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

POST-EFFECTIVE AMENDMENT NO. 1
TO

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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City Center
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Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

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

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

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

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

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

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

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

EXPLANATORY NOTE

Xtant Medical Holdings, Inc. (the “Company”) is filing this Post-Effective Amendment No. 1 (this “Amendment”) to its Registration Statement on Form S-3 (File No. 333-278413) (the “Registration Statement”) to update the prospectus contained therein, including incorporating by reference updated financial statements and pro forma information of Surgalign Holdings, Inc., as required pursuant to Rule 3-05 and Article 11 of Regulation S-X, which were included in a current report on Form 8-K filed by the Company on September 3, 2024. No additional securities are being registered under this Amendment, and all applicable registration fees were paid at the time of the original filing of the Registration Statement.

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 SEPTEMBER 3, 2024

PRELIMINARY PROSPECTUS



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

Offered by Xtant Medical Holdings, Inc.

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

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

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

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

Our common stock is listed on the NYSE American under the symbol "XTNT." On August 28, 2024, the last reported sale price of our common stock on the NYSE American was \$0.71 per share.

As of August 28, 2024, the aggregate market value of our outstanding common stock held by non-affiliates was approximately \$39.9 million, based on 138,710,402 shares of outstanding common stock, of which 56,218,805 shares were held by non-affiliates, and a per share price of \$0.71 based on the closing sale price of our common stock as of August 28, 2024. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities pursuant to this prospectus with a value of more than one-third of the aggregate market value of our common stock held by non-affiliates in any twelve-month period, so long as the aggregate market value of our common stock held by non-affiliates is less than \$75,000,000. In the event that subsequent to the date of this prospectus, the aggregate market value of our outstanding common stock held by non-affiliates equals or exceeds \$75,000,000, then the one-third limitation on sales shall not apply to additional sales made pursuant to this prospectus. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the twelve calendar months prior to and including the date of this prospectus.

Investing in our shares of common stock involves a high degree of risk. See "Risk Factors" on page 1 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 _____, 2024.

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

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

ABOUT THIS PROSPECTUS

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

In certain circumstances we may provide a prospectus supplement that may add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement. You should read both this prospectus and any prospectus supplement, including all documents incorporated herein or therein by reference, together with additional information described under “*Where You Can Find More Information*” on page 17 of this prospectus and “*Incorporation of Certain Documents by Reference*” on page 16 of this prospectus.

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

Unless otherwise indicated, information contained in or incorporated by reference into this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market share, is based on information from our own management estimates and research, as well as from industry and general publications and research, surveys and studies conducted by third parties. Management estimates are derived from publicly available information, our knowledge of our industry and assumptions based on such information and knowledge, which we believe to be reasonable. In addition, assumptions and estimates of our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, see “*Risk Factors*” on page 1 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 2 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 securities. 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” on page 1 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 systems to facilitate spinal fusion in complex spine, deformity, and degenerative procedures. Our products serve the specialized needs of orthopedic and neurological surgeons, including orthobiologics for the promotion of bone healing, implants and instrumentation for the treatment of spinal disease. We promote our products in the United States through independent distributors and stocking agents, supported by direct employees.

We have an extensive sales channel of independent commissioned agents and stocking distributors 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 integrated delivery network hospitals (“IDNs”) and through group purchasing organizations (“GPOs”). We have biologics contracts with major GPOs, as well as extensive access to IDNs across the United States for both biologics and spine hardware systems. While our focus is the United States market, we promote and sell our products internationally through direct sales representatives and stocking distribution partners in Canada, Mexico, South America, Australia, and certain Pacific region countries.

