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

FORM S-3

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)

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:

**Amy E. Culbert, Esq.
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: From time to time after this registration statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box:

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, other than securities offered only in connection with dividend or interest reinvestment plans, 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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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 [X]

Accelerated filer []
Smaller reporting company [X]
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

<u>Title of each class of securities to be registered</u>	<u>Amount to be registered</u>	<u>Proposed maximum offering price per unit</u>	<u>Proposed maximum aggregate offering price</u>	<u>Amount of registration fee</u>
Primary Offering by Xtant:				
Common Stock, par value \$0.000001 per share ⁽¹⁾⁽²⁾	(3)(4)	(3)(4)	(5)	
Preferred Stock, par value \$0.000001 per share ⁽²⁾	(3)(4)	(3)(4)	(5)	
Warrants ⁽²⁾	(3)	(3)	(5)	
Units ⁽⁶⁾	(3)	(3)	(5)	
Total Primary Offering			\$ 150,000,000.00	\$ 16,365.00(7)
Secondary Offering by Selling Stockholders:				
	18,218,374(8)			
Common Stock, par value \$0.000001 per share	shares	\$ 1.67(9)	\$ 30,424,684.60	\$ 3,319.33
Total Registration Fee (Primary and Secondary)			\$ 180,424,684.60	\$ 19,684.33

- (1) The aggregate amount of the registrant’s common stock registered hereunder is limited, solely for purposes of any at-the-market offerings, to that which is permissible under Rule 415(a)(4) under the Securities Act of 1933, as amended (the “Securities Act”).
- (2) Warrants will represent the right to purchase shares of the registrant’s common stock or preferred stock.
- (3) An indeterminate amount of securities of each identified class is being registered as may from time to time be offered pursuant to this registration statement at indeterminate prices, along with an indeterminate number of shares and other securities that may be issued upon exercise, settlement, exchange or conversion of, or pursuant to the anti-dilution provisions of, securities offered or sold hereunder.
- (4) Pursuant to Rule 416 under the Securities Act, the shares of the registrant’s common stock and preferred stock being registered hereunder include such indeterminate number of shares of the registrant’s common stock and preferred stock as may be issuable by the registrant with respect to the shares being registered hereunder as a result of stock splits, stock dividends or similar transactions.
- (5) Not specified as to each class of securities to be registered hereunder pursuant to General Instruction II.D. to Form S-3 under the Securities Act. Securities registered hereby may be sold separately or together with other securities registered hereby. Units may consist of two or more of the securities listed in the “Calculation of Registration Fee Table” offered and sold together.
- (6) Units may consist of two or more of the securities listed in the “Calculation of Registration Fee Table” offered and sold together.
- (7) The registration fee has been calculated in accordance with Rule 457(o) under the Securities Act.
- (8) The amount to be registered hereunder includes an aggregate of 18,218,374 shares of the registrant’s common stock to be sold by the selling stockholders named in this registration statement.
- (9) Estimated solely for the purpose of calculating the amount of registration fee pursuant to Rule 457(c) under the Securities Act, based upon the average of the high and low sale prices of the registrant’s common stock on May 6, 2021, as reported on the NYSE American.

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 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. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission becomes effective. This prospectus is not an offer to sell these securities, and neither we nor the selling stockholders are soliciting offers to buy these securities in any state where the offer or sale of these securities is not permitted.

SUBJECT TO COMPLETION, DATED MAY 11, 2021

PRELIMINARY PROSPECTUS



**\$150,000,000
Common Stock
Preferred Stock
Warrants
Units**

Offered by Xtant Medical Holdings, Inc.

**18,218,374 Shares of Common Stock
Offered by Selling Stockholders**

This prospectus relates to our common stock, preferred stock, warrants to purchase our common stock or preferred stock, and units comprised of any combination of these securities that we may sell from time to time in one or more offerings up to a total public offering price of \$150,000,000 on terms to be determined at the time of sale. In addition, this prospectus relates to the resale, from time to time, of up to an aggregate of 18,218,374 shares of our common stock by the selling stockholders named in this prospectus, including their respective donees, pledgees, transferees, assignees or other successors-in-interest. We will not receive any proceeds from sales of the shares offered by the selling stockholders, although we will incur expenses in connection with such offering.

This prospectus provides a general description of the securities that we may offer. Each time we sell securities, we will provide the specific terms of the securities offered in a supplement to this prospectus. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and the applicable prospectus supplement carefully before you invest in any securities. This prospectus may not be used to consummate a sale of securities unless accompanied by the applicable prospectus supplement.

We may from time to time offer and sell our securities in one offering or in separate offerings, to or through underwriters, dealers and agents or directly to purchasers. If any agents or underwriters are involved in the sale of any of these securities, the applicable prospectus supplement will provide the names of the agents or underwriters and any applicable fees, commissions or discounts.

Our common stock is listed on the NYSE American under the symbol "XTNT." On May 10, 2021, the last reported sale price of our common stock on the NYSE American was \$1.67 per share.

As of May 10, 2021, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$40.7 million, based on 86,707,286 shares of outstanding common stock, of which 13,483,369 shares were held by non-affiliates, and a per share price of \$3.02 based on the closing sale price of our common stock as of March 22, 2021. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities pursuant to this prospectus with a value of more than one-third of the aggregate market value of our common stock held by non-affiliates in any twelve-month period, so long as the aggregate market value of our common stock held by non-affiliates is less than \$75,000,000. In the event that subsequent to the date of this prospectus, the aggregate market value of our outstanding common stock held by non-affiliates equals or exceeds \$75,000,000, then the one-third limitation on sales shall not apply to additional sales made pursuant to this prospectus. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the twelve calendar months prior to and including the date of this prospectus.

Investing in our shares of common stock involves a high degree of risk. See "Risk Factors" beginning on page 3 of this prospectus, as well as those risk factors described in any applicable prospectus supplement, and in the documents we incorporate by reference.

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 _____, 2021.

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We are responsible for the information contained and incorporated by reference in this prospectus and any accompanying prospectus supplement we prepare or authorize. Neither we nor the selling stockholders, as defined below, have authorized anyone to provide any information or to make any representations other than those contained in or incorporated by reference into this prospectus and any accompanying prospectus supplement we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus and any accompanying prospectus supplement are an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus and any accompanying prospectus supplement is current only as of the date of the applicable document. Our business, financial condition, results of operations and prospects may have changed since those dates. It is important for you to read and consider all the information contained in this prospectus and in any accompanying prospectus supplement, including the documents incorporated by reference herein or therein, before making your investment decision.

For investors outside the United States: we have not, and the selling stockholders have not, taken any action to permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offer and sale of the common stock and the distribution of this prospectus outside the United States.

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement on Form S-3 that we filed with the United States Securities and Exchange Commission (“SEC”) utilizing a “shelf” registration process. Under this shelf registration process, we may offer and sell any combination of the securities described in this prospectus in one or more offerings up to a total dollar amount of \$150,000,000. In addition, under this shelf registration process, the selling stockholders named in this prospectus may offer or sell shares of our common stock in one or more offerings from time to time. Each time we or the selling stockholders named in this prospectus (or in any supplement to this prospectus) sell shares of our common stock under the registration statement of which this prospectus is a part, we or such selling stockholders must provide a copy of this prospectus and any applicable prospectus supplement, to a potential purchaser, as required by law.

In certain circumstances we may provide a prospectus supplement that may add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement. You should read both this prospectus and any prospectus supplement, including all documents incorporated herein or therein by reference, together with additional information described under “*Where You Can Find More Information*” beginning on page 23 of this prospectus and “*Incorporation of Certain Documents by Reference*” beginning on page 22 of this prospectus.

Neither we, nor the selling stockholders, have authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. Neither we nor any of the selling stockholders will make an offer to sell our securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus and any prospectus supplement is accurate as of the date on its respective cover, and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, unless we indicate otherwise. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless otherwise indicated, information contained in or incorporated by reference into 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 3 of this prospectus. 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 4 of this prospectus.

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.

