

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

FORM S-3
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

BONE BIOLOGICS CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

42-1743430

(I.R.S. Employer
Identification Number)

**2 Burlington Woods Drive, Suite 100
Burlington, MA 01803
(781) 552-4452**

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

**Jeffrey Frelick
Chief Executive Officer
Bone Biologics Corporation
2 Burlington Woods Drive, Suite 100
Burlington, MA 01803
(781) 552-4452**

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

Copies to:

**Alexander R. McClean, Esq.
Harter Secrest & Emery LLP
1600 Bausch & Lomb Place
Rochester, New York 14604
(585) 232-6500**

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

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

☐

Accelerated filer

☐

Non-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 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 of 1933 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.

Pursuant to Rule 415(a)(6), the securities being registered hereunder include \$17,592,964 of unsold securities which remain unsold as of the date hereof (the “*Unsold Securities*”) previously registered by the registrant’s registration on Form S-3 (File No. 333-265872) which was initially filed with the Securities and Exchange Commission on June 28, 2022 and declared effective on July 11, 2022 (the “*Prior Registration Statement*”). The aggregate filing fee paid in connection with such Unsold Securities was \$1,630.87. Pursuant to Rule 415(a)(6) under the Securities Act, (i) the registration fee applicable to the Unsold Securities is being carried forward to this registration statement and will continue to be applied to the Unsold Securities and (ii) the offering of the Unsold Securities registered on the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this registration statement. If, after the filing date hereof and prior to the effectiveness of this Registration Statement, the registrant sells any Unsold Securities pursuant to the Prior Registration Statement, the registrant will identify in a pre-effective amendment to this registration statement the updated amount of Unsold Securities from the Prior Registration Statement to be included in this registration statement pursuant to Rule 415(a)(6), and the updated amount of new securities to be registered on this registration statement.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED June 24, 2025

PROSPECTUS



BONE BIOLOGICS CORPORATION

\$35,000,000
Common Stock
Preferred Stock
Warrants
Rights
Units

From time to time, we may offer and sell up to an aggregate amount of \$35,000,000 of any combination of the securities described in this prospectus in one or more offerings. We may also offer securities as may be issuable upon conversion, redemption, repurchase, exchange or exercise of any securities registered hereunder, including any applicable antidilution provisions. We may sell the securities to or through underwriters and also to other purchasers or through agents. The names of any underwriters or agents, and any fees, discounts or other compensation payable to them will be set forth in the applicable prospectus supplement accompanying this prospectus.

We will provide the specific terms of these offerings in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before buying any of the securities being offered. **This prospectus may not be used to consummate a sale of securities unless it is accompanied by the applicable prospectus supplement.**

On June 10, 2025 at 12:01 a.m. Eastern Time, we effected a reverse stock split of our common stock at a ratio of 1-for-6. Unless otherwise noted, the share and per share information in this prospectus reflects the effect of the reverse stock split. However, our Annual Report on Form 10-K for the year ended December 31, 2024, filed on February 26, 2025, and all other documents incorporated by reference into this prospectus that were filed prior to June 10, 2025, do not give effect to reverse stock split.

Our common stock is listed on the Nasdaq Capital Market ("Nasdaq") under the symbol "BBLG." The closing price of our common stock on Nasdaq on June 20, 2025 was \$5.91 per share.

As of June 20, 2025, the aggregate market value of our outstanding common stock held by non-affiliates, or public float, was approximately \$3,218,509, based on 544,587 shares of outstanding common stock held by non-affiliates at a price of \$5.91 per share, which was the closing price of our common stock on Nasdaq on June 20, 2025. During the 12 calendar months prior to and including the date of this prospectus, we sold securities with an aggregate market value of approximately \$1,678,036 pursuant to General Instruction I.B.6 of Form S-3. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities registered on this registration statement in a public primary offering with a value exceeding more than one-third of our public float in any 12-month period so long as our public float remains below \$75 million (the "Baby Shelf Limitation").

These securities may be sold directly by us, through dealers or agents designated from time to time, to or through underwriters, dealers, or through a combination of these methods on a continuous or delayed basis subject to the Baby Shelf Limitation. See "Plan of Distribution" in this prospectus. We may also describe the plan of distribution for any particular offering of our securities in a prospectus supplement. If any agents, underwriters or dealers are involved in the sale of any securities in respect of which this prospectus is being delivered, we will disclose their names and the nature of our arrangements with them in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from any such sale will also be included in a prospectus supplement.

Investing in our securities involves a high degree of risk. See the section entitled "Risk Factors" beginning on page 6 of this prospectus and in the documents incorporated by reference into this prospectus for a discussion of risks that should be considered in connection with an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is , 2025.

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	ii
<u>CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS</u>	iii
<u>PROSPECTUS SUMMARY</u>	1
<u>RISK FACTORS</u>	6
<u>USE OF PROCEEDS</u>	6
<u>THE SECURITIES WE MAY OFFER</u>	6
<u>DESCRIPTION OF CAPITAL STOCK</u>	6
<u>DESCRIPTION OF WARRANTS</u>	9
<u>DESCRIPTION OF RIGHTS</u>	10
<u>DESCRIPTION OF UNITS</u>	10
<u>PLAN OF DISTRIBUTION</u>	11
<u>LEGAL MATTERS</u>	14
<u>EXPERTS</u>	14
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	14
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	14

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement we filed with the Securities and Exchange Commission (the “SEC”), using a “shelf” registration process. We may sell any combination of the securities described in this prospectus from time to time in one or more offerings.

Each time we sell securities pursuant to this prospectus, we will provide a prospectus supplement that contains specific information about the terms of that offering, including the specific amounts, prices and terms of the securities offered. If this prospectus is inconsistent with the prospectus supplement, you should rely upon the prospectus supplement. In addition, the prospectus supplement may also add, update or change the information contained in this prospectus.

We incorporate by reference important information into this prospectus. You may obtain the information incorporated by reference without charge by following the instructions under “Where You Can Find More Information.” You should carefully read this prospectus as well as additional information described under “Information Incorporated by Reference,” before deciding to invest in our securities.

We have not authorized anyone to provide you with additional information or information different from that contained or incorporated by reference in this prospectus filed with the SEC. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are offering to sell, and seeking offers to buy, our securities only in jurisdictions where offers and sales are permitted. The information contained in this prospectus or any prospectus supplement, as well as any document incorporated by reference in this prospectus or any prospectus supplement, is accurate only as of the date of those respective documents, regardless of the time of delivery of this prospectus or any sale of our securities. Our business, financial condition, results of operations and prospects may have changed since that date.

Wherever references are made in this prospectus to information that will be included in a prospectus supplement, to the extent permitted by applicable law, rules or regulations, we may instead include such information or add, update or change the information contained in this prospectus by means of a post-effective amendment to the registration statement of which this prospectus is a part, through filings we make with the SEC that are incorporated by reference in this prospectus or by any other method as may then be permitted under applicable law, rules or regulations.

This prospectus contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. We obtained the industry and market data in this prospectus from our own research as well as from industry and general publications, surveys and studies conducted by third parties. This data involves a number of assumptions and limitations and contains projections and estimates of the future performance of the industries in which we operate that are subject to a high degree of uncertainty, including those discussed in “Risk Factors.” We caution you not to give undue weight to such projections, assumptions and estimates. Further, industry and general publications, studies and surveys generally state that they have been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. While we believe that these publications, studies and surveys are reliable, we have not independently verified the data contained in them. In addition, while we believe that the results and estimates from our internal research are reliable, such results and estimates have not been verified by any independent source.

We have not done anything that would permit this offering or the possession or distribution of this prospectus in any jurisdiction where action for those purposes 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 offering of the securities and the distribution of this prospectus outside of the United States.

