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

FORM 10-Q

(Mark One)
☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended June 30, 2024

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File No. **001-40899**

Bone Biologics Corporation
(Exact name of registrant as specified in its charter)

Delaware	**42-1743430**
(State or other jurisdiction of incorporation or formation)	(I.R.S. employer identification number)

2 Burlington Woods Drive, Ste 100, Burlington, MA 01803
(Address of principal executive offices and Zip Code)

(781) 552-4452
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, $0.001 par value per share	**BBLG**	**The Nasdaq Capital Market**
Warrants to Purchase Common stock, $0.001 par value per share	**BBLGW**	**The Nasdaq Capital Market**

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

☒ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (Section 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

☒ Yes ☐ No

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 pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

☐ Yes ☒ No

As of August 9, 2024, there were 1,801,427 shares of the issuer's common stock, $0.001 par value, outstanding.

Bone Biologics Corporation
- INDEX -

NOTE ON FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q (this "Form 10-Q") contains forward-looking statements. Such forward-looking statements include those that express plans, anticipation, intent, contingency, goals, targets or future development and/or otherwise are not statements of historical fact. These forward-looking statements are based on our current expectations and projections about future events and they are subject to risks and uncertainties known and unknown that could cause actual results and developments to differ materially from those expressed or implied in such statements. These forward-looking statements are subject to a number of risks, uncertainties and assumptions. For a more detailed listing of some of the risks and uncertainties facing the Company, please see our Current Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the Securities and Exchange Commission ("SEC") on February 21, 2024 and subsequent Quarterly Reports on Form 10-Q or other reports filed with the SEC.

All statements other than historical facts contained in this report, including statements regarding our future financial position, capital expenditures, cash flows, business strategy and plans and objectives of management for future operations are forward-looking statements. The words "anticipate," "believe," "expect," "plan," "estimate," "could," "may," "will," and similar expressions are intended to identify forward-looking statements. These statements include, among others, information regarding future operations, future capital expenditures, and future net cash flow. Such statements reflect our management's current views with respect to future events and financial performance and involve risks and uncertainties, including, without limitation, our ability to raise additional capital to fund our operations, inflation, rising interest rates, governmental responses there to and possible recession caused thereby, obtaining Food and Drug Administration and other regulatory authorization to market our drug and biological products, successful completion of our clinical trials, our ability to achieve regulatory authorization to market our lead product NELL-1/DBM, our reliance on third party manufacturers for our drug products, market acceptance of our products, our dependence on licenses for certain of our products, our reliance on the expected growth in demand for our products, exposure to product liability and defect claims, development of a public trading market for our securities, and various other matters, many of which are beyond our control.

Should one or more of these risks or uncertainties occur, or should underlying assumptions prove to be incorrect, actual results may vary materially and adversely from those anticipated, believed, estimated or otherwise indicated. Consequently, all of the forward-looking statements made in this Form 10-Q are qualified by these cautionary statements and accordingly there can be no assurances made with respect to the actual results or developments. We undertake no obligation to revise or publicly release the results of any revision to these forward-looking statements, except as required by law. Given these risks and uncertainties, readers are cautioned not to place undue reliance on such forward-looking statements.

Unless expressly indicated or the context requires otherwise, the terms "Company," "we," "us," and "our" in this document refer to Bone Biologics Corporation, a Delaware corporation and its wholly owned subsidiary as defined under the heading "Management's Discussion and Analysis" in this Form 10-Q.

PART I – FINANCIAL INFORMATION

Item 1. Financial Statements.

Bone Biologics Corporation

Condensed Consolidated Balance Sheets

	June 30, 2024 (unaudited)	December 31, 2023
Assets		
Current Assets		
Cash	**$ 2,332,068**	$ 3,026,569
Advances on research and development contract services	**650,275**	328,844
Prepaid insurance	**192,691**	372,350
Prepaid expenses	**18,430**	10,000
Total current assets	**3,193,464**	3,737,763
Total assets	**$ 3,193,464**	$ 3,737,763
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable and accrued expenses	**$ 231,872**	$ 360,662
Research and development contract liabilities	**44,980**	**-**
Accrued legal settlement	**-**	414,989
Warrant liability	**7,655**	55,751
Total current liabilities	**284,507**	831,402
Total liabilities	**284,507**	831,402
Commitments and Contingencies		
Stockholders' Equity		
Preferred Stock, $0.001 par value per share; 20,000,000 shares authorized; none issued or outstanding at June 30, 2024 and December 31, 2023	**-**	-
Common stock, $0.001 par value per share; 100,000,000 shares authorized; 1,315,489 and 534,238 shares issued and outstanding at June 30, 2024 and December 31, 2023, respectively	**1,315**	534
Additional paid-in capital	**85,466,303**	83,814,785
Accumulated deficit	**(82,558,661)**	(80,908,958)
Total stockholders' equity	**2,908,957**	2,906,361
Total liabilities and stockholders' equity	**$ 3,193,464**	$ 3,737,763

See accompanying notes to unaudited condensed consolidated financial statements.

Bone Biologics Corporation

Condensed Consolidated Statements of Operations

	Three Months Ended June 30, 2024	Three Months Ended June 30, 2023	**Six Months Ended June 30, 2024**	Six Months Ended June 30, 2023
	(unaudited)	(unaudited)	(unaudited)	(unaudited)
Revenues	**$ -**	**$ -**	**$ -**	**$ -**
Operating expenses				
Research and development	**350,442**	2,295,251	**596,067**	4,885,896
General and administrative	**459,223**	744,617	**1,117,135**	1,301,509
Total operating expenses	**809,665**	3,039,868	**1,713,202**	6,187,405
Loss from operations	**(809,665)**	(3,039,868)	**(1,713,202)**	(6,187,405)
Other expenses				
Change in fair value of warrant liability	**10,785**	1,270,202	**48,096**	707,284
Interest income	**15,147**	428	**15,403**	984
Total other income (expenses)	**25,932**	1,270,630	**63,499**	708,268
Net Loss	**$ (783,733)**	$ (1,769,238)	**$ (1,649,703)**	$ (5,479,137)
Weighted average shares outstanding – basic and diluted	**1,168,423**	339,308	**915,931**	295,031
Loss per share – basic and diluted	**$ (0.67)**	$ (5.21)	**$ (1.80)**	$ (18.57)

See accompanying notes to unaudited condensed consolidated financial statements.

Bone Biologics Corporation

Consolidated Statement of Stockholders' Equity
For the Six Months ended June 30, 2024
(unaudited)

	Common Stock		Additional Paid-in	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Equity	Equity
Balance at December 31, 2023	534,238	$ 534	$ 83,814,785	$(80,908,958)	$ 2,906,361
Fair value of vested stock options	-	-	52,681	-	52,681
Options issued to settle accrued bonus	-	-	77,400	-	77,400
Proceeds from sale of common stock in public offering, net of offering costs of $490,227	344,938	345	1,503,994	-	1,504,339
Exercise of pre-funded warrants	137,313	137	-	-	137
Net Loss	-	-	-	(865,970)	(865,970)
Balance at March 31, 2024	1,016,489	1,016	85,448,860	(81,774,928)	3,674,948
Fair value of vested stock options	-	-	17,443	-	17,443
Exercise of pre-funded warrants	299,000	299	-	-	299
Net Loss	-	-	-	(783,733)	(783,733)
Balance at June 30, 2024	**1,315,489**	**$ 1,315**	**$ 85,466,303**	**$(82,558,661)**	**$ 2,908,957**

See accompanying notes to unaudited condensed consolidated financial statements.