Unless the context otherwise indicates, the terms “Xtant,” “XTNT,” “Company,” “we,” “us,” and “our” as used in this prospectus refer to Xtant Medical Holdings, Inc. and our subsidiaries, and the term “common stock” refers to our common stock, par value \$0.000001 per share. The phrase “this prospectus” refers to this prospectus and any applicable prospectus supplement, unless the context otherwise requires.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained in this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of the Company and this offering, we encourage you to read and consider the more detailed information included or incorporated by reference in this prospectus, including risk factors, see “Risk Factors” beginning on page 3 of this prospectus, 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 our biologics and spine hardware products. We promote and sell our products internationally through distribution partners in Canada, Mexico, South America, Australia, and certain Pacific region countries.

Corporate Information

The address of our principal executive office is 664 Cruiser Lane Belgrade, Montana 59714. Our telephone number is (406) 388-0480, and our Internet website address is www.xtantmedical.com. We make available on our website free of charge a link to our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports as soon as practicable after we electronically file such material with the SEC. Except for the documents specifically incorporated by reference into this prospectus, information contained on our website or that can be accessed through our website does not constitute a part of this prospectus. We have included our website address only as an inactive textual reference and do not intend it to be an active link to our website.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the risks described in our filings with the SEC referred to under the heading “*Where You Can Find More Information*,” including the risk factors incorporated by reference herein from our most recent annual report on Form 10-K and quarterly reports on Form 10-Q and from other reports and documents we file with the SEC after the date of this prospectus that are incorporated by reference herein, together with all of the other information included in this prospectus, the applicable prospectus supplement and the documents we incorporate by reference.

If any of these risks were to occur, our business, financial condition, results of operations or cash flows could be adversely affected. You could lose all or part of your investment. When we offer and sell any securities pursuant to a prospectus supplement, we may include additional risk factors relevant to that offering in the prospectus supplement.

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 the Private Securities Litigation Reform Act of 1995. 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:

- The effect of the global novel strain of coronavirus (COVID-19) pandemic on our business, operating results and financial condition, including distribution 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 increase or maintain revenue or return to pre-COVID-19 revenue levels within an acceptable time period or at all;
- The ability of our sales personnel, including our independent sales agents and distributors, to achieve expected results;
- Our ability to develop and market new products;
- Our ability to remain competitive;
- Our ability to obtain donor cadavers for our products;
- Our reliance on third party suppliers and manufacturers;
- Our ability to engage and retain qualified technical and sales personnel and members of our management team;
- Our dependence on and ability to retain and recruit independent sales agents and distributors;
- Our ability to retain and expand our agreements with group purchasing organizations and independent delivery networks;
- Our success in implementing key growth initiatives designed to increase our revenue and scale and inventory reduction initiatives designed to improve our working capital;
- Our ability to obtain government and third-party coverage and reimbursement for our products;
- Our ability to obtain and maintain regulatory approvals in the United States and abroad;
- The effect of new government regulations and our compliance with government regulations;
- Our ability to successfully complete and integrate future business combinations or acquisitions;
- Product liability claims and other litigation to which we may be subjected;
- Product recalls and defects;
- Our ability to remain accredited with the American Association of Tissue Banks;
- Our ability to obtain and protect our intellectual property and proprietary rights;
- Infringement and ownership of intellectual property;
- The availability of our facilities;
- Our ability to comply with the covenants in our credit agreements;
- Our ability to maintain sufficient liquidity to fund our operations;
- Our ability to service our debt;
- Our ability to obtain financing on reasonable terms when needed; and
- Our ability to maintain our stock listing on the NYSE American.

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 3 of this prospectus, and our most recent Annual Report on Form 10-K, filed with the SEC on February 24, 2021.

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 February 24, 2021 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

Unless otherwise indicated in the prospectus supplement, we intend to use the net proceeds from the sale of securities and related prospectus supplement for working capital and general corporate purposes. The prospectus supplement relating to a particular offering of securities by us will identify the use of proceeds for that offering. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the proceeds.

We will not receive any proceeds from the sale of our securities owned by the selling stockholders. We will bear all expenses incurred in connection with the performance of our obligations under the Registration Rights Agreement, as defined below, and will reimburse the selling stockholders for the reasonable fees and disbursements of one firm or counsel to act as counsel for the selling stockholders in connection with the offering made by the selling stockholders.

DILUTION

We will set forth in a prospectus supplement the following information regarding any material dilution of the equity interests of investors purchasing securities in an offering under this prospectus:

- the net tangible book value per share of our equity securities before and after the offering;
- the amount of the increase in such net tangible book value per share attributable to the cash payments made by purchasers in the offering; and
- the amount of the immediate dilution from the public offering price which will be absorbed by such purchasers.

DESCRIPTION OF CAPITAL STOCK

General

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 Amended and Restated Certificate of Incorporation (“Charter”), Second Amended and Restated Bylaws (“Bylaws”) and the Investor Rights Agreement with OrbiMed Royalty Opportunities II, LP (“Royalty Opportunities”) and ROS Acquisition Offshore LP (“ROS”), dated February 14, 2018 (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 Charter, our Bylaws, the Investor Rights Agreement and the applicable provisions of the Delaware General Corporation Law (“DGCL”) for additional information.

Authorized and Outstanding Capital Stock

Our Charter provides that we have authority to issue (i) 300 million shares of our common stock, par value \$0.000001 per share, 86,707,286 of which are issued and outstanding as of May 10, 2021 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 May 10, 2021, we had outstanding warrants to purchase 7,532,390 shares of our common stock, stock options to purchase 2,176,272 shares of our common stock and restricted stock unit awards covering 2,258,982 shares of our common stock under the Xtant Medical Holdings, Inc. Amended and Restated 2018 Equity Incentive Plan, options to purchase 14,495 shares of our common stock under our prior equity compensation plan, and 3,507,165 shares available for issuance under the Xtant Medical Holdings, Inc. Amended and Restated 2018 Equity Incentive Plan.

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 Charter, 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 Charter, 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 Charter 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 Charter 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 Charter, 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.

Charter and Bylaws

Our Charter 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 Charter related to the amendment of our Bylaws, the Board of Directors and our stockholders as well as the general provisions of our Charter.
- 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 Charter, 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).

Pursuant to the registration rights agreement, Royalty Opportunities and ROS also have incidental or “piggyback” registration rights with respect to any registrable shares. Under the agreement, we have agreed to bear the expenses, including the fees and disbursements of one legal counsel for Royalty Opportunities and ROS, in connection with the registration of the registrable securities, except for any underwriting commissions relating to the sale of the registrable securities.

Registration Rights

Effective October 1, 2020, we entered into a Registration Rights Agreement with Royalty Opportunities and ROS (the “Registration Rights Agreement”), which requires us, among other things, to file with the SEC a shelf registration statement covering the resale, from time to time, of our common stock that was issued pursuant to the Share Issuance, as defined below, no later than December 30, 2020 and use our best efforts to cause the shelf registration statement to become effective under the Securities Act no later than March 30, 2021. The registration statement was filed on December 18, 2020 pursuant to our obligations under the Registration Rights Agreement and became effective on December 23, 2020.

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 (“OrbiMed Advisors”). Our status as a controlled company may have an anti-takeover effect of delaying, deferring or preventing a change in control of the Company.

Participation Right

Under the terms of the Securities Purchase Agreement between us and an institutional accredited investor (the “Investor”), dated February 22, 2021 (the “Securities Purchase Agreement”), we agreed that in the event we or any of our subsidiaries proposes to offer and sell shares of our common stock or certain common stock equivalents to non-strategic investors primarily for capital raising purposes, we will provide the Investor the right, but not the obligation, to participate in such offering in an amount of up to 25% of the securities offered in such offering. This participation right expires upon the earlier of 12 months after the closing of the private placement we closed on February 24, 2021 or upon the occurrence of certain change in control events.

Section 203 of the DGCL

We have elected to be subject to Section 203 of the DGCL (“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.

Limitations of Liability and Indemnification Matters

We have adopted provisions in our Charter that limit or eliminate the liability of our directors for monetary damages for breach of their fiduciary duties, except for a breach of the duty of loyalty to our Company or its stockholders, for acts or omissions not in good faith or involving intentional misconduct or a knowing violation of law, or for any transaction from which a director derived an improper personal benefit. Accordingly, our directors will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except with respect to the following:

- any breach of their duty of loyalty to us or our stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the DGCL; or
- any transaction from which the director derived an improper personal benefit.