Corporate Information

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

RISK FACTORS

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

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

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements contained in or incorporated by reference into this prospectus, or filings with the SEC and our public releases, that are not purely historical are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Our forward-looking statements include, but are not limited to, statements regarding our “expectations,” “hopes,” “beliefs,” “intentions” or “strategies” regarding the future. In addition, any statements that refer to projections, forecasts, or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “possible,” “potential,” “predict,” “project,” “should” and “would,” as well as similar expressions, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward looking. Forward-looking statements contained in or incorporated by reference into this prospectus may include, for example, statements about the following topics and are subject to certain risks and uncertainties, including the following:

- our ability to increase revenue and our ability to improve our gross margins, our operating expenses as a percentage of revenue, and obtain and sustain profitability;
- our ability to become operationally self-sustaining by controlling our supply chain and becoming less reliant on production and manufacturing of our products outside of our control, which we believe will allow us to be a larger and more diverse producer of biologics;
- our ability to integrate the products acquired as part of the acquisition of Surgalign SPV, Inc., the acquisition of certain assets and liabilities of Surgalign Holdings, Inc., and the acquisition of certain assets of RTI Surgical, Inc. and achieve future sales of those products as anticipated, especially given their respective declines in sales before we acquired them, and other risks associated with those acquisitions and any future business combinations or acquisitions we may pursue;
- the effect of our private label and original equipment manufacturer business on our business and operating results and risks associated therewith, including fluctuations in our operating results and decreased profit margins;
- our ability and success in implementing key growth and process improvement initiatives designed to increase our production capacity, revenue and scale and risks associated with such growth and process improvement initiatives;
- our ability to implement successfully our four key growth pillars, which are focused on introducing new products; expanding our distribution network and achieving greater contract access; leveraging and penetrating adjacent markets and completing targeted strategic acquisitions;
- risks associated with our international operations, including but not limited to the effect of foreign currency exchange rate fluctuations and compliance with foreign legal and regulatory requirements, current and future wars, related sanctions and geopolitical tensions, political risks associated with the potential instability of governments and legal systems in countries in which we or our customers or suppliers conduct business, and other potential conflicts;
- our ability to operate in international markets and effectively manage our international subsidiaries, which require management attention and financial resources;
- our ability to navigate manufacturing challenges related to the production of biologics products and recover from our prior stem cell shortage and our ability to win back stem cell customers and achieve future stem cell revenue as anticipated;
- our ability to retain and expand our agreements with GPOs and IDNs and sell products to members of such GPOs and IDNs;
- the effect of inflation and supply chain disruptions, which could result in delayed product launches, lost revenue, higher costs, decreased profit margins, and other adverse effects on our business and operating results;
- the effect of labor and staffing shortages at hospitals and other medical facilities on the number of elective procedures in which our products are used and as a result our revenues, as well as global and local labor shortages and loss of personnel, which have adversely affected and may continue to adversely affect our ability to produce product to meet demand;
- our ability to remain competitive;
- our ability to rebrand and integrate acquired products with our existing product line and successfully transition our customers from some of our older legacy hardware products to these new products and the anticipated adverse effect of these transitions on our organic revenue growth rate;
- our ability to innovate, develop, introduce and market new products and technologies and the success of such new products and technologies, including our recently launched amniotic membrane allografts, SimpliGraft™ and SimpliMax™;
- our dependence on and ability to retain and recruit independent sales agents and distributors and motivate and incentivize them to sell our products, including in particular our dependence on key independent agents for a significant portion of our revenue;
- the ability of our sales personnel, including our independent sales agents and distributors, to achieve expected results;
- our reliance on third party suppliers and manufacturers;
- the effect of product liability claims and other litigation to which we may be subjected and product recalls and defects;
- the effect of infectious diseases on our business, operating results and financial condition;
- the effect of fluctuations in foreign currency exchange rates on our earnings and our foreign currency translation adjustments;
- risks associated with and the effect of a shift in procedures using our products from hospitals to ambulatory surgical centers, which would put pressure on the price of our products and margins;
- our ability to obtain and maintain regulatory approvals in the United States and abroad and the effect of government regulations and our compliance with government regulations;
- the ability of our clinical trials to demonstrate competent and reliable evidence of the safety and effectiveness of our products;
- our ability to remain accredited with the American Association of Tissue Banks and continue to obtain a sufficient number of donor cadavers for our products;
- our ability to obtain and maintain government and third-party coverage and reimbursement for our products;
- our ability to attract, retain and engage qualified technical, sales and processing personnel and members of our management team, especially in light of a tight labor market and increasing cost of living in and around the Belgrade, Montana area;
- our ability to maintain sufficient liquidity to fund our operations and obtain financing on reasonable terms when needed and the effect of such additional financing on our business, results of operations, financial condition and stockholders;
- our ability to service our debt and comply with the covenants in our credit agreements and the effect of our significant indebtedness on our business, results of operations, financial condition and prospects;