CAUTIONARY NOTE CONCERNING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein contain forward-looking statements that involve risks and uncertainties. You should not place undue reliance on these forward-looking statements. All statements other than statements of historical fact contained in this prospectus and the documents incorporated by reference herein contain are forward-looking statements. The forward-looking statements in this prospectus and the documents incorporated by reference herein are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. In some cases, you can identify these forward-looking statements by terms such as “anticipate,” “believe,” “can,” “continue,” “could,” “depend,” “estimate,” “expect,” “intend,” “may,” “ongoing,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “would” or the negative of those terms or other similar expressions, although not all forward-looking statements contain those words. We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives, and financial needs. These forward-looking statements include, but are not limited to, statements concerning the following:

- our ability to regain and maintain compliance with the Nasdaq listing standards and remain listed on Nasdaq;
- our projected financial position and estimated cash burn rate;
- our estimates regarding expenses, future revenues and capital requirements;
- our ability to continue as a going concern;
- our need to raise substantial additional capital to fund our operations;
- the success, cost and timing of our clinical trials;
- our dependence on third parties in the conduct of our clinical trials;
- our ability to obtain the necessary regulatory approvals to market and commercialize our product candidates;
- the ultimate impact of health pandemics or epidemics on our business, our clinical trials, our research programs, healthcare systems or the global economy as a whole;
- the potential that results of preclinical and clinical trials indicate our current product candidate or any future product candidates we may seek to develop are unsafe or ineffective;
- the results of market research conducted by us or others;
- the success of our expected patent application and our ability to obtain and maintain intellectual property protection for our current product candidates;
- our ability to protect our intellectual property rights and the potential for us to incur substantial costs from lawsuits to enforce or protect our intellectual property rights;
- the possibility that a third party may claim we or our third-party licensors have infringed, misappropriated or otherwise violated their intellectual property rights and that we may incur substantial costs and be required to devote substantial time defending against claims against us;
- our reliance on third-party suppliers and manufacturers;
- the success of competing therapies and products that are or become available;
- our ability to expand our organization to accommodate potential growth and our ability to retain and attract key personnel;
- the potential for us to incur substantial costs resulting from product liability lawsuits against us and the potential for these product liability lawsuits to cause us to limit our commercialization of our product candidate;
- market acceptance of our product candidate, the size and growth of the potential markets for our current product candidate and any future product candidates we may seek to develop, and our ability to serve those markets;
- the successful development of our commercialization capabilities, including sales and marketing capabilities;
- our expectation regarding the number of shares outstanding after this offering;
- our intention to use the net proceeds of this offering to fund clinical trials, maintain and extend our patent portfolio, and for working capital and other general corporate purposes; and
- pending the intended uses described herein, our intention to invest the net proceeds of this offering in short-term, investment grade, interest-bearing securities.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including the successful development and commercialization of our product candidates, market acceptance of our product candidates, our financial performance, including our ability to fund operations, our ability to [regain and maintain] compliance with Nasdaq’s continued listing requirements, regulatory approval and regulation of our product candidates, our expected use of proceeds from this offering, and other factors and risks identified from time to time in our filings with the SEC, including this prospectus and those described in “Risk Factors.” Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

PROSPECTUS SUMMARY

The following summary highlights selected information contained or incorporated by reference in this prospectus and does not contain all of the information that may be important to you and your investment decision. Before investing in our securities, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes and other documents incorporated by reference herein, as well as the information under the caption "Risk Factors" herein and under similar headings in the other documents that are incorporated by reference into this prospectus including documents that are filed after the date hereof. Some of the statements in this prospectus constitute forward-looking statements that involve risks and uncertainties. See "Cautionary Note Concerning Forward-Looking Statements." In this prospectus, unless context requires otherwise, references to "we," "us," "our," "BBLG" "Bone Biologics," or the "Company" refer to Bone Biologics Corporation and its subsidiary on a consolidated basis.

Company Overview

We are a medical device company that is currently focused on bone regeneration in spinal fusion using the recombinant human protein known as NELL-1. NELL-1 in combination with demineralized bone matrix ("DBM") is an osteopromotive recombinant protein that provides target specific control over bone regeneration. The NELL-1 technology platform has been licensed exclusively for worldwide applications to us through a technology transfer from the UCLA Technology Development Group on behalf of UC Regents ("UCLA TDG"). UCLA TDG and the Company received guidance from the U.S. Food and Drug Administration ("FDA") that NELL-1/DBM will be classified as a device/drug combination product that will require an FDA-approved pre-market approval ("PMA") application before it can be commercialized in the United States.

We were founded by University of California professors in collaboration with an Osaka University professor and a University of Southern California surgeon in 2004 as a privately held company with proprietary, patented platform technology. Our platform technology has been validated in sheep and non-human primate models to facilitate bone growth. We believe our platform technology has application in delivering improved outcomes in the surgical specialties of spinal, orthopedic, general orthopedic, plastic reconstruction, neurosurgery, interventional radiology, and sports medicine. Lead product development and clinical studies are targeted on spinal fusion surgery, one of the larger segments in the orthopedic market.

We are a clinical-stage entity. The production and marketing of our products and ongoing research and development activities are subject to extensive regulation by numerous governmental authorities in the United States. Prior to marketing in the United States, any combination product developed by us must undergo rigorous preclinical (animal) and clinical (human) testing and an extensive regulatory approval process implemented by the FDA under the Federal Food, Drug, and Cosmetic Act. There can be no assurance that we will not encounter problems in clinical trials that will cause us or the FDA to delay or suspend clinical trials.

Our success will depend in part on our ability to obtain and retain patents and product license rights, maintain trade secrets, and operate without infringing on the proprietary rights of others, both in the United States and other countries. There can be no assurance that patents issued to or licensed by us will not be challenged, invalidated, rendered unenforceable, or circumvented, or that the rights granted thereunder will provide proprietary protection or competitive advantages to us.

During 2024, we announced the treatment of the first patients in the multicenter, prospective, randomized pilot clinical study of our NB1 bone graft device. NB1 is NELL-1 protein combined with DBM to provide rapid, specific and guided control over bone regeneration.

The pilot clinical study will evaluate the safety and effectiveness, fusion success, pain, function improvement and adverse events of NB1 in up to 30 adult subjects who undergo transforaminal lumbar interbody fusion to treat degenerative disc disease (DDD). To be enrolled in the study, subjects must have DDD at one level from L2-S1 and may also have up to Grade 1 spondylolisthesis or Grade 1 retrolisthesis at the involved level. The study is being conducted in Australia. The study design was previously reviewed and agreed upon by the FDA's Division of Orthopedic Devices in a Pre-submission to support progression to a pivotal clinical trial in the United States.

Product Candidates

We have developed a stand-alone platform technology through significant laboratory and small and large animal research over more than 10 years to generate the current applications across broad fields of use. The platform technology is our recombinant human protein, known as NELL-1, a proprietary skeletal-specific growth factor that is a bone void filler. NELL-1 provides regulation over skeletal tissue formation and stem cell differentiation during bone regeneration. We obtained the platform technology pursuant to an exclusive license agreement with UCLA TDG which grants us exclusive rights to develop and commercialize NELL-1 for spinal fusion by local administration, osteoporosis and trauma applications. A major challenge associated with orthopedic surgery is effective bone regeneration, including challenges related to rapid, uncontrolled bone growth that can cause unsound structure; less dense bone formation; unwanted bone formation, and cysts, swelling; and intense inflammatory response to current bone regeneration compounds. We believe NELL-1 will address these unmet clinical challenges for effective bone regeneration, especially in hard healers.

We are currently focused on bone regeneration in lumbar spinal fusion using NELL-1 in combination with DBM, a demineralized bone matrix from MTF Biologics ("MTF"). The combination NELL-1/DBM medical device is an osteopromotive recombinant protein that provides target specific control over bone regeneration. We have successfully surpassed four critical milestones:

- Demonstrated a successful small laboratory scale pilot run for the manufacturing of the recombinant NELL-1 protein in Chinese hamster ovary cells;
- Validated protein dosing and efficacy in established large animal (sheep) model pilot studies;
- Completed pivotal animal study; and
- Initiated a first-in-human pilot clinical study in Australia.

Our lead product candidate is expected to be purified NELL-1 mixed with 510(k)-cleared DBM Demineralized Bone Putty recommended for use in conjunction with applicable hardware consistent with the indication. The NELL-1/DBM Fusion Device, NB1, will be comprised of a single dose vial of NELL-1 recombinant protein freeze dried onto DBM. A vial of NELL-1/DBM will be sold in a convenience kit with a diluent and a syringe of 510(k)-cleared demineralized bone ("DBM Putty") produced by MTF. A delivery device will allow the surgeon to mix the reconstituted NELL-1 with the appropriate quantity of DBM Putty just prior to implantation. Use of NB1 will not require changes to the orthobiologic preparation or implantation protocol.