This limitation of liability does not apply to liabilities arising under the federal securities laws and does not affect the availability of equitable remedies such as injunctive relief or rescission. If Delaware law is amended to authorize the further elimination or limiting of director liability, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law as so amended.

Our Bylaws provide for mandatory indemnification of directors and officers to the maximum extent allowed by applicable law. We believe that indemnification under our Bylaws covers at least negligence and gross negligence on the part of indemnified parties. In addition, we have also entered into indemnification agreements with our directors and officers, pursuant to which we must:

- indemnify officers and directors against certain liabilities that may arise because of their status as officers and directors;
- advance expenses, as incurred, to officers and directors in connection with a legal proceeding subject to limited exceptions; and
- cover officers and directors under any general or directors’ and officers’ liability insurance policy maintained by us.

We also maintain directors’ and officers’ liability insurance.

We believe that these provisions and agreements are necessary to attract and retain qualified persons as directors and executive officers. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us pursuant to the foregoing provisions, the opinion of the SEC is that such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

DESCRIPTION OF WARRANTS

The following summary of the general terms and provisions of the warrants represented by warrant agreements and warrant certificates that we may offer using this prospectus and a prospectus supplement is only a summary and does not purport to be complete. You must look at the applicable forms of warrant agreement and warrant certificate for a full understanding of the specific terms of any warrant. The forms of the warrant agreement and the warrant certificate will be filed or incorporated by reference as exhibits to the registration statement to which this prospectus is a part. See “*Where You Can Find More Information*” for information on how to obtain copies.

A prospectus supplement will describe the specific terms of the warrants offered under that prospectus supplement, including any of the terms in this section that will not apply to those warrants, and any special considerations, including tax considerations, applicable to investing in those warrants.

General

We may issue warrants to purchase shares of our common stock or preferred stock alone or together with other securities offered by the applicable prospectus supplement. The warrants may be issued independently or together with any securities and may be attached to or separate from the securities. We may enter into a warrant agreement with a warrant agent. If we elect to do so, the warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any registered holders of warrants or beneficial owners of warrants.

The prospectus supplement relating to any warrants we offer will describe the specific terms relating to the offering. These terms may include some or all of the following:

- the offering price;
- the currencies in which the warrants will be offered;
- the total number of shares that may be purchased if all of the holders exercise the warrants;
- the number of shares that may be purchased if a holder exercises any one warrant and the price at which and currencies in which shares may be purchased upon exercise;
- the date on and after which the holder of the warrants can transfer them separately from the related underlying shares of our common stock or preferred stock;
- the date on which the right to exercise the warrants begins and expires;
- the triggering event and the terms upon which the exercise price and the number of underlying shares of our common stock or preferred stock that the warrants are exercisable into may be adjusted;
- whether the warrants will be issued in registered or bearer form;
- the identity of any warrant agent with respect to the warrants and the terms of the warrant agency agreement with that warrant agent;
- a discussion of material U.S. federal income tax consequences; and
- any other terms of the warrants.

A holder of warrants may:

- exchange them for new warrants of different denominations;
- present them for registration of transfer, if they are in registered form; and
- exercise them at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement.

Until the warrants are exercised, holders of the warrants will not have any of the rights of holders of the underlying shares of our common stock or preferred stock.

Exercise of Warrants

Each holder of a warrant is entitled to purchase the number of shares of our common stock or preferred stock at the exercise price described in the applicable prospectus supplement. After the close of business on the day when the right to exercise terminates (or a later date if we extend the time for exercise), unexercised warrants will become void.

Holders of warrants may exercise them by:

- delivering to the warrant agent the payment required to purchase the underlying shares of our common stock or preferred stock, as stated in the applicable prospectus supplement;
- properly completing and signing the reverse side of their warrant certificate(s), if any, or other exercise documentation; and
- delivering their warrant certificate(s), if any, or other exercise documentation to the warrant agent within the time specified by the applicable prospectus supplement.

If you comply with the procedures described above, your warrants will be considered to have been exercised when the warrant agent receives payment of the exercise price. As soon as practicable after you have completed these procedures, we will issue and deliver to you the shares of our common stock or preferred stock that you purchased upon exercise. If you exercise fewer than all of the warrants represented by a warrant certificate, we will issue to you a new warrant certificate for the unexercised amount of warrants.

Amendments and Supplements to Warrant Agreements

We may amend or supplement a warrant agreement or warrant certificates without the consent of the holders of the warrants if the changes are not inconsistent with the provisions of the warrants and do not adversely affect the interests of the holders.

DESCRIPTION OF UNITS

We may, from time to time, issue units comprised of one or more of the other securities described in this prospectus in any combination. A prospectus supplement will describe the specific terms of the units offered under that prospectus supplement, and any special considerations, including tax considerations, applicable to investing in those units. You must look at the applicable prospectus supplement and any applicable unit agreement for a full understanding of the specific terms of any units. The form of unit agreement will be filed or incorporated by reference as an exhibit to the registration statement to which this prospectus is a part. See “*Where You Can Find More Information*” for information on how to obtain copies.

SELLING STOCKHOLDERS

This prospectus also relates to the offer and sale from time to time of up to 18,218,374 shares of our common stock that may be offered from time to time by the selling stockholders named below or by any of their donees, pledgees, transferees, assignees or other successors-in-interest. As used in this prospectus, the term “selling stockholder” includes those selling stockholders identified below and any donees, pledgees, transferees, assignees or other successors-in-interest selling shares received after the date of this prospectus from a selling stockholder as a gift, pledge or other non-sale related transfer.

The following table sets forth as of May 10, 2021: (1) the name of each selling stockholder for whom we are registering shares of common stock under the registration statement of which this prospectus is a part, (2) the number of shares of common stock beneficially owned by each of the selling stockholders prior to the offering, determined in accordance with Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), (3) the number of shares of common stock that may be offered by each selling stockholder under this prospectus and (4) the number of shares of common stock to be owned by each selling stockholder after completion of this offering. We will not receive any of the proceeds from the sale of the shares of common stock offered under this prospectus. The amounts and information set forth below are based upon information provided to us by the selling stockholders or their representatives, or on our records, as of May 10, 2021. The percentage of beneficial ownership for the following table is based on 86,707,286 shares of common stock outstanding as of May 10, 2021.

To our knowledge, except as indicated in the footnotes to this table, each stockholder named in the table has sole voting and investment power with respect to all shares of common stock shown in the table to be beneficially owned by such stockholder. Except as described below, none of the selling stockholders has had any position, office or other material relationship with us or any of our predecessors or affiliates within the past three years. In addition, based on information provided to us, none of the selling stockholders that are affiliates of broker-dealers, if any, purchased the shares of common stock outside the ordinary course of business or, at the time of their acquisition of such shares, had any agreements, understandings or arrangements with any other persons, directly or indirectly, to dispose of the shares. Information concerning the selling stockholders may change from time to time, and any changed information will be set forth in supplements to this prospectus to the extent required.

Name of Selling Stockholder	Shares Beneficially Owned Prior to the Offering		Number of Shares Being Offered	Shares Beneficially Owned After Completion of the Offering	
	Number ⁽¹⁾	Percentage		Number	Percentage
ROS Acquisition Offshore LP ⁽²⁾	55,820,296	64.4%	13,955,092	41,865,204	48.3%
OrbiMed Royalty Opportunities II, LP ⁽³⁾	17,053,198	19.7%	4,263,282	12,789,916	4.9%
TOTAL	72,873,494		18,218,374	54,655,120	

(1) Based solely on information contained in a Schedule 13D/A filed with the SEC on April 6, 2021.

(2) These securities are held by record by ROS. OrbiMed Advisors, a registered adviser under the Investment Advisors Act of 1940, as amended, is the investment manager of ROS. OrbiMed Advisors is also the investment manager of Royalty Opportunities S.à.r.l., of which ROS is a wholly-owned subsidiary. By virtue of such relationships, OrbiMed Advisors may be deemed to have voting and investment power with respect to the securities held by ROS noted above and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Advisors exercises this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and Jonathan T. Silverstein, each of whom disclaims beneficial ownership of the securities held by ROS. The principal business address for each of ROS and OrbiMed Advisors is 601 Lexington Avenue, 54th Floor, New York, New York 10022.

