

0001493152-24-04520110-Q Matinas BioPharma Holdings, Inc. 0001493152-24-04520110-Q 10-Q 30 20240930 20241113 20241113 Matinas BioPharma Holdings, Inc. 0001582554 2834 463011414 DE 1231 10-Q 34 001-38022 241455678 1545 ROUTE 206 SOUTH SUITE 302 BEDMINSTER NJ 07921 10-Q 1 form10-q.htm false Q3 -12-31 0001582554 PSY 0001582554 2024-01-01 2024-09-30 0001582554 2024-11-13 0001582554 2024-09-30 0001582554 2024-12-31 0001582554 2024-08-30 2024-08-30 0001582554 2024-07-01 2024-09-30 0001582554 2023-07-01 2023-09-30 0001582554 2023-01-01 2023-09-30 0001582554 us-gaap:CommonStockMember 2023-12-31 0001582554 us-gaap:AdditionalPaidInCapitalMember 2023-12-31 0001582554 us-gaap:RetainedEarningsMember 2023-12-31 0001582554 us-gaap:AccumulatedOtherComprehensiveIncomeMember 2023-12-31 0001582554 us-gaap:CommonStockMember 2024-06-30 0001582554 us-gaap:AdditionalPaidInCapitalMember 2024-06-30 0001582554 us-gaap:RetainedEarningsMember 2024-06-30 0001582554 us-gaap:CommonStockMember 2022-12-31 0001582554 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UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549 A FORM 10-Q A QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 A For the quarterly period ended September 30, 2024 A OR A TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 A For the transition period from A A A A A A A A A A to A Commission File Number: 001-38022 A A MATINAS BIOPHARMA HOLDINGS, INC. (Exact name of registrant as specified in its charter) A Delaware A No. 46-3011414 (State or other jurisdiction of A (I.R.S. Employer incorporation or organization) A Identification No.) A 1545 Route 206 South, Suite 302 Bedminster, New Jersey 07921 (Address of principal executive offices) (Zip Code) A 908-484-8805 (Registrant's telephone number, including area code) A (Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report) A Securities registered pursuant to Section 12(b) of the Act: A Title of Each Class A Trading Symbol(s) A Name of Each Exchange on Which Registered Common Stock A MTNB A NYSE American A 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. A Yes A No A 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 (A 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). A Yes A No A Indicate by check mark whether the registrant is a large accelerated filer

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shares of its common stock. On April 5, 2024, the Company closed a registered direct offering of 666,667 shares of its common stock and warrants to purchase up to an aggregate of 666,667 additional shares of common stock, at a combined purchase price of \$15.00 per share and accompanying warrant. The Company generated gross proceeds of \$10,000 and net proceeds of \$9,190, after deducting underwriting discounts and commissions and other offering expenses. In addition, in February 2024, the Company sold 4,366 shares of its common stock under the ATM with BTIG, LLC generating net proceeds of \$54. A 13 A The Company did not sell any shares of its common stock during the nine months ended September 30, 2023. A Warrants A As of September 30, 2024, the Company had outstanding warrants to purchase 666,667 shares of the Company's common stock at an exercise price of \$17.50 per share. A The warrants are exercisable six months after issuance date, April 5, 2024, and have a five-year term. Once exercisable, the warrants may be exercised at any time in whole or in part upon payment of the applicable exercise price until expiration of the Warrants. No fractional shares will be issued upon the exercise of the Warrants. The exercise price and the number of warrant shares purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of certain events, which may include stock dividends, stock splits, combination and reclassifications of the Company capital stock or other similar changes to the equity structure of the Company. The warrants do not have a redemption feature. They may be exercised on a cashless basis at the holder's option and are classified as equity instruments. A The following table summarizes the changes in warrants outstanding for the nine months ended September 30, 2024: A Schedule of Shareholder Equity Warrants Outstanding A Shares Outstanding at December 31, 2023A A IssuedA 666,667A ExercisedA A TenderedA A ExpiredA A Outstanding at September 30, 2024A 666,667A A Basic and diluted net loss per common share A Net loss per share information is determined using the two-class method, which includes the weighted-average number of shares of common stock outstanding during the period and other securities. A Under the two-class method, basic net loss per share attributable to common stockholders is computed by dividing the net income attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period. Diluted net loss per share attributable to common stockholders is computed using the more dilutive of (1) the two-class method or (2) the if-converted method. A During the three and nine months ended September 30, 2024 and 2023, diluted loss per common share is the same as basic loss per common share because, as the Company incurred a net loss during each period presented, the potentially dilutive securities from the assumed exercise of all outstanding stock options and warrants, would have an anti-dilutive effect. The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share because including them would have been anti-dilutive as of September 30, 2024 and 2023: A Schedule of Anti-dilutive Securities Excluded from Computation of Earnings Per Share A As of September 30, 2024A 2023A Stock optionsA 872,063A A 664,689A WarrantsA 666,667A A A TotalA 1,538,730A A 664,689A 14 A A Note 11 A Accumulated Other Comprehensive Loss A The following table summarizes the changes in accumulated other comprehensive loss by component during the nine months ended September 30, 2024 and 2023: A Schedule of Components of Accumulated Other Comprehensive Loss A A Net Unrealized Gain/(Loss) on Available-for-Sale Securities A Accumulated Other Comprehensive Loss Balance, December 31, 2023A \$(221)A \$(221) Net unrealized gain on securities available-for-saleA 221A A 221A Balance, September 30, 2024A \$A A A A A A A A A A Balance, December 31, 2022A \$(824)A \$(824) Net unrealized gain on securities available-for-saleA 465A A 465A Balance, September 30, 2023A \$(359)A \$(359) A All components of accumulated other comprehensive income are net of tax. A Note 12 A Stock-based Compensation A The Company's Amended and Restated 2013 Equity Compensation Plan (the Plan), which expired on May 7, 2024, provided for the granting of incentive stock options, nonqualified stock options, restricted stock units, performance units, and stock purchase rights. There were no significant modifications to the Plan during the nine month periods ended September 30, 2024 and 2023. The term of the Plan was for 10 years. The Company intends to adopt a new equity compensation plan at its 2024 Annual Meeting, pending shareholder approval. A As of September 30, 2024, there were 965,678 awards, including both restricted stock grants and option grants, issued and exercised under the Plan and no remaining shares