights statements (the "Subscription Rights Statements"). Each whole Subscription Right entitles the holder to purchase one (1) Share at the Subscription Price (the "Basic Subscription Right"). Subscription Rights may only be exercised in whole numbers, and the Company will not issue fractional shares. To the extent that the number of Subscription Rights that are distributed to you on the Record Date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which you may subscribe.

Holders who fully exercise their Basic Subscription Right will be entitled to subscribe for additional Shares that remain unsubscribed as a result of any unexercised Basic Subscription Right (the "Over-Subscription Privilege"). If sufficient Shares are available, all Over-Subscription Privilege requests will be honored in full. If Over-Subscription Privilege requests for Shares exceed the remaining Shares available, the remaining Shares will be allocated pro-rata among holders who over-subscribe based on the number of shares of Common Stock owned on the Record Date by all holders exercising the Over-Subscription Privilege. If this pro rata allocation results in any holder receiving a greater number of Shares than the number for which the holder subscribed, then such holder will be allocated only the number of Shares for which the holder oversubscribed, and the remaining Shares will be allocated among all holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all Shares have been allocated.

The Company will not issue fractional Shares. Fractional Shares resulting from the exercise of the Basic Subscription Rights and the Over-Subscription Privileges will be eliminated by rounding down to the nearest whole number of Shares. Any excess subscription payment received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the expiration of the Offering.

Enclosed are copies of the following documents:

1. Prospectus
2. Subscription Rights Statement
3. Instructions as to Use of Subscription Rights Statements
4. Notice of Important Tax Information
5. A return envelope, addressed to EQ Shareowner Services (the "Subscription Agent")

Your prompt attention is requested. To exercise your Subscription Rights, you should deliver the properly completed and signed Subscription Rights Statement, with payment of the Subscription Price in full for each Share subscribed for pursuant to the Basic Subscription Right and Over-Subscription Privilege, if applicable, to the Subscription Agent, as indicated in the Prospectus. The Subscription Agent must receive the properly completed and duly executed Subscription Rights Statement and full payment of the Subscription Price, including final clearance of any checks, prior to the Expiration Date.

You cannot revoke the exercise of your Subscription Right. Subscription Rights not exercised at or prior to 5:00 PM Eastern Time on the Expiration Date will expire.

ANY QUESTIONS OR REQUESTS FOR ASSISTANCE CONCERNING THE RIGHTS OFFERING SHOULD BE DIRECTED TO EQUINITI (US) SERVICES LLC AT (833) 503-4130. BANKS AND BROKERS, PLEASE CALL (516) 220-8356.

**FORM OF
LETTER TO BROKERS, DEALERS, BANKS AND OTHER NOMINEES
XTANT MEDICAL HOLDINGS, INC.**

Subscription Rights to Purchase Common Stock Offered Pursuant to Subscription Rights Distributed to Stockholders of Xtant Medical Holdings, Inc.

, 2020

To Brokers, Dealers, Banks and Other Nominees:

This letter is being distributed by Xtant Medical Holdings, Inc. (the "Company") to brokers, dealers, banks and other nominees in connection with the rights offering (the "Rights Offering") by the Company to subscribe for and purchase shares of the Company's common stock (as described below), pursuant to non-transferable subscription rights ("Subscription Rights") distributed to all holders of record of the Company's common stock, \$0.000001 par value per share (the "Common Stock"), as of 5:00 PM Eastern Time on November 5, 2020 (the "Record Date"). The Subscription Rights and Shares are described in the prospectus dated _____, 2020 (a copy of which accompanies this notice) (the "Prospectus").

Pursuant to the Rights Offering, the Company is issuing Subscription Rights to subscribe for up to an aggregate of 14,018,690 Shares on the terms and subject to the conditions described in the Prospectus at a subscription price of \$1.07 per Share (the "Subscription Price").

The Subscription Rights may be exercised at any time during the subscription period, which commences on November 6, 2020 and ends at 5:00 PM Eastern Time on December 4, 2020 (as it may be extended, the "Expiration Date"), unless extended by the Company in its sole discretion.

As described in the Prospectus, each beneficial owner of shares of Common Stock of the Company is entitled to 0.194539 Subscription Rights for each share of Common Stock owned on the Record Date, evidenced by a non-transferable Subscription Rights statement (the "Subscription Rights Statements") registered in the record holder's name or its nominee. Each whole Subscription Right entitles the holder to purchase one (1) Share at the Subscription Price (the "Basic Subscription Right"). Subscription Rights may only be exercised in whole numbers, and the Company will not issue fractional shares. To the extent that the number of Subscription Rights distributed on the Record Date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which a holder may subscribe.

