
**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:

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

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective as determined by the selling stockholders.

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: [X]

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⁽¹⁾</u>	<u>Amount to be registered⁽¹⁾</u>	<u>Proposed maximum offering price per share</u>	<u>Proposed maximum aggregate offering price</u>	<u>Amount of registration fee</u>
Common Stock, par value \$0.000001 per share	16,000,002 ⁽²⁾	\$ 2.30 ⁽³⁾	\$ 36,800,004.60 ⁽³⁾	\$ 4,014.88

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement includes an indeterminate number of additional shares that may be offered and sold to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (2) Includes 7,111,112 shares of common stock that may be issued upon the exercise of warrants.
- (3) 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 shares of common stock on April 5, 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 that 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 APRIL 6, 2021

PRELIMINARY PROSPECTUS

16,000,002 SHARES OF COMMON STOCK



This prospectus relates to the resale, from time to time, of up to an aggregate of 16,000,002 shares of common stock, par value \$0.000001 per share, of Xtant Medical Holdings, Inc. by the selling stockholders named in this prospectus, including their respective donees, pledgees, transferees, assignees or other successors-in-interest. The selling stockholders acquired these shares from us pursuant to a (i) Securities Purchase Agreement, dated February 22, 2021 pursuant to which we issued 8,888,890 shares of common stock, par value \$0.000001 per share, at a purchase price of \$2.25 per share, and a warrant to purchase up to 6,666,668 shares of common stock in a private placement, and (ii) Placement Agent Agreement, dated February 22, 2021, with A.G.P./Alliance Global Partners pursuant to which we issued warrants to purchase up to an aggregate of 444,444 shares of common stock.

We are not selling any shares of our common stock under this prospectus and will not receive any proceeds from sales of the shares offered by the selling stockholders, although we will incur expenses in connection with the offering. The registration of the resale of the shares of common stock covered by this prospectus does not necessarily mean that any of the shares will be offered or sold by the selling stockholders. The timing and amount of any sales are within the sole discretion of the selling stockholders.

The shares of common stock offered under this prospectus may be sold by the selling stockholders through public or private transactions, on or off the NYSE American, at prevailing market prices or at privately negotiated prices. For more information on the times and manner in which the selling stockholders may sell the shares of common stock under this prospectus, please see the section entitled “*Plan of Distribution*,” beginning on page 16 of this prospectus.

Our common stock is listed on the NYSE American under the symbol “XTNT.” On April 5, 2021, the last reported sale price of our common stock on the NYSE American was \$2.34 per share.

Investing in our shares of common stock involves a high degree of risk. See “*Risk Factors*” beginning on page 4 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 Securities and Exchange Commission (“SEC”), under the Securities Act of 1933, as amended (“Securities Act”). Under this 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 the selling stockholders named in this prospectus (or in any supplement to this prospectus) sells shares of our common stock under the registration statement of which this prospectus is a part, 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 19 of this prospectus and “*Incorporation of Certain Information by Reference*” beginning on page 18 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 common stock 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 4 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 8 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 4 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.

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

Our Recent Private Placement

Securities Purchase Agreement

On February 22, 2021, we entered into the Securities Purchase Agreement (the “Securities Purchase Agreement”), pursuant to which we agreed to issue the investor named therein (the “Investor”) 8,888,890 shares (the “Shares”) of our common stock, par value \$0.000001 per share, at a purchase price of \$2.25 per share, and a warrant to purchase up to 6,666,668 shares of our common stock (the “Investor Warrant”) in a private placement (the “Private Placement”). The closing of the Private Placement occurred on February 24, 2021.

We received gross proceeds of approximately \$20 million, before deducting fees and other estimated offering expenses incurred in connection with the Private Placement. We intend to use the net proceeds from the Private Placement for working capital and other general corporate purposes.

The Investor Warrant is immediately exercisable and expires on the five-year anniversary of the date of issuance. The Investor Warrant has an exercise price of \$2.25 per share, subject to customary anti-dilution, but not price protection, adjustments. We will be prohibited from effecting an exercise of the Investor Warrant to the extent that, as a result of such exercise, the Investor would beneficially own more than 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the issuance of shares of our common stock issuable upon exercise of the Investor Warrant (the “Warrant Shares”).

Under the terms of the Securities Purchase Agreement, we agreed that in the event it or any of its 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 would 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 will expire upon the earlier of 12 months after the closing of the Private Placement or upon the occurrence of certain change in control events.

Registration Rights Agreement

Under the terms of the Securities Purchase Agreement, we entered into a registration rights agreement (the “Registration Rights Agreement”) with the Investor pursuant to which we agreed to prepare and file a registration statement (the “Resale Registration Statement”) with the Securities and Exchange Commission (“SEC”) within 45 days of the closing date for purposes of registering the resale of the Shares and the Warrant Shares. The registration statement of which this prospectus is a part has been filed to satisfy this obligation. Under the terms of the Registration Rights Agreement, we agreed to use our reasonable best efforts to cause the Resale Registration Statement to be declared effective by the SEC within 60 calendar days of the closing of the Private Placement (75 calendar days in the event the Resale Registration Statement is reviewed by the SEC). If we fail to meet the specified filing deadlines or keep the Resale Registration Statement effective, subject to certain permitted exceptions, we will be required to pay liquidated damages to the Investor. We also agreed, among other things, to indemnify the selling holder under the Resale Registration Statement from certain liabilities and to pay all fees and expenses incident to our performance of or compliance with the Registration Rights Agreement.

Placement Agent Agreement

Also on February 22, 2021, we entered into a placement agent agreement with the Placement Agent pursuant to which the Placement Agent served as our exclusive placement agent in connection with the Private Placement (the “Placement Agent Agreement”). Pursuant to the Placement Agent Agreement, we agreed to pay the Placement Agent a fee equal to a certain percentage of the aggregate gross proceeds from the Private Placement. In addition to the cash fee, we issued to the Placement Agent, warrants to purchase up to 5.0% of the Shares sold to the Investor in the Private Placement, or 444,444 shares of our common stock (the “Placement Agent Warrants”). The Placement Agent Warrants are immediately exercisable and expire on the five-year anniversary of the date of issuance. The Placement Agent Warrants have an exercise price of \$2.8125 per share, subject to customary anti-dilution, but not price protection, adjustments.

The Offering

Common stock to be offered by the selling stockholders:	Up to 16,000,002 shares
Common stock to be outstanding after the offering:	93,818,398 shares (based on 86,707,286 shares outstanding as of March 31, 2021 and assuming the exercise of the Investor Warrant and Placement Agent Warrants)
Use of proceeds:	We will not receive any proceeds from the sale of shares in this offering. See " <i>Use of Proceeds</i> " beginning on page 9 of this prospectus.
Risk factors:	You should read the " <i>Risk Factors</i> " beginning on page 4 of this prospectus and the " <i>Risk Factors</i> " sections of the documents incorporated by reference in this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Stock exchange listing:	Our common stock is listed on the NYSE American under the symbol "XTNT."

RISK FACTORS

Before making an investment decision, you should carefully consider the following risks and the risks described in the “Risk Factors” section of our most recent Annual Report on Form 10-K for the year ended December 31, 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. The occurrence of any of the events described below could have a material adverse effect on our business, financial condition, results of operations, cash flows, prospects or the value of our common stock. These risks are not the only ones that we face. Additional risks not currently known to us or that we currently deem immaterial also may impair our business.

Risks Related to this Offering and Our Common Stock

Sales of shares in connection with this offering may cause the market price of our common stock to decline.

In connection with the Private Placement, we entered into the Securities Purchase Agreement, Registration Rights Agreement and Placement Agent Agreement, pursuant to which we agreed to register for resale with the SEC the shares of our common stock issued to the selling stockholders in the Private Placement, as well as those shares of our common stock issuable upon the exercise of the Investor Warrant and Placement Agent Warrants. The registration statement of which this prospectus is a part has been filed to satisfy this obligation. Upon the effectiveness of the registration statement, the shares we issued in the Private Placement, and the shares of our common stock issuable upon the exercise of the Investor Warrant and Placement Agent Warrants, may be freely sold in the open market. The sale of a significant amount of these shares of our common stock in the open market, or the perception that these sales may occur, could cause the market price of our common stock to decline or become highly volatile.

Shares of our common stock are equity securities and are subordinate to our outstanding indebtedness.