available for grant under the Plan. A The Company recognized stock-based compensation expense (options and restricted share grants) in its condensed consolidated statements of operations as follows: A Schedule of Recognized Stock-Based Compensation A Three Months Ended September 30, 2024A Nine Months Ended September 30, 2024A 2023A 2024A 2023A Research and DevelopmentA \$387A A \$507A A \$1,212A A \$1,576A General and AdministrativeA 578A A 689A A 1,739A A 2,100A TotalA 965A A 1,196A A 2,951A A 3,676A A As of September 30, 2024, total compensation costs related to unvested awards not yet recognized was \$4,597 and the weighted-average periods over which the awards are expected to be recognized was 2.2 years. A Stock Options A The following table summarizes the activity for the Company's stock options for the nine months ended September 30, 2024: A Schedule of Stock Option Activity A A Stock Options Outstanding at December 31, 2023A 934,243A GrantedA A ExercisedA A ForfeitedA (18,649) ExpiredA (43,531) Outstanding at September 30, 2024A 872,063A A Note 13 A Subsequent Events A On October 31, 2024, the Company announced that negotiations under a previously disclosed non-binding term sheet regarding global rights to MAT2203 have been terminated following notification from the prospective partner. As a result, the Company implemented an 80% workforce reduction effective on that date and ceased all product development. The severance cost associated with this initiative, which will be settled in cash, totaled approximately \$2,150 and will be paid over a twelve-month period following the workforce reduction effective date. A 15 A Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS A The following discussion and analysis of our financial condition and results of operations should be read together with our financial statements and the related notes and the other financial information included elsewhere in this Quarterly Report on Form 10-Q. This discussion contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those discussed below and elsewhere in this Quarterly Report on Form 10-Q, in our Annual Report on Form 10-K for the year ended December 31, 2023 and in other reports we file with the Securities and Exchange Commission, particularly those under Risk Factors. Dollars in tabular format are presented in thousands, except per share data, or otherwise indicated. A CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS A This report on Form 10-Q contains forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 under Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements include statements with respect to our beliefs, plans, objectives, goals, expectations, anticipations, assumptions, estimates, intentions and future performance, and involve known and unknown risks, uncertainties and other factors, which may be beyond our control, and which may cause our actual results, performance or achievements to be materially different from future results, performance or achievements expressed or implied by such forward-looking statements. All statements other than statements of historical fact are statements that could be forward-looking statements. You can identify these forward-looking statements through our use of words such as may, can, anticipate, assume, should, indicate, would, believe, expect, intend, and other similar words and expressions of the future. A There are a number of important factors that could cause the actual results to differ materially from those expressed in any forward-looking statement made by us. These factors include, but are not limited to: A our possible retention of an advisor to assist with a potential transaction involving MAT2203 and the evaluation of other alternatives including but not limited to winddown and dissolution of the Company; A our reduction by 80% of our workforce and the cessation of all product development activities; A our ability to raise additional capital to fund our operations and to develop our product candidates; A our anticipated timing for preclinical development, regulatory submissions, commencement and completion of clinical trials and product approvals; A our history of operating losses in each year since inception and the expectation that we will continue to incur operating losses for the foreseeable future; A our dependence on product candidates which are still in an early development stage; A our reliance on our proprietary lipid nanocrystal (LNC) platform delivery technology, and certain related patents which are exclusively licensed to us by Rutgers University; A our ability to manufacture GMP batches of our product candidates which are required for preclinical and clinical trials and, subsequently, if regulatory approval is obtained for any of our products, our ability to manufacture commercial quantities; A our ability to complete required clinical trials for our lead product candidate and other product candidates and obtain approval from the FDA or other regulatory agents in different jurisdictions; A our dependence on third parties, including third parties to manufacture our intermediates and final product formulations and third-party contract research organizations to conduct our clinical trials; A our ability to maintain or protect the validity of our patents and other intellectual property; A our ability to retain and recruit key personnel; A 16 A our ability to internally develop new inventions and intellectual property; A interpretations of current laws and the passages of future laws; A our lack of a sales and marketing organization and our ability to commercialize products, if we obtain regulatory approval, whether alone or through potential future collaborators; A our ability to successfully commercialize, and our expectations regarding future therapeutic and commercial potential with respect to, our product candidates; A the accuracy of our estimates regarding expenses, ongoing losses, future revenue, capital requirements and our needs for or ability to obtain additional financing; A developments and projections relating to our competitors or our industry; and A the factors listed under the heading Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2023, elsewhere in this report and other reports that we file with the Securities and Exchange Commission. A All forward-looking statements are expressly qualified in their entirety by this cautionary notice. You are cautioned not to place undue reliance on any forward-looking statements, which speak only as of the date of this report or the date of the document incorporated by reference into this report. We have no obligation, and expressly disclaim any obligation, to update, revise or correct any of the forward-looking statements, whether as a result of new information, future events or otherwise. We have expressed our expectations, beliefs and projections in good faith, and we believe they have a reasonable basis. However, we cannot assure you that our expectations, beliefs or projections will result or be achieved or accomplished. A Overview A We are a clinical-stage biopharmaceutical company. In October 2024, we announced that negotiations under a