Bone Biologics Corporation

Consolidated Statement of Stockholders' Equity
For the Six Months ended June 30, 2023
(unaudited)

	Common Stock		Additional Paid-in	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Equity	Equity
Balance at December 31, 2022	63,820	$ 64	$ 77,907,471	$(71,960,227)	$ 5,947,308
Fair value of vested stock options issued to employees and directors	-	-	44,764	-	44,764
Exercise of warrants	5,837	6	(6)	-	-
Extinguishment of warrant liability upon exercise of warrants	-	-	490,226	-	490,226
Net Loss	-	-	-	(3,709,899)	(3,709,899)
Balance at March 31, 2023	69,657	$ 70	$ 78,442,455	$(75,670,126)	$ 2,772,399
Fair value of vested stock options issued to employees and directors	-	-	16,670	-	16,670
Exercise of warrants	4,938	5	(5)	-	-
Extinguishment of warrant liability upon exercise of warrants	-	-	220,798	-	220,798
Proceeds from sale of common stock in public offering, net of offering costs $547,837	317,259	317	4,451,846	-	4,452,163
Net Loss	-	-	-	(1,769,238)	(1,769,238)
Balance at June 30, 2023	**391,854**	**$ 392**	**$ 83,131,764**	**$(77,439,364)**	**$ 5,692,792**

See accompanying notes to unaudited condensed consolidated financial statements.

Bone Biologics Corporation

Condensed Consolidated Statements of Cash Flows

	Six months Ended June 30, 2024 (unaudited)	Six months Ended June 30, 2023 (unaudited)
Cash flows from operating activities		
Net loss	**$ (1,649,703)**	$ (5,479,137)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	**70,124**	61,434
Change in fair value of warrant liability	**(48,096)**	(707,284)
Changes in operating assets and liabilities:		
Advances on research and development contract services	**(321,431)**	170,205
Prepaid insurance and prepaid expenses	**171,229**	171,482
Accounts payable and accrued expenses	**(51,390)**	706,881
Research and development contract liabilities	**44,980**	93,753
Accrued legal settlement	**(414,989)**	**-**
Net cash used in operating activities	**(2,199,276)**	(4,982,666)
Cash flows from financing activities		
Proceeds from sale of common stock in public offering, net of offering costs	**1,504,339**	4,452,163
Exercise of pre-funded warrants	**436**	**-**
Net cash provided by financing activities	**1,504,775**	4,452,163
Net decrease in cash	**(694,501)**	(530,503)
Cash, beginning of period	**3,026,569**	7,538,312
Cash, end of period	**$ 2,332,068**	$ 7,007,809
Supplemental information		
Income taxes paid	**$ -**	$ -
Noncash investing and financing activities		
Options issued to settle accrued bonus	**$ 77,400**	**-**

See accompanying notes to unaudited condensed consolidated financial statements.

Bone Biologics Corporation
Notes to Unaudited Condensed Consolidated Financial Statements
For the Six months ended June 30, 2024 and 2023

1. The Company

Bone Biologics Corporation (the "Company") was 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., ("Merger Sub"), and Bone Biologics, Inc., Merger Sub merged with and into Bone Biologics Inc., with Bone Biologics Inc. remaining as the surviving corporation. On September 22, 2014, the Company changed its name to "Bone Biologics Corporation" and Bone Biologics, Inc. became a wholly owned subsidiary of the Company. Bone Biologics, Inc. was incorporated in California on September 9, 2004.

The Company is 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 DBM, demineralized bone matrix, 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 the Company 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 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 application before it can be commercialized in the United States.

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

The Company's success will depend in part on its 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 patents issued to or licensed by the Company will not be challenged, invalidated, or circumvented, or that the rights granted thereunder will provide proprietary protection or competitive advantages to the Company.

Going Concern and Liquidity

The Company has not generated revenue from operations and since inception to June 30, 2024 has incurred accumulated losses of approximately $82.6 million. The Company will continue to incur significant expenses for development activities for their lead product NELL-1/DBM. Operating expenditures for the next twelve months are estimated at $5.1 million. The accompanying unaudited condensed consolidated financial statements for the six months ended June 30, 2024 have been prepared assuming the Company will continue as a going concern. As reflected in the financial statements, the Company incurred a net loss of $1.6 million, and used net cash in operating activities of $2.2 million during the six months ended June 30, 2024. These factors raise substantial doubt about the Company's ability to continue as a going concern within one year after the date that the financial statements are issued. In addition, our independent registered public accounting firm, in its audit report to the financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2023, expressed substantial doubt about the Company's ability to continue as a going concern. The consolidated financial statements do not include any adjustments related to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should the Company be unable to continue as a going concern.

As of June 30, 2024, the Company had $2.3 million in cash on hand.

On August 2, 2024, the Company completed a warrant inducement transaction generating net proceeds to the Company of approximately $1.7 million (see Note 8).

Available cash inclusive of the proceeds from the August 2024 warrant inducement transaction is anticipated to cover our operational needs into the first quarter of 2025.

The Company will continue to attempt to raise additional debt and/or equity financing to fund future operations and to provide additional working capital. However, there is no assurance that such financing will be consummated or obtained in sufficient amounts necessary to meet the Company's needs. If cash resources are insufficient to satisfy the Company's on-going cash requirements, the Company will be required to scale back or discontinue its product development programs, or obtain funds if available (although there can be no certainties) through strategic alliances that may require the Company to relinquish rights to its technology, or substantially reduce or discontinue its operations entirely. No assurance can be given that any future financing will be available or, if available, that it will be on terms that are satisfactory to the Company. Even if the Company is able to obtain additional financing, it may contain undue restrictions on the Company's operations, in the case of debt financing, or cause substantial dilution for its stockholders, in the case of equity financing.

Reverse stock splits

On June 5, 2023, the Company filed an amendment to its amended and restated certificate of incorporation, as amended, with the Secretary of State of the State of Delaware to effect a 1-for-30 reverse stock split of its outstanding common stock and warrants. The amendment was authorized by the Company's stockholders on May 1, 2023, and was effective on June 5, 2023.

On December 14, 2023, the Company filed an amendment to its amended and restated certificate of incorporation, as amended, with the Secretary of State of the State of Delaware to effect a 1-for-8 reverse stock split of its outstanding common stock and warrants. The amendment was authorized by the Company's stockholders on December 12, 2023, and was effective on December 20, 2023.

All share and per share amounts have been retro-actively restated as if the reverse splits occurred at the beginning of the earliest period presented.