The NELL-1/DBM Fusion Device, NB1, is intended for use in lumbar spinal fusion and may have a variety of other spine and orthopedic applications. While the product is initially targeted at the lumbar spine fusion market, in keeping with our exclusive license agreement, we believe NELL-1's novel set of characteristics, target-specific mechanism of action, efficacy, safety and affordability position the product for application in a variety of procedures including:

Spine Implants. The global bone graft substitute market presents a \$3 billion opportunity per Fortune Business Insights. While use of the patient's own bone, also referred to as autograft, to enhance fusion of vertebral segments is currently the optimal procedure for this type of treatment, complications associated with autograft bone including pain, increased surgical time and infection limit its use.

Non-Union Trauma Cases. While the majority of fractures heal without the need for osteosynthetic products, bone substitutes are used in complicated breaks where the bone does not mend naturally. Management believes that NELL-1 technology will perform as well as other growth factors, addressing this \$8 billion global market opportunity per Fortune Business Insights.

Osteoporosis. The global osteoporosis market presents an \$11.2 billion market opportunity per Evercore analyst reports. Finding a solution to counter a decrease in bone mass and density seen in women most frequently after menopause or a similar effect on astronauts in microgravity environments for an extended period is a major medical challenge. The systemic use of NELL-1 to stimulate bone regeneration throughout the body thereby increasing bone density could have a very significant impact on the treatment of osteoporosis.

UCLA's initial research was funded with approximately \$18 million in resources from UCLA TDG and government grants. Since licensing the exclusive worldwide intellectual property rights from UCLA TDG, we have continued development with funding through capital raises. Our research and development expenses for the years ended December 31, 2024 and 2023 were \$2,130,385 and \$6,907,824, respectively.

NELL-1's powerful specific bone forming properties are derived from the ability of NELL-1 to only target cells that exhibit an activated "master switch" to develop into bone. NELL-1 is a function-specific recombinant human protein that has been proven in laboratory bench models to recapitulate normal human growth and development to provide control over bone regeneration.

We have completed two preclinical sheep studies that demonstrated our recombinant NELL-1 ("rhNELL-1") growth factor effectively promotes bone formation in a phylogenetically advanced spine model. In addition, rhNELL-1 was shown to be well tolerated and there were no findings of inflammation. Our pivotal sheep study evaluated the effect of rhNELL-1 combined with DBM on lumbar interbody arthrodesis in an adult ovine model and demonstrated a 37.5% increased frequency of fusion at 26 weeks compared with the control.

We began subject enrollment in 2024 in our first-in-human pilot clinical study to evaluate the safety and effectiveness of NB1 in adult subjects with spinal degenerative disc disease at one level from L2-S1, who may also have up to Grade 1 spondylolisthesis or Grade 1 retrolisthesis at the involved level, and are undergoing transforaminal lumbar interbody fusion. The multi-center, prospective, randomized study is being conducted in Australia and will enroll up to 30 patients. The primary end-point is fusion success at 12 months and change from baseline in the Oswestry Disability Index pain score. We anticipate completing the trial 12 months after enrolling the 30th patient. We intend to use the pilot clinical trial data from the Australia study to enable a future, larger U.S. pivotal clinical study, prior to submission of a PMA to the FDA.

Our Business Strategy

Our business plan is to develop our target-specific growth factor for bone regeneration, based on preclinical and clinical data demonstrating increases in the quantity and quality of bone, and a strong safety profile. Our initial focus on lumbar spinal fusion entails advancing our target-specific growth factor through clinical studies to achieve FDA approval with comparable efficacy and safety to the gold standard for spine fusion (autografts). Continued capital funding is critical to facilitate the development of our Nell-1 technology through the clinical regulatory path.

Intellectual Property Risks

Our patent portfolio currently consists of six patents which expire between 2026 and 2033. We intend to expand our portfolio through composition of matter, methods of use and methods of production patent applications, as the opportunity arises through the development of our platform technology. We plan to submit a patent application with the United States Patent and Trademark Office ("USPTO") by the end of the second quarter of 2025 regarding proprietary compositions of rhNELL-1 polypeptide for treating bone conditions. Our success will depend in part on our ability to obtain patents and product license rights, maintain trade secrets, and operate without infringing on the proprietary rights of others, both in the United States and other countries. There can be no assurance that the USPTO will approve our patent application or the patents issued to or licensed by us will not be challenged, invalidated, rendered unenforceable, or circumvented, or that the rights granted thereunder will provide proprietary protection or competitive advantages to us. The patent positions of medical device companies are uncertain and involve complex legal and factual questions. We may incur significant expenses in protecting our intellectual property and defending or assessing claims with respect to intellectual property owned by others. See "Risk Factors" on page 6 and other information included or incorporated by reference in this prospectus for a discussion of intellectual property risks to consider carefully before deciding to invest in our securities.

Our Management Team

We have two full-time employees. Jeffrey Frelick has served as our President and Chief Executive Officer since June 2019 and brings more than 35 years of leadership, operational, and investment experience in the life science industry. Deina Walsh has served as our Chief Financial Officer since November 2014.

Mr. Frelick previously served as our Chief Operating Officer from 2015 to June 2019. Prior to Bone Biologics, Mr. Frelick spent 15 years on Wall Street as a sell-side analyst following the med-tech industry at investment banks Canaccord Genuity, ThinkEquity and Lazard. He also previously worked at Boston Biomedical Consultants where he provided strategic planning assistance, market research data and due diligence for diagnostic companies. He began his career at Becton Dickinson in sales and sales management positions after gaining technical experience as a laboratory technologist with Clinical Pathology Facility. Mr. Frelick received a B.S. in Biology from University of Pittsburgh and an M.B.A. from Suffolk University's Sawyer Business School.

Ms. Walsh has served as our Chief Financial Officer since November 2014. She is a certified public accountant and was the owner/founder of DHW CPA, PLLC, a public accounting firm. Prior to forming her firm, Ms. Walsh spent 13 years at a public accounting firm where, as a partner, she was actively responsible for leading firm audit engagements of publicly held entities in accordance with PCAOB standards and compliance with SEC regulations, including internal control requirements under Section 404 of the Sarbanes-Oxley Act. Ms. Walsh had a global client base including entities throughout the United States, Canada and China. These entities encompass a diverse range of industries including manufacturing, wholesale, life sciences, pharmaceuticals, and technology. Her experience includes work with start-up companies and well-established operating entities. She has assisted many entities seeking debt and equity capital. Areas of specialty include mergers, acquisitions, reverse mergers, consolidations, complex equity structures, foreign currency translations and revenue recognition complexities. Ms. Walsh has an Associates of Science Degree in Business Administration from Monroe Community College and a Bachelor of Science Degree in Accounting from the State University of New York at Brockport.

We have relied and plan on continuing to rely on independent organizations, advisors and consultants to perform certain services for us, including handling substantially all aspects of regulatory approval, clinical management, manufacturing, marketing, and sales. Such services may not always be available to us on a timely basis or at costs that we can afford. We also have engaged and plan to continue to engage regulatory consultants to advise us on our dealings with the FDA and other foreign regulatory authorities and have been and will be required to retain additional consultants and employees.

Our future performance will depend in part on our ability to successfully integrate newly hired officers into our management team, engage and retain consultants, and to develop an effective working relationship with our management and consultants. Losing key personnel or failing to recruit necessary additional personnel would impede our ability to attain our development objectives. Losing key personnel or failing to recruit necessary additional personnel would impede our ability to attain our development objectives. See "Risk Factors" on page 6 and other information included or incorporated by reference in this prospectus for a discussion of management risks to consider carefully before deciding to invest in our securities.