(3) These securities are held of record by Royalty Opportunities. OrbiMed ROF II LLC (“ROF II”) is the general partner of Royalty Opportunities, and OrbiMed Advisors is the managing member of ROF II. By virtue of such relationships, OrbiMed Advisors may be deemed to have voting and investment power with respect to the securities held by Royalty Opportunities noted above and as a result may be deemed to have beneficial ownership over such securities. OrbiMed Advisors exercised this investment and voting power through a management committee comprised of Carl L. Gordon, Sven H. Borho and Jonathan T. Silverstein, each of whom disclaims beneficial ownership of the securities held by Royalty Opportunities. The principal business address for each of Royalty Opportunities, ROF II and OrbiMed Advisors is 601 Lexington Avenue, 54th Floor, New York, New York 10022.

Material Relationships Between Selling Stockholders and Xtant

Lock-Up Agreement

On February 24, 2021, we entered into Lock-Up Agreements with our directors Matthew Rizzo and Michael Eggenberg, both of whom are employees of OrbiMed Advisors, pursuant to the Securities Purchase Agreement, dated as of February 22, 2021, between us and the purchasers signatory thereto. Pursuant to the Lock-Up Agreements, Mr. Rizzo and Mr. Eggenberg, among other things, agreed not to offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of (or enter into any transaction which is designated to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise) by the undersigned or any affiliate or any person in privity), directly or indirectly, or establish or increase a put equivalent position or liquidate or decrease a call equivalent position within the meaning of Section 16 of the Exchange Act with respect to any shares of our common stock, or securities convertible, exchangeable or exercisable into, our common stock beneficially owned, held or acquired by Mr. Rizzo or Mr. Eggenberg. The lock-up period has a 90-day duration and expires on May 25, 2021.

Termination of Second Amended and Restated Credit Agreement

On May 6, 2021, the Company, as guarantor, and its subsidiaries, as borrowers (collectively, the “Borrowers”), entered into a (i) Credit, Security and Guaranty Agreement (Term Loan) (the “Term Credit Agreement”) with MidCap Financial Trust, in its capacity as agent (the “Agent”) and a lender and the additional lenders from time to time party thereto and (ii) Credit, Security and Guaranty Agreement (Revolving Loan) (the “Revolving Credit Agreement,” and, together with the Term Credit Agreement, the “Credit Agreements”), with the Agent and the lenders from time to time party thereto. On May 6, 2021, contemporaneously with the execution and delivery of the new Credit Agreements, that certain Second Amended and Restated Credit Agreement, dated March 29, 2019, among the Company, the Borrowers, OrbiMed Royalty Opportunities II, LP (“Royalty Opportunities”) and ROS Acquisition Offshore LP, as subsequently amended (the “Second A&R Credit Agreement”), was terminated in accordance with the terms thereof and all outstanding amounts were repaid by the Borrowers to Royalty Opportunities in its role as sole lender thereunder.

2020 Restructuring Agreement

On August 7, 2020, we entered into the Restructuring Agreement with Royalty Opportunities and ROS, pursuant to which the parties thereto agreed, subject to the terms and conditions set forth therein, to complete certain restructuring transactions (the “Restructuring Transactions”) 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 our Charter to increase the number of authorized shares of our common stock from 75 million to 300 million (the “Charter Amendment”), the issuance of approximately 57.8 million shares of our common stock (the “Share Issuance”), the execution of an amendment to the Second A&R Credit Agreement by the parties thereto to change certain provisions therein, and the launch of a 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 (the “Consenting Majority Stockholders”), 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 common stock in exchange for a portion of the prepayment fee payable under the Second A&R Credit Agreement in respect of the loans exchanged for shares of our common stock in the Share Issuance; and
- the Registration Rights Agreement was executed by the parties thereto.

As a result of the completion of these Restructuring Transactions, Royalty Opportunities and ROS owned immediately thereafter, in the aggregate, approximately 94.5% of our outstanding common stock, and all other existing stockholders of the Company owned approximately 5.5% of our outstanding common stock.

Pursuant to the terms of the Restructuring Agreement, we commenced the rights offering to allow our stockholders as of the November 5, 2020 record date to purchase up to an aggregate of 14,018,690 shares of our common stock at a subscription price of \$1.07 per share, the same price per share as the \$1.07 per share exchange price used in the Share Issuance. The rights offering expired on December 4, 2020. We issued 712,646 shares of common stock in the rights offering and received \$762,531 in gross proceeds.

2020 Registration Rights Agreement

Effective October 1, 2020, we entered into the Registration Rights Agreement, which requires us, among other things, to file with the SEC a shelf registration statement covering the resale, from time to time, of our common stock that was issued pursuant to the Share Issuance, as defined below, no later than December 30, 2020 and use our best efforts to cause the shelf registration statement to become effective under the Securities Act no later than March 30, 2021. The registration statement was filed on December 18, 2020 pursuant to our obligations under the Registration Rights Agreement and became effective on December 23, 2020.

Second A&R Credit Agreement and Warrant Issuance

On March 29, 2019, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., entered into the Second A&R Credit Agreement with Royalty Opportunities and ROS, which amended and restated the prior Amended and Restated Credit Agreement dated as of July 27, 2015 among the parties thereto (the "Prior Credit Agreement"), and as subsequently amended through the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement to change certain provisions therein. Under the Second A&R Credit Agreement:

- we were able to continue to make requests for term loans in amounts equal to the remaining commitment for additional delayed draw loans, which was approximately \$2.2 million as of the date of the Second A&R Credit Agreement, and request additional term loans with the lenders in an aggregate amount of up to \$10.0 million, with the amount of each loan draw to be subject to our production of a thirteen-week cash flow forecast that is approved by Royalty Opportunities and ROS and which shows a projected cash balance for the following two-week period of less than \$1.5 million, as well as the satisfaction (or waiver in writing by Royalty Opportunities and ROS) of conditions precedent, including closing certificate, delivery of budget, and other satisfactory documents;
- no interest would accrue on the loans under the Second A&R Credit Agreement from and after January 1, 2019 until March 31, 2020;
- beginning April 1, 2020 through the maturity date of the Second A&R Credit Agreement, interest payable in cash will accrue on the loans under the agreement at a rate per annum equal to the sum of (a) 10.00% plus (b) the higher of (x) the LIBO Rate (as such term is defined in the Second A&R Credit Agreement) and (y) 2.3125%;
- the maturity date of the loans is March 31, 2021;
- the Consolidated Senior Leverage Ratio and Consolidated EBITDA (as such terms were defined in the Prior Credit Agreement) financial covenants were deleted, and a new Revenue Base (as such term is defined in the Second A&R Credit Agreement) financial covenant was added; and
- the key person event default provision was revised to refer specifically to certain then recently-hired executive officers of the Company.

On April 1, 2019, the Company issued warrants to purchase an aggregate of 1.2 million shares of our common stock to Royalty Opportunities and ROS, with an exercise price of \$0.01 per share and an expiration date of April 1, 2029. The issuance of these warrants was a condition to the effectiveness of the Second A&R Credit Agreement. These warrants have subsequently been exercised in full.

First Amendment to Second Amended and Restated Credit Agreement and Warrant Issuance

On May 6, 2020, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., entered into a First Amendment to the Second Amended and Restated Credit Agreement with Royalty Opportunities and ROS (the "First Amendment"), which among other things, provided that:

- no interest would accrue on the outstanding loans under the Second A&R Credit Agreement from and after March 31, 2020 until September 30, 2020;
- beginning October 1, 2020 through the maturity date of the Second A&R Credit Agreement, interest payable in cash will accrue on the loans under the Second A&R Credit Agreement at a rate per annum equal to the sum of (i) 10.00% plus (ii) the higher of (x) the LIBO Rate (as such term is defined in the Second A&R Credit Agreement) and (y) 2.3125%;
- the maturity date of the loans under the Second A&R Credit Agreement is December 31, 2021;
- the Revenue Base financial covenant was revised through December 31, 2021; and
- the key person event default provision was revised to refer specifically to Sean Browne in lieu of Ron Berlin.