Shares of our common stock are common equity interests. This means that our common stock will rank junior to any outstanding shares of our preferred stock that we may issue in the future or to the indebtedness under our Second Amended and Restated Credit Agreement dated March 29, 2019 among Xtant Medical Holdings, Inc., Bacterin International, Inc., Xtant Medical Systems, Inc., X-spine Systems, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP, as subsequently amended (the “Second A&R Credit Agreement”) and any future indebtedness we may incur and to all creditor claims and other non-equity claims against us and our assets available to satisfy claims on us, including claims in a bankruptcy or similar proceeding. Additionally, unlike indebtedness, where principal and interest customarily are payable on specified due dates, in the case of our common stock, (i) dividends are payable only when and if declared by our Board of Directors, and (ii) as a corporation, we are restricted to making dividend payments and redemption payments out of legally available assets. We have never paid a dividend on our common stock and have no current intention to pay dividends in the future. In addition, our Second A&R Credit Agreement precludes us from paying dividends. Furthermore, our common stock places no restrictions on our business or operations or on our ability to incur indebtedness or engage in any transactions, subject only to the voting rights available to stockholders generally.

Our common stock price may be volatile.

The market price for securities of medical device and biotechnology companies, including ours, historically has been highly volatile, and the market from time to time has experienced significant price and volume fluctuations that are unrelated to the operating performance of such companies. The trading volume and prices of our common stock have been and may continue to be volatile and could fluctuate widely due to factors both within and beyond our control. During 2020, the sale price of our common stock ranged from \$0.55 to \$3.50 per share, and our daily trading volume ranged from zero to 112.3 million shares. During the first quarter of 2021, the sale price of our common stock ranged from \$1.18 to \$6.58 per share, and our daily trading volume ranged from 77,289 to 219 million shares. Such volatility may be the result of broad market and industry factors. Future fluctuations in the trading price or liquidity of our common stock may harm the value of the investment of our stockholders in our common stock. Factors that may have a significant impact on the market price and marketability of our common stock include, among others:

- the terms of any potential future transaction(s) related to debt financing, debt restructuring or capital raising;
- our ability to make interest payments under our Second A&R Credit Agreement;
- our observance of covenants under our Second A&R Credit Agreement;
- announcements of technological innovations or new commercial products by us or our present or potential competitors;

- developments or disputes concerning patent or other proprietary rights;
- developments in our relationships with employees, suppliers, distributors, sales representatives and customers;
- acquisitions or divestitures;
- litigation and government proceedings;
- adverse legislation, including changes in governmental regulation;
- third-party reimbursement policies;
- additions or departures of key personnel;
- sales of our equity securities by our significant stockholders or management or sales of additional equity securities by our Company;
- changes in securities analysts' recommendations;
- short selling;
- changes in health care policies and practices;
- the delisting of our common stock or halting or suspension of trading in our common stock by the NYSE American;
- economic and other external factors, such as the COVID-19 pandemic; and
- general market conditions.

In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. These lawsuits often seek unspecified damages, and as with any litigation proceeding, one cannot predict with certainty the eventual outcome of pending litigation. Furthermore, we may have to incur substantial expenses in connection with any such lawsuits and our management's attention and resources could be diverted from operating our business as we respond to any such litigation. We maintain insurance to cover these risks for us and our directors and officers, but our insurance is subject to high deductibles to reduce premium expense, and there is no guarantee that the insurance will cover any specific claim that we currently face or may face in the future, or that it will be adequate to cover all potential liabilities and damages.

We may issue additional common stock resulting in stock ownership dilution.

Future dilution may occur due to additional future equity issuances and/or equity financing events by us, including any potential future restructuring of our outstanding indebtedness. In addition, we may raise additional capital through the sale of equity or convertible debt securities, which would further dilute the ownership interests of our stockholders. As of March 31, 2021, we had outstanding warrants to purchase approximately 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. If these or any future warrants, options or restricted stock units are exercised or otherwise converted into shares of our common stock, our stockholders will experience additional dilution.

The sale or availability for sale of substantial amounts of our common stock or other equity securities could adversely affect the market price of our common stock.

Sales of substantial amounts of our common stock or a preferred stock in the public market, or the perception that these sales could occur, could adversely affect the market price of our common stock and could materially impair our ability to raise capital through equity offerings in the future. We cannot predict what effect, if any, market sales of securities beneficially owned by the selling stockholders or any other stockholder or the availability of these securities for future sale will have on the market price of our common stock.

Anti-takeover provisions in our organizational documents and agreements may discourage or prevent a change in control, even if a sale of the Company could be beneficial to our stockholders, which could cause our stock price to decline and prevent attempts by our stockholders to replace or remove our current management.

Several provisions of our Amended and Restated Certificate of Incorporation, as amended (the “Charter”) and Second Amended and Restated Bylaws (the “Bylaws”) and our Investor Rights Agreement, dated as of February 14, 2018 with OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (“Investor Rights Agreement”), could make it difficult for our stockholders to change the composition of our Board of Directors, preventing them from changing the composition of management. In addition, several provisions of our Charter and Bylaws may discourage, delay or prevent a merger or acquisition that our stockholders may consider favorable. These provisions include:

- 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 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 Xtant to us or our stockholders, (iii) any action asserting a claim arising under any provision of the General Corporation Law of the State of Delaware (“DGCL”), our Charter or our Bylaws, or (iv) any action asserting a claim governed by the internal-affairs doctrine.
- 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 II, LP (“Royalty Opportunities”) and ROS Acquisition Offshore LP (“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 business 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).

These anti-takeover provisions could substantially impede the ability of our stockholders to benefit from a change in control and, as a result, could materially adversely affect the market price of our common stock and the ability of our stockholders to realize any potential change-in-control premium.

Our Board of Directors is authorized to issue and designate shares of our preferred stock without stockholder approval.

Our Charter authorizes our Board of Directors, without the approval of our stockholders, to issue up to 10 million shares of our preferred stock, subject to limitations prescribed by applicable law, rules and regulations and the provisions of our Charter, as shares of preferred stock in series, to establish from time to time the number of shares to be included in each such series and to fix the designation, powers, preferences and rights of the shares of each such series and the qualifications, limitations or restrictions thereof. The powers, preferences and rights of these series of preferred stock may be senior to or on parity with our common stock, which may reduce its value.

Our Charter designates the Court of Chancery of the State of Delaware as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit the ability of our stockholders to obtain a favorable judicial forum for disputes with us.

Our Charter provides that 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 to us or our stockholders by any of our directors, officers, or other employees, (iii) any action asserting a claim against us arising under the DGCL or (iv) any action asserting a claim against us that is governed by the internal affairs doctrine. Stockholders in our Company will be deemed to have notice of and have consented to the provisions of our Charter related to choice of forum. The choice of forum provision in our Charter may limit the ability of our stockholders to obtain a favorable judicial forum for disputes with us.

We have never paid dividends and do not expect to do so in the foreseeable future.

We have not declared or paid any cash dividends on our common stock. The payment of dividends in the future will be dependent on our earnings and financial condition and on such other factors as our Board of Directors considers appropriate. Unless and until we pay dividends, stockholders may not receive a return on their shares of our common stock. There is no present intention by our Board of Directors to pay dividends on our common stock. We currently intend to retain all of our future earnings, if any, to finance the growth and development of our business. In addition, the terms of our Second A&R Credit Agreement preclude us from paying dividends. As a result, appreciation, if any, in the market price of our common stock will be the sole source of gain for our stockholders for the foreseeable future.

Our inability to comply with the continued listing requirements of the NYSE American could result in our common stock being delisted, which could affect its market price and liquidity and reduce our ability to raise capital.

We are required to meet certain qualitative and financial tests to maintain the listing of our common stock on the NYSE American. If we do not maintain compliance with the continued listing requirements for the NYSE American within specified periods and subject to permitted extensions, our common stock may be recommended for delisting (subject to any appeal we would file). On October 5, 2020, we regained compliance with these continued listing requirements as a result of the completion of our recent debt restructuring. No assurance can be provided that we will continue to comply with these continued listing requirements. If our common stock were delisted, it could be more difficult to buy or sell our common stock and to obtain accurate quotations, and the price of our stock could suffer a material decline. Delisting would also impair our ability to raise capital.

Our business, operating results and financial condition have been and will likely continue to be materially adversely affected by the COVID-19 pandemic, which may adversely impact the trading price of our common stock.

The COVID-19 pandemic has caused business closures, severe travel restrictions and the implementation of social distancing measures. Hospitals and other medical facilities have cancelled or deferred elective procedures, diverted resources to patients suffering from infections and limited access for non-patients, including our distributors and independent sales representatives. Because of the COVID-19 pandemic, surgeons and their patients have been, and may continue to be, required, or are choosing, to defer procedures in which our products otherwise would be used, and many facilities that specialize in the procedures in which our products otherwise would be used have experienced temporary closures or reduced operating hours. These circumstances have negatively impacted, and may continue to negatively impact, the ability of our employees, independent sales representatives and distributors to effectively market and sell our products, which has had and will likely continue to have a material adverse effect on our revenues. In addition, even after the easing of such restrictions such that governmental orders no longer prohibit or recommend against performing such procedures, patients may continue to defer such procedures out of concern of being exposed to COVID-19 or for other reasons.