2. Summary of Significant Accounting Policies

Basis of Presentation

The interim condensed consolidated financial statements included herein reflect all material adjustments (consisting of normal recurring adjustments and reclassifications and non-recurring adjustments) which, in the opinion of management, are ordinary and necessary for a fair presentation of results for the interim periods. Certain information and footnote disclosures required under the accounting principles generally accepted in the United States of America ("GAAP") have been condensed or omitted pursuant to the rules and regulations of the Securities and Exchange Commission (the "SEC"). The Company believes that the disclosures are adequate to make the information presented not misleading. The condensed consolidated balance sheet information as of December 31, 2023 was derived from the audited consolidated financial statements included in the Company's Annual Report on Form 10-K filed with the SEC on February 21, 2024 (the "2023 Annual Report"). These condensed consolidated financial statements should be read in conjunction with the Company's audited financial statements for the year ended December 31, 2023 and notes thereto included in the 2023 Annual Report.

The results of operations for the six months ended June 30, 2024 are not necessarily indicative of the results to be expected for the entire fiscal year ended December 31, 2024 or for any other period.

Segment Information

The Company operates and reports in one segment, which focuses on bone regeneration in spinal fusion using the recombinant human protein known as NELL-1. The Company's operating segment is reported in a manner consistent with the internal reporting provided to the Chief Operating Decision Maker, which is the Company's Chief Executive Officer and President.

Use of Estimates

The preparation of the accompanying consolidated financial statements in conformity with GAAP requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and reported amounts of expenses during the reporting period. Significant estimates include the assumptions used in the accrual for potential liabilities, the valuation of the warrant liability, the valuation of debt and equity instruments, the valuation of stock options and warrants issued for services, and deferred tax valuation allowances. Actual results could differ from those estimates.

Inflation

Macroeconomic factors such as inflation, rising interest rates, governmental responses there to and possible recession caused thereby also add significant uncertainty to the Company's operations and possible effects to the amount and type of financing available to the Company in the future.

Cash

Cash primarily consists of bank demand deposits maintained by a major financial institution. The Company's policy is to maintain its cash balances with financial institutions with high credit ratings and in accounts insured by the Federal Deposit Insurance Corporation (the "FDIC") and/or by the Securities Investor Protection Corporation (the "SIPC"). The Company may periodically have cash balances in financial institutions in excess of the FDIC and SIPC insurance limits of $250,000 and $500,000, respectively. The Company has not experienced any losses to date resulting from this policy.

Research and Development Costs

Research and development costs include, but are not limited to, payroll and other personnel expenses, consultants, expenses incurred under agreements with contract research and manufacturing organizations and animal clinical investigative sites and the cost to manufacture clinical trial materials. Research and development costs are generally charged to operations ratably over the life of the underlying contracts, unless the achievement of milestones, the completion of contracted work, the termination of an agreement, or other information indicates that a different expensing schedule is more appropriate. However, payments for research and development costs that are contractually defined as non-refundable are charged to operations as incurred.

Payments made pursuant to contracts are initially recorded as advances on research and development contract services in the Company's consolidated balance sheets and are then charged to research and development costs in the Company's consolidated statements of operations as those contract services are performed. Expenses incurred under contracts in excess of amounts advanced are recorded as research and development contract liabilities in the Company's consolidated balance sheets, with a corresponding charge to research and development costs in the Company's consolidated statements of operations. The Company reviews the status of its various clinical trial and research and development contracts on a quarterly basis.

Fair Value of Financial Instruments

Accounting standards require certain assets and liabilities be reported at fair value in the financial statements and provide a framework for establishing that fair value. The Company defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The fair value hierarchy is based on three levels of inputs that may be used to measure fair value, of which the first two are considered observable and the last is considered unobservable:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 assumptions: Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities including liabilities resulting from embedded derivatives associated with certain warrants to purchase common stock.

The fair value of financial instruments measured on a recurring basis was as follows as of June 30, 2024:

	As of June 30, 2024			
Description	**Total**	**Level 1**	**Level 2**	**Level 3**
Liabilities:				
Warrant liability	$ 7,655	—	—	$ 7,655
Total liabilities at fair value	$ 7,655	—	—	$ 7,655

The following table provides a roll-forward of the warrant liability measured at fair value on a recurring basis using unobservable level 3 inputs for the six month period ended June 30, 2024 as follows:

	June 30, 2024
Warrant liability	
Balance as of beginning of period – December 31, 2023	$ 55,751
Change in fair value	(48,096)
Balance as of June 30, 2024	$ 7,655

The Company believes the carrying amount of certain financial instruments, including cash and accounts payable approximate their values based on their short-term nature and are excluded from the fair value tables above.

Stock Based Compensation

ASC 718, *Compensation – Stock Compensation*, prescribes accounting and reporting standards for all share-based payment transactions to employees and non-employees. Transactions include incurring liabilities, or issuing or offering to issue shares, options, and other equity instruments such as employee stock ownership plans and stock appreciation rights. Share-based payments to employees, including grants of employee stock options, are recognized as compensation expense in the consolidated financial statements based on their fair values. That expense is recognized over the period during which an employee is required to provide services in exchange for the award, known as the requisite service period (usually the vesting period). Recognition of compensation expense for non-employees is in the same period and manner as if the Company had paid cash for the services.

Loss per Common Share

Basic loss per share is computed by dividing the loss available to common shareholders by the weighted-average number of common shares outstanding during the period. Diluted loss per share is computed similar to basic loss per share except that the denominator is increased to include the number of additional common shares that would have been outstanding if the potential common shares had been issued and if the additional common shares were dilutive. Diluted loss per common share reflects the potential dilution that could occur if options and warrants were to be exercised or converted or otherwise resulted in the issuance of common stock that then shared in the earnings of the entity.

Since the effects of outstanding options and warrants are anti-dilutive for the six months ended June 30, 2024 and 2023, shares of common stock underlying these instruments have been excluded from the computation of loss per common share.

The following sets forth the number of shares of common stock underlying outstanding options and warrants as of June 30, 2024 and 2023:

	June 30,	
	2024	2023
Warrants	**1,025,970**	46,912
Stock options	**74,151**	2,125
	1,100,121	49,037

New Accounting Standards

The Company's management has evaluated all the recently issued, but not yet effective, accounting standards and guidance that have been issued or proposed by the Financial Accounting Standards Board or other standards-setting bodies through the filing date of these financial statements and does not believe the future adoption of any such pronouncements will have a material effect on the Company's financial position and results of operations.

3. Warrant Liability

In October 2022, the Company completed a public equity offering, which included the issuance of 54,174 warrants. The warrants provide for a Black Scholes value calculation, as defined, in the event of certain transactions ("Fundamental Transactions," as defined), which includes a floor on volatility utilized in the Black Scholes value calculation at 100% or greater. The Company has determined that this provision introduces leverage to the holders of the warrants that could result in a value that would be greater than the settlement amount of a fixed-for-fixed option on the Company's own equity shares. Accordingly, pursuant to ASC 815, the Company has classified the fair value of the warrants as a liability to be re-measured at the end of every reporting period with the change in value reported in the statement of operations.