In conjunction therewith, the Company issued warrants to purchase an aggregate of 2.4 million shares of our common stock to Royalty Opportunities and ROS, with an exercise price of \$0.01 per share and an expiration date of May 6, 2030. The issuance of these warrants was a condition to the effectiveness of the First Amendment. These warrants have subsequently been exercised in full.

Second Amendment to Second Amended and Restated Credit Agreement and Warrant Issuance

On October 1, 2020, pursuant to the Restructuring Transactions discussed above, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., entered into a Second Amendment to the Second Amended and Restated Credit Agreement with Royalty Opportunities and ROS (the “Second Amendment”), which among other things, provided for:

- extinguishment by the Royalty Opportunities and ROS of approximately \$61.9 million of principal and paid-in-kind interest outstanding on the loans under the Second A&R Credit Agreement in exchange for approximately 57.8 million shares of our common stock and the addition of a principal amount equal to prepayment fees associated with the loans under the Second A&R Credit Agreement not paid in cash or exchanged for shares of our common stock;
- exchange of approximately \$0.9 million of prepayment fees associated with the loans under the Second A&R Credit Agreement for approximately 0.9 million shares of our common stock;
- elimination of the availability of additional draw loan advances and reduction of available additional term loans to \$5.0 million;
- accrual of interest payable in cash for the remaining term of the Second A&R Credit Agreement 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
- elimination of certain financial covenants.

Prior Amendments to Prior Credit Agreement and Warrant Issuance

Prior to the execution of the Second A&R Credit Agreement, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., and Royalty Opportunities and ROS entered into several amendments to our Prior Credit Agreement, including those described below.

Effective December 28, 2017, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., Royalty Opportunities and ROS entered into the Twenty-First Amendment to the Amended and Restated Credit Agreement, which amended the Prior Credit Agreement. This amendment further deferred the Company’s accrued interest payment date until January 31, 2018.

Effective January 30, 2018, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., Royalty Opportunities and ROS entered into the Twenty-Second Amendment to the Amended and Restated Credit Agreement, which amended the Prior Credit Agreement. This amendment further deferred the Company’s accrued interest payment date until February 28, 2018.

Effective February 14, 2018, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., Royalty Opportunities and ROS entered into the Twenty-Third Amendment to the Amended and Restated Credit Agreement, which further amended the Prior Credit Agreement and terms of the facility created under such agreement (the “Credit Facility”). As of result of this amendment, the interest payable was carried forward and as modified, the interest rate options within the Credit Facility were as follows: (a) through December 31, 2018, we would have the option at our sole discretion (i) to pay PIK Interest at LIBOR (as defined in the Credit Facility) plus 12% or (ii) pay cash interest at LIBOR plus 10%; (b) beginning January 1, 2019 through June 30, 2019, we would have the option at our sole discretion to either (i) pay PIK Interest at LIBOR plus 15% or (ii) pay cash interest at LIBOR plus 10%; and (c) beginning July 1, 2019 through the maturity date of the Credit Facility, we would pay cash interest at LIBOR plus 10%. The amendment also reduced the prepayment or repayment fee under the Credit Facility to 1%. This amendment also modified the financial covenants in the Prior Credit Agreement, including removing the minimum revenue covenant, providing a minimum liquidity covenant, a consolidated leverage ratio covenant, and a minimum consolidated EBITDA covenant, all as defined in the Prior Credit Agreement.

On September 17, 2018, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., Royalty Opportunities and ROS entered into the Twenty-Fourth Amendment to the Amended and Restated Credit Agreement, which further amended the Prior Credit Agreement and terms of the Credit Facility, effective as of April 1, 2018. Under the terms of this amendment, no interest would be charged on the loans under the Credit Facility from April 1, 2018 until June 30, 2018. Due to the interest rate relief provided by this amendment, the Company performed an assessment of the changes to the terms of the Credit Facility in accordance with Accounting Standards Codification 470, Debt. The Credit Facility was modified based on an evaluation of the present value of cash flows for the old and new debt instruments. Given the modification, a new effective interest rate of 13.45% for the modified loan was calculated based on the carrying amount of the debt and the present value of the revised future cash flows. The modified interest rate is effective through the remaining life of the loan.

On September 17, 2018, the Company and our subsidiaries, Bacterin International, Inc., Xtant Medical, Inc. and X-spine Systems, Inc., Royalty Opportunities and ROS entered into the Twenty-Fifth Amendment to the Amended and Restated Credit Agreement, which further amended the Prior Credit Agreement and terms of the Credit Facility, effective as of August 1, 2018. Under the terms of this amendment:

- no interest would be charged on the loans under the Credit Facility from July 1, 2018 until December 31, 2018;
- the Optional PIK Interest (as such term is defined in the Prior Credit Agreement) was decreased from 15% plus the LIBO Rate (as such term is defined in the Prior Credit Agreement) to 10% plus the LIBO Rate, with a 2.3125% floor;
- a LIBO Rate floor of 2.3125% was added; and
- the fee due upon payment, prepayment or repayment of the principal amount of the loans under the Credit Facility, whether on the maturity date or otherwise, was increased to 2% from 1% of the aggregate principal amount of such payment, prepayment or repayment.

On September 17, 2018, the Company issued warrants to purchase an aggregate of 1.2 million shares of Company common stock to Royalty Opportunities and ROS, with an exercise price of \$0.01 per share and an expiration date of August 1, 2028. The issuance of these warrants was a condition to the effectiveness of this amendment. These warrants have subsequently been exercised in full.

2018 Restructuring Agreement

On January 11, 2018, we entered into a Restructuring and Exchange Agreement (the “Prior Restructuring Agreement”) with Royalty Opportunities, ROS, and certain other stockholders. Pursuant to the Prior Restructuring Agreement, and following the execution of an amendment to the indenture governing our then outstanding 6% convertible senior unsecured notes due 2021 (the “2017 Notes”), on January 17, 2018, ROS and Royalty Opportunities converted the 2017 Notes, plus accrued and unpaid interest, at the \$9.11 per share conversion rate originally provided thereunder, into 189,645 shares of our common stock.

On February 14, 2018, following approval by our stockholders and after completion of the 1-for-12 reverse stock split, the remaining \$70.238 million aggregate principal amount of the notes held by the selling stockholders, plus accrued and unpaid interest, was exchanged for newly-issued shares of our common stock at an exchange rate of 138.8889 shares per \$1,000 principal amount of notes, for an exchange price of \$7.20 per share (the “Notes Exchange”). This resulted in the issuance of 10,401,309 shares of our common stock to Royalty Opportunities, ROS, and certain other stockholders and Royalty Opportunities and ROS acquiring an approximately 70% controlling interest in our outstanding shares of our common stock. Upon completion of the Notes Exchange, all outstanding obligations under our convertible senior secured notes were satisfied in full and the indentures governing such notes were discharged.

Pursuant to the terms of the Prior Restructuring Agreement, we commenced a rights offering to allow our stockholders as of the April 27, 2018 record date to purchase up to an aggregate of 1,137,515 shares of our common stock at a subscription price of \$7.20 per share. The rights offering expired on June 18, 2018. We issued 129 shares of common stock in the rights offering and received \$0.9 thousand in gross proceeds.

Private Placement SPA

On February 14, 2018, we entered into a Securities Purchase Agreement (the “Private Placement SPA”) with ROS and Royalty Opportunities. Pursuant to the Private Placement SPA, on February 14, 2018, ROS and Royalty Opportunities purchased from us 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 common stock were issued to Royalty Opportunities.

Registration Rights Agreement

Effective February 14, 2018, we entered into a Registration Rights Agreement (the “Prior Registration Rights Agreement”) with ROS and Royalty Opportunities and certain other stockholders. The Prior Registration Rights Agreement required us, among other things, to file with the SEC a shelf registration statement within 90 days of the date of the Prior Registration Rights Agreement covering the resale, from time to time, of our common stock issued. The corresponding registration statement became effective on June 4, 2018.