previously disclosed non-binding term sheet regarding global rights to our MAT2203 (oral amphotericin B) product candidate have been terminated following notification from the prospective partner. As a result, we implemented an 80% workforce reduction and ceased all product development activities to conserve cash. We may retain an advisor to assist us with a potential transaction involving MAT2203, and will evaluate other alternatives including but not limited to winddown and dissolution of the company. Prior to ceasing product development activities, we were focused on delivering groundbreaking therapies using our lipid nanocrystal (LNC) platform delivery technology (LNC Platform) and sought to develop an internal pipeline of products utilizing the LNC Platform to successfully encapsulate small molecules and small oligonucleotides and facilitate targeted and extrahepatic delivery to desired cell tissues without toxicity. A Key elements of our strategy included: A Advancing MAT2203 into the ORALTO trial for the treatment of invasive aspergillosis in patients with limited treatment options by securing a development and/or commercial partner. This initial indication is designed to be a gateway indication to establish the pharmacodynamic bridge necessary to expand the use of MAT2203 into other indications to treat deadly invasive fungal infections (e.g., mucormycosis, candidiasis and the endemic mycoses) through limited additional clinical work under a 505(b)(2) pathway, thereby making MAT2203 a pipeline in a product. A A Expanding the utilization of our LNC Platform with other small molecules and small oligonucleotides into inflammation and oncology in order to develop an internal pipeline of differentiated drug candidates. Oral, extrahepatic and non-toxic intraocular delivery of these molecules would represent a significant advancement. A 17 A A Building an external pipeline of collaborations focused on our LNC Platform with leading pharmaceutical companies to provide delivery solutions for their complex small molecules and small oligonucleotides, including ASOs and siRNAs. A For the nine month periods ended September 30, 2024 and 2023, our net loss was \$15,818 and \$17,628, respectively. We have incurred losses for each period from our inception and expect to incur additional losses for the foreseeable future. We do not believe the cash, cash equivalents and marketable debt securities on hand are sufficient to fund planned operations beyond the next twelve months from the filing date of these financial statements. We seek to fund our operations through public or private equity offerings, debt financing, government or other third-party funding, collaborations and licensing arrangements. These financing alternatives may not be available to us on acceptable terms, or at all. As a result, substantial doubt exists about our ability to continue as a going concern. A Financial Operations Overview A Revenue A During the three and nine months ended September 30, 2024, we did not generate any revenue. During the three and nine months ended September 30, 2023, we generated \$0 and \$1,096, respectively, in contract research revenue resulting from the research collaborations with BioNTech SE and Genentech Inc. Our ability to generate product revenue, which we do not expect to occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of our early-stage product candidates. A Research and Development Expenses A Research and development expenses consist of costs incurred for the development of product candidate MAT2203 and advancement of our LNC platform delivery technology, which include: A the cost of conducting pre-clinical work; A the cost of acquiring, developing and manufacturing pre-clinical and human clinical trial materials; A costs for consultants and contractors associated with Chemistry and Manufacturing Controls (CMC), pre-clinical and clinical activities and regulatory operations; A expenses incurred under agreements with contract research organizations, or CROs, including the National Institutes of Health (NIH), that conduct our pre-clinical or clinical trials; and A employee-related expenses, including salaries and stock-based compensation expense for those employees involved in the research and development process. A The table below summarizes our direct research and development expenses for our product candidates and development platform for the three and nine months ended September 30, 2024 and 2023. Our direct research and development expenses consist principally of external costs, such as fees paid to contractors, consultants, analytical laboratories and CROs and/or the NIH, in connection with our development work. We typically use our employee and infrastructure resources for manufacturing clinical trial materials, conducting product analysis, study protocol development and overseeing outside vendors. Included in Internal staffing, overhead and other below is the cost of laboratory space, supplies, research and development (R&D) employee costs (including stock-based compensation), travel and medical education. A 18 A A Three months ended September 30, 2024A Nine months ended September 30, 2024A 2024A 2023A Direct research and development expenses: A A A A A A A A A A Manufacturing process developmentA 203A A 349A A 753A A 942A Preclinical trialsA 171A A 101A A 1,034A A 350A Clinical developmentA 104A A 314A A 375A A 1,183A RegulatoryA 62A A 133A A 233A A 463A Internal staffing, overhead and otherA 1,699A A 2,398A A 6,662A A 7,886A Total research and developmentA 2,239A A 3,295A A 9,057A A 10,824A A Research and development activities are central to our business model. We expect our research and development expenses to increase over time because product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage human trials. However, we anticipate that our research and development expenses during 2024 will be lower compared with expenses incurred during 2023 until such time as we are able to secure additional funding to support initiation of our ORALTO trial for MAT2203 and advancement of our LNC platform delivery technology. A General and Administrative Expenses A General and administrative expense for the three and nine months ended September 30, 2024 were \$2,142 and \$7,067, respectively, and the three and nine months ended September 30, 2023 were \$2,839 and \$8,151, respectively. General and administrative expenses consist principally of salaries and related costs for personnel in executive and finance functions. Other general and administrative expenses include facility costs, insurance, investor relations expenses, professional fees for legal, patent review, consulting and accounting/audit services. We anticipate that our general and administrative expenses during 2024 will decrease slightly compared to expenses incurred during 2023. A Other Income, net A Other income, net is largely comprised of interest income/(expense) and dividends. A Reverse Stock Split A On August 30, 2024, we effected a 1-for-50 reverse stock split of our issued and outstanding common stock (the Reverse Stock Split). As a result of the Reverse Stock Split, each of our stockholders