The warrant liability was valued at the following dates using a Black-Scholes model with the following assumptions:

	June 30, 2024	December 31, 2023
Warrant liability:		
Risk-free interest rate	4.49%	3.94%
Expected volatility	134.22%	136.25%
Expected life (in years)	3.28	3.78
Expected dividend yield	-	-
Fair Value of warrant liability	$ 7,655	$ 55,751

The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant. The Company determines expected volatility based upon the historical volatility of the Company's common stock. The Company does not believe that the future volatility of its common stock over an option's expected term is likely to differ significantly from the past. The expected term of the warrants granted are determined based on the duration of time the warrants are expected to be outstanding. The dividend yield on the Company's warrants is assumed to be zero as the Company has not historically paid dividends.

4. Stockholders' Equity

Preferred Stock

The Company's amended and restated certificate of incorporation, as amended, authorizes the Company to issue a total of 20,000,000 shares of preferred stock. No shares have been issued as of June 30, 2024 and December 31, 2023.

Common Stock

The Company's amended and restated certificate of incorporation, as amended, authorizes the Company to issue a total of 100,000,000 shares of common stock. As of June 30, 2024 and December 31, 2023, the Company had an aggregate of 1,315,489 and 534,238 shares of common stock outstanding, respectively.

On March 6, 2024, the Company sold 119,000 shares of common stock together with warrants to purchase 119,000 shares of common stock (exercise price of $2.43 per share), expiring on March 6, 2029, at a combined public offering price of $2.56.

In addition, the Company sold pre-funded warrants to purchase 662,251 shares of common stock (exercise price of $0.001 per share), together with warrants to purchase 662,251 shares of common stock (exercised price of $2.43 per share), for a combined public offering price of $2.559 per pre-funded warrant and accompanying warrant. Concurrent with the closing, 225,938 shares of common stock were issued upon the exercise of 225,938 pre-funded warrants.

The total proceeds received from the sale of common stock and warrants and the exercise of 225,938 pre-funded warrants was approximately $1.5 million.

In March 2024, 137,313 shares of common stock were issued upon the exercise of 137,313 pre-funded warrants, for proceeds of $137.

During the three months ended June 30, 2024, 299,000 shares of common stock were issued upon the exercise of 299,000 pre-funded warrants, for proceeds of $299.

The Company issued warrants to purchase up to an aggregate of 46,875 shares of common stock to the placement agent, as compensation in connection with the March 2024 offering. The warrants issued to the placement agent have substantially the same

terms and conditions as the warrants issued to investors, except that the placement agent warrants have an exercise price of $3.20 per share.

5. Common Stock Warrants

A summary of warrant activity for the six months ended June 30, 2024 is presented below:

Subject to Exercise	Number of Warrants	Weighted Average Exercise Price	Weighted Average Life (Years)
Outstanding as of December 31, 2023	197,844	$ 127.86	4.95
Granted – 2024	1,490,377	1.44	5.00
Forfeited/Expired – 2024	-	-	-
Exercised – 2024	(662,251)	0.001	4.68
Outstanding as of June 30, 2024	**1,025,970**	**$ 26.65**	**4.64**

As of June 30, 2024, the Company had outstanding exercisable, but unexercised Common Stock Warrants as follows:

Date Issued	Exercise Price	Number of Warrants	Expiration date
October 2021	$ 1,512.00	7,620	October 13, 2026
October 2022	$ 388.80	18,058	October 12, 2027
October 2022	$ 324.00	18,846	October 12, 2027
October 2022	$ 0.00	2,393	October 12, 2027
November 2023	$ 6.40	8,543	November 16, 2028
November 2023	$ 4.16	142,384	May 21, 2029
March 2024	$ 2.43	781,251	March 6, 2029
March 2024	$ 3.20	46,875	March 6, 2029
Total outstanding warrants at June 30, 2024		**1,025,970**	

Based on a fair market value of $1.22 per share on June 30, 2024, there 2,393 exercisable but unexercised in-the-money common stock warrants on that date. Accordingly, the intrinsic value attributed to exercisable but unexercised common stock warrants at June 30, 2024 was $2,919.

Please see Note 8 Subsequent Events for disclose of a warrant inducement entered into on August 1, 2024.

6. Stock-based Compensation

2015 Equity Incentive Plan

The Company has 629,489 shares of common stock authorized and reserved for issuance under its 2015 Equity Incentive Plan for option awards. This reserve may be increased by the Board each year by up to the number of shares of stock equal to 5% of the number of shares of stock issued and outstanding on the immediately preceding December 31. Shares subject to awards granted under the 2015 Equity Incentive Plan which expire, are repurchased or are cancelled or forfeited will again become available for issuance under the 2015 Equity Incentive Plan. The shares available will not be reduced by awards settled in cash. Shares withheld to satisfy tax withholding obligations will not again become available for grant. The gross number of shares issued upon the exercise of stock appreciation rights or options exercised by means of a net exercise or by tender of previously owned shares will be deducted from the shares available under the 2015 Equity Incentive Plan.

Awards may be granted under the 2015 Equity Incentive Plan to the Company's employees, including officers, director or consultants, and its present or future affiliated entities. While the Company may grant incentive stock options only to employees, it may grant non-statutory stock options, stock appreciation rights, restricted stock purchase rights or bonuses, restricted stock units, performance shares, performance units and cash-based awards or other stock based awards to any eligible participant.

The 2015 Equity Incentive Plan is administered by the Company's compensation committee. Subject to the provisions of the 2015 Equity Incentive Plan, the compensation committee determines, in its discretion, the persons to whom, and the times at which, awards are granted, as well as the size, terms and conditions of each award. All awards are evidenced by a written agreement between the Company and the holder of the award. The compensation committee has the authority to construe and interpret the terms of the 2015 Equity Incentive Plan and awards granted under the 2015 Equity Incentive Plan.

A summary of stock option activity for the six months ended June 30, 2024 is presented below:

Subject to Exercise	Number of Options	Weighted Average Exercise Price	Weighted Average Life (Years)	Aggregate Intrinsic Value
Outstanding as of December 31, 2023	34,310	$ 236.70	8.62	$ -
Granted – 2024	45,515	3.72	3.41	-
Forfeited/Expired – 2024	(5,674)	54.24	7.94	-
Exercised – 2024	-	-	-	-
Outstanding as of June 30, 2024	**74,151**	**$ 107.65**	**4.87**	**$ -**
Options vested and exercisable at June 30, 2024	**59,419**	**$ 133.13**	**3.96**	**$ -**

As of June 30, 2024, the Company had outstanding stock options as follows:

Date Issued	Exercise Price	Number of Options	Expiration date
August 2015	$ 9,540.00	174	December 27, 2025
September 2015	$ 9,540.00	36	December 27, 2025
November 2015	$ 9,540.00	205	December 27, 2025
December 2015	$ 9,540.00	12	December 27, 2025
January 2016	$ 9,540.00	213	January 9, 2026
May 2016	$ 12,300.00	45	May 26, 2026
September 2016	$ 12,300.00	21	May 31, 2026
January 2017	$ 12,300.00	10	January 1, 2027
January 2018	$ 11,820.00	8	January 1, 2028
January 2019	$ 564.00	92	January 1, 2029
October 2021	$ 1,260.00	207	October 26, 2031
January 2022	$ 844.80	111	January 1, 2032
August 2022	$ 387.26	462	August 23, 2032
January 2023	$ 57.60	237	January 25, 2025
September 2023	$ 5.12	26,803	September 12, 2033
January 2024	$ 4.68	8,015	January 8, 2034
January 2024	$ 3.61	37,500	January 17, 2026
Total outstanding options at June 30, 2024		**74,151**	

Based on a fair value of $1.22 per share on June 30, 2024. There were no exercisable but unexercised in-the-money common stock warrants on that date.