Holders who fully exercise their Basic Subscription Right will be entitled to subscribe for additional Shares that remain unsubscribed as a result of any unexercised Basic Subscription Right (the "Over-Subscription Privilege"). If sufficient Shares are available, all Over-Subscription Privilege requests will be honored in full. If Over-Subscription Privilege requests for Shares exceed the remaining Shares available, the remaining Shares will be allocated pro rata among holders who over-subscribe based on the number of shares of Common Stock held on the Record Date by all holders exercising the Over-Subscription Privilege. If this pro rata allocation results in any holder receiving a greater number of Shares than the number for which the holder subscribed, then such holder will be allocated only the number of Shares for which the holder oversubscribed, and the remaining Shares will be allocated among all holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all Shares have been allocated.

The Company will not issue fractional shares. Fractional shares resulting from the exercise of the Basic Subscription Rights and the Over-Subscription Privileges will be eliminated by rounding down to the nearest whole Share. Any excess subscription payment received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the expiration of the Rights Offering.

The Company is asking persons who hold shares of the Company's Common Stock beneficially, and who have received the Subscription Rights distributable with respect to those securities through a broker, dealer, bank, or other nominee, to contact the appropriate institution or nominee and to request it to effect the transactions for them.

If you exercise Subscription Rights on behalf of beneficial owners, you will be required to certify to the Subscription Agent and the Company, in connection with such exercise, as to the aggregate number of Subscription Rights that have been exercised pursuant to the Basic Subscription Right, whether the Basic Subscription Rights of each beneficial owner of Subscription Rights on whose behalf you are acting has been exercised in full, and the number of Shares being subscribed for pursuant to the Over-Subscription Privilege by each beneficial owner of Subscription Rights on whose behalf you are acting.

The Company is asking you to contact your clients for whom you hold shares of Common Stock registered in your name or the name of your nominee to obtain instruction with respect to the Subscription Rights.

Enclosed are copies of the following documents:

1. Prospectus
2. Subscription Rights Statement
3. Instructions as to Use of Subscription Rights Statements
4. Form of Broker Letter to Clients who are Beneficial Holders
5. Form of Beneficial Owner Election Form
6. Form of Nominee Holder Certification

All commissions, fees and other expenses (including brokerage commissions and transfer taxes), other than fees and expenses of the Subscription Agent, incurred in connection with the exercise of the Subscription Rights will be for the account of the holder, and none of such commissions, fees or expenses will be paid by the Company or the Subscription Agent.

Your prompt action is requested. To exercise the Subscription Rights, you should deliver the properly completed and signed Subscription Rights Statement, with payment of the Subscription Price in full for each Share subscribed for pursuant to the Basic Subscription Right and Over-Subscription Privilege, if applicable, to the Subscription Agent, as indicated in the Prospectus. The Subscription Agent must receive the properly completed and duly executed Subscription Rights Statement and full payment of the Subscription Price prior to the Expiration Date.

A holder cannot revoke the exercise of a Subscription Right. Subscription Rights not exercised at or prior to 5:00 PM Eastern Time on the Expiration Date will expire.

ANY QUESTIONS OR REQUESTS FOR ASSISTANCE CONCERNING THE RIGHTS OFFERING SHOULD BE DIRECTED TO EQUINITI (US) SERVICES LLC AT (833) 503-4130. BANKS AND BROKERS, PLEASE CALL (516) 220-8356.

NOTHING HEREIN OR IN THE ENCLOSED DOCUMENTS SHALL MAKE YOU OR ANY OTHER PERSON AN AGENT OF THE COMPANY, THE SUBSCRIPTION AGENT, OR ANY OTHER PERSON MAKING OR DEEMED TO BE MAKING OFFERS OF THE SECURITIES ISSUABLE UPON VALID EXERCISE OF THE SUBSCRIPTION RIGHTS, OR AUTHORIZE YOU OR ANY OTHER PERSON TO MAKE ANY STATEMENTS ON BEHALF OF ANY OF THEM WITH RESPECT TO THE OFFERING, EXCEPT FOR STATEMENTS MADE IN THE PROSPECTUS.