received one share of our common stock for every 50 shares such stockholder held immediately prior to the effective time of the Reverse Stock Split. Unless otherwise noted, all shares of common stock, common stock per share data and shares of common stock underlying stock-based awards and warrants convertible into shares of common stock included in these condensed consolidated financial statements, including the exercise or conversion price of such equity instruments, as applicable, have been retroactively adjusted to reflect the Reverse Stock Split for all periods presented. A Application of Critical Accounting Policies and Accounting Estimates A A critical accounting policy is one that is both important to the portrayal of our financial condition and results of operation and requires management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. A For a description of our significant accounting policies, refer to Note 3 A Summary of Significant Accounting Policies in our 2023 Form 10-K. Of these policies, the following are considered critical to an understanding of our Unaudited Condensed Consolidated Financial Statements as they require the application of the most difficult, subjective and complex judgments: (i) Research and development costs, and (ii) Goodwill and other intangible assets. A Recent Accounting Pronouncements A Refer to Note 3 A Summary of Significant Accounting Policies in the Notes to Unaudited Condensed

Consolidated Financial Statements for a discussion of recently adopted accounting pronouncements and their expected impact on our financial positions and results of operations. 19 A Current Operating Trends A In October 2024, we announced implementation of an 80% workforce reduction (the “October RIF”) and ceased all product development activities to conserve cash. We may retain an advisor to assist us with a potential transaction involving MAT2203, and will evaluate other alternatives including but not limited to winddown and dissolution of the company. While this evaluation is ongoing, we expect our R&D expenses will be limited to costs associated with supporting the Company’s MAT2203 Compassionate/Expanded Use Access Program and other costs necessary to maintain compliance with certain regulatory requirements. A Prior to the October RIF, our R&D efforts had been focused on advancing our lead LNC product candidate, MAT2203, through clinical development toward an initial indication for the treatment of CM and expanding application of our LNC Platform through both internal efforts and collaborations with third parties. Our R&D expenses consisted of manufacturing work and the cost of active pharmaceutical ingredients and excipients used in such work, fees paid to consultants for work related to clinical trial design and regulatory activities, fees paid to providers for conducting various clinical studies as well as for the analysis of the results of such studies, and for other medical research addressing the potential efficacy and safety of our drugs. We believe that significant investment in product development is a competitive necessity. A Results of Operations A Comparison of the three months ended September 30, 2024 to the three months ended September 30, 2023 A The following tables summarize our revenues and operating expenses for the periods presented: A A Three Months Ended September 30, A A 2024 A 2023A Revenues \$6.3 A \$6.1 A A A A A A Expenses A A A A A A Research and development A \$2,239 A \$3,295 A General and administrative A \$2,142 A \$2,839 A Operating Expenses A \$4,381 A \$6,134 A Revenues. During the three months ended September 30, 2024 and 2023, we did not generate any revenue. A Research and Development expenses. Research and Development (R&D) expense for the three months ended September 30, 2024 and 2023 was \$2,239 and \$3,295, respectively. The decrease in R&D expense was primarily attributable to lower headcount related expenses, and lower manufacturing and clinical trial expenses. A General and Administrative expenses. General and Administrative (G&A) expense for the three months ended September 30, 2024 and 2023 was \$2,142 and \$2,839, respectively. The decrease in G&A expense was primarily attributable to lower consulting fees and lower headcount related expenses. A Comparison of the nine months ended September 30, 2024 to the nine months ended September 30, 2023 A 20 A The following tables summarize our revenues and operating expenses for the periods presented: A A Nine Months Ended September 30, A A 2024 A 2023A Revenues \$1,096 A \$1,096 A A A A A A Expenses A A A A A A Research and development A \$9,057 A \$10,824 A General and administrative A \$7,067 A \$8,151 A Operating Expenses A \$16,124 A \$18,975 A Revenues. During the nine month periods ended September 30, 2024 and 2023, we generated revenue of \$0 and \$1,096. The amount earned during the prior year consists of contract research revenue resulting from the research collaboration with BioNTech SE and Genentech Inc. A Research and Development expenses. R&D expense for the nine month periods ended September 30, 2024 and 2023 was \$9,057 and \$10,824, respectively. The decrease in R&D expense was primarily attributable to lower stock based compensation expense, a decrease in other payroll related costs due to decreased headcount and the decrease in manufacturing and clinical trial expenses. A General and Administrative expenses. G&A for the nine month periods ended September 30, 2024 and 2023 was \$7,067 and \$8,151, respectively. The decrease in G&A expense was primarily attributable to lower stock based compensation expense, consulting fees and decreased insurance premiums. A Liquidity and capital resources A Sources of Liquidity A We have funded our operations since inception primarily through private placements and public offerings of our equity securities. As of September 30, 2024, we have raised a total of \$166,907 in gross proceeds and \$153,445, net, from sales of our equity securities. A As of September 30, 2024, we had unrestricted cash, cash equivalents and marketable debt securities totaling \$10,795. A 2024 Registered Direct Offering A On April 5, 2024, the Company closed a registered direct offering of 666,667 shares of its common stock and warrants to purchase up to an aggregate of 666,667 additional shares of common stock, at a combined purchase price of \$15.00 per share and accompanying warrant. The Company generated gross proceeds of approximately \$10,000 and net proceeds of approximately \$9,190, after deducting underwriting discounts and commissions and other offering expenses. A Cash Flows A The following table sets forth the primary sources and uses of cash, cash equivalents and restricted cash for each of the periods set forth below: A A Nine Months Ended September 30, A A 2024 A 2023A Cash used in operating activities A (\$12,375) A (\$10,699) Cash provided by investing activities A \$8,708 A \$10,282A Cash provided by/(used in) financing activities A \$9,175 A (6) Net increase/(decrease) in cash and cash equivalents and restricted cash A \$5,508 A \$(423) A 21 A Operating Activities A Net cash used in operating activities