During the six months ended June 30, 2024, options exercisable into 8,015 shares of common stock were granted with a fair value of $34,039. Vesting of options differs based on the terms of each option. During the six months ended June 30, 2024 and 2023, the Company had stock-based compensation expense of $70,124 and $61,434, respectively, related to the vesting of stock options granted to the Company's employees and directors included in our reported net loss. In addition, during the six months ended June 30, 2024, options exercisable into 37,500 shares of common stock were issued to employees in settlement of previously accrued bonuses of $77,400.

In January 2024, options exercisable into 5,674 shares of common stock were forfeited upon the resignation of a director. The Company's policy is to account for forfeitures of the unvested portion of option grants when they occur; therefore, these forfeitures are recorded as a reversal to expense, which can result in a credit balance in the statement of operations.

The Company utilized the Black-Scholes option-pricing model. The assumptions used for the six months ended June 30, 2024 are as follows:

	June 30, 2024
Risk free interest rate	3.97%
Expected Volatility	137.91%
Expected life (in years)	5.58
Expected dividend yield	0%

The expected volatility is a measure of the amount by which the Company stock price is expected to fluctuate during the expected term of options granted. The Company determines the expected volatility based upon the historical volatility of our common stock since listing on The Nasdaq Capital Market. The Company does not believe that the future volatility of its common stock over an option's expected term is likely to differ significantly from the past. The risk-free interest rate used in the calculations is based on the implied yield available on U.S. Treasury issues with an equivalent term approximating the expected life of the options as calculated using the simplified method. The expected life of the options used was based on the contractual life of the option granted. Stock-based compensation is a non-cash expense because the Company settles these obligations by issuing shares of its common stock from its authorized shares instead of settling such obligations with cash payments.

As of June 30, 2024, total unrecognized compensation cost related to unvested stock options was $6,811. The cost is expected to be recognized over a weighted average period of 0.03 years.

7. Commitments and Contingencies

UCLA TDG Exclusive License Agreement

Effective April 9, 2019, the Company entered into an Amended and Restated Exclusive License Agreement dated as of March 21, 2019 and amended through three sets of amendments (as so amended the "Amended License Agreement") with the UCLA TDG. The Amended License Agreement amends and restates the Amended and Restated Exclusive License Agreement, dated as of June 19, 2017 (the "2017 Agreement"). The 2017 Agreement amended and restated the Exclusive License Agreement, effective March 15, 2006, between the Company and UCLA TDG, as amended by ten amendments. Under the terms of the Amended License Agreement, the Regents have continued to grant the Company exclusive rights to develop and commercialize NELL-1 (the "Licensed Product") for spinal fusion by local administration, osteoporosis and trauma applications. The Licensed Product is a recombinant human protein growth factor that is essential for normal bone development.

The Company has agreed to pay an annual maintenance fee to UCLA TDG of $10,000 as well as pay certain royalties to UCLA TDG under the Amended License Agreement at the rate of 3.0% of net sales of licensed products or licensed methods. The Company must pay the royalties to UCLA TDG on a quarterly basis. Upon a first commercial sale, the Company also must pay a minimum annual royalty between $50,000 and $250,000, depending on the calendar year which is after the first commercial sale. If the Company is required to pay any third party any royalties as a result of it making use of UCLA TDG patents, then it may reduce the royalty owed to UCLA TDG by 0.333% for every percentage point paid to a third party. If the Company grants sublicense rights to a third party to use the UCLA TDG patent, then it will pay UCLA TDG 10% to 20% of the sublicensing income it receives from such sublicense.

The Company is obligated to make the following milestone payments to UCLA TDG for each Licensed Product or Licensed Method:

- $100,000 upon enrollment of the first subject in a Feasibility Study;
- $250,000 upon enrollment of the first subject in a Pivotal Study:
- $500,000 upon Pre-Market Approval of a Licensed Product or Licensed Method; and
- $1,000,000 upon the First Commercial Sale of a Licensed Product or Licensed Method.

The Company is also obligated pay to UCLA TDG a fee (the "Diligence Fee") of $8,000,000 upon the sale of any Licensed Product (the "Triggering Sale Date") in accordance with the payment schedule below:

- Due upon cumulative Net Sales equaling $50,000,000 following the Triggering Sale Date - $2,000,000;
- Due upon cumulative Net Sales equaling $100,000,000 following the Triggering Sale Date - $2,000,000; and
- Due upon cumulative Net Sales equaling $200,000,000 following the Triggering Sale Date - $4,000,000.

The Company's obligation to pay the Diligence Fee will survive termination or expiration of the agreement and it is prohibited from assigning, selling, or otherwise transferring any of its assets related to any Licensed Product unless its Diligence Fee obligation is assigned, sold, or transferred along with such assets, or unless it pays UCLA TDG the Diligence Fee within ten (10) days of such assignment, sale or other transfer of such rights to any Licensed Product.

The Company is also obligated to pay UCLA TDG a cash milestone payment within thirty (30) days of a Liquidity Event (including a Change of Control Transaction and a payment election by UCLA TDG exercisable after December 22, 2016) such payment to equal the greater of:

- $500,000; or
- 2% of all proceeds in connection with a Change of Control Transaction.

During the six months ended June 30, 2024, the first two patients had been treated in the multicenter, prospective, randomized pilot clinical study of the Company's NB1 bone graft device, triggering the payment of the initial milestone.

The Company is obligated to diligently proceed with developing and commercializing licensed products under UCLA TDG patents set forth in the Amended License Agreement. UCLA TDG has the right to either terminate the license or reduce the license to a non-exclusive license if it does not meet certain diligence milestone deadlines set forth in the Amended License Agreement.

The Company must reimburse or pre-pay UCLA TDG for patent prosecution and maintenance costs incurred during the term of the Amended License Agreement. The Company has the right to bring infringement actions against third party infringers of the Amended License Agreement, UCLA TDG may join voluntarily, at its own expense, or, at the Company's expense, be joined involuntarily to the action. The Company is required to indemnify UCLA TDG against any third party claims arising out of its exercise of the rights under the Amended License Agreement or any sublicense.

Payments to UCLA TDG under the Amended License Agreement for the six months ended June 30, 2024 and 2023 were $118,151 and $16,606, respectively.

Contingencies

The Company is subject to claims and assessments from time to time in the ordinary course of business. The Company's management does not believe that any such matters, individually or in the aggregate, will have a material adverse effect on the Company's business, financial condition, results of operations or cash flows.