**FORM OF
BROKER LETTER TO CLIENTS WHO ARE BENEFICIAL HOLDERS
XTANT MEDICAL HOLDINGS, INC.**

Subscription Rights to Purchase Shares of Common Stock Offered Pursuant to Subscription Rights Distributed to Stockholders of Xtant Medical Holdings, Inc.

, 2020

To our Clients:

This letter is being distributed to our clients who are holders of Xtant Medical Holdings, Inc. (the “Company”) common stock, \$0.000001 par value per share (the “Common Stock”), as of 5:00 PM Eastern Time on November 5, 2020 (the “Record Date”), in connection with a distribution in a rights offering (the “Rights Offering”) of non-transferable subscription rights (the “Subscription Rights”) to subscribe for and purchase shares of the Company’s Common Stock (“Shares”). The Subscription Rights and Shares are described in the prospectus dated _____, 2020 (a copy of which accompanies this notice) (the “Prospectus”).

Pursuant to the Rights Offering, the Company is issuing Subscription Rights to subscribe for up to an aggregate of 14,018,690 Shares on the terms and subject to the conditions described in the Prospectus, at a subscription price of \$1.07 per Share (the “Subscription Price”).

The Subscription Rights may be exercised at any time during the subscription period, which commences on November 6, 2020 and ends at 5:00 PM Eastern Time on December 4, 2020 (as it may be extended, the “Expiration Date”), unless extended by the Company in its sole discretion.

As described in the Prospectus, holders will receive 0.194539 Subscription Rights for each share of Common Stock owned on the Record Date, evidenced by non-transferable Subscription Rights statements (the “Subscription Rights Statements”). Each whole Subscription Right entitles the holder to purchase one (1) Share at the Subscription Price (the “Basic Subscription Right”). Subscription Rights may only be exercised in whole numbers, and we will not issue fractional shares. To the extent that the number of Subscription Rights distributed on the Record Date is not a whole number, the shares of Common Stock issuable upon exercise of the Subscription Rights will be rounded down to the nearest whole share for purposes of determining the number of shares of Common Stock for which a holder may subscribe.

Holders who fully exercise their Basic Subscription Right will be entitled to subscribe for additional Shares that remain unsubscribed as a result of any unexercised Basic Subscription Right (the “Over-Subscription Privilege”). If sufficient Shares are available, all Over-Subscription Privilege requests will be honored in full. If Over-Subscription Privilege requests for Shares exceed the remaining Shares available, the remaining Shares will be allocated pro rata among holders who over-subscribe based on the number of shares of Common Stock owned on the Record Date by all holders exercising the Over-Subscription Privilege. If this pro rata allocation results in any holders receiving a greater number of Shares than the number for which the holder subscribed, then such holder will be allocated only the number of Shares for which the holder oversubscribed, and the remaining Shares will be allocated among all holders exercising the Over-Subscription Privilege on the same pro rata basis described above. The proration process will be repeated until all Shares have been allocated.

The Company will not issue fractional shares. Fractional shares resulting from the exercise of the Basic Subscription Rights and the Over-Subscription Privileges will be eliminated by rounding down to the nearest whole Share. Any excess subscription payment received by the Subscription Agent will be returned, without interest or penalty, as soon as practicable following the expiration of the Offering.

Enclosed are copies of the following documents:

1. Prospectus
2. Subscription Rights Statement
3. Form of Beneficial Owner Election Form
4. Instructions as to Use of Subscription Rights Statements

THE MATERIALS ENCLOSED ARE BEING FORWARDED TO YOU AS THE BENEFICIAL OWNER OF COMMON STOCK HELD BY US IN YOUR ACCOUNT BUT NOT REGISTERED IN YOUR NAME. EXERCISES OF SUBSCRIPTION RIGHTS MAY BE MADE ONLY BY US AS THE RECORD OWNER AND PURSUANT TO YOUR INSTRUCTIONS.

Accordingly, we request instructions as to whether you wish us to elect to subscribe for any Shares to which you are entitled pursuant to the terms and subject to the conditions set forth in the enclosed Prospectus and other materials. However, we urge you to read the Prospectus and other enclosed materials carefully before instructing us to exercise your Subscription Rights.

Your instructions to us should be forwarded as promptly as possible in order to permit us to exercise Subscription Rights on your behalf in accordance with the provisions of the Rights Offering. The Rights Offering will expire at 5:00 PM Eastern Time on the Expiration Date. You are encouraged to forward your instructions to us before the Expiration Date to allow us ample time to act upon your instructions. A holder cannot revoke the exercise of a Subscription Right.