was \$12,375 and \$10,699 for the nine month periods ended September 30, 2024 and 2023, respectively. Net losses of \$15,818 and \$17,628 for the nine month periods ended September 30, 2024 and 2023, respectively, were partially offset by working capital adjustments due to the timing of receipts and payments in the ordinary course of business and adjustments for non-cash stock based compensation expense. A Investing Activities A Net cash provided by investing activities was \$8,708 and \$10,282 for the nine month periods ended September 30, 2024 and 2023, respectively. The decrease of cash used in investing activities was primarily due to a \$8,437 purchase of marketable securities offset by a \$6,645 increase in maturities of marketable debt securities and a \$218 decrease in the purchases of leasehold improvements and equipment. A Financing Activities A Net cash provided by/(used in) financing activities was \$9,175 and (\$6) for the nine month periods ended September 30, 2024 and 2023, respectively. The increase in cash provided by financing activities is primarily due to the net proceeds received from the sale of our common stock in the registered direct offering, \$9,125, and the net proceeds received from the sale of our common stock under the ATM with BTIG, LLC, \$54. A Funding Requirements and Other Liquidity Matters A We expect to continue to incur administrative expenses and operating losses as we seek a potential transaction involving MAT2203, and continue to evaluate other alternatives including but not limited to winddown and dissolution of the company. We anticipate that our expenses will increase substantially if we secure additional funding allowing us to resume product development activities and: A – conduct further preclinical and clinical studies of MAT2203, our lead product candidate; A – seek to discover and develop additional product candidates; A – seek regulatory approvals for any product candidates that successfully complete clinical trials; A – require the manufacture of larger quantities of product candidates for clinical development and potentially commercialization; A – maintain, expand and protect our intellectual property portfolio; A – hire additional clinical, quality control and scientific personnel; and A – add operational, financial and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts and personnel and infrastructure necessary to help us comply with our obligations as a public company. A We do not expect that our existing cash, cash equivalents and marketable debt securities will be sufficient to fund our operating expenses and capital expenditure requirements beyond the next twelve months from the filing date of these financial statements. As a result, substantial doubt exists about the Company’s ability to continue as a going concern. A Until such time, if ever, that we can generate product revenues sufficient to achieve profitability, we would expect to finance our cash needs through a combination of private and public equity offerings, debt financings, government or other third-party funding, collaborations, and licensing arrangements. To the extent that we raise additional capital through the sale of common stock, convertible securities or other equity securities, the ownership interest of our stockholders may be materially diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights of our common stockholders. Debt financing and preferred equity financing, if available, would result in increased fixed payment obligations and may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, or declaring dividends, that could adversely impact our ability to conduct our business. Securing additional financing could require a substantial amount of time and attention from our management and may divert a disproportionate amount of their attention away from day-to-day activities, which may adversely affect our management’s ability to oversee the development of our product candidates. A 22 A A If we raise additional funds through collaborations, strategic alliances or marketing, distribution, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. A Our financial condition and results of operations may also be impacted by other factors we may not be able to control, such as global supply chain disruptions, global trade disputes and/or political instability. Increases in interest rates, especially if coupled with reduced government spending and volatility in financial markets, may have the effect of further increasing economic uncertainty and heightening these risks. Additionally, rising inflation rates may affect us by increasing operating expenses, such as employee-related costs and clinical trial expenses, negatively impacting our results of operations. A Off-Balance Sheet Arrangements A We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules, such as relationships with unconsolidated entities or financial partnerships, which are often referred to as structured finance or special purpose entities, established for the purpose of facilitating financing transactions that are not required to be reflected on our balance sheets. A Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK. A Not applicable. A Item 4. CONTROLS AND PROCEDURES. A Evaluation of Disclosure Controls and Procedures. A Disclosure Controls and Procedures: A As of September 30, 2024, under the supervision and with the participation of our principal executive officer and principal financial officer we have 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”). Based on that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of September 30, 2024. A Our disclosure controls and procedures are designed to provide reasonable assurance that information required to be disclosed in the reports that we filed or submitted under the Exchange Act is recorded, processed, summarized and reported within time periods specified by the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Exchange Act is accumulated and communicated to our management, including principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure. A Changes in Internal Control Over Financial Reporting A There were no changes in our internal control over financial reporting identified in connection with the above evaluation that occurred during the third quarter of 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. A 23 A A PART II - OTHER INFORMATION A Item 1. LEGAL PROCEEDINGS. A None. A Item 1A. RISK FACTORS. A Except as set forth below, there were no material changes from the risk factors set forth under Part I, Item 1A, “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023. You should carefully consider the risk factors contained in our Annual Report on Form 10-K for the fiscal year ended December 31, 2023 in addition to the other information set forth in this report which could materially affect our business, financial condition or future results. The risks and uncertainties described in this report and in our Annual Report on Form 10-K for the year ended December 31, 2023, as well as other reports and statements that we file with the SEC, are not the only risks and uncertainties facing us. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also have a material adverse effect on our financial position, results of operations or cash flows. A Our business to date has been significantly dependent on the success of MAT2203, and we have decided to discontinue further development of MAT2203 and devote significant time and resources to identifying and evaluating strategic alternatives, which may not be successful. A To date, we have invested significant efforts and financial resources in the research and development of MAT2203, which was our lead product candidate in clinical trials. In October 2024, we announced that negotiations under a previously disclosed non-binding term sheet regarding global rights to MAT2203 have been terminated following notification from the prospective partner. As a result, we implemented an 80% workforce reduction effective as of October 31, 2024 and ceased all product development activities to conserve cash. We may retain an advisor to assist us with a potential transaction involving MAT2203, and will evaluate other alternatives including but not limited to winddown and dissolution of the company. There can be no assurance that efforts to identify and evaluate a potential buyer or partner for MAT2203 will result in any definitive offer to consummate a strategic transaction, or if made what the terms thereof will be or that any transaction will be approved or consummated. If any definitive offer to consummate a sale is received, there can be no assurance that a definitive agreement will be executed or that, if a definitive agreement is executed, the transaction will be consummated. In addition, there can be no assurance that any transaction, involving our company and/or assets, that is consummated would enhance shareholder value. There also can be no assurance that we will conduct further drug research or development activities in the future. A Any such strategic transaction may require us to incur non-recurring or other charges, may increase our near- and long-term expenditures and may pose significant integration challenges or disrupt our management or business, which could A If we do not successfully consummate a transaction involving MAT2203, our board of directors may decide to pursue a winddown or dissolution of our company. In such an event, the amount of cash available for distribution to our stockholders will depend heavily on the timing of such dissolution as well as the amount of cash that will need to be reserved for commitments and contingent liabilities. A There can be no assurance that a transaction involving MAT2203 will be consummated, and previous efforts to do so have not been successful. If no transaction is completed, our board of directors may decide to pursue a winddown or dissolution. In such an event, the amount of cash available for distribution to our stockholders will depend heavily on the timing of such a decision and, ultimately, such liquidation, since the amount of cash available for distribution continues to decrease as we fund our limited operations while we evaluate our options. In addition, if our board of directors were to approve and recommend, and our stockholders were to approve, a winddown or dissolution of our company, we would be required under Delaware corporate law to pay our outstanding obligations, as well as to make reasonable provision for contingent and unknown obligations, prior to making any distributions in liquidation to our stockholders. Our commitments and contingent liabilities may include (i) obligations under our employment and related agreements with certain employees that provide for severance and other payments following a termination of employment occurring for various reasons, including a change in control of our company; (ii) potential litigation against us, and other various claims and legal actions arising in the ordinary course of business; and (iii) non-cancelable facility lease obligations. As a result of this requirement, a portion of our assets may need to be reserved pending the resolution of such obligations. In addition, we may be subject to litigation or other claims related to a winddown or dissolution of our company. If a winddown or dissolution were pursued, our board of directors, in consultation with its advisors, would need to evaluate these matters and make a determination about a reasonable amount to reserve. Accordingly, holders of our common stock could lose all or a significant portion of their investment in the event of a winddown or dissolution of our company. A 24 A A Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS. A None. A Item 3. DEFAULTS UPON SENIOR SECURITIES. A None. A Item 4. MINE SAFETY DISCLOSURES. A Not applicable. A Item 5. OTHER INFORMATION. A During the nine months ended September 30, 2024, none of the Company’s directors or officers adopted or terminated any contract, instruction or written plan for the purchase or sale of the Company’s securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any non-10b5-1 trading arrangement (as such terms are defined in Item 408 of Regulation S-K of the Securities Act). A Item 6. EXHIBITS. A See the Exhibit Index following the signature page to this Quarterly Report on Form 10-Q for a list of exhibits filed or furnished with this report, which Exhibit Index is incorporated herein by reference. A 25 A A SIGNATURES A Pursuant to the requirements 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. A A MATINAS BIOPHARMA HOLDINGS, INC. A A BY: A A /s/ Jerome D. Jabbour Dated: November 13, 2024 Jerome D. Jabbour A Chief Executive Officer (Principal Executive Officer) A A /s/ Keith A. Kucinski Dated: November 13, 2024 Keith A. Kucinski A Chief Financial Officer A (Principal Financial and Accounting Officer) A 26 A A EXHIBIT INDEX A 3.1 A Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014). 3.2 A Bylaws (incorporated by reference to Exhibit 3.2 to Amendment No. 1 to the Company’s Registration Statement on Form S-1 filed with the SEC on February 7, 2014). 3.3 A Certificate of Amendment, dated October 29, 2015 to Certificate of Incorporation. (incorporated herein by reference to the Company’s Current Report on Form 8-K filed with the SEC on November 5, 2015). 3.4 A Certificate of Amendment, dated August 30, 2024 to Certificate of Incorporation. (incorporated herein by reference to the Company’s Current Report on Form 8-K filed with the SEC on September 3, 2024). 4.1 A Common Stock Purchase Warrant, dated April 5, 2024 (incorporated herein by reference to the Company’s Current Report on Form 8-K filed with the SEC on April 5, 2024). 10.1 A Securities Purchase Agreement, dated April 2, 2024 (incorporated herein by reference to the Company’s Current Report on Form 8-K filed with the SEC on April 5, 2024). 10.2 A Placement Agency Agreement, dated April 2, 2024 (incorporated herein by reference to the Company’s Current Report on Form 8-K filed with the SEC on April 5, 2024). *31.1 A Certification of Chief Executive Officer *31.2 A Certification of Chief Financial Officer *32.1 A Section 1350 Certifications *101.1 A Inline XBRL Instance Document. *101.2 A Inline XBRL Taxonomy Extension Schema Document. *101.3 A Inline XBRL Taxonomy Extension Calculation Linkbase Document. *101.4 A Inline XBRL Taxonomy Extension Definition Linkbase Document. *101.5 A Inline XBRL Taxonomy Extension Label Linkbase Document. *101.6 A Inline XBRL