8. Subsequent Events

On August 1, 2024, the Company entered into warrant inducement letter agreements with holders of the March 2024 Warrants. The Company offered, to each warrant holder who exercised the March 2024 Warrants, the issuance of two Incentive Warrants. The Incentive Warrants entitle the holders to purchase an aggregate of 781,251 shares of common stock of the Company for a period of 18 months from the date of issuance, and warrants exercisable into an aggregate of 781,251 shares of common stock of the Company for a period of five years from the date of issuance, exercisable immediately, at a price of $2.00 per share. On August 2, 2024, the Company completed the warrant inducement transaction and received net proceeds to the Company of approximately $1.7 million.

In addition, the Company issued warrants to purchase up to an aggregate of 46,875 shares of common stock to the placement agent as compensation. The warrants issued to the placement agent have substantially the same terms and conditions as the five-year Incentive Warrants, except the placement agent warrants have an exercise price of $3.35 per share.

Due to certain beneficial ownership limitations set forth in the March 2024 Warrants, the Company issued the number of shares that would not cause a holder to exceed such beneficial ownership limitation and agreed to hold such balance of shares of common stock in abeyance. Of March 2024 Warrants exercised, an aggregate of 560,251 shares of common stock were held in abeyance. The abeyance shares will be held until notice is received by the holder that the shares of common stock may be issued in compliance with such beneficial ownership limitations. Until such time, the abeyance shares are evidenced through the holder's existing warrants and will continue to be included in the Company's table of outstanding warrants. The abeyance shares are not considered issued or outstanding in our consolidated balance sheets.

As of August 6, 2024, 264,938 Abeyance Shares were released and issued.

Item 2. Management's Discussion and Analysis.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the condensed consolidated financial statements and the notes thereto included elsewhere in this Quarterly Report on Form 10-Q and audited consolidated financial statements for the years ended December 31, 2023 and 2022 and the related notes included in our Annual Report on Form 10-K filed for the fiscal year ended December 31, 2023, with the SEC on February 21, 2024. This discussion contains forward-looking statements reflecting our current expectations that involve risks and uncertainties. See "Note on Forward-Looking Statements" for a discussion of the uncertainties, risks and assumptions associated with these statements. Actual results and the timing of events could differ materially from those discussed in our forward-looking statements as a result of many factors.

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 DBM, demineralized bone matrix, 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 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 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 technology that 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 development 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 the clinical trials.

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 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.

On June 20, 2024, we announced that the first patient had been treated in the multicenter, prospective, randomized pilot clinical study of the Company's NB1 bone graft device. NB1 is NELL-1 protein combined with demineralized bone matrix (DBM) to provide rapid, specific and guided control over bone regeneration.

This pilot clinical study will evaluate NB1 in 30 adult subjects who undergo transforaminal lumbar interbody fusion (TLIF) to treat degenerative disc disease (DDD) and will evaluate safety and effectiveness, fusion success, pain, function improvement and adverse events. To be enrolled in the study, patients 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. These two patients were treated in Australia. The study design was previously reviewed and agreed upon by the U.S. Food and Drug Administration's Division of Orthopedic Devices in a Pre-submission to support progression to a pivotal clinical trial in the United States.

UCLA TDG Exclusive License Agreement

Effective April 9, 2019, we entered into an Amended and Restated Exclusive License Agreement dated as of March 21, 2019, which was subsequently amended through three sets of amendments (as so amended the "Amended License Agreement") with the UCLA TDG. The Amended License Agreement amends and restates the Amended and Restated Exclusive License Agreement, dated as of June 19, 2017 (the "2017 Agreement"). The 2017 Agreement amended and restated the Exclusive License Agreement, effective March 15, 2006, between the Company and UCLA TDG, as amended by ten amendments. Under the terms of the Amended License Agreement, the Regents have continued to grant us exclusive rights to develop and commercialize NELL-1 (the "Licensed Product")

for spinal fusion by local administration, osteoporosis and trauma applications. The Licensed Product is a recombinant human protein growth factor that is essential for normal bone development.

We have agreed to pay an annual maintenance fee to UCLA TDG of $10,000 as well as pay certain royalties to UCLA TDG under the Amended License Agreement at the rate of 3.0% of net sales of licensed products or licensed methods. We must pay the royalties to UCLA TDG on a quarterly basis. Upon a first commercial sale, we also must pay a minimum annual royalty between $50,000 and $250,000, depending on the calendar year which is after the first commercial sale. If we are required to pay any third party any royalties as a result of us making use of UCLA TDG patents, then we may reduce the royalty owed to UCLA TDG by 0.333% for every percentage point paid to a third party. If we grant sublicense rights to a third party to use the UCLA TDG patent, then we will pay UCLA TDG 10% to 20% of the sublicensing income we receive from such sublicense.

We are obligated to make the following milestone payments to UCLA TDG for each Licensed Product or Licensed Method:

- $100,000 upon enrollment of the first subject in a Feasibility Study;
- $250,000 upon enrollment of the first subject in a Pivotal Study:
- $500,000 upon Pre-Market Approval of a Licensed Product or Licensed Method; and
- $1,000,000 upon the First Commercial Sale of a Licensed Product or Licensed Method.

We are also obligated pay to UCLA TDG a fee (the "Diligence Fee") of $8,000,000 upon the sale of any Licensed Product (the "Triggering Sale Date") in accordance with the payment schedule below:

- Due upon cumulative Net Sales equaling $50,000,000 following the Triggering Sale Date - $2,000,000;
- Due upon cumulative Net Sales equaling $100,000,000 following the Triggering Sale Date - $2,000,000; and
- Due upon cumulative Net Sales equaling $200,000,000 following the Triggering Sale Date - $4,000,000.

Our obligation to pay the Diligence Fee will survive termination or expiration of the Amended License Agreement and we are prohibited from assigning, selling, or otherwise transferring any of its assets related to any Licensed Product unless our Diligence Fee obligation is assigned, sold, or transferred along with such assets, or unless we pay UCLA TDG the Diligence Fee within ten (10) days of such assignment, sale or other transfer of such rights to any Licensed Product.

We are also obligated to pay UCLA TDG a cash milestone payment within thirty (30) days of a Liquidity Event (including a Change of Control Transaction and a payment election by UCLA TDG exercisable after December 22, 2016) such payment to equal the greater of:

- $500,000; or
- 2% of all proceeds in connection with a Change of Control Transaction.

During the six months ended June 30, 2024, the first two patients had been treated in the multicenter, prospective, randomized pilot clinical study of the Company's NB1 bone graft device, triggering the payment of the initial milestone.

We are obligated to diligently proceed with developing and commercializing licensed products under UCLA TDG patents set forth in the Amended License Agreement. We are required to meet certain diligence milestone deadlines pursuant to the Amended License Agreement. Applicable for the current year, we are required to spend at least $1,000,000 per calendar year on pre-clinical or clinical development until the date that we complete a Phase III pivotal study. If we fail to meet this or the other diligence milestone deadlines, UCLA TDG has the right to either terminate the license or reduce the license to a non-exclusive license.