Recent Developments

Nasdaq Compliance

On April 7, 2025, we received a letter from the Listing Qualifications Staff (the "Staff") of Nasdaq indicating that, based on the closing bid price of our common stock for 30 consecutive business days, we no longer meet Nasdaq Listing Rule 5550(a)(2), which requires listed companies to maintain a minimum bid price of at least \$1 per share (the "Bid Price Rule"). As discussed below, we completed a 1-for-6 reverse stock split on June 10, 2025, and as of the close of business on June 24, 2025, we believe we have regained compliance with the Bid Price Rule because we have maintained a minimum bid price of at least \$1 per share for 10 consecutive business days. We expect to receive a letter from the Staff of Nasdaq indicating that we have regained compliance with the Bid Price Rule.

Reverse Stock Split

On May 30, 2025, we received the approval of the requisite number of holders of the shares of our common stock to amend our Amended and Restated Certificate of Incorporation, as amended (“Certificate of Incorporation”), to effect a reverse split of the shares of our common stock at a ratio of 1-for-2.5 to 1-for-10 (or any number in between), with the exact ratio to be set within such range in the discretion of our Board of Directors without further approval or authorization of our stockholders. On June 5, 2025, we filed a Certificate of Amendment to our Certificate of Incorporation with the Secretary of State of the State of Delaware to effect a 1-for-6 reverse stock split of our outstanding common stock. The reverse stock split became effective on June 10, 2025. The conversion or exercise prices of our issued and outstanding stock options and warrants were adjusted accordingly in connection with the reverse stock split.

Going Concern

We have a history of operating losses since inception and expect to incur additional near-term losses. As discussed further in “Management’s Discussion and Analysis - Liquidity and Capital Resources,” included in our Annual Report on Form 10-K for the year ended December 31, 2024, which is incorporated herein by reference, our independent registered public accounting firm, in its audit report to the financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2024, expressed substantial doubt about our ability to continue as a going concern. Our consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. Following this offering, we will need to raise additional capital to fund our operations and continue to support our planned development and commercialization activities. If we cannot secure the financing needed to continue as a viable business, our stockholders may lose some or all of their investment in us.

Corporate Information

We were incorporated under the laws of the State of Delaware on October 18, 2007 as AFH Acquisition X, Inc. Pursuant to a Merger Agreement, dated September 19, 2014, by and among the Company, its wholly-owned subsidiary, Bone Biologics Acquisition Corp., a Delaware corporation (“Merger Sub”), and Bone Biologics, Inc., Merger Sub merged with and into Bone Biologics Inc., with Bone Biologics Inc. remaining as the surviving corporation in the merger. Upon the consummation of the merger, the separate existence of Merger Sub ceased. On September 22, 2014, the Company officially changed its name to “Bone Biologics Corporation” to more accurately reflect the nature of its business and Bone Biologics, Inc. became a wholly owned subsidiary of the Company. Bone Biologics, Inc. was incorporated in California on September 9, 2004.

Our principal executive offices are located at 2 Burlington Woods Drive, Suite 100, Burlington MA 01803 and our telephone number is (781) 552-4452. Our website address is www.bonebiologics.com. The information contained on our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to invest in our securities.

RISK FACTORS

Investing in our securities involves significant risks. Before you decide whether to purchase any of our securities, you should carefully consider the risks and uncertainties described below and elsewhere in the prospectus and set forth in Part I, Item 1A under the heading “Risk Factors” included in our most recent Annual Report on Form 10-K and in other reports we file with the SEC pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”), which are incorporated by reference into this prospectus. For more information, please see “Incorporation of Certain Information by Reference” and “Where You Can Find More Information.”

The risks and uncertainties described in any documents incorporated by reference herein are not the only ones facing us. Additional risks and uncertainties that we do not presently know about or that we currently believe are not material may also adversely affect our business. If any of the risks and uncertainties described in this prospectus or the documents incorporated by reference herein actually occur, our business, financial condition, results of operations and prospects could be adversely affected in a material way. The occurrence of any of these risks may cause you to lose all or part of your investment in the offered securities.

USE OF PROCEEDS

We intend to use the net proceeds from the sale of the securities to fund clinical trials, maintain and extend our patent portfolio, and for working capital and other general corporate purposes unless otherwise indicated in the prospectus supplement relating to a specific issue of securities.

The precise amounts and the timing of our use of the net proceeds will depend upon market conditions, the availability of other funds and other factors. As a result, unless otherwise indicated in the applicable prospectus supplement, our management will retain broad discretion in the allocation and the use of the net proceeds of this offering.

THE SECURITIES WE MAY OFFER

This prospectus contains a summary of the common stock, preferred stock, debt securities, warrants, rights and units that we may offer under this prospectus. The particular material terms of the securities offered by a prospectus supplement will be described in that prospectus supplement. The descriptions herein and in the applicable prospectus supplement do not contain all of the information that you may find useful or that may be important to you. However, this prospectus, the prospectus supplement and the pricing supplement, if applicable, contain the material terms and conditions for each security. The prospectus supplement will also contain information, where applicable, about material U.S. federal income tax considerations relating to the offered securities, and the securities exchange, if any, on which the offered securities will be listed. You should read these documents as well as the documents filed as exhibits to or incorporated by reference to this registration statement. Capitalized terms used in this prospectus that are not defined will have the meanings given them in these documents.

DESCRIPTION OF CAPITAL STOCK

General

The following description of our capital stock and provisions of our Certificate of Incorporation and Amended and Restated Bylaws, as amended (“Bylaws”) is only a summary. You should read and refer to our Certificate of Incorporation and Bylaws, the forms of which have been filed with the SEC and are incorporated herein by reference. See “Where You Can Find More Information” and “Incorporation of Certain Information by Reference.”

Our Certificate of Incorporation authorizes the issuance of up to 100,000,000 shares of common stock, par value \$0.001 per share, and up to 20,000,000 shares of preferred stock, par value \$0.001 per share. As of June 20, 2025, there were 22 shareholders of record of our common stock. The actual number of holders of our common stock is greater than this number of record holders, and includes shareholders who are beneficial owners, but whose shares are held in street name by brokers or held by other nominees. This number of holders of record also does not include shareholders whose shares may be held in trust by other entities.

On June 10, 2025, we effected a reverse stock split of our common stock at a ratio of 1-for-6. Unless otherwise noted, the share and per share information in this prospectus reflects the effect of the reverse stock split. However, our Annual Report on Form 10-K for the year ended December 31, 2024, filed on February 26, 2025, and all other documents incorporated by reference into this prospectus that were filed prior to June 10, 2025, do not give effect to reverse stock split.

Common Stock

Each holder of common stock is entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An election of directors by our stockholders will be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. All other actions by stockholders will be approved by the majority of the votes cast affirmatively or negatively (excluding abstentions and broker non-votes) except as otherwise required by law.

Holders of common stock are entitled to receive proportionately any dividends that may be declared by our Board of Directors, subject to any preferential dividend rights of any series of preferred stock that we may designate and issue. In the event of our liquidation or dissolution, the holders of common stock are entitled to receive proportionately our net assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the preferential rights of any outstanding preferred stock.

Holders of our common stock have no preemptive, subscription, redemption, or conversion rights. The rights, preferences, and privileges of holders of 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 we may designate and issue.

Preferred Stock

Under our Certificate of Incorporation, our Board of Directors has the authority, without further action by stockholders, to designate one or more series of preferred stock and to fix the voting powers, designations, preferences, limitations, restrictions, and relative rights granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference, and sinking fund terms, any or all of which may be preferential to or greater than the rights of the common stock.

The authority possessed by our Board of Directors to issue preferred stock could potentially be used to discourage attempts by third parties to obtain control of our company through a merger, tender offer, proxy contest, or otherwise by making such attempts more difficult or more costly. Our Board of Directors may issue preferred stock with voting rights, conversion rights, and other rights that, if exercised, could adversely affect the voting power of the holders of common stock.

Anti-Takeover Effects of Our Certificate of Incorporation and Bylaws

Certain provisions of our Certificate of Incorporation and Bylaws contain provisions that could have the effect of delaying or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids.

Our Certificate of Incorporation and Bylaws include provisions that:

- authorize our Board of Directors to issue, without further action by the stockholders, up to 20,000,000 shares of preferred stock in one or more series designated by the Board of Directors;
- specify that meetings of our stockholders can be called only by our Board of Directors, or any officer instructed by the director to call the meeting; and
- provide that vacancies on our Board of Directors may be filled only by the vote of a majority of the remaining directors even though less than a quorum.