[illegible]

12(g) Security Security Reporting Obligation Annual Information Form Audited Annual Financial Statements Entity Well-known Seasoned Issuer Entity Voluntary Filers Entity Current Reporting Status Entity Interactive Data Current Entity Filer Category Entity Small Business Entity Emerging Growth Company Elected Not To Use the Extended Transition Period Document Accounting Standard Other Reporting Standard Item Number Entity Shell Company Entity Public Float Entity Bankruptcy Proceedings, Reporting Current Entity Common Stock, Shares Outstanding Documents Incorporated by Reference [Text Block] Entity Listing, Par Value Per Share Statement of Financial Position [Abstract] ASSETS: Current assets: Cash and cash equivalents Marketable debt securities Restricted cash - security deposit Prepaid expenses and other current assets Total current assets Non-current assets: Leasehold improvements and equipment - net Operating lease right-of-use assets - net Finance lease right-of-use assets - net In-process research and development Goodwill Restricted cash - security deposit Total non-current assets Total assets LIABILITIES AND STOCKHOLDERS' EQUITY: Current liabilities: Accounts payable Accrued expenses Operating lease liabilities - current Financing lease liabilities - current Total current liabilities Non-current liabilities: Deferred tax liability Operating lease liabilities - net of current portion Financing lease liabilities - net of current portion Total non-current liabilities Total liabilities Stockholders' equity: Common stock par value \$0.0001 per share, 250,000,000 shares authorized at September 30, 2024 and December 31, 2023; 5,086,985 and 4,345,291 issued and outstanding as of September 30, 2024 and December 31, 2023, respectively Additional paid-in capital Accumulated deficit Accumulated other comprehensive loss Total stockholders' equity Total liabilities and stockholders' equity Common stock, par value Common Stock, Shares Authorized Common stock shares issued Common stock shares outstanding Stockholders' equity, reverse stock split Income Statement [Abstract] Revenue: Contract revenue Costs and expenses: Research and development General and administrative Total costs and expenses Loss from operations Other income, net Net loss Net loss per share - basic Net loss per share - diluted Weighted average common shares outstanding: Weighted average common shares outstanding - basic Weighted average common shares outstanding - diluted Other comprehensive gain, net of tax Unrealized gain on securities available-for-sale Other comprehensive gain, net of tax Comprehensive loss Statement [Table] Statement [Line Items] Balance Balance, shares Stock-based compensation Issuance of common stock and warrants in public offering, net of stock issuance cost Issuance of common stock and warrants in public offering, net, shares Issuance of common stock in reverse stock split Issuance of common stock in reverse stock split, shares Other comprehensive income Net loss Balance Balance, shares Statement of Stockholders' Equity [Abstract] Stock issuance cost Statement of Cash Flows [Abstract] Cash flows from operating activities: Adjustments to reconcile net loss to net cash used in operating activities: Depreciation and amortization Stock based compensation expense Amortization of operating lease right-of-use assets Amortization of finance lease right-of-use assets Amortization of bond (premium)/discount Changes in operating assets and liabilities: Operating lease liabilities Prepaid expenses and other current assets Accounts payable Accrued expenses and other liabilities Net cash used in operating activities Cash flows from investing activities: Purchase of marketable debt securities Proceeds from maturities of marketable debt securities Purchases of leasehold improvements and equipment Net cash provided by investing activities Cash flows from financing activities: Net proceeds from public offerings of common stock and warrants Payments of finance lease liability - principal Net cash provided by/(used in) financing activities Net increase/(decrease) in cash, cash equivalents and restricted cash Cash, cash equivalents and restricted cash at beginning of period Cash, cash equivalents and restricted cash at end of period Supplemental non-cash financing and investing activities: Unrealized gain on marketable debt securities Pay vs Performance Disclosure [Table] Executive Category [Axis] Individual [Axis] Adjustment to Compensation [Axis] Measure [Axis] Pay vs Performance Disclosure, Table Company Selected Measure Name Named Executive Officers, Footnote Peer Group Issuers, Footnote Changed Peer Group, Footnote PEO Total Compensation Amount PEO Actually Paid Compensation Amount Adjustment To PEO Compensation, Footnote Non-PEO NEO Average Total Compensation Amount Non-PEO NEO Average Compensation Actually Paid Amount Adjustment to Non-PEO NEO Compensation Footnote Equity Valuation Assumption Difference, Footnote Compensation Actually Paid vs. Total Shareholder Return Compensation Actually Paid vs. Net Income Compensation Actually Paid vs. Company Selected Measure Total Shareholder Return Vs Peer Group Compensation Actually Paid vs. Other Measure Tabular List, Table Total Shareholder Return Amount Peer Group Total Shareholder Return Amount Net Income (Loss) Company Selected Measure Amount Other Performance Measure, Amount Adjustment to Compensation, Amount PEO Name Name Non-GAAP Measure Description Additional 402(v) Disclosure Pension Benefits Adjustments, Footnote Erroneously Awarded Compensation Recovery [Table] Restatement Determination Date [Axis] Restatement Determination Date Aggregate Erroneous Compensation Amount Erroneous Compensation Analysis Stock Price or TSR Estimation Method Outstanding Aggregate Erroneous Compensation Amount Aggregate Erroneous Compensation Not Yet Determined Name Forgone Recovery due to Expense of Enforcement, Amount Forgone Recovery due to Violation of Home Country Law, Amount Forgone Recovery due to Disqualification of Tax Benefits, Amount Forgone Recovery, Explanation of Impracticability Name Compensation Amount Restatement does not require Recovery Awards Close in Time to MNPI Disclosures [Table] Award Type [Axis] Award Timing MNPI Disclosure Award Timing Method Award Timing Predetermined Award Timing MNPI Considered Award Timing, How MNPI Considered MNPI Disclosure Timed for Compensation Value Awards Close in Time to MNPI Disclosures, Table Name Underlying Securities Exercise Price Fair Value as of Grant Date Underlying Security Market Price Change Insider Trading Arrangements [Line Items] Material Terms of Trading Arrangement Name Title Rule 10b5-1 Arrangement Adopted Non-Rule 10b5-1 Arrangement Adopted Adoption Date Rule 10b5-1 Arrangement Terminated Non-Rule 10b5-1 Arrangement Terminated Termination Date Expiration Date Arrangement Duration Insider Trading Policies and Procedures [Line Items] Insider Trading