The COVID-19 pandemic has also caused adverse effects on general commercial activity and the global economy, which has led to an economic slowdown and recession and could cause other unpredictable events, any of which could adversely affect our business, operating results or financial condition. The adverse effect of the pandemic on the broader economy also will likely negatively affect demand for procedures using our products, both in the near- and long-term. No assurance can be provided that our revenues will ever return to pre-COVID-19 levels. In addition, as a result of this negative effect on our economy, one or more of our distributors, independent sales representatives, customers, contract manufacturers and suppliers may experience financial distress, cancel, postpone or delay orders, be unable to perform under a contract, file for bankruptcy protection, go out of business, or suffer disruptions in their business or we may need to offer special payment terms or relief to our distributors, independent sales representatives and customers. Accordingly, we believe we are exposed to heightened credit risk as a result of the pandemic. This could adversely impact our ability to manufacture and provide products and otherwise operate our business, as well as increase our costs and expenses.

The decline in our revenues and adverse impact of the pandemic on our other operating results could impact our debt covenants under our credit facility and our ability to access funding thereunder or refinance that debt or extend its maturity date. We may need to borrow funds from alternative sources, such as other lenders and institutions or government agencies. There can be no guarantee that such borrowing will be available or available on favorable terms or without restrictions that may otherwise impair our operating flexibility. The COVID-19 pandemic has also led to and could continue to lead to severe disruption and volatility in the global capital markets, which could increase our cost of future capital and adversely affect our ability to access the capital markets in the future.

The foregoing and other continued disruptions to our business as a result of COVID-19 have resulted, and could continue to result, in a material adverse effect on our business, operating results, financial condition, prospects and the trading price of our common stock in the near-term and throughout 2021. The full extent to which the COVID-19 pandemic will continue to impact our business will depend on future developments that are highly uncertain and cannot be accurately predicted, including new information that may emerge concerning COVID-19, the availability and effectiveness of vaccines, actions that federal, state and local governmental or regulatory agencies take in response to COVID-19, and other actions to contain it or treat its impact.

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:

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

The forward-looking statements contained in this prospectus or in any documents incorporated by reference are based on our current expectations and beliefs concerning future developments and their potential effects on us. There can be no assurance that future developments affecting us will be those that we have anticipated. These forward-looking statements involve a number of risks, uncertainties, or assumptions, many of which are beyond our control, which may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements. These risks and uncertainties include, but are not limited to, those factors described in this prospectus, see “*Risk Factors*” beginning on page 4 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

We are filing the registration statement of which this prospectus is a part to permit holders of our common stock described in the section entitled “*Selling Stockholders*,” beginning on page 14 of this prospectus, to resell such shares. We are not selling any securities under this prospectus and will not receive any proceeds from the sale of shares by the selling stockholders. We may receive proceeds from the exercise of the 7,111,112 warrants, which will be used for working capital and general corporate purposes.

We will bear all expenses incurred in connection with the performance of our obligations under the Registration Rights Agreement 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 this offering.

DESCRIPTION OF SECURITIES

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes the material terms and provisions of our common stock and preferred stock and does not purport to be complete. It is subject to and qualified in its entirety by reference to the provisions of our Charter, Bylaws and 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 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 March 31, 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 March 31, 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).

Controlled Company Status

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

Section 203 of the 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.

SELLING STOCKHOLDERS

The shares of our common stock offered under this prospectus may be offered from time to time by the selling stockholders named below or by any of their respective pledgees, donees, transferees or other successors-in-interest. As used in this prospectus, the term “selling stockholders” includes the selling stockholders identified below and any donees, pledgees, transferees 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 selling stockholders named below acquired the shares of our common stock being offered under this prospectus directly from us, with the exception of 225,000 shares that A.G.P./Alliance Global Partners purchased from Altium Capital Management, LP following the Private Placement. We issued the shares to the selling stockholders in reliance on an exemption from the registration requirements of the Securities Act pursuant to Section 4(a)(2) of the Securities Act and Rule 506 promulgated thereunder.

The following table sets forth as of March 12, 2021: (1) the name of each selling stockholder for whom we are registering shares of our common stock under the registration statement of which this prospectus is a part, (2) the number of shares of our common stock beneficially owned by each of the selling stockholders prior to the offering, determined in accordance with Rule 13d-3 under the Exchange Act, (3) the number of shares of our common stock that may be offered by each selling stockholder under this prospectus and (4) the number of shares of our 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 our 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 March 12, 2021. The percentage of beneficial ownership for the following table is based on 86,707,286 shares of our common stock outstanding as of March 12, 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 our 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 our 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	Percentage		Number	Percentage
Altium Capital Management, LP ⁽¹⁾	15,161,808 ⁽²⁾	9.9% ⁽²⁾	15,161,808 ⁽²⁾	0	0.00%
A.G.P./Alliance Global Partners ⁽³⁾⁽⁴⁾	549,308	*	549,308	0	0.00%
Tom Higgins ⁽⁴⁾⁽⁵⁾	4,444	*	4,444	0	0.00%
David Bocchi ⁽⁴⁾⁽⁶⁾	65,000	*	65,000	0	0.00%
Carmelo Cataudella ⁽⁴⁾⁽⁷⁾	65,000	*	65,000	0	0.00%
Emanuel Cohen ⁽⁴⁾⁽⁸⁾	8,000	*	8,000	0	0.00%
David Birenbaum ⁽⁴⁾⁽⁹⁾	3,722	*	3,722	0	0.00%
Kevin Oleskewicz ⁽⁴⁾⁽¹⁰⁾	500	*	500	0	0.00%
Harry Ioannou ⁽⁴⁾⁽¹¹⁾	49,777	*	49,777	0	0.00%
George Anagnostou ⁽⁴⁾⁽¹²⁾	49,777	*	49,777	0	0.00%
Keith Donofrio ⁽⁴⁾⁽¹³⁾	21,333	*	21,333	0	0.00%
Zachary Grodtko ⁽⁴⁾⁽¹⁴⁾	14,222	*	14,222	0	0.00%
James Tang ⁽⁴⁾⁽¹⁵⁾	7,111	*	7,111	0	0.00%
Total	16,000,002		16,000,002		

(1) Based solely on information contained in a Schedule 13G filed with the SEC on March 8, 2021. Altium Growth Fund, LP (the “Fund”), Altium Capital Management, LLC, and Altium Growth GP, LLC each have shared dispositive power and voting power over the shares. The Fund is the record and direct beneficial owner of the shares. Altium Capital Management, LP is the investment adviser of, and may be deemed to beneficially own the shares owned by the Fund. Altium Growth GP, LLC is the general partner of, and may be deemed to beneficially own the shares owned by the Fund. The number of shares consists of 8,663,890 shares of our common stock and 6,497,918 shares of our common stock issuable upon exercise of the Investor Warrant.

(2) While the total number of shares of our common stock issuable upon exercise of the Investor Warrant is being registered under the registration statement of which this prospectus forms a part, pursuant to the terms of the Investor Warrant, the selling stockholder is not permitted to exercise such Investor Warrant to the extent that such exercise would result in the selling stockholder and its affiliates beneficially owning more than 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of such warrants. The selling stockholder has the right to increase this beneficial ownership limitation in its discretion on 61 days’ prior written notice to us.

- (3) Includes 225,000 shares of our common stock, 168,570 shares of our common stock issuable upon exercise of the Investor Warrant and 155,558 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (4) Placement Agent Warrants for an aggregate amount of 444,444 shares of our common stock were issued to the Placement Agent, Tom Higgins, David Bocchi, Carelo Cataudella, Emanuel Cohen, David Birenbaum, Kevin Oleskewicz, Harry Ioannou, George Anagnostou, Keith Donofrio, Zachart Grodtko, and James Tank. The number of shares held by the Placement Agent includes 155,558 shares of our common stock issuable upon exercise of such Placement Agent Warrants.
- (5) The number of shares consists of 4,444 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (6) The number of shares consists of 65,000 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (7) The number of shares consists of 65,000 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (8) The number of shares consists of 8,000 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (9) The number of shares consists of 3,722 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (10) The number of shares consists of 500 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (11) The number of shares consists of 49,777 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (12) The number of shares consists of 49,777 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (13) The number of shares consists of 21,333 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (14) The number of shares consists of 14,222 shares of our common stock issuable upon exercise of the Placement Agent Warrant.
- (15) The number of shares consists of 7,111 shares of our common stock issuable upon exercise of the Placement Agent Warrant.

Material Relationships Between Selling Stockholders and Xtant

Private Placement

On February 22, 2021, we entered into the Securities Purchase Agreement with the Investor, pursuant to which we agreed to issue 8,888,890 shares of our common stock at a purchase price of \$2.25 per share and warrants to purchase up to 6,666,668 shares of our common stock pursuant to the Investor Warrant in the Private Placement. The closing of the Private Placement occurred on February 24, 2021.