We must reimburse or pre-pay UCLA TDG for patent prosecution and maintenance costs incurred during the term of the Amended License Agreement. We have the right to bring infringement actions against third party infringers of the Amended License Agreement, UCLA TDG may join voluntarily, at its own expense, or, at our expense, be joined involuntarily to the action. We are required to indemnify UCLA TDG against any third party claims arising out of our exercise of the rights under the Amended License Agreement or any sublicense.

Payments to UCLA TDG under the Amended License Agreement for the six months ended June 30, 2024 and 2023 were $118,151 and $16,606, respectively.

August 2024 Warrant Inducement Transaction

On August 1, 2024, we entered into warrant inducement letter agreements with holders of the March 2024 Warrants. We offered, to each warrant holder who exercised the March 2024 Warrants, the issuance of two Incentive Warrants. The Incentive Warrants entitle the holders to purchase an aggregate of 781,251 shares of common stock of the Company for a period of 18 months from the date of issuance, and warrants exercisable into an aggregate of 781,251 shares of common stock of the Company for a period of five years from the date of issuance, exercisable immediately, at a price of $2.00 per share. On August 2, 2024, we completed the warrant inducement transaction and received net proceeds to the Company of approximately $1.7 million.

In addition, we issued warrants to purchase up to an aggregate of 46,875 shares of common stock to the placement agent as compensation. The warrants issued to the placement agent have substantially the same terms and conditions as the five-year Incentive Warrants, except the placement agent warrants have an exercise price of $3.35 per share.

NASDAQ Panel

As of June 28, 2024 we are no longer subject to a Nasdaq discretionary panel monitor.

Results of Operations

Since our inception, we devoted substantially all of our efforts and funding to the development of the NELL-1 protein and raising capital. We have not yet generated revenues from our planned operations.

Three months ended June 30, 2024 compared to the three months ended June 30, 2023

	Three-months ended June 30, 2024	Three-months ended June 30, 2023	% Change
Operating expenses			
Research and development	$ 350,442	$ 2,295,251	(84.73)%
General and administrative	459,223	744,617	(38.33)%
Total operating expenses	809,665	3,039,868	(73.37)%
Loss from operations	(809,665)	(3,039,868)	(73.37)%
Change in fair value of warrant liability	10,785	1,270,202	(99.15)%
Interest income	15,147	428	3439.02%
Net loss	$ (783,733)	$ (1,769,238)	(55.70)%

Research and Development

Our research and development expenditures saw a notable decline, dropping from $2,295,251 for the three months ending June 30, 2023, to $350,442 for the same period in 2024, marking a decrease of $1,944,809. The decrease in costs can be attributed to the significant expenses incurred in 2023 for the production of the NELL-1 protein necessary for our initial clinical study. Moving forward, we anticipate continued substantial investment in development activities for NELL-1 as we prepare for our pivotal clinical study in the future.

General and Administrative

Our general and administrative costs decreased from $744,617 for the three months ending June 30, 2023, to $459,223 for the corresponding period in 2024, reflecting a $285,394 decrease. This decrease can mainly be attributed to legal expenses stemming from litigation matters in 2023.

Change in fair value of warrant liability

In October 2022, we completed a public equity offering, which included the issuance of 54,174 warrants. The warrants provide for a Black Scholes value calculation in the event of certain transactions ("Fundamental Transactions," as defined), which includes a floor on volatility utilized in the value calculation at 100% or greater. We have determined that this provision introduces leverage to the holders of the warrants that could result in a value that would be greater than the settlement amount of a fixed-for-fixed option on the Company's own equity shares. Accordingly, pursuant to ASC 815, we have classified the fair value of the warrants as a liability to be re-measured at the end of every reporting period with the change in value reported in the statement of operations.

The change in fair value of warrant liability represents the re-measurement of the outstanding warrants at June 30, 2024.

Six months ended June 30, 2024 compared to the six months ended June 30, 2023

	Six-months ended June 30, 2024	Six-months ended June 30, 2023	% Change
Operating expenses			
Research and development	$ 596,067	$ 4,885,896	(87.80)%
General and administrative	1,117,135	1,301,509	(14.17)%
Total operating expenses	1,713,202	6,187,405	(72.31)%
Loss from operations	(1,713,202)	(6,187,405)	(72.31)%
Change in fair value of warrant liability	48,096	707,284	(93.20)%
Interest income	15,403	984	1465.35%
Net loss	$ (1,649,703)	$ (5,479,137)	(69.89)%

Research and Development

Our research and development expenditures saw a notable decline, dropping from $4,885,896 for the six months ending June 30, 2023, to $596,067 for the same period in 2024, marking a decrease of $4,289,829. The decrease in costs can be attributed to the significant expenses incurred in 2023 for the production of the NELL-1 protein necessary for our initial clinical study. Moving forward, we anticipate continued substantial investment in development activities for NELL-1 as we prepare for our pivotal clinical study in the future.

General and Administrative

Our general and administrative costs decreased from $1,301,509 for the six months ending June 30, 2023, to $1,117,135 for the corresponding period in 2024, reflecting an $184,374 decrease. This decrease can mainly be attributed to legal expenses stemming from litigation matters in 2023.

Change in fair value of warrant liability

In October 2022, we completed a public equity offering, which included the issuance of 54,174 warrants. The warrants provide for a Black Scholes value calculation in the event of certain transactions ("Fundamental Transactions," as defined), which includes a floor on volatility utilized in the value calculation at 100% or greater. We have determined that this provision introduces leverage to the holders of the warrants that could result in a value that would be greater than the settlement amount of a fixed-for-fixed option on the Company's own equity shares. Accordingly, pursuant to ASC 815, we have classified the fair value of the warrants as a liability to be re-measured at the end of every reporting period with the change in value reported in the statement of operations.

The change in fair value of warrant liability represents the re-measurement of the outstanding warrants at June 30, 2024.

Liquidity and Capital Resources

Going Concern and Liquidity

Since inception to June 30, 2024, we have incurred accumulated losses of approximately $82.6 million. We will continue to incur significant expenses for development activities for our lead product NELL-1/DBM. Operating expenditures for the next twelve months are estimated at $5.1 million. The accompanying consolidated financial statements for the six months ended June 30, 2024 have been prepared assuming the Company will continue as a going concern. As reflected in the financial statements, we incurred a net loss of $1.6 million, and used net cash in operating activities of $2.2 million during the six months ended June 30, 2024. These factors raise substantial doubt about the Company's ability to continue as a going concern within a reasonable period of time, which is considered to be one year from the issuance date of these financial statements. In addition, 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, 2023, expressed substantial doubt about our ability to continue as a going concern. The consolidated financial statements do not include any adjustments related to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might be necessary should the Company be unable to continue as a going concern.

On March 6, 2024, we sold 119,000 shares of common stock together with warrants to purchase 119,000 shares of common stock (exercise price of $2.43 per share), expiring on March 6, 2029, at a combined public offering price of $2.56.