If you wish to have us, on your behalf, exercise the Subscription Rights for any Shares to which you are entitled, please instruct us by timely completing, executing, and returning to us the Beneficial Owner Election Form enclosed with this notice.

ANY QUESTIONS OR REQUESTS FOR ASSISTANCE CONCERNING THE RIGHTS OFFERING SHOULD BE DIRECTED TO EQUINITI (US) SERVICES LLC AT (833) 503-4130. BANKS AND BROKERS, PLEASE CALL (516) 220-8356.

**FORM OF
BENEFICIAL OWNER ELECTION FORM
XTANT MEDICAL HOLDINGS, INC.**

The undersigned acknowledge(s) receipt of your letter and the enclosed materials referred to therein relating to the rights offering (the “Rights Offering”) by Xtant Medical Holdings, Inc., a Delaware corporation (the “Company”), of non-transferable subscription rights (the “Subscription Rights”) to purchase shares (“Shares”) of the Company’s common stock, \$0.000001 par value (“Common Stock”).

This will instruct you whether to exercise Subscription Rights to purchase Shares distributed with respect to the shares of the Common Stock held by you for the account of the undersigned, pursuant to the terms and subject to the conditions set forth in the Prospectus. (Check the applicable boxes and provide all required information.)

- Please DO NOT EXERCISE SUBSCRIPTION RIGHTS for Shares.
- Please EXERCISE SUBSCRIPTION RIGHTS for Shares as set forth below:

	<u>No. of Shares</u>		<u>Per Share Subscription Price</u>	<u>Payment</u>
Basic Subscription Right	x	\$	1.07	\$
Over-Subscription Privilege	x	\$	1.07	\$
Total Payment Required				\$

If you spoke with a broker who solicited such exercise, please indicate the name of the person you spoke with: _____

- Payment in the following amount is enclosed \$ _____ (must match Total Payment Required above)
- Please deduct payment from the following account maintained by you as follows:

Type of Account: _____

Account Number: _____

Amount to be deducted: _____

I (we) on my (our) own behalf, or on behalf of any person(s) on whose behalf, or under whose directions, I am (we are) signing this form:

- irrevocably elect to purchase the number of Shares indicated above upon the terms and conditions specified in the Prospectus; and
- agree that if I (we) fail to pay for the Shares I (we) have elected to purchase, the exercise will be invalid.

Signature: _____

Name: _____

Title: _____

Address: _____

Telephone: _____

Date: _____, 2020

**FORM OF
NOMINEE HOLDER CERTIFICATION
XTANT MEDICAL HOLDINGS, INC.**

The undersigned, a bank, broker, dealer, trustee, depositary, or other nominee of non-transferable subscription rights (the “Subscription Rights”) to purchase shares (“Shares”) of the common stock of Xtant Medical Holdings, Inc. (the “Company”), pursuant to the Subscription Rights offering described and provided for in the Company’s prospectus dated _____, 2020, (the “Prospectus”), hereby certifies to the Company and to EQ Shareowner Services, as Subscription Agent for such Rights Offering, that (1) the undersigned has exercised, on behalf of the beneficial owners thereof (which may include the undersigned), the number of Subscription Rights specified below pursuant to the Basic Subscription Right (as defined in the Prospectus) and, on behalf of beneficial owners of Subscription Rights who have subscribed for the purchase of additional Shares pursuant to the Over-Subscription Privilege (as defined in the Prospectus), the number of Shares specified below, listing separately each such exercised Basic Subscription Right and the corresponding Over-Subscription Privilege (without identifying any such beneficial owner), and (2) to the extent a beneficial owner has elected to subscribe for Shares pursuant to the Over-Subscription Privilege, each such beneficial owner’s Basic Subscription Right has been exercised in full:

Individual Soliciting	Number of Shares Owned on the Record Date	Individual Soliciting Broker (if any)	Number of Shares Subscribed for Pursuant to the Basic Subscription Right	Number of Shares Subscribed for Pursuant to the Over-Subscription Privilege
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Name of Nominee Holder

By: _____

Name: _____

Title: _____

Phone Number: _____

Fax Number: _____

Dated: _____

Provide the following information, if applicable:

DTC Participant Number

DTC Participant

By: _____

Name: _____

Title: _____

DTC Bank Subscription Confirmation Number(s)

Dated: _____

**FORM OF
NOTICE OF IMPORTANT TAX INFORMATION
XTANT MEDICAL HOLDINGS, INC.**

This tax information is provided in connection with the prospectus of Xtant Medical Holdings, Inc. ("Xtant") dated _____, 2020 (the "Prospectus").