Our Bylaws also provide that stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at our annual meeting of stockholders, must provide timely notice of their intent in writing. To be timely, a stockholder's notice must be delivered to the secretary at our principal executive offices not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary date, or if no annual meeting was held in the preceding year, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which a public announcement of the date of such meeting is first made by us. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. In general, Section 203 prohibits a publicly-held Delaware corporation such as Bone Biologics Corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the Board of Directors of the corporation approved either the business combination or the transaction which 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 stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not for determining the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers of the corporation and (2) shares owned by 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
- at or subsequent to the date of the transaction, the business combination is approved by the Board of Directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

In this context, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our Board of Directors does not approve in advance. We also anticipate that Section 203 may discourage business combinations or other attempts that might result in a premium over the market price for the shares of common stock held by our stockholders.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Equiniti Trust Company, LLC.

Stock Market Listing

Our common stock is listed on Nasdaq under the symbol "BBLG."

DESCRIPTION OF WARRANTS

We may issue warrants to purchase our common stock, preferred stock or other securities. We may offer warrants separately or together with one or more additional warrants, common stock, preferred stock, other securities or any combination of those securities in the form of units, as described in the appropriate prospectus supplement. If we issue warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the warrants' expiration date. Below is a description of certain general terms and provisions of the warrants that we may offer. Further terms of the warrants will be described in the prospectus supplement.

The applicable prospectus supplement will contain, where applicable, the following terms of and other information relating to the warrants:

- the specific designation and aggregate number of, and the price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- any applicable anti-dilution provisions;
- any applicable redemption or call provisions;
- the circumstances under which the warrant exercise price may be changed or adjusted;
- whether the warrants will be issued in fully registered form or bearer form, in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and of any security included in that unit;
- any applicable material United States federal income tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or any securities purchasable upon exercise of the warrants on any securities exchange;
- the designation and terms of the securities purchasable upon exercise of the warrants;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and the related securities will be separately transferable;
- the number of securities purchasable upon exercise of a warrant and the price at which those securities may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- whether the warrants are to be sold separately or with other securities as parts of units; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

Unless otherwise provided in the prospectus supplement relating to a particular issue of warrants, each series of warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent. The warrant agent will act solely as our agent in connection with the warrants. The warrant agent will not have any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants. This summary of certain provisions of the warrants is not complete, and is subject to modification in any prospectus supplement for any issuance of warrants. For the terms of a particular series of warrants, you should refer to the prospectus supplement for that series of warrants and the warrant agreement and form of warrant certificate for that particular series.

DESCRIPTION OF RIGHTS

We may issue rights, including rights issued as part of a unit with one or more other securities, to purchase common stock, preferred stock or other securities that we may offer to our securityholders. The rights may or may not be transferable by the persons purchasing or receiving the rights. In connection with any rights offering, we may enter into a standby underwriting or other arrangement with one or more underwriters or other persons pursuant to which such underwriters or other persons would purchase any offered securities remaining unsubscribed for after such rights offering. Each series of rights will be issued under a separate rights agent agreement to be entered into between us and a bank or trust company, as rights agent, that we will name in the applicable prospectus supplement. The rights agent will act solely as our agent in connection with the rights and will not assume any obligation or relationship of agency or trust for or with any holders of rights certificates or beneficial owners of rights. A copy of the form of rights agent or subscription agent agreement, including the form of rights certificate representing a series of rights, will be filed with the SEC in connection with the offering of a particular series of rights.

The prospectus supplement relating to any rights that we offer will include specific terms relating to the offering, including, among other matters:

- the date of determining the security holders entitled to the rights distribution;
- the aggregate number of rights issued and the aggregate number of shares of common stock, preferred stock or other securities purchasable upon exercise of the rights;
- the exercise price;
- the conditions to and method by which holders of rights will be entitled to exercise;
- any provisions for changes to or adjustments in the exercise price or number of securities the rights can be exercised for;
- the conditions to completion of the rights offering;
- the date on which the right to exercise the rights will commence and the date on which the rights will expire; and
- any applicable federal income tax considerations.

Each right would entitle the holder of the rights to purchase for cash the amount of shares of common stock or preferred stock or other securities on the expiration date for the rights provided in the applicable prospectus supplement. After the close of business on the expiration date, all unexercised rights will become void.

If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than our security holders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby arrangements, as described in the applicable prospectus supplement.

Until a holder exercises the rights to purchase shares of our common stock or preferred stock or other securities, the holder will not have any rights as a holder of shares of our common stock or preferred stock or other securities, as the case may be, by virtue of ownership of the rights.

The applicable prospectus supplement will describe the terms of any rights. The preceding description and any description of rights in the applicable prospectus supplement does not purport to be complete and is subject to and is qualified in its entirety by reference to the right certificate and, if applicable, the rights agent agreement or subscription agent agreement relating to such rights.

DESCRIPTION OF UNITS

We may issue units comprised of one or more of the other classes of securities described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The units may be issued under unit agreements to be entered into between us and a unit agent, as detailed in the prospectus supplement relating to the units being offered. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

The applicable prospectus supplement may describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units;
- the terms of the unit agreement governing the units;
- United States federal income tax considerations relevant to the units; and
- whether the units will be issued in fully registered or global form.

The preceding description and any description of units in the applicable prospectus supplement does not purport to be complete and is subject to and is qualified in its entirety by reference to the form of unit certificate and unit agreement, if any, which will be filed with the SEC in connection with the offering of such units, and, if applicable, collateral arrangements and depositary arrangements relating to such units.

PLAN OF DISTRIBUTION

We may sell our securities in any of the following ways:

- to or through underwriters;
- through agents;
- through broker-dealers (acting as agent or principal);
- directly by us to one or more purchasers (including our affiliates and stockholders), through a specific bidding or auction process, a rights offering or otherwise; or
- through a combination of any such methods of sale.

The securities may be distributed at a fixed price or prices, which may be changed, market prices prevailing at the time of sale, including at-the-market offerings as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended (the “Securities Act”), at prices related to the prevailing market prices, or negotiated prices.

Each time that we use this prospectus to sell our securities, we will also provide a prospectus supplement that contains the specific terms of such offering. The prospectus supplement will set forth the terms of the offering of such securities, including:

- name or names of any underwriters, dealers or agents and the type and amounts of securities underwritten or purchased by each of them;
- the public offering price of the securities and the net proceeds to us and any discounts, commissions or concessions allowed or reallocated or paid to underwriters, dealers or agents;
- any exchange on which the securities will be issued; and
- all other items constituting underwriting compensation.

We may also issue the securities as a dividend or distribution or in a subscription rights offering to our stockholders, in each case subject to applicable restrictive covenants contained in agreements and instruments governing our debt at the time of such dividend, distribution or offering. Any such dividend, distribution or subscription rights may or may not be transferable by stockholders. The applicable prospectus supplement will describe the specific terms of the dividend, distribution or subscription rights, including the terms of the dividend, distribution or subscription rights offering, the terms, procedures and limitations relating to the exchange and exercise of the dividend, distribution or subscription rights and, if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of common stock, other class of securities or units through the issuance of a dividend, distribution or subscription rights.

Sale Through Underwriters, Agents or Dealers

If we use underwriters in the sale of any securities on a firm commitment basis, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The securities may be either offered 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. The underwriters will be obligated to purchase all of the securities if they purchase any of the securities. We may also engage underwriters on a best efforts basis.

We may sell the securities through agents from time to time. The prospectus supplement will name any agent involved in the offer or sale of our securities and any commissions we pay to them. Generally, any agent will be acting on a best efforts basis for the period of its appointment.