- our expectations regarding operating trends, future financial performance and expense management and our estimates of our future revenue, expenses, ongoing losses, gross margins, operating leverage, capital requirements and our need for, or ability to obtain, additional financing and the availability of our credit facilities;
- our ability to effectively remediate our outstanding material weaknesses and maintain effective internal control over financial reporting;
- our ability to obtain and protect our intellectual property and proprietary rights and operate without infringing the intellectual property rights of others;
- our ability to maintain our stock listing on the NYSE American Exchange;
- risks inherent in being a controlled company; and
- the effect of a global economic slowdown, rising interest rates and the prospects for recession, a possible U.S. government shutdown, as well as past and potential future disruptions in access to bank deposits or lending commitments due to bank failures, which could materially and adversely affect our revenue, liquidity, financial condition and results of operations.

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*” on page 1 of this prospectus, and our most recent Annual Report on Form 10-K, filed with the SEC on April 1, 2024, and our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024, filed with the SEC on August 8, 2024.

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 may be 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, 2023, filed with the SEC on April 1, 2024, our Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024, filed with the SEC on August 8, 2024, and in any other documents incorporated by reference into this prospectus, as updated by our future filings, to better understand significant risks and uncertainties inherent in our business and underlying any forward-looking statements. As a result of these factors, actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements in this report, and you should not place undue reliance on any forward-looking statements.

USE OF PROCEEDS

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

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

DILUTION

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

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

DESCRIPTION OF CAPITAL STOCK

General

The following description, together with the additional information we include in any applicable prospectus supplement, summarizes the material terms and provisions of our common stock and preferred stock and does not purport to be complete. It is subject to and qualified in its entirety by reference to the provisions of our Restated Certificate of Incorporation (“Charter”), Third Amended and Restated Bylaws (“Bylaws”), the Investor Rights Agreement dated as of February 14, 2018 by and among Xtant and certain stockholders (as amended, the “Investor Rights Agreement”), and the agreement between Xtant and Stavros G. Vizirgianakis (the Lead Investor 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, the Lead Investor Agreement and the applicable provisions of the General Corporation Law of the State of Delaware (“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, 138,710,402 of which are issued and outstanding as of August 28, 2024 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 August 28, 2024, in the aggregate, we had outstanding warrants to purchase 12,237,470 shares of our common stock, stock options to purchase 4,459,062 shares of our common stock, restricted stock unit awards covering 3,249,340 shares of our common stock, performance stock unit awards covering 1,710,776 shares of our common stock (assuming target performance) and deferred stock unit awards covering 2,611,096 shares of our common stock under the Xtant Medical Holdings, Inc. 2023 Equity Incentive Plan, Xtant Medical Holdings, Inc. Second Amended and Restated 2018 Equity Incentive Plan, and our prior equity compensation plan, and 4,553,228 shares available for issuance under the Xtant Medical Holdings, Inc. 2023 Equity Incentive Plan.

We may amend from time to time our Charter to increase the number of authorized shares of common stock or preferred stock. Any such amendment would require the approval of the holders of a majority of the voting power of the shares entitled to vote thereon. In addition, pursuant to our Charter, the Board is authorized to increase (but not above the total number of authorized shares of the class) or decrease (but not below the number of shares of any such series then outstanding) the number of shares of any series (including a series of preferred stock), the number of which was fixed by it, subsequent to the issuance of shares of such series then outstanding, subject to certain limitations, without the vote of our stockholders.

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

The Board 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 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 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 common stock. All shares of our common stock currently outstanding are fully paid and nonassessable.

Transfer Agent

The transfer agent for our common stock is Broadridge Corporate Issuer Solutions, Inc.

Exchange Listing

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. Our 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 Effects of Certain Provisions of our Charter, Bylaws, the Investor Rights Agreement and the Lead Investor Agreement, Our Status as a Controlled Company and under the DGCL

Anti-takeover provisions in our Charter, Bylaws, the Investor Rights Agreement and the Lead Investor Agreement, our status as a controlled company and under the DGCL 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 Xtant:

- 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 Chair 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.
- Prior to July 26, 2030, fixing the number of directors at more than seven directors requires the approval of at least 75% of our directors then holding office.