Under the U.S. federal income tax laws, dividend payments that may be made by Xtant on shares of its common stock, par value \$0.000001 (the "Common Stock"), issued upon the exercise of non-transferable subscription rights (the "Subscription Rights") may be subject to backup withholding. Generally, such payments will be subject to backup withholding, unless the holder (i) is exempt from backup withholding or (ii) furnishes the payer with its correct taxpayer identification number ("TIN") and certifies, under penalties of perjury, that the number provided is correct and provides certain other certifications. Each holder that exercises Subscription Rights and wants to avoid backup withholding must, unless an exemption applies, provide the Subscription Agent, as Xtant's agent in respect of the exercised Subscription Rights, with such holder's correct TIN (or with a certification that such holder is awaiting a TIN) and certain other certifications by completing the enclosed Form W-9 (Request for Taxpayer Identification Number and Certification). Exempt U.S. holders should indicate their exempt status on Form W-9 to avoid possible erroneous backup withholding. See the enclosed Form W-9 (Request for Taxpayer Identification Number and Certification) for additional instructions. Holders are urged to consult their own tax advisors to determine whether they are exempt from withholding and reporting requirements.

If backup withholding applies, Xtant or the Subscription Agent, as the case may be, will be required to withhold (currently at a 24% rate) on any dividend payments made to a holder that exercises Subscription Rights. Backup withholding is not an additional tax. Rather, the amount of backup withholding can be credited against the U.S. federal income tax liability of the holder subject to backup withholding, provided that the required information is timely provided to the Internal Revenue Service ("IRS"). If backup withholding results in an overpayment of taxes, a refund may be obtained.

A holder that exercises Subscription Rights is required to give the Subscription Agent the TIN of the record owner of the Subscription Rights. If such record owner is an individual, the TIN is generally the taxpayer's social security number. For most other entities, the TIN is the employer identification number. If the Subscription Rights are in more than one name, or are not in the name of the actual owner, consult the enclosed Form W-9 (Request for Taxpayer Identification Number and Certification) for additional guidelines on which number to report. If the Subscription Agent is not provided with the correct TIN in connection with such payments, the holder may be subject to a penalty imposed by the IRS.

Certain holders (including, among others, corporations and certain foreign individuals) are exempt from these backup withholding and reporting requirements. In general, in order for a foreign holder to qualify as an exempt recipient, that holder must, in the case of a foreign individual, submit a properly completed Form W-8BEN, Certificate of Foreign Status of Beneficial Owner for United States Tax Withholding and Reporting (Individuals) or, in the case of a foreign corporation, Form W-8BEN-E, Certificate of Status of Beneficial Owner for United States Tax Withholding and Reporting (Entities) or other appropriate form (instead of a Form W-9), signed under the penalties of perjury, attesting to such holder's foreign status. Such Form W-8BEN or Form W-8BEN-E may be obtained from the Subscription Agent. Although a foreign holder may be exempt from backup withholding, payments of dividends may be subject to (i) withholding tax, currently at a 30% rate (or, if certain tax treaties apply and exemptions are properly claimed, such applicable lower rate) or (ii) withholding tax at a rate of 30% under provisions of the Code commonly referred to as the "Foreign Account Tax Compliance Act," or FATCA, unless an exemption from FATCA withholding is properly certified. Holders are urged to consult with their own tax advisors to determine whether they are exempt from withholding and reporting requirements.

**FORM OF
NOTICE OF GUARANTEED DELIVERY
FOR NON-TRANSFERABLE SUBSCRIPTION RIGHTS ISSUED BY
XTANT MEDICAL HOLDINGS, INC.**

This form, or one substantially equivalent hereto, must be used to exercise non-transferrable subscription rights (the "Subscription Rights") pursuant to the rights offering (the "Rights Offering") described in the prospectus, dated _____, 2020 (the "Prospectus"), of Xtant Medical Holdings, Inc., a Delaware corporation ("Xtant"), if a holder of the Subscription Rights cannot deliver the statement evidencing the Subscription Rights (the "Subscription Rights Statement") to EQ Shareowner Services, the subscription agent (the "Subscription Agent"), at or prior to 5:00 p.m. Eastern Time on December 4, 2020, unless such time is extended by Xtant as described in the Prospectus (such date and time, as the same may be extended, the "Expiration Date"). This Notice of Guaranteed Delivery must be received by the Subscription Agent on or prior to the Expiration Date. See the sections titled "The Rights Offering—Methods of Exercising Subscription Rights" and "The Rights Offering—Guaranteed Delivery Procedures" in the Prospectus.