To the extent that we make sales to or through one or more underwriters or agents in at-the-market offerings, we will do so pursuant to the terms of a distribution agreement between us and the underwriters or agents. If we engage in at-the-market sales pursuant to a distribution agreement, we will issue and sell shares of our common stock to or through one or more underwriters or agents, which may act on an agency basis or on a principal basis. During the term of any such agreement, we may sell shares on a daily basis in exchange transactions or otherwise as we agree with the underwriters or agents. The distribution agreement will provide that any shares of our common stock sold will be sold at prices related to the then prevailing market prices for our common stock. Therefore, exact figures regarding proceeds that will be raised or commissions to be paid cannot be determined at this time and will be described in a prospectus supplement. Pursuant to the terms of the distribution agreement, we also may agree to sell, and the relevant underwriters or agents may agree to solicit offers to purchase, blocks of our common stock or other securities. The terms of each such distribution agreement will be set forth in more detail in a prospectus supplement to this prospectus. If any underwriter or agent acts as principal, or broker dealer acts as underwriter, it may engage in certain transactions that stabilize, maintain or otherwise affect the price of our securities. We will describe any such activities in the prospectus supplement relating to the transaction.

In the sale of the securities, underwriters or agents may receive compensation from us in the form of underwriting discounts or commissions and may also receive compensation from purchasers of the securities, for whom they may act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. Discounts, concessions and commissions may be changed from time to time. Dealers and agents that participate in the distribution of the securities may be deemed to be underwriters under the Securities Act, and any discounts, concessions or commissions they receive from us and any profit on the resale of securities they realize may be deemed to be underwriting compensation under applicable federal and state securities laws.

We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase our securities at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions or discounts we pay for solicitation of these contracts.

Agents and underwriters may be entitled to indemnification by us against certain civil liabilities, including 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 and underwriters may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

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 indicates in connection with those derivatives, then 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 stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of securities. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement (or a post-effective amendment).

Until the distribution of the securities is completed, rules of the SEC may limit the ability of any underwriters and selling group members to bid for and purchase the securities. As an exception to these rules, underwriters are permitted to engage in some transactions that stabilize the price of the securities. Such transactions consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities.

Underwriters may engage in over-allotment. If an underwriter creates a short position in offered securities by selling more securities than are set forth on the cover page of the applicable prospectus supplement, the underwriters may reduce that short position by purchasing the securities in the open market.

The lead underwriters may also impose a penalty bid on other underwriters and selling group members participating in an offering. This means that if the lead underwriters purchase securities in the open market to reduce the underwriters' short position or to stabilize the price of the securities, they may reclaim the amount of any selling concession from the underwriters and selling group members who sold those securities as part of the offering.

Any person participating in the distribution of common stock registered under the registration statement that includes this prospectus will be subject to applicable provisions of the Securities Act, Exchange Act, and the applicable SEC rules and regulations, including, among others, Regulation M, which may limit the timing of purchases and sales of any of our common stock by any such person. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of our common stock to engage in market-making activities with respect to our common stock. These restrictions may affect the marketability of our common stock and the ability of any person or entity to engage in market-making activities with respect to our common stock.

If more than 10% of the net proceeds of any offering of securities made under this prospectus will be received by Financial Industry Regulatory Authority ("FINRA") members participating in the offering, or affiliates or associated persons of such FINRA members, the offering will be conducted in accordance with FINRA Rule 5110.

Direct Sales and Electronic Auctions

We may sell the securities offered through this prospectus directly. In this case, no underwriters or agents would be involved.

We may also make sales through the Internet or through other electronic means. Since we may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of such securities, you should pay particular attention to the description of that system we will provide in a prospectus supplement.

Such electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which such securities are sold. These bidding or ordering systems may present to each bidder, on a so-called "real-time" basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder's individual bids would be accepted, prorated or rejected. Any such matters will be described in the applicable prospectus supplement.

Upon completion of such an electronic auction process, securities may be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders may be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

LEGAL MATTERS

The validity of the issuance of the common stock offered by us in this offering will be passed upon for us Harter Secrest & Emery LLP, Rochester, NY.

EXPERTS

The consolidated financial statements of the Company appearing in its Annual Report on Form 10-K for the year ended December 31, 2024, have been audited by Weinberg & Company, P.A., as set forth in their report therein, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information into this document, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information.

We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act made on or after (i) the date of the initial registration statement and prior to effectiveness of the registration statement, and (ii) the date of this prospectus and prior to the completion or the termination of the offering of the securities described in this prospectus (other than information in such filings that was "furnished," under applicable SEC rules, rather than "filed"). We incorporate by reference the following documents or information that we have filed with the SEC:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2024, filed with the SEC on February 26, 2025;
- our Quarterly Report on [Form 10-Q](#) for the periods ended March 31, 2025, filed with the SEC on May 12, 2025;
- our Current Reports on Form 8-K filed with the SEC on [April 1, 2025](#), [April 11, 2025](#), [May 30, 2025](#), and [June 6, 2025](#); and
- The description of the common stock incorporated by reference to our Registration Statement on [Form 8-A](#) that was filed with the SEC on October 8, 2021, [Exhibit 4.5](#) to Amendment No. 1 to our Annual Report for the fiscal year ended December 31, 2022 on Form 10-K/A filed with the SEC on November 20, 2023, and any amendment or report filed for the purpose of updating such description.

To obtain copies of these filings, see "Where You Can Find More Information" in this prospectus. Nothing in this prospectus shall be deemed to incorporate information furnished, but not filed, with the SEC, including pursuant to Item 2.02 or Item 7.01 of Form 8-K and any corresponding information or exhibit furnished under Item 9.01 of Form 8-K.

Information in this prospectus supersedes related information in the documents listed above and information in subsequently filed documents supersedes related information in both this prospectus and the incorporated documents.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the periodic reporting requirements of the Exchange Act, and we will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information are available at www.sec.gov. We maintain a website at <https://www.bonebiologics.com>. We have not incorporated by reference into this prospectus the information contained in, or that can be accessed through, our website, and you should not consider it to be a part of this prospectus. You may access our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. You may also request a copy of these filings (other than exhibits to these documents unless the exhibits are specifically incorporated by reference into these documents or referred to in this prospectus), at no cost, by writing us at 2 Burlington Woods Drive, Suite 100, Burlington, MA 01803 or contacting us at (781) 552-4452.

We have filed with the SEC a registration statement under the Securities Act relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You may review a copy of the registration statement and the documents incorporated by reference herein through the SEC's website at www.sec.gov.

BONE BIOLOGICS CORPORATION

**\$35,000,000
Common Stock
Preferred Stock
Warrants
Rights
Units**

Prospectus

, 2025

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

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

	Amount to be paid
SEC registration fee	\$ 2,665(1)
FINRA filing fee	\$ 5,750
Accounting fees and expenses	\$ *
Legal fees and expenses	\$ *
Printing and engraving expenses	\$ *
Miscellaneous	\$ *
Total	\$ 8,415

- (1) In accordance with Rule 415(a)(6) under the Securities Act, a portion of the filing fee previously paid in connection with the securities registered in the registration statement on Form S-3 (File No. 333-265872), a portion of which remain unsold, will continue to be carried forward and applied to the securities registered under this registration statement. Please see the registration fee table contained in Exhibit 107 to this registration statement for more information.
- * Estimated expenses are not presently known. The foregoing sets forth the general categories of expenses (other than any underwriting discounts and commissions) that we anticipate we will incur in connection with the offering of our securities under this registration statement. An estimate of the various expenses in connection with the issuance and distribution of our securities being offered will be included in the applicable prospectus supplement.

Item 15. Indemnification of Directors and Officers.

Section 102 of the Delaware General Corporation Law (“DGCL”) permits a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty to us or our stockholders, acted or failed to act (an omission) not in good faith or that involved intentional misconduct or a knowing violation of law, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of the DGCL, or obtained an improper personal benefit. Our Amended and Restated Certificate of Incorporation, as amended (“Certificate of Incorporation”), provides that no director of the Company shall be personally liable to it or its stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the DGCL prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the DGCL provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation, or a person serving at the request of the corporation for another corporation, partnership, joint venture, trust or other enterprise in related capacities against expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he was or is a party or is threatened to be made a party to any threatened, ending or completed action, suit or proceeding by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Our Certificate of Incorporation and Amended and Restated Bylaws, as amended (“Bylaws”) provide indemnification for our directors and officers to the fullest extent permitted by the DGCL. We will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an “Indemnitee”), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys’ fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our Certificate of Incorporation and Bylaws provide that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, a director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys’ fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys’ fees) actually and reasonably incurred in connection therewith. Expenses must be advanced to an Indemnitee under certain circumstances.