- 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, including director election contests subject to the SEC’s universal proxy rules, 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, (or, if the Court of Chancery of the State of Delaware does not have subject matter jurisdiction, a state court located within the State of Delaware or, if no state court located within the State of Delaware has subject matter jurisdiction, the federal district court for the District 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 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; provided, however, that unless we consent in writing to an alternative forum, the federal district courts of the United States of America shall be, to the fullest extent permitted by applicable law, the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act.

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 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 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).

Lead Investor Agreement

In connection with our 2022 private placement, we entered into the Lead Investor Agreement with Stavros G. Vizirgianakis, as the lead investor of the 2022 private placement, pursuant to we agreed to provide certain director nomination rights to Mr. Vizirgianakis. Pursuant to the terms of the Lead Investor Agreement, we expanded the size of our Board by one position and elected Mr. Vizirgianakis as a director to fill the vacancy created as a result of the increase, effective upon completion of the first closing of the 2022 private placement. In addition, we elected Mr. Vizirgianakis as Chair of the Board, effective upon completion of the first closing. The director nomination rights set forth in the Lead Investor Agreement will terminate on the earlier of (i) the date on which Mr. Vizirgianakis ceases to hold at least 75% of the shares of our common stock to be purchased by him in the 2022 private placement; (ii) October 7, 2024; or (iii) upon written notice of Mr. Vizirgianakis to the Company.

Controlled Company Status

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

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 and officers 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 or officer, as the case may be, derived an improper personal benefit. Accordingly, our directors and officers will not be personally liable for monetary damages for breach of their fiduciary duties as directors or officers, respectively, 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;
- in the case of directors, unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the DGCL;
- any transaction from which the director or officer derived an improper personal benefit; or
- in the case of officers, any action by or in the right of the Company.

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 or officer liability, then the liability of our directors and/or officers will be eliminated or limited to the fullest extent permitted by Delaware law as so amended.

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

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

We also maintain directors’ and officers’ liability insurance.

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

DESCRIPTION OF WARRANTS

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

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

General

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

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

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

A holder of warrants may:

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

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

Exercise of Warrants

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

Holders of warrants may exercise them by:

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

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

Amendments and Supplements to Warrant Agreements

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

DESCRIPTION OF UNITS

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

SELLING STOCKHOLDERS

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

The following table sets forth as of August 28, 2024: (1) the name of each selling stockholder for whom we are registering shares of common stock under the registration statement of which this prospectus is a part, (2) the number of shares of common stock beneficially owned by each of the selling stockholders prior to the offering, determined in accordance with Rule 13d-3 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), (3) the number of shares of common stock that may be offered by each selling stockholder under this prospectus and (4) the number of shares of common stock to be owned by each selling stockholder after completion of this offering. We will not receive any of the proceeds from the sale of the shares of common stock offered under this prospectus. The amounts and information set forth below are based upon information provided to us by the selling stockholders or their representatives, or on our records, as of August 28, 2024. The percentage of beneficial ownership for the following table is based on 138,710,402 shares of common stock outstanding as of August 28, 2024.

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

Name of Selling Stockholder	Shares Beneficially Owned Prior to the Offering		Number of Shares Being Offered	Shares Beneficially Owned After Completion of the Offering	
	Number ⁽¹⁾	Percentage		Number	Percentage
ROS Acquisition Offshore LP ⁽²⁾	56,004,974	40.4%	13,955,092	42,049,882	30.3%
OrbiMed Royalty Opportunities II, LP ⁽³⁾	17,109,618	12.3%	4,263,282	12,846,336	9.3%
TOTAL	73,114,592		18,218,374	54,896,218	

(1) Based solely on information contained in a Schedule 13D/A filed with the SEC on August 3, 2023.