We received net proceeds of approximately \$18.4 million. We intend to use the net proceeds from the Private Placement for working capital and other general corporate purposes.

The Investor Warrant is immediately exercisable and will expire on the five-year anniversary of the date of issuance. The Investor Warrant has an exercise price of \$2.25 per share, subject to customary anti-dilution, but not price protection, adjustments. We will be prohibited from effecting an exercise of the Investor Warrant to the extent that, as a result of such exercise, the Investor would beneficially own more than 9.99% of the number of shares of our common stock outstanding immediately after giving effect to the Warrant Shares.

Under the terms of 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 would 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 will expire upon the earlier of 12 months after the closing of the Private Placement or upon the occurrence of certain change in control events.

Registration Rights Agreement

Under the terms of the Securities Purchase Agreement, we agreed to enter the Registration Rights Agreement with the Investor pursuant to which we agreed to prepare and file the Resale Registration Statement with the SEC within 45 days of the closing date for purposes of registering the resale of the Shares and the Warrant Shares. The registration statement of which this prospectus is a part has been filed to satisfy this obligation. Under the terms of the Registration Rights Agreement, we agreed to use our reasonable best efforts to cause the Resale Registration Statement to be declared effective by the SEC within 60 calendar days of the closing of the Private Placement (75 calendar days in the event the Resale Registration Statement is reviewed by the SEC). If we fail to meet the specified filing deadlines or keep the Resale Registration Statement effective, subject to certain permitted exceptions, we will be required to pay liquidated damages to the Investor. We also agreed, among other things, to indemnify the selling holder under the Resale Registration Statement from certain liabilities and to pay all fees and expenses incident to our performance of or compliance with the Registration Rights Agreement.

Placement Agent Agreement

Also on February 22, 2021, we entered into the Placement Agent Agreement with the Placement Agent pursuant to which the Placement Agent served as our exclusive placement agent in connection with the Private Placement. Pursuant to the Placement Agent Agreement, we agreed to pay the Placement Agent a fee equal to a certain percentage of the aggregate gross proceeds from the Private Placement. In addition to the cash fee, we agreed to issue the Placement Agent Warrants to purchase up to 5.0% of the Shares sold to the Investor in the Private Placement, or 444,444 shares of our common stock. The Placement Agent Warrants are immediately exercisable and will expire on the five-year anniversary of the date of issuance. The Placement Agent Warrant have an exercise price of \$2.8125 per share, subject to customary anti-dilution, but not price protection, adjustments.

PLAN OF DISTRIBUTION

The selling stockholders and any of their respective transferees, pledgees, donees, assignees or other successors-in-interest may, from time to time, sell any or all of their respective shares of our common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. See “*Selling Stockholders*” on page 14 of this prospectus. Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price, at fixed prices subject to change or at negotiated prices. The selling stockholders may use any one or more of the following methods when selling shares:

- an exchange or market distribution in accordance with the rules of the NYSE American;
- privately negotiated transactions;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- transactions in which a broker-dealer solicits purchasers on a best-efforts basis;
- through one or more underwriters on a firm commitment or best-efforts basis;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- directly to one or more purchasers;
- through agents; or
- a combination of any such methods of sale.

The selling stockholders also may sell shares under Rule 144 under the Securities Act, if available, rather than under this prospectus.

The selling stockholders also may transfer the shares of our common stock in other circumstances, in which case the transferees or other successors-in-interest will be the selling beneficial owners for purposes of this prospectus.

In effecting sales, broker-dealers or agents engaged by the selling stockholders may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholders in amounts to be negotiated immediately prior to the sale. In connection with sales of the shares of our common stock offered hereby or otherwise, the selling stockholders may enter into hedging transactions with broker-dealers, which may in turn engage in short sales of the shares of our common stock offered hereby in the course of hedging in positions they assume. The selling stockholders may also sell shares of our common stock offered hereby short and deliver shares of our common stock covered by this prospectus to close out short positions and to return borrowed shares in connection with such short sales. The selling stockholders may also loan or pledge shares of our common stock offered hereby to broker-dealers that in turn may sell such shares.

In offering the shares covered by this prospectus, the selling stockholders and any broker-dealers who execute sales for the selling stockholders may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such case, any profits realized by the selling stockholders and the compensation of any broker-dealer may be deemed to be underwriting discounts and commissions. In no event shall any broker-dealer receive fees, commissions and markups which, in the aggregate, exceed the amount permitted by applicable regulations.

In order to comply with the securities laws of certain states, if applicable, the shares must be sold in such jurisdictions only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and satisfied.

The selling stockholders have informed us that none of them has any agreement or understanding, directly or indirectly, with any person to distribute the shares of our common stock. If any selling stockholder notifies us that an arrangement has been entered into with a broker-dealer for the sale of shares through a block trade, special offering or secondary distribution or a purchase by a broker or dealer, we may be required to file a prospectus supplement pursuant to the applicable rules promulgated under the Securities Act.

There can be no assurance that any selling stockholder will sell any or all of the shares of our common stock registered pursuant to the registration statement, of which this prospectus is a part.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares of our common stock in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to use our best efforts to keep the registration statement of which this prospectus is a part continuously effective, supplemented and amended as required by the Securities Act, in order to permit this prospectus to be usable by the selling stockholders for a period from the date the registration statement becomes effective to, and including, the date upon which no registrable securities are outstanding and constitute "restricted securities" (as defined in Rule 144 under the Securities Act). We will bear all expenses incurred in connection with the performance of our obligations under the Registration Rights Agreement 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 this offering.

LEGAL MATTERS

The validity of the shares of our common stock being offered by this prospectus has been passed upon for us by Fox Rothschild LLP, Minneapolis, Minnesota.

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 INFORMATION BY REFERENCE

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

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

- our [Annual Report on Form 10-K for the year ended December 31, 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](#);
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, after the date of the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness of such registration statement; and
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and before we stop offering the securities under this prospectus.

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

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

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

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement 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.

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

16,000,002 Shares of Common Stock

, 2021

PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

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

	Amount to be paid
SEC registration fee	\$ 4,015
Accounting fees and expenses	4,500
Legal fees and expenses	10,000
Miscellaneous	5,000
Total	\$ 23,515

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

Item 16. Exhibits and Financial Statement Schedules**(a) Exhibits**

Exhibit No.	Description
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>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>
4.2	<u>Form of Investor Warrant (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 22, 2021 (SEC File No. 001-34951) and incorporated by reference herein)</u>
4.3	<u>Form of Placement Agent Warrant (filed as Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed with the SEC on February 22, 2021 (SEC File No. 001-34951) and incorporated by reference herein)</u>
4.4*	<u>Registration Rights Agreement, dated February 24, 2021, by and between Xtant Medical Holdings, Inc. and the investor party thereto</u>
5.1*	<u>Opinion of Fox Rothschild LLP</u>
10.1	<u>Securities Purchase Agreement, dated February 22, 2021, by and between Xtant Medical Holdings, Inc. and the investor party thereto (filed as Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on February 22, 2021 (SEC File No. 001-34951) and incorporated by reference herein)</u>
10.2	<u>Placement Agent Agreement, dated February 22, 2021, by and between Xtant Medical Holdings, Inc. and A.G.P./Alliance Global Partners (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on February 22, 2021 (SEC File No. 001-34951) and incorporated by reference herein)</u>
23.1*	<u>Consent of Independent Registered Public Accounting Firm, Plante & Moran, PLLC</u>
23.2*	<u>Consent of Fox Rothschild LLP (included in Exhibit 5.1)</u>
24.1*	<u>Power of Attorney (included on signature page)</u>

* Filed herewith

(b) Financial Statement Schedules

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

Item 17. Undertakings

(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) shall 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.

(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.

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 April 6, 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)	April 6, 2021
<u>/s/ Greg Jensen</u> Greg Jensen	Vice President, Finance and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	April 6, 2021
<u>/s/ John K. Bakewell</u> John K. Bakewell	Director	April 6, 2021
<u>/s/ Michael Eggenberg</u> Michael Eggenberg	Director	April 6, 2021
<u>/s/ Robert McNamara</u> Robert McNamara	Director	April 6, 2021
<u>/s/ Jeffrey Peters</u> Jeffrey Peters	Director	April 6, 2021
<u>/s/ Matthew Rizzo</u> Matthew Rizzo	Director	April 6, 2021

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this “Agreement”) is made and entered into as of February 24, 2021, by and between Xtant Medical Holdings, Inc., a Delaware corporation (the “Company”), and each of the several purchasers signatory hereto (each such purchaser, a “Purchaser” and, collectively, the “Purchasers”).