Investor Rights Agreement

Effective February 14, 2018, we entered into an Investor Rights Agreement (the “Investor Rights Agreement”) with Royalty Opportunities, ROS, and certain other stockholders. Under the Investor Rights Agreement, ROS and Royalty Opportunities are permitted to nominate a majority of the directors and designate the chairperson of our Board of Directors at subsequent annual meetings, as long as they maintain an ownership threshold in our Company of at least 40% of our then outstanding common stock (the “Ownership Threshold”). If ROS and Royalty Opportunities are unable to maintain the Ownership Threshold, the Investor Rights Agreement contemplates a reduction of nomination rights commensurate with their ownership interests.

For so long as the Ownership Threshold is met, we must obtain the approval of ROS and Royalty Opportunities to proceed with the following actions: (i) issue new securities; (ii) incur over \$250,000 of debt in a fiscal year; (iii) sell or transfer over \$250,000 of our assets or businesses or our subsidiaries in a fiscal year; (iv) acquire over \$250,000 of assets or properties in a fiscal year; (v) make capital expenditures over \$125,000 individually, or \$1,500,000 in the aggregate during a fiscal year; (vi) approve our annual budget; (vii) hire or terminate our chief executive officer; (viii) appoint or remove the chairperson of our board of directors; and (ix) make loans to, investments in, or purchase, or permit any subsidiary to purchase, any stock or other securities in another entity in excess of \$250,000 in a fiscal year. As long as the Ownership Threshold is met, we may not increase the size of our board or directors beyond seven directors without the approval of a majority of the directors nominated by ROS and Royalty Opportunities.

The Investor Rights Agreement grants Royalty Opportunities, ROS, and certain other stockholders the right to purchase from us a pro rata amount of any new securities that we may propose to issue and sell. The Investor Rights Agreement may be terminated (a) upon the mutual written agreement of all the parties, (b) upon our written notice, or the written notice of ROS or Royalty Opportunities if ROS and Royalty Opportunities’ ownership percentage of our then outstanding common stock is less than 10%, or (c) upon written notice of ROS and Royalty Opportunities.

Convertible Note Indenture

During the first quarter of 2018, all of the outstanding 6.00% convertible senior unsecured notes due 2021 were converted or exchanged into shares of our common stock, and the Indenture governing such notes was discharged. On January 17, 2018, Royalty Opportunities and ROS converted \$1.6 million aggregate principal amount of 6.00% convertible senior unsecured promissory notes due in 2021, which were issued effective January 17, 2017, plus accrued and unpaid interest, into 189,645 shares of our common stock. On February 14, 2018, an additional \$70.3 million aggregate principal amount of notes, plus accrued and unpaid interest, were exchanged for 10,401,309 newly-issued shares of our common stock.

Other Relationships with ROS and Royalty Opportunities

Matthew Rizzo and Michael Eggenberg, both of whom are employees of OrbiMed Advisors, and Jeffrey Peters, a Venture Partner with OrbiMed Advisors, were initially elected to our board of directors on February 13, 2018 and most recently reelected on October 27, 2020, and, accordingly, OrbiMed Advisors may have the ability to affect and influence control over us. As non-employee directors, from time to time, Messrs. Rizzo, Eggenberg and Peters may receive equity awards pursuant to our compensation arrangements for non-employee directors.

PLAN OF DISTRIBUTION

We or the selling stockholders and any of their respective donees, pledgees, transferees, assignees or other successors-in-interest may, from time to time, offer and sell the securities being offered hereby in one or more of the following ways from time to time:

- through one or more underwriters, brokers or dealers;
- directly to one or more purchasers;
- through a block trade in which the broker or dealer engaged to handle the block trade will attempt to sell the securities as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- in “at-the-market” offerings, within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market on an exchange or otherwise;
- through agents on a best-efforts basis; or
- through a combination of any of these methods.

The selling stockholders also may sell shares under Rule 144 under the Securities Act, if available, or pursuant to another registration statement and prospectus, rather than under this prospectus.

We and the selling stockholders may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of shares, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of shares. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

The prospectus supplement will state the manner and terms of the offering of the securities, including:

- the offering terms, including the name or names of any underwriters, dealers or agents;
- the purchase price of the securities and the net proceeds to be received by us from the sale;
- any underwriting discounts or agency fees and other items constituting underwriters’ or agents’ compensation;
- any public offering price; and
- any discounts or concessions allowed or re-allowed or paid to dealers.

If we or any of the selling stockholders use underwriters or dealers in the sale, the securities will be acquired by the underwriters or dealers for their own account and may be resold from time to time in one or more transactions, including:

- at a fixed price or prices, which may be charged;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices;
- at varying prices determined at the time of sale; or
- at negotiated prices.

If underwriters are used in the sale of any securities, the securities may be offered either to the public through underwriting syndicates represented by managing underwriters or directly by underwriters. Generally, the underwriters’ obligations to purchase the securities will be subject to certain conditions precedent. If an offering is on a firm-commitment basis, the underwriters will be obligated to purchase all of the securities if they purchase any of the securities.

Underwriters may engage in stabilizing and syndicate covering transactions in accordance with Rule 104 of Regulation M under the Exchange Act. Rule 104 of Regulation M permits stabilizing bids to purchase the securities being offered as long as the stabilizing bids do not exceed a specified maximum. Underwriters may over-allot the offered securities in connection with the offering, thus creating a short position in their account. Syndicate covering transactions involve purchases of the offered securities by underwriters in the open market after the distribution has been completed in order to cover syndicate short positions. Stabilizing and syndicate covering transactions may cause the price of the offered securities to be higher than it would otherwise be in the absence of these transactions. These transactions, if commenced, may be discontinued at any time.

If indicated in an applicable prospectus supplement, we or the selling stockholders may sell securities through agents from time to time. The applicable prospectus supplement will name any agent involved in the offer or sale of the securities and any commissions that we or any selling stockholders pay to them. Generally, any agent will be acting on a best efforts basis for the period of its appointment. We or any selling stockholder may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase securities at the public offering price set forth in the applicable prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The delayed delivery contracts will be subject only to those conditions set forth in the applicable prospectus supplement, and the applicable prospectus supplement will set forth any commissions we or any selling shareholders pay for solicitation of these delayed delivery contracts.

The selling stockholders may be deemed to be underwriters as defined in the Securities Act. In addition, the agents, underwriters and other third parties described above that participate in the distribution of the securities may be deemed to be underwriters. Agents, underwriters and other third parties described above may be entitled to indemnification by us and by any selling shareholder against certain civil liabilities under the Securities Act, or to contribution with respect to payments which the agents or underwriters may be required to make in respect thereof. Agents, underwriters and such other third parties may be customers of, engage in transactions with, or perform services for us or any selling stockholder in the ordinary course of business.

We or the selling stockholders may sell the offered shares to one or more purchasers directly, in which case no underwriters or agents would be involved.

Our common stock is currently listed on the NYSE American under the symbol "XTNT." The other securities that may be offered under this prospectus and the related prospectus supplement may or may not be listed on a national securities exchange. Shares of our common stock issued and sold by us under this prospectus will be listed on the NYSE American upon official notice of issuance. Any underwriters to whom shares of our common stock are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In compliance with the guidelines of the Financial Industry Regulatory Authority, or FINRA, the aggregate maximum discount, commission or agency fees or other items constituting underwriting compensation to be received by any FINRA member or independent broker-dealer will not exceed 8% of any offering pursuant to this prospectus and any applicable prospectus supplement or pricing supplement, as the case may be.

Pursuant to a registration rights agreement with the selling shareholders, we have agreed to indemnify in certain circumstances the selling shareholders against certain liabilities, including certain liabilities under the Securities Act. The selling shareholders have agreed to indemnify us in certain circumstances against certain liabilities, including certain liabilities under the Securities Act. The selling shareholders may indemnify any underwriter or broker-dealer that participates in transactions involving the sale of ordinary shares against certain liabilities, including liabilities arising under the Securities Act.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

There can be no assurance that we or the selling stockholders will sell all or any of the securities offered by this prospectus.