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

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

Material Relationships Between Selling Stockholders and Xtant

Lock-Up Agreement

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

Termination of Second Amended and Restated Credit Agreement

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

Investor Rights Agreement

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

For so long as the Ownership Threshold is met, we must obtain the approval of ROS and Royalty Opportunities to proceed with the following actions: (i) issue new securities; (ii) incur over \$250,000 of debt in a fiscal year; (iii) sell or transfer over \$250,000 of our assets or businesses or our subsidiaries in a fiscal year; (iv) acquire over \$250,000 of assets or properties in a fiscal year; (v) make capital expenditures over \$125,000 individually, or \$1,500,000 in the aggregate during a fiscal year; (vi) approve our annual budget; (vii) appoint or remove the chairperson of our board of directors; and (viii) make loans to, investments in, or purchase, or permit any subsidiary to purchase, any stock or other securities in another entity in excess of \$250,000 in a fiscal year.

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

2020 Registration Rights Agreement

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

2018 Registration Rights Agreement

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

2017 Registration Rights Agreements

Effective January 17, 2017, we entered into a Registration Rights Agreement (for Common Stock underlying the Indenture Notes) and a Registration Rights Agreement (for Common Stock underlying the PIL Notes) (together, the “2017 Registration Rights Agreements”) with ROS and Royalty Opportunities. The 2017 Registration Rights Agreements required us, among other things, to file with the SEC a shelf registration statement within 180 days of the date of the 2017 Registration Rights Agreements covering the resale, from time to time, of certain shares of our common stock. However, this agreement was replaced by the 2018 Registration Rights Agreement in connection with our 2018 restructuring.

Other Relationships with ROS and Royalty Opportunities

Matthew Rizzo and Michael Eggenberg, both of whom are employees of OrbiMed Advisors, and Jeffrey Peters, a Venture Partner with OrbiMed Advisors, were initially elected to our board of directors on February 13, 2018. Messrs. Rizzo and Eggenberg served as non-employee directors until May 1, 2023, and Mr. Peters served as a non-employee director until October 26, 2022. As non-employee directors, from time to time, Messrs. Rizzo, Eggenberg and Peters received equity awards pursuant to our compensation arrangements for non-employee directors.

PLAN OF DISTRIBUTION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

LEGAL MATTERS

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

EXPERTS

The financial statements of Xtant Medical Holdings, Inc. as of and for the year ended December 31, 2023 incorporated by reference into this prospectus and in the registration statement have been so incorporated by reference in reliance upon the report of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

The financial statements of Xtant Medical Holdings, Inc. as of and for the year ended December 31, 2022 incorporated by reference into this prospectus and in the registration statement have been so incorporated by reference in reliance upon the report of Plante & Moran, PLLC, an independent registered public accounting firm, upon the authority of said firm as experts in accounting and auditing.

The financial statements of Surgalign Holdings, Inc. incorporated by reference into this prospectus and in the registration statement have been so incorporated by reference in reliance upon the report of Grant Thornton LLP, independent registered public accountants, appearing in our Amendment No. 1 to Current Report on Form 8-K filed with the SEC on October 26, 2023, upon the authority of said firm as experts in accounting and auditing.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

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

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

- our Annual Report on Form 10-K for the year ended December 31, 2023, filed on [April 1, 2024](#);
- our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2024, filed on [May 15, 2024](#), and June 30, 2024, filed on [August 8, 2024](#);
- 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 [October 26, 2023](#), which amended the Form 8-K filed on [August 10, 2023](#), [March 7, 2024](#), [July 24, 2024](#), [August 8, 2024](#) and [September 3, 2024](#);
- the description of our common stock contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the year ended December 31, 2023, filed on April 1, 2024, including any amendment or report filed for the purpose of updating such description;
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, after the initial filing of the registration statement of which this prospectus is a part and prior to the effectiveness of such registration statement; and
- all documents filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and before we stop offering the securities under this prospectus.

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

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

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

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act that registers the distribution of the securities offered under this prospectus. The registration statement, including the attached exhibits and schedules and the information incorporated by reference, contains additional relevant information about us and the securities. The rules and regulations of the SEC allow us to omit from this prospectus certain information included in the registration statement. In addition, we file annual, quarterly and current reports, proxy statements and other information with the SEC.

You may also obtain the documents that we file electronically on the SEC's website at www.sec.gov, which contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, or on our website at www.xtantmedical.com. Information contained on our website is not incorporated by reference herein and does not constitute part of this prospectus.

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

DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITY

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

XTANT MEDICAL HOLDINGS, INC.