Payment in full of the Subscription Price of \$1.07 per whole share for each share of common stock subscribed for upon exercise of such Subscription Rights, including pursuant to the over-subscription privilege (the "Over-Subscription Privilege"), must be made in full in U.S. currency by cashier's check drawn against a U.S. bank or by wire transfer, and payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc.," as specified in the Prospectus, at or prior to 5:00 p.m. Eastern Time on the Expiration Date, even if the Subscription Rights Statement evidencing such Subscription Rights is being delivered pursuant to the procedure for guaranteed delivery thereof. The Subscription Rights Statement evidencing such Subscription Rights must be received by the Subscription Agent within two (2) business days following the date of this Notice of Guaranteed Delivery. See the sections titled "The Rights Offering—Guaranteed Delivery Procedures" and "The Rights Offering—Payment Method" in the Prospectus. Capitalized terms used and not otherwise defined herein have the meaning attributed to them in the Prospectus.

The address of the Subscription Agent is shown below. Delivery to an address other than shown below does not constitute valid delivery.

By Mail, Hand or Overnight Courier
EQ Shareowner Services
1100 Centre Pointe Curve, Suite 101
Mendota Heights, MN 55120
Attn: Corporate Actions Dept.

If you have other questions or need assistance, please contact Equiniti (US) Services LLC at (833) 503-4130. Banks and Brokers, please call (516) 220-8356.

Ladies and Gentlemen:

The undersigned hereby represents that he or she is the holder of the Subscription Rights Statement representing Subscription Rights issued by Xtant Medical Holdings, Inc. and that such Subscription Rights Statement cannot be delivered to the Subscription Agent at or before 5:00 p.m., Eastern Time, on the Expiration Date. Upon the terms and subject to the conditions set forth in the Prospectus, receipt of which is hereby acknowledged, the undersigned hereby elects to exercise the following Subscription Rights, pursuant to the Basic Subscription Right and the Over-Subscription Privilege, as described in the Prospectus:

	<u>No. of Shares</u>		<u>Per Share Subscription Price</u>	<u>Payment</u>
Basic Subscription Right	x	\$	1.07	\$
Over-Subscription Privilege	x	\$	1.07	\$
			Total Payment Required	\$

The undersigned understands that payment of the Subscription Price of \$1.07 per whole share for each share of common stock subscribed pursuant to the Basic Subscription Right and the Over-Subscription Privilege, if applicable, must be received by the Subscription Agent at or before 5:00 p.m., Eastern Time, on the Expiration Date and represents that such payment, in the aggregate amount set forth above, is being made by delivering a (check appropriate box):

- cashier's check, drawn against a U.S. bank payable to "EQ Shareowner Services, as Subscription Agent for Xtant Medical Holdings, Inc."; or
- wire transfer of immediately available funds directly to the account maintained by the Subscription Agent for purposes of accepting subscriptions in the Rights Offering at Wells Fargo Bank, N.A., ABA # 121000248, Credit: Stock Transfer Clearing Account, Account # 000-10-67-899, for further credit to Xtant Medical Holdings, Inc., and name of Subscription Rights holder.

Signature(s): _____

Name(s): _____

Address: _____

Telephone: _____

GUARANTEE OF DELIVERY

The undersigned, a member firm of a registered national securities exchange or of the Financial Industry Regulatory Authority, or a commercial bank or trust company having an office or correspondent in the United States, or a bank, stockbroker, savings and loan association or credit union with membership in an approved signature guarantee medallion program, pursuant to Rule 17Ad-15 of the Securities Exchange Act of 1934, as amended, guarantees that the undersigned will deliver to the Subscription Agent the certificates representing the Subscription Rights being exercised hereby, with any required signature guarantee and any other required documents, all within two (2) business days after the date hereof.

Dated: _____

(Address)

(Name of Firm)

(Area Code and Telephone Number)

(Authorized Signature)

The institution that completes this form must communicate the guarantee to the Subscription Agent and must deliver the Subscription Rights Statement to the Subscription Agent within the time period shown in the Prospectus. Failure to do so could result in a financial loss to such institution.