As of the date of this prospectus, we have entered into separate indemnification agreements with each of our directors and executive officers. Each indemnification agreement provides, among other things, for indemnification to the fullest extent permitted by law and our Certificate of Incorporation against any and all expenses, judgments, fines, penalties and amounts paid in settlement of any claim. The indemnification agreements provide for the advancement or payment of all expenses to the indemnitee and for the reimbursement to us if it is found that such indemnitee is not entitled to such indemnification. In addition, we have obtained a general liability insurance policy that covers certain liabilities of directors and officers of our corporation arising out of claims based on acts or omissions in their capacities as directors or officers.

Item 16. Exhibits.

The following exhibits to this registration statement included in the Exhibit Index are incorporated by reference.

EXHIBIT INDEX

- | | |
|-------|---|
| 1.1** | Form of Underwriting Agreement |
| 2.1 | <u>Agreement and Plan of Merger, dated as of September 19, 2014, by and among AFH Acquisition X, Inc., Bone Biologics Acquisition Corp., and Bone Biologics, Inc. (incorporated herein by reference to Exhibit 2.1 to the Current Report on Form 8-K filed on September 25, 2014)</u> |
| 2.2 | <u>Certificate of Merger as filed with the California Secretary of State effective September 19, 2014 (incorporated herein by reference to Exhibit 2.2 to the Current Report on Form 8-K filed September 25, 2014)</u> |
| 3.1 | <u>Amended and Restated Certificate of Incorporation of Bone Biologics Corporation (incorporated herein by reference to Exhibit 3.1(i) to the Current Report on Form 8-K filed September 25, 2014)</u> |

- 3.2 [Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Bone Biologics Corporation filed October 8, 2021 \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed October 15, 2021\)](#)
- 3.3 [Certificate of Amendment to Amended and Restated Certificate of Incorporation of Bone Biologics Corporation filed June 5, 2023 \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed June 6, 2023\)](#)
- 3.4 [Certificate of Amendment to Amended and Restated Certificate of Incorporation of Bone Biologics Corporation filed December 14, 2023 \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed December 18, 2023\)](#)
- 3.5 [Certificate of Amendment to Amended and Restated Certification of Incorporation of Bone Biologics Corporation filed June 5, 2025 \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed June 6, 2025\)](#)
- 3.6 [Amended and Restated Bylaws of Bone Biologics Corporation \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on March 8, 2022\)](#)
- 3.7 [Amendment No. 1 to the Amended and Restated Bylaws of Bone Biologics Corporation \(incorporated herein by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on October 24, 2023\)](#)
- 4.1** Form of Preferred Stock Certificate of Designation (including Form of Preferred Stock Certificate)
- 4.2** Form of Warrant Agreement (including Form of Warrant Certificate)
- 4.3** Form of Rights Agreement (including Form of Rights Certificate, if any)
- 4.4** Form of Units Agreement (including Form of Unit Certificate)
- 5.1* [Opinion of Harter Secrest & Emery LLP](#)
- 23.1* [Consent of Independent Registered Public Accounting Firm, Weinberg & Company, P.A.](#)
- 23.2* [Consent of Harter Secrest & Emery LLP \(included in Exhibit 5.1\)](#)
- 24.1* [Power of Attorney \(included in signature page hereto\)](#)
- 107* [Filing Fee Table](#)

* Filed herewith.

** To be subsequently filed by an amendment to the Registration Statement or by a Current Report on Form 8-K and incorporated herein by reference.

Item 17. Undertakings

The undersigned registrant hereby undertakes:

- (a)(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;
 - (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 Commission 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 the undertakings set forth in paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) above 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 Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this registration statement or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, 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 under the Securities Act of 1933 to any purchaser:
 - (i) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (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 communications that is an offer in the offering made by the undersigned registrant to the purchaser.
- (b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 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 of whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the Town of Burlington, Commonwealth of Massachusetts, on June 24, 2025.

BONE BIOLOGICS CORPORATION

By: /s/ Jeffrey Frelick

Name: Jeffrey Frelick

Title: Chief Executive Officer
(Principal Executive Officer)

POWER OF ATTORNEY

Each person whose signature appears below appoints Jeffrey Frelick and Deina H. Walsh, and each of them, each of whom may act without the joinder of the other, as his or her true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution for him and her and in his or her name, place and stead, in any and all capacities to sign any and all amendments (including post-effective amendments) to this registration statement, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or would do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Jeffrey Frelick</u> Jeffrey Frelick	Chief Executive Officer (Principal Executive Officer)	June 24, 2025
<u>/s/ Deina H. Walsh</u> Deina H. Walsh	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	June 24, 2025
<u>/s/ Bruce Stroeve</u> Bruce Stroeve	Director	June 24, 2025
<u>/s/ Robert Gagnon</u> Robert Gagnon	Director	June 24, 2025
<u>/s/ Siddhesh Angle</u> Siddhesh Angle	Director	June 24, 2025
<u>/s/ Phillip Meikle</u> Phillip Meikle	Director	June 24, 2025



Harter Secrest & Emery LLP

ATTORNEYS AND COUNSELORS

WWW.HSELAW.COM

June 24, 2025

Bone Biologics Corporation
2 Burlington Woods Drive, Suite 100
Burlington, MA 01803

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Bone Biologics Corporation, a Delaware corporation (the “*Company*”), in connection with its filing of a Registration Statement on Form S-3 (the “*Registration Statement*”) with the Securities and Exchange Commission (the “*SEC*”) pursuant to the Securities Act of 1933, as amended (the “*Securities Act*”) with respect to the registration and public offering by the Company, from time to time, pursuant to Rule 415 under the Securities Act, of up to \$35,000,000 in the aggregate amount of any combination of the following:

- (i) shares of common stock, par value \$0.001 per share, of the Company (“*Common Stock*”);
- (ii) shares of preferred stock, par value \$0.001 per share, of the Company (“*Preferred Stock*”), which may be issued in one or more series;
- (iii) warrants to purchase Common Stock, Preferred Stock or other securities of the Company (“*Warrants*”);
- (iv) rights to purchase Common Stock, Preferred Stock or other securities (the “*Rights*”); and
- (v) units comprised of one or more of the securities described above in any combination (the “*Units*”).

The Common Stock, Preferred Stock, Warrants, Rights and Units are collectively referred to herein as the “*Securities*.”

As such counsel, and for purposes of our opinion set forth below, we have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company.

1600 BAUSCH & LOMB PLACE ROCHESTER, NY 14604-2711 PHONE: 585.232.6500 FAX: 585.232.2152

rochester, ny • buffalo, ny • albany, ny • corning, ny • new york, ny

Harter Secrest & Emery LLP
ATTORNEYS AND COUNSELORS

Bone Biologics Corporation
June 24, 2025
Page 2

For purposes of the opinions set forth below, without limiting any other exceptions or qualifications set forth herein, we have assumed that, (a) at the time the Securities are issued the Company will be validly existing and in good standing and (b) after the issuance of any Securities offered pursuant to the Registration Statement, the total number of issued shares of Common Stock or Preferred Stock, as applicable, together with the total number of shares of such stock issuable upon the exercise, exchange, conversion or settlement, as the case may be, of any exercisable, exchangeable or convertible security (including without limitation any Warrant, Right or Unit), as the case may be, then outstanding, will not exceed the total number of authorized shares of Common Stock or Preferred Stock, as applicable, under the Company's amended and restated certificate of incorporation as then in effect (the "**Charter**").