PROSPECTUS

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

Offered by Xtant Medical Holdings, Inc.

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

, 2024

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

PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

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

	<u>Amount to be paid</u>
SEC registration fee	\$ 5,131
Accounting fees and expenses	*
Legal fees and expenses	*
Transfer agent fees and expenses	*
FINRA, blue sky fees and expenses	*
Printing expenses	*
Miscellaneous	*
Total	\$ *

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

Item 15. Indemnification of Directors and Officers

General Corporation Law of the State of Delaware

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

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

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

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

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

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

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

Section 102(b)(7) of the DGCL permits a corporation to provide in its certificate of incorporation that a director or officer of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director or an officer, except for liability for any breach of the director's or officer's duty of loyalty to the corporation or its stockholders, for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, for unlawful payments of dividends or unlawful stock purchases or redemptions in the case of a director, for any transaction from which the director or officer derived an improper personal benefit or in the case of an officer any action by or in the right of the corporation. No such provision shall eliminate or limit the liability of a director or officer for any act or omission occurring prior to the date when such provision becomes effective.

Charter

The Company has adopted provisions in its Charter that limit director and officer liability to the fullest extent permitted by law.

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 permitted by applicable law.

Insurance Policies

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

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

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

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

Exhibit No.	Description
1.1 ⁽¹⁾	Form of Underwriting Agreement
1.2 ⁽¹⁾	Form of Placement Agent Agreement
3.1	Restated Certificate of Incorporation of Xtant Medical Holdings, Inc. (filed as Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2023 (SEC File No. 001-34591) and incorporated by reference herein)
3.2	Third Amended and Restated Bylaws of Xtant Medical Holdings, Inc. (Effective as of June 1, 2023) (filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on May 19, 2023 (SEC File No. 001-34951) and incorporated by reference herein)
4.1	Form of Common Stock Certificate (filed as Exhibit 4.2 to the Registrant's Annual Report on Form 10-K for the year ended December 31, 2021 filed with the SEC on March 8, 2022 (SEC File No. 001-34951) and incorporated by reference herein)
4.2 ⁽¹⁾	Form of Preferred Stock Certificate
4.3	Investor Rights Agreement, dated as of February 14, 2018, among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Park West Partners International, Limited and Park West Investors Master Fund, Limited (filed as Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.4	Amendment No. 1 to Investor Rights Agreement, dated as of May 2, 2023, among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP and ROS Acquisition Offshore LP (filed as Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2023 (SEC File No. 001-34951) and incorporated by reference herein)
4.5	Registration Rights Agreement (for Common Stock underlying the Indenture Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.9 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 001-34951) and incorporated by reference herein)
4.6	Registration Rights Agreement (for Common Stock underlying the PIK Notes), dated January 17, 2017, among Xtant Medical Holdings, Inc., ROS Acquisition Offshore LP and OrbiMed Royalty Opportunities II, LP (filed as Exhibit 10.13 to the Registrant's Current Report on Form 8-K filed with the SEC on January 20, 2017 (SEC File No. 001-34951) and incorporated by reference herein)
4.7	Registration Rights Agreement (for Common Stock issued upon the exchange of the Notes and pursuant to the Private Placement), dated February 14, 2018, among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, ROS Acquisition Offshore LP, Telemetry Securities, L.L.C., Bruce Fund, Inc., Park West Investors Master Fund, Limited, and Park West Partners International, Limited (filed as Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed with the SEC on February 16, 2018 (SEC File No. 001-34951) and incorporated by reference herein)
4.8	Registration Rights Agreement, dated October 1, 2020, among Xtant Medical Holdings, Inc., OrbiMed Royalty Opportunities II, LP, and ROS Acquisition Offshore LP (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on October 1, 2020 (SEC File No. 001-34951) and incorporated by reference herein)