This Agreement is made pursuant to the Securities Purchase Agreement, dated as of the date hereof, between the Company and each Purchaser (the “Purchase Agreement”).

The Company and each Purchaser hereby agrees as follows:

1. Definitions.

Capitalized terms used and not otherwise defined herein that are defined in the Purchase Agreement shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the following meanings:

“Advice” shall have the meaning set forth in Section 6(d).

“Effectiveness Date” means, with respect to the Initial Registration Statement required to be filed hereunder, the 60th calendar day following the date hereof (or, in the event of a “full review” by the Commission, the 75th calendar day following the date hereof) and with respect to any additional Registration Statements which may be required pursuant to Section 2(c) or Section 3(c), the 30th calendar day following the date on which an additional Registration Statement is required to be filed hereunder (or, in the event of a “full review” by the Commission, the 60th calendar day following the date such additional Registration Statement is required to be filed hereunder); provided, however, that in the event the Company is notified by the Commission that one or more of the above Registration Statements will not be reviewed or is no longer subject to further review and comments, the Effectiveness Date as to such Registration Statement shall be the fifth Trading Day following the date on which the Company is so notified if such date precedes the dates otherwise required above, provided, further, if such Effectiveness Date falls on a day that is not a Trading Day, then the Effectiveness Date shall be the next succeeding Trading Day.

“Effectiveness Period” shall have the meaning set forth in Section 2(a).

“Event” shall have the meaning set forth in Section 2(d).

“Event Date” shall have the meaning set forth in Section 2(d).

“Filing Date” means, with respect to the Initial Registration Statement required hereunder, the 45th calendar day following the date hereof (or, if such deadline falls on a weekend or federal holiday, then the next business day thereafter) and, with respect to any additional Registration Statements which may be required pursuant to Section 2(c) or Section 3(c), the earliest practical date on which the Company is permitted by SEC Guidance to file such additional Registration Statement related to the Registrable Securities.

“Holder” or “Holders” means the holder or holders, as the case may be, from time to time of Registrable Securities.

“Indemnified Party” shall have the meaning set forth in Section 5(c).

“Indemnifying Party” shall have the meaning set forth in Section 5(c).

“Initial Registration Statement” means an initial Registration Statement filed pursuant to this Agreement.

“Losses” shall have the meaning set forth in Section 5(a).

“Plan of Distribution” shall have the meaning set forth in Section 2(a).

“Prospectus” means the prospectus included in a Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A promulgated by the Commission pursuant to the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by a Registration Statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference or deemed to be incorporated by reference in such Prospectus.

“Registrable Securities” means, as of any date of determination, (a) all Shares, (b) all Warrant Shares then issued and issuable upon exercise of the Warrants (assuming on such date the Warrants are exercised in full without regard to any exercise limitations therein) and upon exercise of the Placement Agent Warrant dated the date hereof, and (c) any securities issued or then issuable upon any stock split, dividend or other distribution, recapitalization or similar event with respect to the foregoing; provided, however, that any such Registrable Securities shall cease to be Registrable Securities (and the Company shall not be required to maintain the effectiveness of any, or file another, Registration Statement hereunder with respect thereto) for so long as (a) a Registration Statement with respect to the sale of such Registrable Securities is declared effective by the Commission under the Securities Act and such Registrable Securities have been disposed of by the Holder in accordance with such effective Registration Statement, (b) such Registrable Securities have been previously sold in accordance with Rule 144, or (c) such securities become eligible for resale without volume or manner-of-sale restrictions and without current public information pursuant to Rule 144 as set forth in a written opinion letter to such effect, addressed, delivered and acceptable to the Transfer Agent and the affected Holders (assuming that such securities and any securities issuable upon exercise, conversion or exchange of which, or as a dividend upon which, such securities were issued or are issuable, were at no time held by any Affiliate of the Company, and all Warrants are exercised by “cashless exercise” as provided in Section 2(c) of each of the Warrants), as reasonably determined by the Company, upon the advice of counsel to the Company.

“Registration Statement” means any registration statement required to be filed hereunder pursuant to Section 2(a) and any additional registration statements contemplated by Section 2(c) or Section 3(c), including (in each case) the Prospectus, amendments and supplements to any such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference or deemed to be incorporated by reference in any such registration statement.

“Rule 415” means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Selling Stockholder Questionnaire” shall have the meaning set forth in Section 3(a).

“SEC Guidance” means (i) any publicly-available written or oral guidance of the Commission staff, or any comments, requirements or requests of the Commission staff and (ii) the Securities Act.

2. Shelf Registration.

(a) On or prior to each Filing Date, the Company shall prepare and file with the Commission one or more Registration Statements covering the resale of all of the Registrable Securities that are not then registered on an effective Registration Statement for an offering to be made on a continuous basis pursuant to Rule 415. Each Registration Statement filed hereunder shall be on Form S-3 (except if the Company is not then eligible to register for resale the Registrable Securities on Form S-3, in which case such registration shall be on another appropriate form in accordance herewith, subject to the provisions of Section 2(e)) and shall contain (unless otherwise directed by at least 85% in interest of the Holders) substantially the “Plan of Distribution” attached hereto as Annex A and substantially the “Selling Stockholder” section attached hereto as Annex B; provided, however, that no Holder shall be required to be named as an “underwriter” without such Holder’s express prior written consent. Subject to the terms of this Agreement, the Company shall use its commercially reasonable efforts to cause a Registration Statement filed under this Agreement (including, without limitation, under Section 3(c)) to be declared effective under the Securities Act as promptly as possible after the filing thereof, but in any event no later than the applicable Effectiveness Date, and shall use its commercially reasonable efforts to keep such Registration Statement continuously effective under the Securities Act until the date that all Registrable Securities covered by such Registration Statement (i) have been sold, thereunder or pursuant to Rule 144, or (ii) may be sold without volume or manner-of-sale restrictions pursuant to Rule 144 and without the requirement for the Company to be in compliance with the current public information requirement under Rule 144, as determined by the counsel to the Company pursuant to a written opinion letter to such effect, addressed and acceptable to the Transfer Agent and the affected Holders (the “Effectiveness Period”). The Company shall telephonically request effectiveness of a Registration Statement as of 5:00 p.m. (New York City time) on a Trading Day. The Company shall immediately notify the Holders via facsimile or by e-mail of the effectiveness of a Registration Statement on the same Trading Day that the Company telephonically confirms effectiveness with the Commission, which shall be the date requested for effectiveness of such Registration Statement. The Company shall, by 9:30 a.m. (New York City time) on the Trading Day after the effective date of such Registration Statement, file a final Prospectus with the Commission as and if required by Rule 424.

(b) Notwithstanding the registration obligations set forth in Section 2(a), if the Commission informs the Company that all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single registration statement, the Company agrees to promptly inform each of the Holders thereof and use its commercially reasonable efforts to file amendments to the Initial Registration Statement as required by the Commission, covering the maximum number of Registrable Securities permitted to be registered by the Commission, on Form S-3 or such other form available to register for resale the Registrable Securities as a secondary offering; with respect to filing on Form S-3 or other appropriate form, and subject to the provisions of Section 2(d) with respect to the payment of liquidated damages; provided, however, that prior to filing such amendment, the Company shall be obligated to use diligent efforts to advocate with the Commission for the registration of all of the Registrable Securities in accordance with the SEC Guidance, including without limitation, Compliance and Disclosure Interpretation 612.09.

(c) Notwithstanding any other provision of this Agreement and subject to the payment of liquidated damages pursuant to Section 2(d), if the Commission or any SEC Guidance sets forth a limitation on the number of Registrable Securities permitted to be registered on a particular Registration Statement as a secondary offering (and notwithstanding that the Company used diligent efforts to advocate with the Commission for the registration of all or a greater portion of Registrable Securities), unless otherwise directed in writing by a Holder as to its Registrable Securities, the number of Registrable Securities to be registered on such Registration Statement will be reduced as follows:

- a. First, the Company shall reduce or eliminate any securities to be included other than Registrable Securities;
- b. Second, the Company shall reduce Registrable Securities represented by Warrant Shares (applied, in the case that some Warrant Shares may be registered, to the Holders on a pro rata basis based on the total number of unregistered Warrant Shares held by such Holders); and
- c. Third, the Company shall reduce Registrable Securities represented by Shares (applied, in the case that some Shares may be registered, to the Holders on a pro rata basis based on the total number of unregistered Shares held by such Holders).

In the event of a cutback hereunder, the Company shall give the Holder at least two (2) Trading Days prior written notice along with the calculations as to such Holder's allotment. In the event the Company amends the Initial Registration Statement in accordance with the foregoing, the Company will use its commercially reasonable efforts to file with the Commission, as promptly as allowed by Commission or SEC Guidance provided to the Company or to registrants of securities in general, one or more registration statements on Form S-3 or such other form available to register for resale those Registrable Securities that were not registered for resale on the Initial Registration Statement, as amended.