LEGAL MATTERS

Unless the applicable prospectus supplement indicates otherwise, the validity of the securities in respect of which this prospectus is being delivered will be passed upon for us by Fox Rothschild LLP, Minneapolis, Minnesota. Additional legal matters may be passed upon for us or any underwriters, dealers or agents by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The financial statements for the years ended December 31, 2020 and 2019 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 February 24, 2021, appearing in our most recent Annual Report on Form 10-K, filed with the SEC on February 24, 2021, 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 DOCUMENTS 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, 2020, filed on February 24, 2021](#);
- 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 [February 22, 2021](#) and [May 6, 2021](#);
- the description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the year ended December 31, 2020, filed on February 24, 2021, including any amendment or report filed for the purpose of updating such description;
- 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 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 on Form S-3 under the Securities Act 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, which contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, 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.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities offered by this prospectus. When used in this prospectus, the term "registration statement" includes amendments to the registration statement as well as the exhibits, schedules, financial statements and notes filed as part of the registration statement. This prospectus, which constitutes a part of the registration statement, does not contain all of the information in the registration statement. This prospectus omits information contained in the registration statement as permitted by the rules and regulations of the SEC. For further information with respect to us and our common stock and other securities that may be offered by this prospectus, reference is made to the registration statement. Statements herein concerning the contents of any contract or other document are not necessarily complete and in each instance reference is made to the copy of such contract or other document filed with the SEC as an exhibit to the registration statement, each such statement being qualified by and subject to such reference in all respects.

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the registrant pursuant to the foregoing provisions, the registrant has been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

XTANT MEDICAL HOLDINGS, INC.

PROSPECTUS

**\$150,000,000
Common Stock
Preferred Stock
Warrants
Units**

Offered by Xtant Medical Holdings, Inc.

**18,218,374 Shares of our Common Stock
Offered by Selling Stockholders**

, 2021

We have not authorized any dealer, salesperson or other person to give any information or represent anything not contained in this prospectus. You must not rely on any unauthorized information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not offer to sell any securities in any jurisdiction where it is unlawful. Neither the delivery of this prospectus, nor any sale made hereunder, shall create any implication that the information in this prospectus is correct after the date hereof.

PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

The table below sets forth the estimated costs and expenses in connection with the sale and distribution of the securities being registered hereby, other than underwriting discounts and commissions. All of the amounts shown are estimates, except the SEC registration fee. The expenses listed will be paid by Xtant.

	<u>Amount to be paid</u>	
SEC registration fee	\$	19,684.33
Accounting fees and expenses		*
Legal fees and expenses		*
Transfer agent fees and expenses		*
FINRA, blue sky fees and expenses		*
Printing expenses		*
Miscellaneous		*
Total	\$	*

* Estimated expenses are not currently known because they depend upon, among other things, the number of offerings that will be made pursuant to this registration statement, the amount and type of securities being offered and the timing of such offerings. The foregoing sets forth the general categories of expenses (other than underwriting discounts and commissions) that we anticipate we will incur in connection with the offering of securities under this registration statement. An estimate of the expenses in connection with the issuance and distribution of the securities being offered will be included in the applicable prospectus supplement.

Item 15. Indemnification of Directors and Officers

General Corporation Law of the State of Delaware

Section 145(a) of the DGCL 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.

Charter

The Company has adopted provisions in its Charter 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 insurance policies that purport 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 Charter, 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 SEC 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 16. Exhibits and Financial Statement Schedules

(a) Exhibits

Exhibit No.	Description
1.1 ⁽¹⁾	Form of Underwriting Agreement
1.2 ⁽¹⁾	Form of Placement Agent Agreement
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>
3.3	<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 1, 2020 (SEC File No. 001-34951) and incorporated by reference herein)</u>
3.4	<u>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)</u>
4.1	<u>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, 2020 (File No. 001-34951) and incorporated by reference herein)</u>
4.2	<u>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)</u>
4.3 ⁽¹⁾	Form of Preferred Stock Certificate
4.4	<u>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)</u>
4.5	<u>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)</u>
4.6	<u>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)</u>

Exhibit No. Description

- 4.7 [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\)](#)
- 4.8 [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\)](#)
- 4.9⁽¹⁾ Form of Warrant Agreement, including Form of Warrant
- 4.10⁽¹⁾ Form of Unit Agreement, including Form of Unit
- 5.1* [Opinion of Fox Rothschild LLP](#)
- 23.1* [Consent of Independent Registered Public Accounting Firm, Plante & Moran, PLLC](#)
- 23.2* [Consent of Fox Rothschild LLP \(included in Exhibit 5.1\)](#)
- 24.1* [Power of Attorney \(included on signature page\)](#)

* Filed herewith

- (1) To be filed by an amendment or a Current Report on Form 8-K

Item 17. Undertakings

(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) if, in the aggregate, the changes in volume and price represent no more than 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;

provided, however, that paragraphs (a)(1)(i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of 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 the offering.

(4) 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;

(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) That, for purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(e) That, for the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Belgrade, State of Montana, on May 11, 2021.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ Sean E. Browne

Name: Sean E. Browne

Title: President and Chief Executive Officer

POWER OF ATTORNEY

We, the undersigned officers and directors of Xtant Medical Holdings, Inc., a Delaware corporation, hereby constitute and appoint Sean E. Browne and Greg Jensen, and each of them individually, as the true and lawful agent and attorney-in-fact of the undersigned with full power and authority in said agent and attorney-in-fact to sign for the undersigned and in their respective names as an officer/director of the Company, any and all amendments (including post-effective amendments) to this registration statement on Form S-1 (or any other registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act) and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, and with full power of substitution, hereby ratifying and confirming all that said attorney-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, 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)	May 11, 2021
<u>/s/ Greg Jensen</u> Greg Jensen	Vice President, Finance and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	May 11, 2021
<u>/s/ John K. Bakewell</u> John K. Bakewell	Director	May 11, 2021
<u>/s/ Michael Eggenberg</u> Michael Eggenberg	Director	May 11, 2021
<u>/s/ Robert McNamara</u> Robert McNamara	Director	May 11, 2021
<u>/s/ Jeffrey Peters</u> Jeffrey Peters	Director	May 11, 2021
<u>/s/ Matthew Rizzo</u> Matthew Rizzo	Director	May 11, 2021



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May 11, 2021

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

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Xtant Medical Holdings, Inc., a Delaware corporation (the "Company"), in connection with the filing by the Company under the United States Securities Act of 1933, as amended (the "Securities Act"), of a registration statement on Form S-3, dated the date hereof (the "Registration Statement"), with the United States Securities and Exchange Commission (the "SEC"). The Company has provided us with a prospectus (the "Prospectus"), which forms part of the Registration Statement. The Prospectus provides that it will be supplemented in the future by one or more prospectus supplements (each, a "Prospectus Supplement"). The Registration Statement, including the Prospectus as supplemented from time to time by one or more Prospectus Supplements, relates to:

- i. the issuance, offer and sale from time to time by the Company of up to \$150,000,000 in aggregate offering amount consisting of (a) shares of common stock of the Company, par value \$0.000001 per share (the "Common Stock"); (b) shares of preferred stock of the Company, par value \$0.000001 per share (the "Preferred Stock"); (c) warrants to purchase Common Stock or Preferred Stock (the "Warrants"), such Warrants to be issued under a separate warrant agreement ("Warrant Agreement"); (d) and/or units of the Company consisting of any combination of the Common Stock, Preferred Stock and Warrants (the "Units"), such Units to be issued under a separate unit agreement ("Unit Agreement"). The shares of Common Stock, Preferred Stock, Warrants and Units that may be registered pursuant to any subsequent registration statement that the Company may hereafter file with the SEC pursuant to Rule 462(b) under the Securities Act in connection with the offering by the Company contemplated by the Registration Statement are referred to herein collectively as the "Primary Securities," and each a "Primary Security"; and
- ii. the offer and sale from time to time by certain selling stockholders, as described in the Registration Statement, of up to 18,218,374 shares of Common Stock (collectively referred to as the "Selling Stockholder Shares," and each a "Selling Stockholder Share" and jointly with the Primary Securities the "Securities").