Exhibit No.	Description
4.9	Registration Rights Agreement, dated as of February 24, 2021, between Xtant Medical Holdings, Inc. and the investor party thereto (filed as Exhibit 4.4 to the Registrant's Registration Statement on Form S-3 filed with the SEC on April 6, 2021 (Sec File No. 333-255074) and incorporated by reference herein)
4.10	Registration Rights Agreement, dated as of August 25, 2022, among Xtant Medical Holdings, Inc. and the investors party thereto (filed as Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on August 31, 2022 (SEC File No. 001-34951) and incorporated by reference herein)
4.11	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)
4.12	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)
4.13	Form of Warrant (filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the SEC on August 24, 2022 (SEC File No. 001-34951) and incorporated by reference herein)
4.14	Registration Rights Agreement, dated as of July 6, 2023, among Xtant Medical Holdings, Inc. and the investors party thereto (filed as Exhibit 4.9 to the Registrant's Registration Statement on Form S-3 filed with the SEC on July 7, 2023 (SEC File No. 333-273169) and incorporated by reference herein)
4.15	Registration Rights Agreement, dated as of August 9, 2024, by and among Xtant Medical Holdings, Inc. and the investor party thereto (filed as Exhibit 4.11 to the Registrant's Registration Statement on Form S-3 filed with the SEC on September 3, 2024 (SEC File No. 333-281910) and incorporated by reference herein)
4.16	Form of Vendor Common Stock Purchase Warrant (filed as Exhibit 4.1 to the Registrant's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2024 (SEC File No. 001-34951) and incorporated by reference herein)
4.17 ⁽¹⁾	Form of Warrant Agreement, including Form of Warrant
4.18 ⁽¹⁾	Form of Unit Agreement, including Form of Unit
5.1 [†]	Opinion of Fox Rothschild LLP
23.1*	Consent of Independent Registered Public Accounting Firm, Grant Thornton LLP
23.2*	Consent of Independent Registered Public Accounting Firm, Grant Thornton LLP
23.3*	Consent of Independent Registered Public Accounting Firm, Plante & Moran, PLLC
23.4 [†]	Consent of Fox Rothschild LLP (included in Exhibit 5.1)
24.1 [†]	Power of Attorney (included on signature page)
107 [†]	Filing Fee Table

* Filed herewith

[†] Previously filed

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

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

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

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

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

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

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

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

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

(4) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

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

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

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

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

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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

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

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Post-Effective Amendment No. 1 to registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Belgrade, State of Montana, on September 3, 2024.

XTANT MEDICAL HOLDINGS, INC.

By: /s/ Sean E. Browne

Name: Sean E. Browne

Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment No. 1 to 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)	September 3, 2024
<u>/s/ Scott C. Neils</u> Scott C. Neils	Chief Financial Officer (Principal Financial and Accounting Officer)	September 3, 2024
<u>*</u> Stavros G. Vizirgianakis	Chair of the Board	September 3, 2024
<u>*</u> John K. Bakewell	Director	September 3, 2024
<u>*</u> Jonn R. Beeson	Director	September 3, 2024
<u>*</u> Lori Mitchell-Keller	Director	September 3, 2024
<u>*</u> Robert E. McNamara	Director	September 3, 2024
<u>*By: /s/ Sean E. Browne</u> Sean E. Browne Attorney-in-fact		

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated April 1, 2024, with respect to the consolidated financial statements of Xtant Medical Holdings, Inc. included in the Annual Report on Form 10-K for the year ended December 31, 2023, which is incorporated by reference in this Registration Statement. We consent to the incorporation by reference of the aforementioned report in the Registration Statement, and to the use of our name as it appears under the caption “Experts.”

/s/ GRANT THORNTON LLP

Minneapolis, Minnesota
September 3, 2024

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 30, 2023, with respect to the consolidated financial statements of Surgalign Holdings, Inc. included in the Current Report of Xtant Medical Holdings, Inc. on Form 8-K filed on October 26, 2023. We consent to the incorporation by reference of the aforementioned report in this Registration Statement, and the use of our name as it appears under the caption “Experts.”

/s/ GRANT THORNTON LLP

Minneapolis, Minnesota
September 3, 2024

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors
Xtant Medical Holdings, Inc.:

We consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated March 7, 2023, with respect to the consolidated financial statements of Xtant Medical Holdings, Inc. as of and for the year ended December 31, 2022 included in its Annual Report on Form 10-K for the year ended December 31, 2023, as filed with the Securities and Exchange Commission. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ PLANTE & MORAN, PLLC

Denver, Colorado
September 3, 2024