(d) If: (i) the Initial Registration Statement is not filed on or prior to its Filing Date (if the Company files the Initial Registration Statement without affording the Holders the opportunity to review and comment on the same as required by Section 3(a) herein, the Company shall be deemed to have not satisfied this clause (i)), or (ii) the Company fails to file with the Commission a request for acceleration of a Registration Statement in accordance with Rule 461 promulgated by the Commission pursuant to the Securities Act, within five (5) Trading Days of the date that the Company is notified (orally or in writing, whichever is earlier) by the Commission that such Registration Statement will not be “reviewed” or will not be subject to further review, or (iii) prior to the effective date of a Registration Statement, the Company fails to file a pre-effective amendment and otherwise respond in writing to comments made by the Commission in respect of such Registration Statement within ten (10) calendar days after the receipt of comments by or notice from the Commission that such amendment is required in order for such Registration Statement to be declared effective, or (iv) a Registration Statement registering for resale all of the Registrable Securities is not declared effective by the Commission by the Effectiveness Date of the Initial Registration Statement, or (v) after the effective date of a Registration Statement, such Registration Statement ceases for any reason to remain continuously effective as to all Registrable Securities included in such Registration Statement, or the Holders are otherwise not permitted to utilize the Prospectus therein to resell such Registrable Securities, for more than ten (10) consecutive calendar days or more than an aggregate of fifteen (15) calendar days (which need not be consecutive calendar days) during any 12-month period (any such failure or breach being referred to as an “Event”, and for purposes of clauses (i) and (iv), the date on which such Event occurs, and for purpose of clause (ii) the date on which such five (5) Trading Day period is exceeded, and for purpose of clause (iii) the date which such ten (10) calendar day period is exceeded, and for purpose of clause (v) the date on which such ten (10) or fifteen (15) calendar day period, as applicable, is exceeded being referred to as “Event Date”), then, in addition to any other rights the Holders may have hereunder or under applicable law, on each such Event Date and on each monthly anniversary of each such Event Date (if the applicable Event shall not have been cured by such date) until the applicable Event is cured, the Company shall pay to each Holder an amount in cash, as partial liquidated damages and not as a penalty, equal to the product of 2.0% multiplied by the aggregate Subscription Amount paid by such Holder pursuant to the Purchase Agreement. If the Company fails to pay any partial liquidated damages pursuant to this Section in full within seven days after the date payable, the Company will pay interest thereon at a rate of 12% per annum (or such lesser maximum amount that is permitted to be paid by applicable law) to the Holder, accruing daily from the date such partial liquidated damages are due until such amounts, plus all such interest thereon, are paid in full. The partial liquidated damages pursuant to the terms hereof shall apply on a daily pro rata basis for any portion of a month prior to the cure of an Event. Notwithstanding anything to the contrary herein, in no event shall the aggregate amount of liquidated damages (excluding interest) payable to the Holder pursuant to this Section exceed, in the aggregate, 10.0% of the aggregate purchase price paid by the Purchasers for the Securities issued at Closing.

(e) If Form S-3 is not available for the registration of the resale of Registrable Securities hereunder, the Company shall (i) register the resale of the Registrable Securities on another appropriate form and (ii) undertake to register the Registrable Securities on Form S-3 as soon as such form is available, provided that the Company shall maintain the effectiveness of the Registration Statement then in effect until such time as a Registration Statement on Form S-3 covering the Registrable Securities has been declared effective by the Commission.

(f) Notwithstanding anything to the contrary contained herein, in no event shall the Company be permitted to name any Holder or affiliate of a Holder as any Underwriter without the prior written consent of such Holder.

3. Registration Procedures.

In connection with the Company’s registration obligations hereunder, the Company shall:

(a) Not less than three (3) Trading Days prior to the filing of each Registration Statement and not less than one (1) Trading Day prior to the filing of any related Prospectus or any amendment or supplement thereto (including any document that would be incorporated or deemed to be incorporated therein by reference), the Company shall (i) furnish to each Holder copies of all such documents proposed to be filed, which documents (other than those incorporated or deemed to be incorporated by reference) will be subject to the review of such Holders, and (ii) cause its officers and directors, counsel and independent registered public accountants to respond to such inquiries as shall be necessary, in the reasonable opinion of respective counsel to each Holder, to conduct a reasonable investigation within the meaning of the Securities Act. The Company shall not file a Registration Statement or any such Prospectus or any amendments or supplements thereto to which the Holders of a majority of the Registrable Securities shall reasonably object in good faith, provided that, the Company is notified of such objection in writing no later than five (5) Trading Days after the Holders have been so furnished copies of a Registration Statement or one (1) Trading Day after the Holders have been so furnished copies of any related Prospectus or amendments or supplements thereto. Each Holder agrees to furnish to the Company a completed questionnaire in the form attached to this Agreement as Annex C (a “Selling Stockholder Questionnaire”) on a date that is not less than two (2) Trading Days prior to the Filing Date or by the end of the fourth (4th) Trading Day following the date on which such Holder receives draft materials in accordance with this Section.

(b) (i) Prepare and file with the Commission such amendments, including post-effective amendments, to a Registration Statement and the Prospectus used in connection therewith as may be necessary to keep a Registration Statement continuously effective as to the applicable Registrable Securities for the Effectiveness Period and prepare and file with the Commission such additional Registration Statements in order to register for resale under the Securities Act all of the Registrable Securities, (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement (subject to the terms of this Agreement), and, as so supplemented or amended, to be filed pursuant to Rule 424, (iii) respond as promptly as reasonably possible to any comments received from the Commission with respect to a Registration Statement or any amendment thereto and provide as promptly as reasonably possible to the Holders true and complete copies of all correspondence from and to the Commission relating to a Registration Statement (provided that, the Company shall excise any information contained therein which would constitute material non-public information regarding the Company or any of its Subsidiaries), and (iv) comply in all material respects with the applicable provisions of the Securities Act and the Exchange Act with respect to the disposition of all Registrable Securities covered by a Registration Statement during the applicable period in accordance (subject to the terms of this Agreement) with the intended methods of disposition by the Holders thereof set forth in such Registration Statement as so amended or in such Prospectus as so supplemented.

(c) If during the Effectiveness Period, the number of Registrable Securities at any time exceeds 100% of the number of shares of Common Stock then registered in a Registration Statement, then the Company shall file as soon as reasonably practicable, but in any case prior to the applicable Filing Date, an additional Registration Statement covering the resale by the Holders of not less than the number of such Registrable Securities.

(d) Notify the Holders of Registrable Securities to be sold (which notice shall, pursuant to clauses (iii) through (vi) hereof, be accompanied by an instruction to suspend the use of the Prospectus until the requisite changes have been made) as promptly as reasonably possible (and, in the case of (i)(A) below, not less than one (1) Trading Day prior to such filing) and (if requested by any such Person) confirm such notice in writing no later than one (1) Trading Day following the day (i)(A) when a Prospectus or any Prospectus supplement or post-effective amendment to a Registration Statement is proposed to be filed, (B) when the Commission notifies the Company whether there will be a “review” of such Registration Statement and whenever the Commission comments in writing on such Registration Statement, and (C) with respect to a Registration Statement or any post-effective amendment, when the same has become effective, (ii) of any request by the Commission or any other federal or state governmental authority for amendments or supplements to a Registration Statement or Prospectus or for additional information, (iii) of the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of a Registration Statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose, (iv) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose, (v) of the occurrence of any event or passage of time that makes the financial statements included in a Registration Statement ineligible for inclusion therein or any statement made in a Registration Statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to a Registration Statement, Prospectus or other documents so that, in the case of a Registration Statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, and (vi) of the occurrence or existence of any pending corporate development with respect to the Company that the Company believes may be material and that, in the determination of the Company, makes it not in the best interest of the Company to allow continued availability of a Registration Statement or Prospectus; provided, however, that in no event shall any such notice contain any information which would constitute material, non-public information regarding the Company or any of its Subsidiaries.

(e) Use its commercially reasonable efforts to avoid the issuance of, or, if issued, obtain the withdrawal of (i) any order stopping or suspending the effectiveness of a Registration Statement, or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(f) If requested by a Holder, furnish to each Holder, without charge, at least one conformed copy of each such Registration Statement and each amendment thereto, including financial statements and schedules, all documents incorporated or deemed to be incorporated therein by reference to the extent requested by such Person, and all exhibits to the extent requested by such Person (including those previously furnished or incorporated by reference) promptly after the filing of such documents with the Commission, provided that any such item which is available on the EDGAR system (or successor thereto) need not be furnished in physical form.