The Registration Statement provides that the Securities may be offered in amounts, at prices and on terms to be set forth in one or more Prospectus Supplements to the Prospectus contained in the Registration Statement.

For purposes of this opinion letter, we have examined copies of the following documents (the "Documents"):

- i. the Company's Certificate of Incorporation and Bylaws;
 - ii. the Registration Statement and Prospectus;
 - iii. such other documents and matters of law as we have deemed necessary or appropriate for the purpose of rendering this opinion.
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In acting as counsel for the Company and arriving at the opinions expressed below, we have examined and relied upon originals or copies, certified or otherwise identified to our satisfaction, of the Documents and such other records of the Company, agreements and other instruments, certificates of officers and representatives of the Company, certificates of public officials and other documents as we have deemed necessary or appropriate as a basis for the opinions expressed herein. In connection with our examination, we have assumed the genuineness and authenticity of all signatures on original documents, including electronic 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 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 original documents of all documents submitted to us as certified or photocopies, the authenticity of the originals of such latter documents, and the accuracy and completeness of all documents and records reviewed by us.

For purposes of this opinion letter, we have assumed that (i) the issuance, sale, amount and terms of the Primary Securities, to be offered from time to time, will be duly authorized and established by proper action of the Board of Directors of the Company or a duly authorized committee of the Board of Directors consistent with the procedures and terms described in the Registration Statement and in accordance with the applicable laws of Delaware in a manner that does not violate any law, government or court-imposed order or restriction or agreement or instrument then binding on the Company or otherwise impair the legal or binding nature of the obligations represented by the applicable Securities; (ii) at the time of offer and sale of any Securities, the Registration Statement will have become effective under the Securities Act, and no stop order suspending its effectiveness will have been issued and remain in effect; (iii) a Prospectus and any and all Prospectus Supplements will have been prepared and filed with the SEC describing the Securities offered thereby; (iv) all Securities will be issued and sold in compliance with applicable laws and in the manner stated in the Registration Statement and any required post-effective amendment thereto and the Prospectus and any applicable Prospectus Supplement; (v) any Warrants will be issued under one or more Warrant Agreements, which will state that the State of Delaware law governs; (vi) any Units will be issued under one or more Unit Agreements, which will state that the State of Delaware law governs; and (vii) the Securities will be delivered against payment of valid consideration therefor, and in accordance with the terms of the applicable corporate action authorizing such sale and any applicable underwriting agreement, purchase agreement or similar agreement and as contemplated by the Registration Statement and/or the applicable Prospectus Supplement.

To the extent that the obligations of the Company with respect to the Primary Securities may be dependent upon such matters, we assume for purposes of this opinion that the other party under the Warrant Agreement for any Warrants or any Unit Agreement for any Units, namely, the warrant agent or unit agent, is duly organized, validly existing and in good standing under the laws of its jurisdiction of organization; that such other party is duly qualified to engage in the activities contemplated by such Warrant Agreement or Unit Agreement; that such Warrant Agreement or Unit Agreement has been duly authorized, executed and delivered by the other party and constitutes the legal, valid and binding obligation of the other party enforceable against the other party in accordance with its terms; that such other party is in compliance with respect to performance of its obligations under such Warrant Agreement or Unit Agreement with all applicable laws and regulations; and that such other party has the requisite organizational and legal power and authority to perform its obligations under such Warrant Agreement or Unit Agreement.

Based on the foregoing, and subject to the qualifications and limitations stated herein, it is our opinion that:

1. The Company has been duly incorporated and is validly existing under the laws of the State of Delaware.
 2. With respect to the Common Stock, when (a) the Board of Directors of the Company or a duly constituted and acting committee thereof has taken all necessary corporate action to approve the issuance of and the terms of the offering of such Common Stock and all matters related thereto and (b) the Common Stock have been delivered either (i) in accordance with the applicable definitive purchase, underwriting, placement agency or similar agreement approved by the Board of Directors, or upon the exercise of Warrants to purchase Common Stock, upon full payment of the consideration therefor provided for therein, or (ii) upon conversion or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exercise as approved by the Board of Directors, for the full consideration approved by the Board of Directors, then such Common Stock will be validly issued, fully paid and non-assessable shares in the capital of the Company.
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3. With respect to the Preferred Stock, when (a) the Board of Directors of the Company or a duly constituted and acting committee thereof has taken all necessary corporate action to approve the issuance of and the terms of the offering of such Preferred Stock and all matters related thereto and (b) the Preferred Stock have been delivered either (i) in accordance with the applicable definitive purchase, underwriting, placement agency or similar agreement approved by the Board of Directors, or upon the exercise of Warrants to purchase Preferred Stock, upon full payment of the consideration therefor provided for therein, or (ii) upon conversion or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exercise as approved by the Board of Directors, for the full consideration approved by the Board of Directors, then such Preferred Stock will be validly issued, fully paid and non-assessable shares in the capital of the Company.
4. With respect to the Warrants and Warrant Agreements, when (a) the Board of Directors has taken all necessary corporate action to approve the issuance of and the terms of the Warrants and all matters related thereto and (b) the Warrants have been duly executed and delivered against full payment therefor in accordance with the terms of the applicable Warrant Agreement and in the manner contemplated by the applicable Prospectus, pursuant to the applicable Warrant Agreement duly authorized, executed and delivered by the Company and a warrant agent and the certificates for the Warrants have been duly executed and delivered by the Company and such warrant agent, then the Warrants will be validly issued and will constitute valid and binding obligations of the Company under the General Corporation Law of the State of Delaware, enforceable against the Company in accordance with their terms.
5. With respect to the Units and Unit Agreements, when (a) the Board of Directors has taken all necessary corporate action to approve the issuance of and the terms of the Units (including Securities underlying the Units) and all matters related thereto and (b) the Units (including Securities underlying the Units) have been duly executed and delivered against payment therefor in accordance with the terms of the applicable Unit Agreement and in the manner contemplated by the applicable Prospectus, pursuant to the applicable Unit Agreement duly authorized, executed and delivered by the Company and the certificates for the Units have been duly executed and delivered in accordance with such Unit Agreements, then the Units (including Securities underlying the Units) will be validly issued and will constitute valid and binding obligations of the Company under the General Corporation Law of the State of Delaware, enforceable against the Company in accordance with their terms.
6. The Selling Stockholder Shares are validly issued, fully paid and non-assessable shares in the capital of the Company.

In addition to the qualifications, exceptions and limitations elsewhere set forth in this opinion letter, our opinion that any document is legal, valid and binding is qualified as to and we give no opinion with respect to: (i) limitations imposed by bankruptcy, insolvency, reorganization, arrangement, receivership, moratorium or other laws affecting creditors' rights (including, without limitation, the effect of statutory and other laws regarding fraudulent conveyances, fraudulent transfers and preferential transfers); (ii) right to indemnification and contribution, which may be limited by applicable law or equitable principles; (iii) general principles of equity, including, without limitation, concepts of materiality, reasonableness, conscionability, good faith and fair dealing, and the possible unavailability of specific performance or injunctive relief, regardless of whether the applicable agreements are considered in a proceeding in equity or at law; and (iv) any provisions relating to the choice of forums for resolving disputes.

This opinion is limited 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 is based on these laws as in effect on the date hereof, and we express no opinion with respect to the applicability thereto, or the effect thereon, of the laws of any other jurisdiction. We express no opinion as to the applicable choice of law rules that may affect the interpretation or enforcement of the Common Stock, Preferred Stock, Warrants or Units. We further disclaim any opinion as to any statute, rule, regulation, ordinance, order or other promulgation of any regional or local governmental body or as to any related judicial or administrative opinion.



We hereby consent to the filing of this opinion as an exhibit to the Registration Statement and the use of our name wherever it appears in the Registration Statement, the Prospectus, the Prospectus Supplement, and in any amendment or supplement thereto. In giving such 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 or the rules and regulations of the SEC.

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.

Very truly yours,

/s/ Fox Rothschild LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated February 24, 2021 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, 2020 and 2019. We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ PLANTE & MORAN, PLLC

Denver, Colorado
May 11, 2021