In addition, we sold pre-funded warrants to purchase 662,251 shares of common stock (exercise price of $0.001 per share), together with warrants to purchase 662,251 shares of common stock (exercised price of $2.43 per share), for a combined public offering price of $2.559 per pre-funded warrant and accompanying warrant. Concurrent with the closing, 225,938 shares of common stock were issued upon the exercise of 225,938 pre-funded warrants.

The total proceeds received from the sale of common stock and warrants and the exercise of 225,938 pre-funded warrants was approximately $1.5 million.

On August 1, 2024, we entered into warrant inducement letter agreements with holders of the March 2024 Warrants. We offered, to each warrant holder who exercised the March 2024 Warrants, the issuance of two Incentive Warrants. The Incentive Warrants entitle the holders to purchase an aggregate of 781,251 shares of common stock of the Company for a period of 18 months from the date of issuance, and warrants exercisable into an aggregate of 781,251 shares of common stock of the Company for a period of five years from the date of issuance, exercisable immediately, at a price of $2.00 per share. On August 2, 2024, we completed the warrant inducement transaction and received net proceeds to the Company of approximately $1.7 million.

In addition, we issued warrants to purchase up to an aggregate of 46,875 shares of common stock to the placement agent as compensation. The warrants issued to the placement agent have substantially the same terms and conditions as the five-year Incentive Warrants, except the placement agent warrants have an exercise price of $3.35 per share.

We will continue to attempt to raise additional debt and/or equity financing to fund future operations and to provide additional working capital. However, there is no assurance that such financing will be consummated or obtained in sufficient amounts necessary to meet our needs. If cash resources are insufficient to satisfy our on-going cash requirements, we will be required to scale back or discontinue our product development programs, or obtain funds if available (although there can be no certainties) through strategic alliances that may require us to relinquish rights to our technology or substantially reduce or discontinue our operations entirely. No assurance can be given that any future financing will be available or, if available, that it will be on terms that are satisfactory to us. Even if we are able to obtain additional financing, it may contain undue restrictions on our operations, in the case of debt financing, or cause substantial dilution for our stockholders, in the case of equity financing.

At June 30, 2024 and December 31, 2023, we had cash of $2,332,068 and $3,026,569, respectively.

Available cash inclusive of the proceeds from the August 2024 Inducement Transaction is anticipated to cover our operational needs into the first quarter of 2025.

We anticipate that we will require approximately $5 million to complete first-in-man studies, and an estimated additional $24 million in scientific expenses to achieve FDA approval, if possible, for a spine interbody fusion indication.

Cash Flows

Operating activities

For the six months ended June 30, 2024, cash used in operating activities was $2,199,276, compared to $4,982,666 for the same period in 2023. The reduction in cash expenditures for the first half of 2024 is attributed to the development activities in 2023 related to our NELL-1 protein as we prepared for our pilot clinical study. During the six months ended June 30, 2024, we implanted our lead product candidate in the first two patients in the multicenter, prospective, randomized pilot clinical study of the Company's NB1 bone graft device.

Financing activities

During the six months ended June 30, 2024, cash provided by financing activities of $1,504,339 resulted from the net proceeds of the March Offering and $436 from the exercise of pre-funded warrants.

Off-Balance Sheet Arrangements

The Company does not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on the Company's financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that is material to investors.

Critical Accounting Policies and Use of Estimates

See our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2023 for a discussion of our critical accounting policies and use of estimates. There have been no material changes to our critical accounting policies and use of estimates discussed in such report.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Not applicable.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Financial Officer and Chief Executive Officer, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of June 30, 2024. Based upon that evaluation, our Chief Financial Officer and Chief Executive Officer concluded that as of June 30, 2024, our disclosure controls and procedures were effective.

Changes in Internal Controls

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(d) and 15d-15(d) under the Exchange Act) that occurred during the quarter ended June 30, 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings.

There are no material updates to the matters previously disclosed in “Part I—Item 3—Legal Proceedings” of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and "Part II—Item 1—Legal Proceedings" of our Quarterly Report on Form 10-Q for the period ended March 31, 2024.

Item 1A. Risk Factors.

For a discussion of the Company’s potential risks or uncertainties, please see “Part I—Item 1A—Risk Factors” and “Part II—Item 7—Management’s Discussion and Analysis of Financial Condition and Results of Operations” in the Company’s Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC, and “Part I—Item 2—Management’s Discussion and Analysis of Financial Condition and Results of Operations” herein. There have been no material changes from the risk factors as previously disclosed in our Annual Report on Form 10-K for the year ended December 31, 2023 except as noted herein.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None

Item 3. Defaults Upon Senior Securities.

None

Item 4. Mine Safety Disclosures.

Not Applicable

Item 5. Other Information.

During the three months ended June 30, 2024, no director or officer of the Company adopted or terminated a “Rule 10b5-1 trading arrangement” or “non-Rule 10b5-1 trading arrangement,” as each term is defined in Item 408(a) of Regulation S-K.

Item 6. Exhibits.

(a) Exhibits required by Item 601 of Regulation S-K.

Exhibit Number	Exhibit Title	Incorporated by reference (unless otherwise indicated)			
		Form	File	Exhibit	Filing date
31.1*	Certification of the Company's Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, with respect to the registrant's Report on Form 10-Q for the quarter ended June 30, 2024.	—	—	—	—
31.2*	Certification of the Company's Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, with respect to the registrant's Report on Form 10-Q for the quarter ended June 30, 2024.	—	—	—	—
32.1*	Certification of the Company's Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
32.2*	Certification of the Company's Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.	—	—	—	—
101.INS*	Inline XBRL Instance Document	—	—	—	—
101.SCH*	Inline XBRL Taxonomy Extension Schema Document	—	—	—	—
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document	—	—	—	—
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	—
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document	—	—	—	—
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	—
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				

* Filed Herewith
+ Management contract or compensatory arrangement.

SIGNATURES

In accordance with Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

BONE BIOLOGICS CORPORATION

Dated: August 9, 2024

By: */s/ Jeffrey Frelick*
Name: Jeffrey Frelick
Title: Chief Executive Officer

Exhibit 31.1

Certification of Principal Executive Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and Securities and Exchange Commission Release 34-46427

I, Jeffrey Frelick, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Bone Biologics Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 9, 2024

/s/ Jeffrey Frelick
Jeffrey Frelick
Principal Executive Officer

Exhibit 31.2

Certification of Principal Financial Officer
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
and Securities and Exchange Commission Release 34-46427

I, Deina H. Walsh, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Bone Biologics Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 9, 2024

/s/ Deina H. Walsh
Deina H. Walsh
Principal Financial Officer

Exhibit 32.1

Certification of Principal Executive Officer
Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Report of Bone Biologics Corporation (the "Company") on Form 10-Q for the period ended June 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Jeffrey Frelick, Principal Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Jeffrey Frelick
Jeffrey Frelick
Principal Executive Officer

August 9, 2024

Exhibit 32.2

Certification of Principal Financial Officer
Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Report of Bone Biologics Corporation (the "Company") on Form 10-Q for the period ended June 30, 2024 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Deina H. Walsh, Principal Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Deina H. Walsh
Deina H. Walsh
Principal Financial Officer

August 9, 2024