(g) Subject to the terms of this Agreement, the Company hereby consents to the use of such Prospectus and each amendment or supplement thereto by each of the selling Holders in connection with the offering and sale of the Registrable Securities covered by such Prospectus and any amendment or supplement thereto, except after the giving of any notice pursuant to Section 3(d).

(h) Prior to any resale of Registrable Securities by a Holder, use its commercially reasonable efforts to register or qualify or cooperate with the selling Holders in connection with the registration or qualification (or exemption from the Registration or qualification) of such Registrable Securities for the resale by the Holder under the securities or Blue Sky laws of such jurisdictions within the United States as any Holder reasonably requests in writing, to keep each registration or qualification (or exemption therefrom) effective during the Effectiveness Period and to do any and all other acts or things reasonably necessary to enable the disposition in such jurisdictions of the Registrable Securities covered by each Registration Statement, provided that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified, subject the Company to any material tax in any such jurisdiction where it is not then so subject or file a general consent to service of process in any such jurisdiction.

(i) If requested by a Holder, cooperate with such Holder to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be delivered to a transferee pursuant to a Registration Statement, which certificates shall be free, to the extent permitted by the Purchase Agreement, of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any such Holder may request.

(j) Upon the occurrence of any event contemplated by Section 3(d), as promptly as reasonably possible under the circumstances taking into account the Company's good faith assessment of any adverse consequences to the Company and its stockholders of the premature disclosure of such event, prepare a supplement or amendment, including a post-effective amendment, to a Registration Statement or a supplement to the related Prospectus or any document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, neither a Registration Statement nor such Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Company notifies the Holders in accordance with clauses (iii) through (vi) of Section 3(d) above to suspend the use of any Prospectus until the requisite changes to such Prospectus have been made, then the Holders shall suspend use of such Prospectus. The Company will use its commercially reasonable efforts to ensure that the use of the Prospectus may be resumed as promptly as is practicable. The Company shall be entitled to exercise its right under this Section 3(j) to suspend the availability of a Registration Statement and Prospectus, subject to the payment of partial liquidated damages otherwise required pursuant to Section 2(d), for a period not to exceed 60 calendar days (which need not be consecutive days) in any 12-month period.

(k) Otherwise use commercially reasonable efforts to comply with all applicable rules and regulations of the Commission under the Securities Act and the Exchange Act, including, without limitation, Rule 172 under the Securities Act, file any final Prospectus, including any supplement or amendment thereof, with the Commission pursuant to Rule 424 under the Securities Act, promptly inform the Holders in writing if, at any time during the Effectiveness Period, the Company does not satisfy the conditions specified in Rule 172 and, as a result thereof, the Holders are required to deliver a Prospectus in connection with any disposition of Registrable Securities and take such other actions as may be reasonably necessary to facilitate the registration of the Registrable Securities hereunder.

(l) The Company shall use its commercially reasonable efforts to maintain eligibility for use of Form S-3 (or any successor form thereto) for the registration of the resale of Registrable Securities.

(m) The Company may require each selling Holder to furnish to the Company a certified statement as to the number of shares of Common Stock beneficially owned by such Holder and, if required by the Commission, the natural persons thereof that have voting and dispositive control over the shares. During any periods that the Company is unable to meet its obligations hereunder with respect to the registration of the Registrable Securities solely because any Holder fails to furnish such information within three Trading Days of the Company's request, any liquidated damages that are accruing at such time as to such Holder only shall be tolled and any Event that may otherwise occur solely because of such delay shall be suspended as to such Holder only, until such information is delivered to the Company.

4. Registration Expenses. All fees and expenses incident to the performance of or compliance with, this Agreement by the Company shall be borne by the Company whether or not any Registrable Securities are sold pursuant to a Registration Statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses of the Company's counsel and independent registered public accountants) (A) with respect to filings made with the Commission, (B) with respect to filings required to be made with any Trading Market on which the Common Stock is then listed for trading, and (C) in compliance with applicable state securities or Blue Sky laws reasonably agreed to by the Company in writing (including, without limitation, fees and disbursements of counsel for the Company in connection with Blue Sky qualifications or exemptions of the Registrable Securities), (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities), (iii) messenger, telephone and delivery expenses, (iv) fees and disbursements of counsel for the Company, (v) Securities Act liability insurance, if the Company so desires such insurance, and (vi) fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit and the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. In no event shall the Company be responsible for any broker or similar commissions of any Holder or, except to the extent provided for in the Transaction Documents, any legal fees or other costs of the Holders.

5. Indemnification.

(a) Indemnification by the Company. The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, members, partners, agents, brokers (including brokers who offer and sell Registrable Securities as principal as a result of a pledge or any failure to perform under a margin call of Common Stock), investment advisors and employees (and any other Persons with a functionally equivalent role of a Person holding such titles, notwithstanding a lack of such title or any other title) of each of them, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, members, stockholders, partners, agents and employees (and any other Persons with a functionally equivalent role of a Person holding such titles, notwithstanding a lack of such title or any other title) of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable attorneys' fees) and expenses (collectively, "Losses"), as incurred, arising out of or relating to (1) any untrue or alleged untrue statement of a material fact contained in a Registration Statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading or (2) any violation or alleged violation by the Company of the Securities Act, the Exchange Act or any state securities law, or any rule or regulation thereunder, in connection with the performance of its obligations under this Agreement, except to the extent, but only to the extent, that (i) such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in a Registration Statement, such Prospectus or in any amendment or supplement thereto (it being understood that the Holder has approved Annex A hereto for this purpose) or (ii) in the case of an occurrence of an event of the type specified in Section 3(d)(iii)-(vi), the use by such Holder of an outdated, defective or otherwise unavailable Prospectus after the Company has notified such Holder in writing that the Prospectus is outdated, defective or otherwise unavailable for use by such Holder and prior to the receipt by such Holder of the Advice contemplated in Section 6(d). The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding arising from or in connection with the transactions contemplated by this Agreement of which the Company is aware. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such indemnified person and shall survive the transfer of any Registrable Securities by any of the Holders in accordance with Section 6(g).

(b) Indemnification by Holders. Each Holder shall, severally and not jointly, indemnify and hold harmless the Company, its directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, agents or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, to the extent arising out of or based solely upon: any untrue or alleged untrue statement of a material fact contained in any Registration Statement, any Prospectus, or in any amendment or supplement thereto or in any preliminary prospectus, or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading (i) to the extent, but only to the extent, that such untrue statement or omission is contained in any information so furnished in writing by such Holder to the Company expressly for inclusion in such Registration Statement or such Prospectus or (ii) to the extent, but only to the extent, that such information relates to such Holder's information provided in the Selling Stockholder Questionnaire or the proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in a Registration Statement (it being understood that the Holder has approved Annex A hereto for this purpose), such Prospectus or in any amendment or supplement thereto. In no event shall the liability of a selling Holder be greater in amount than the dollar amount of the proceeds (net of all expenses paid by such Holder in connection with any claim relating to this Section 5 and the amount of any damages such Holder has otherwise been required to pay by reason of such untrue statement or omission) received by such Holder upon the sale of the Registrable Securities included in the Registration Statement giving rise to such indemnification obligation.

(c) Conduct of Indemnification Proceedings. If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an "Indemnified Party"), such Indemnified Party shall promptly notify the Person from whom indemnity is sought (the "Indemnifying Party") in writing, and the Indemnifying Party shall have the right to assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof, provided that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have materially and adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses, (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding, or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the Indemnifying Party, and counsel to the Indemnified Party shall reasonably believe that a material conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and the reasonable fees and expenses of no more than one separate counsel shall be at the expense of the Indemnifying Party). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld or delayed. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding.

Subject to the terms of this Agreement, all reasonable fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten Trading Days of written notice thereof to the Indemnifying Party, provided that the Indemnified Party shall promptly reimburse the Indemnifying Party for that portion of such fees and expenses applicable to such actions for which such Indemnified Party is finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) not to be entitled to indemnification hereunder.

(d) Contribution. If the indemnification under Section 5(a) or 5(b) is unavailable to an Indemnified Party or insufficient to hold an Indemnified Party harmless for any Losses, then each Indemnifying Party shall contribute to the amount paid or payable by such Indemnified Party, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in this Agreement, any reasonable attorneys' or other fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section was available to such party in accordance with its terms.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 5(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. In no event shall the contribution obligation of a Holder of Registrable Securities be greater in amount than the dollar amount of the proceeds (net of all expenses paid by such Holder in connection with any claim relating to this Section 5 and the amount of any damages such Holder has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission) received by it upon the sale of the Registrable Securities giving rise to such contribution obligation.

The indemnity and contribution agreements contained in this Section are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties.