For purposes of the opinions set forth below, we refer to the following as the "**Future Authorization and Issuance**" of Securities:

- with respect to any of the Securities, (a) the authorization by the Company of the amount, terms and issuance of such Securities (the "**Authorization**") and (b) the issuance of such Securities in accordance with the Authorization therefor upon receipt by the Company of the consideration (which, in the case of shares of Common Stock or Preferred Stock, is not less than the par value of such shares) to be paid therefor in accordance with the Authorization and (c) any definitive purchase, underwriting or similar agreement with respect to any Securities offered will have been duly authorized and validly executed and delivered by the Company and the other party or parties thereto and, if applicable, (d) certificates representing such Securities have been duly executed, countersigned, registered and delivered either (i) in accordance with the applicable definitive purchase, underwriting or similar agreement or (ii) upon conversion or exercise of any other Security, in accordance with the terms of such Security or the instrument governing such Security providing for such conversion or exercise;
 - with respect to Preferred Stock, (a) the establishment of the terms of such Preferred Stock by the Company in conformity with the Charter and applicable law and (b) the execution, acknowledgement and filing with the Secretary of State of the State of Delaware of a certificate of amendment to the Charter providing for the issuance of a series of Preferred Stock in accordance with the Charter and applicable law; and
 - with respect to Warrants, Rights or Units, (a) the authorization, execution and delivery by the Company and the other parties thereto of any agreement under which such Securities are to be issued; (b) the establishment of the terms of such Securities, and the execution and delivery of such Securities, in conformity with any applicable agreement under which such Securities are to be issued and applicable law; (c) any such Securities and any such agreements will be governed by New York law and will not include any provision that is unenforceable; and (d) any Securities issuable upon conversion, exchange, redemption or exercise of such Warrants, Rights or Units being offered will be duly authorized, created and, if appropriate, reserved for issuance upon such conversion, exchange, redemption, or exercise.
-

Harter Secrest & Emery LLP
ATTORNEYS AND COUNSELORS

Bone Biologics Corporation
June 24, 2025
Page 3

Based upon the foregoing, and subject to the additional qualifications set forth below, we are of the opinion that:

1. Upon the Future Authorization and Issuance of shares of Common Stock, such shares of Common Stock will be validly issued, fully paid and nonassessable.
2. Upon the Future Authorization and Issuance of shares of Preferred Stock, such shares of Preferred Stock will be validly issued, fully paid and nonassessable.
3. Upon the Future Authorization and Issuance of Warrants, such Warrants will be valid and binding obligations of the Company.
4. Upon the Future Authorization and Issuance of Rights, such Rights will be valid and binding obligations of the Company.
5. Upon the Future Authorization and Issuance of Units, such Units will be valid and binding obligations of the Company.

The opinions expressed above are subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and other similar laws of general application affecting the rights and remedies of creditors and to general principles of equity.

We express no opinion as to the law of any jurisdiction other than the law of the State of New York, and the applicable provisions of the Delaware General Corporate Law as currently in effect.

This opinion letter has been prepared in accordance with the customary practice of lawyers who regularly give, and lawyers who regularly advise opinion recipients concerning, opinions of the type contained herein.

This opinion letter deals only with the specified legal issues expressly addressed herein, and you should not infer any opinion that is not explicitly addressed herein from any matter stated in this letter.

We consent to the use of this opinion as an exhibit to the Registration Statement. In giving such consent, we do not hereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act and the rules and regulations thereunder. This opinion is rendered to you as of the date hereof and we assume no obligation to advise you or any other person hereafter with regard to any change after the date hereof in the circumstances or the law that may bear on the matters set forth herein even though the changes may affect the legal analysis or legal conclusion or other matters in this letter.

Very truly yours,

/s/ Harter Secrest & Emery LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in this Registration Statement on Form S-3 (File No. 333-_____) of our report dated February 26, 2025, relating to the consolidated financial statements of Bone Biologics Corporation as of and for the years ending December 31, 2024 and 2023 (which report includes an explanatory paragraph regarding substantial doubt about the Company's ability to continue as a going concern) included in Bone Biologics Corporation's Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the Securities and Exchange Commission. We also consent to the reference to our firm under the caption "Experts" in such Registration Statement and related Prospectus.

/s/Weinberg & Company, P.A.
Los Angeles, California
June 24, 2025

Calculation of Filing Fee Table

Form S-3
(Form Type)

Bone Biologics Corporation

(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered Securities

												Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward
	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit ⁽²⁾	Maximum Aggregate Offering Price ⁽²⁾	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial effective date	
	Equity	Common Stock, \$0.001 par value per share	457(o)	—	—	—	—	—	—	—	—	—
	Equity	Preferred Stock, \$0.001 par value per share	457(o)	—	—	—	—	—	—	—	—	—
	Other	Warrants	457(o)	—	—	—	—	—	—	—	—	—
	Other	Rights	457(o)	—	—	—	—	—	—	—	—	—
	Other	Units	457(o)	—	—	—	—	—	—	—	—	—
	Unallocated (Universal) Shelf	Unallocated (Universal) Shelf	457(o)	—	—	\$17,407,036(3)	0.00015310	\$ 2,665.02	—	—	—	—
Carry Forward Securities												
Carry Forward Securities	Equity	Common Stock, \$0.001 par value per share	415(a)(6)	—	—	—	—	—	S-3	333-265872	July 11, 2022	—
Carry Forward Securities	Equity	Preferred Stock, \$0.001 par value per share	415(a)(6)	—	—	—	—	—	S-3	333-265872	July 11, 2022	—
Carry Forward Securities	Other	Warrants	415(a)(6)	—	—	—	—	—	S-3	333-265872	July 11, 2022	—
Carry Forward Securities	Other	Rights	415(a)(6)	—	—	—	—	—	S-3	333-265872	July 11, 2022	—
Carry Forward Securities	Other	Units	415(a)(6)	—	—	—	—	—	S-3	333-265872	July 11, 2022	—
Carry Forward Securities	Unallocated (Universal) Shelf	(4)	415(a)(6)	(4)	—	\$17,592,964(4)	0.0000927	—	S-3	333-265872	July 11, 2022	\$ 1,630.87
	Total Offering Amounts											
	Total Fee Offsets											
	Net Fee Due											

- (1) The securities registered hereunder include such indeterminate number of (a) shares of common stock, (b) shares of preferred stock, (c) warrants to purchase common stock, preferred stock or other securities, (d) rights to purchase common stock, preferred stock or other securities and (e) units consisting of some or all of these securities, as may be sold from time to time by the registrant. There are also being registered hereunder an indeterminate number of the securities as shall be issuable upon conversion, exchange or exercise of any securities that provide for such issuance. Pursuant to Rule 416 under the Securities Act of

1933, as amended, or the Securities Act, this registration statement shall also cover any additional shares of the registrant's securities that become issuable by reason of any share splits, share dividends or similar transactions.

- (2) The Proposed Maximum Offering Price Per Unit and Maximum Aggregate Offering Price will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder and is not specified as to each class of security pursuant to General Instruction II.D of Form S-3 under the Securities Act. Separate consideration may or may not be received for securities that are issuable on exercise, conversion or exchange of other securities, or that are issued in units.
 - (3) Estimated solely for the purpose of calculating the registration fee. Subject to Rule 462(b) under the Securities Act, the aggregate maximum offering price of all securities sold by the registrant from time to time pursuant to this registration statement will not exceed \$35 million when factoring in the securities listed on the Carry Forward Securities Table.
 - (4) Pursuant to Rule 415(a)(6) under the Securities Act, securities with a maximum aggregate price of \$17,592,964 registered hereunder are unsold securities (the "Unsold Securities") previously covered by the Registrant's registration statement on Form S-3 (File No. 333-265872) which was initially filed with the Securities and Exchange Commission on June 28, 2022 and became effective on July 11, 2022 (the "Prior Registration Statement"), and are included in this registration statement. The Registrant paid a filing fee of \$1,630.87 (calculated at the filing fee rate in effect at the time of the filing of the Prior Registration Statement) relating to the Unsold Securities under the Prior Registration Statement, and no additional filing fee is due with respect to the Unsold Securities in connection with the filing of this registration statement. During the grace period afforded by Rule 415(a)(5) under the Securities Act, the Registrant may continue to offer and sell under the Prior Registration Statement the Unsold Securities being registered hereunder. To the extent that, after the filing date hereof and prior to the effectiveness of this registration statement, the Registrant sells any Unsold Securities under the Prior Registration Statement, the Registrant will identify in a pre-effective amendment to this registration statement the updated number of Unsold Securities from the Prior Registration Statement to be included in this registration statement pursuant to Rule 415(a)(6) and the updated amount of new securities to be registered on this registration statement. Pursuant to Rule 415(a)(6) under the Securities Act, the offering of Unsold Securities under the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this registration statement.
-