6. Miscellaneous.

(a) Remedies. In the event of a breach by the Company or by a Holder of any of their respective obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, shall be entitled to specific performance of its rights under this Agreement. Each of the Company and each Holder agrees that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agrees that, in the event of any action for specific performance in respect of such breach, it shall not assert or shall waive the defense that a remedy at law would be adequate.

(b) No Piggyback on Registrations; Prohibition on Filing Other Registration Statements. Except as set forth on Schedule 6(b) attached hereto, neither the Company nor any of its security holders (other than the Holders in such capacity pursuant hereto) may include securities of the Company in any Registration Statements other than the Registrable Securities. The Company shall not file any other registration statements until all Registrable Securities are registered pursuant to a Registration Statement that is declared effective by the Commission.

(c) [RESERVED].

(d) Discontinued Disposition. By its acquisition of Registrable Securities, each Holder agrees that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(d)(iii) through (vi), such Holder will forthwith discontinue disposition of such Registrable Securities under a Registration Statement until it is advised in writing (the "Advice") by the Company that the use of the applicable Prospectus (as it may have been supplemented or amended) may be resumed. The Company will use its commercially reasonable efforts to ensure that the use of the Prospectus may be resumed as promptly as is practicable. The Company agrees and acknowledges that any periods during which the Holder is required to discontinue the disposition of the Registrable Securities hereunder shall be subject to the provisions of Section 2(d).

(e) Amendments and Waivers. The provisions of this Agreement, including the provisions of this sentence, may not be amended, modified or supplemented, and waivers or consents to departures from the provisions hereof may not be given, unless the same shall be in writing and signed by the Company and the Holders of 50.1% or more of the then outstanding Registrable Securities (for purposes of clarification, this includes any Registrable Securities issuable upon exercise or conversion of any Security), provided that, if any amendment, modification or waiver disproportionately and adversely impacts a Holder (or group of Holders), the consent of such disproportionately impacted Holder (or group of Holders) shall be required. If a Registration Statement does not register all of the Registrable Securities pursuant to a waiver or amendment done in compliance with the previous sentence, then the number of Registrable Securities to be registered for each Holder shall be reduced pro rata among all Holders and each Holder shall have the right to designate which of its Registrable Securities shall be omitted from such Registration Statement. Notwithstanding the foregoing, a waiver or consent to depart from the provisions hereof with respect to a matter that relates exclusively to the rights of a Holder or some Holders and that does not directly or indirectly affect the rights of other Holders may be given only by such Holder or Holders of all of the Registrable Securities to which such waiver or consent relates; provided, however, that the provisions of this sentence may not be amended, modified, or supplemented except in accordance with the provisions of the first sentence of this Section 6(e). No consideration shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of this Agreement unless the same consideration also is offered to all of the parties to this Agreement.

(f) Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be delivered as set forth in the Purchase Agreement.

(g) Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the successors and permitted assigns of each of the parties and shall inure to the benefit of each Holder. The Company may not assign (except by merger) its rights or obligations hereunder without the prior written consent of all of the Holders of the then outstanding Registrable Securities. Each Holder may assign their respective rights hereunder in the manner and to the Persons as permitted under Section 5.7 of the Purchase Agreement.

(h) No Inconsistent Agreements. Neither the Company nor any of its Subsidiaries has entered, as of the date hereof, nor shall the Company or any of its Subsidiaries, on or after the date of this Agreement, enter into any agreement with respect to its securities, that would have the effect of impairing the rights granted to the Holders in this Agreement or otherwise conflicts with the provisions hereof. Except as set forth in the SEC Reports, neither the Company nor any of its Subsidiaries has previously entered into any agreement granting any registration rights with respect to any of its securities to any Person that have not been satisfied in full.

(i) Execution and Counterparts. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a “.pdf” format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or “.pdf” signature page were an original thereof.

(j) Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be determined in accordance with the provisions of the Purchase Agreement.

(k) Cumulative Remedies. The remedies provided herein are cumulative and not exclusive of any other remedies provided by law.

(l) Severability. If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(m) Headings. The headings in this Agreement are for convenience only, do not constitute a part of the Agreement and shall not be deemed to limit or affect any of the provisions hereof.

(n) Independent Nature of Holders' Obligations and Rights. The obligations of each Holder hereunder are several and not joint with the obligations of any other Holder hereunder, and no Holder shall be responsible in any way for the performance of the obligations of any other Holder hereunder. Nothing contained herein or in any other agreement or document delivered at any closing, and no action taken by any Holder pursuant hereto or thereto, shall be deemed to constitute the Holders as a partnership, an association, a joint venture or any other kind of group or entity, or create a presumption that the Holders are in any way acting in concert or as a group or entity with respect to such obligations or the transactions contemplated by this Agreement or any other matters, and the Company acknowledges that the Holders are not acting in concert or as a group, and the Company shall not assert any such claim, with respect to such obligations or transactions. Each Holder shall be entitled to protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Holder to be joined as an additional party in any proceeding for such purpose. The use of a single agreement with respect to the obligations of the Company contained was solely in the control of the Company, not the action or decision of any Holder, and was done solely for the convenience of the Company and not because it was required or requested to do so by any Holder. It is expressly understood and agreed that each provision contained in this Agreement is between the Company and a Holder, solely, and not between the Company and the Holders collectively and not between and among Holders.

(Signature Pages Follow)

IN WITNESS WHEREOF, the parties have executed this Registration Rights Agreement as of the date first written above.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ Sean E. Browne

Name: Sean E. Browne

Title: President and Chief Executive Officer

[SIGNATURE PAGE OF HOLDERS FOLLOWS]



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April 6, 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 preparation of a Registration Statement on Form S-3 (as amended or supplemented, the "Registration Statement") under the Securities Act of 1933, as amended (the "Act"), as originally filed by the Company with the Securities and Exchange Commission (the "SEC") on the date hereof, with respect to the Company's registration of the resale, from time to time, of up to (i) 8,888,890 shares (the "Shares") of its common stock, par value \$0.000001 per share (the "Common Stock"), issued pursuant to the Securities Purchase Agreement, as defined below; (ii) 6,666,668 shares of Common Stock (the "Investor Warrant Shares") issuable upon exercise of warrants issued pursuant to the Securities Purchase Agreement to purchase shares of Common Stock (the "Investor Warrants"); and (iii) 444,444 shares of Common Stock (the "Placement Agent Warrant Shares" and, together with the Investor Warrant Shares, the "Warrant Shares") issuable upon exercise of warrants issued pursuant to the Placement Agent Agreement, as defined below, to purchase shares of Common Stock (the "Placement Agent Warrants" and, together with the Investor Warrants, the "Warrants") by the selling stockholders listed in the Registration Statement under "Selling Stockholders." The Shares and Warrant Shares may be sold from time to time as set forth in the Registration Statement, any amendment thereto, the prospectus contained therein, and any prospectus supplement and pursuant to Rule 415 under the Act.

In connection with this opinion, we have examined the Company's Amended and Restated Certificate of Incorporation, as amended; the Company's Second Amended and Restated Bylaws, as currently in effect; resolutions adopted by the Board of Directors of the Company pertaining to the issuance of the Shares and Warrants; the Registration Statement; the Securities Purchase Agreement by and between the Company and the investor named therein, dated February 22, 2021 (the "Securities Purchase Agreement"); the Registration Rights Agreement by and between the Company and the investor named therein, dated February 24, 2021; the Placement Agent Agreement by and between the Company and A.G.P./Alliance Global Partners, dated February 22, 2021 (the "Placement Agent Agreement"); the Warrants; the Current Report on Form 8-K as filed by the Company with the SEC on February 22, 2021; and such other documents, records, certificates, memoranda and instruments as we have deemed necessary as a basis for this opinion.

In rendering this opinion, we have assumed the genuineness and authenticity of all signatures on original documents, including signatures made and/or transmitted using electronic signature technology (e.g., via DocuSign or similar electronic signature technology), that any such signed electronic record shall be valid and as effective to bind the party so signing as a paper copy bearing such party's handwritten signature; the legal capacity of all natural persons; the authenticity of all documents submitted to us as originals; the conformity to originals of all documents submitted to us as certified or photocopies; the authenticity of the originals of such latter documents; the accuracy and completeness of all documents and records reviewed by us; the accuracy, completeness and authenticity of certificates issued by any governmental official, office or agency and the absence of change in the information contained therein from the effective date of any such certificate; and the due authorization, execution and delivery of all documents where authorization, execution and delivery are prerequisites to the effectiveness of such documents.



On the basis of the foregoing, and in reliance thereon and subject to the qualifications herein stated, we are of the opinion that (i) the Shares and have been duly authorized and are validly issued, fully paid and non-assessable; and (ii) the Warrant Shares have been duly and validly authorized and reserved for issuance and, when issued upon the exercise of the applicable Warrants in accordance with the terms therein, will be validly issued, fully paid and non-assessable.

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

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

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

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
April 6, 2021