Policies and Procedures Adopted Insider Trading Policies and Procedures Not Adopted Organization, Consolidation and Presentation of Financial Statements [Abstract] Description of Business Liquidity, Plan of Operations and Going Concern Accounting Policies [Abstract] Summary of Significant Accounting Policies Cash and Cash Equivalents [Abstract] Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities Fair Value Disclosures [Abstract] Fair Value Measurements Property, Plant and Equipment [Abstract] Leasehold Improvements and Equipment Payables and Accruals [Abstract] Accrued Expenses and Other Liabilities Leases Leases Revenue Recognition Collaboration Agreements And Other Revenue Recognition, Collaboration Agreements and Other Equity [Abstract] Stockholders' Equity Accumulated Other Comprehensive Loss Share-Based Payment Arrangement [Abstract] Stock-based Compensation Subsequent Events [Abstract] Subsequent Events Basis of presentation and principles of consolidation Reverse Stock Split Schedule of Cash, Cash Equivalents and Restricted Cash Schedule of Marketable Debt Securities Schedule of Fair Value Measurement of Assets and Liabilities Schedule of Leasehold Improvements and Equipment Schedule of Accrued Expenses Schedule of Maturity of Operating and Finance Liabilities Schedule of Shareholder Equity Warrants Outstanding Schedule of Anti-dilutive Securities Excluded from Computation of Earning Per Share Schedule of Components of Accumulated Other Comprehensive Loss Schedule of Recognized Stock-Based Compensation Schedule of Stock Option Activity Accumulated deficit Net loss Marketable securities Restricted cash Restricted cash included in current/non-current assets Cash, cash equivalents and restricted cash in the statement of cash flows Debt Securities, Held-to-Maturity, Allowance for Credit Loss [Table] Debt Securities, Held-to-Maturity, Allowance for Credit Loss [Line Items] Debt Securities, Available-for-Sale, Amortized Cost Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Gain, before Tax Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Loss, before Tax Debt Securities, Available-for-Sale Accumulated unrealized losses Fair value, off-Balance-Sheet Risk [Table] Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items] Total Property, Plant and Equipment [Table] Property, Plant and Equipment [Line Items] Leasehold improvements and equipment, gross Less: accumulated depreciation and amortization Leasehold improvements and equipment, net Depreciation and amortization expenses Purchase of equipment and leasehold improvements Payroll and incentives General and administrative expenses Research and development expenses Total Schedule Of Maturity Of Operating And Finance Liabilities Operating Lease Liabilities, Remainder of Fiscal Year Finance Lease Liabilities, Remainder of Fiscal Year Operating Lease Liabilities, Year One Finance Lease Liabilities, Year One Operating Lease Liabilities, Year Two Finance Lease Liabilities, Year Two Operating Lease Liabilities, Year Three Finance Lease Liabilities, Year Three Operating Lease Liabilities, Year Four Finance Lease Liabilities, Year Four Operating Lease Liabilities, Year After Four Finance Lease Liabilities, Year After Four Operating Lease Liabilities, Year Five Finance Lease Liabilities, Year Five Operating Lease Liabilities, Thereafter Finance Lease Liabilities, Thereafter Total undiscounted operating lease payments Total undiscounted finance lease payments Operating Lease Liabilities, less: Imputed interest Finance Lease Liabilities, less: Imputed interest Present value of operating lease liabilities Present value of finance lease liabilities Operating Lease Liabilities, weighted average remaining lease term in years Finance Lease Liabilities, weighted average remaining lease term in years Operating Lease Liabilities, weighted average discount rate Finance Lease Liabilities, weighted average discount rate Lessee, Operating Lease, Liability, to be Paid, Fiscal Year Maturity [Abstract] Operating lease option to extend, description Remaining lease term Operating lease interest expense Operating lease right-of-use assets Finance lease interest expense Finance lease right-of-use assets Fees received Deferred revenue Revenue recognized Revenue Agreement description Shares outstanding, beginning Shares issued Shares exercised Shares tendered Shares expired Shares outstanding, ending Antidilutive Security, Excluded EPS Calculation [Table] Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items] Antidilutive securities excluded from computation of earnings per share, amount Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Beginning Balance Accumulated Other Comprehensive Loss, Beginning Balance Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Net unrealized loss on securities available-for-sale Accumulated Other Comprehensive Loss, Net unrealized loss on securities available-for-sale Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Ending Balance Accumulated Other Comprehensive Loss, Ending Balance Accumulated Other Comprehensive Income (Loss) [Table] Accumulated Other Comprehensive Income (Loss) [Line Items] Common stock, shares authorized Common stock per share Common stock, shares issued Common stock, shares outstanding Issuance of common stock and warrants in public offering, net of stock issuance cost Net of proceeds shares Net proceeds from sale of common stock Number of shares sold Outstanding warrants to purchase of shares Exercise price per share Warrants exercisable term Share-Based Payment Arrangement, Expensed and Capitalized, Amount [Table] Share-Based Payment Arrangement, Expensed and Capitalized, Amount [Line Items] Share-based compensation expense Stock Options, Outstanding Granted Exercised Forfeited Expired Stock Options, Outstanding Schedule of Share-Based Compensation Arrangements by Share-Based Payment Award [Table] Share-Based Compensation Arrangement by Share-Based Payment Award [Line Items] Term of the award Stock awards including restricted stock options grants awards issued and exercised Unrecognized share based compensation Unrecognized share based compensation, recognition period Subsequent Event [Table] Subsequent Event [Line Items] Severance costs Stock issued during period value reverse stock splits Accrued general and administrative expenses current. Accrued Research And Development Expenses Current. Schedule Of Maturity Of Operating And Finance Leases Liabilities [Table]Text[Block] Lessee operating lease liability payments due after Year Four. Amount of lessee's undiscounted obligation for lease payment for finance lease to be paid after fourth fiscal year following current fiscal year. Revenue Recognition, Collaboration Agreements and Other [Text Block] Bio NTech agreement [Member] Agreement description. Genentech Feasibility Study Agreement [Member] Genentech [Member] Three Molecules [Member] BTIG, LLC [Member] At-The-Market Sales Agreement [Member] Unrealized loss on marketable securities Share based compensation arrangement by share based payment award non option equity instruments exercisable term. Share based compensation arrangement by share based payment award non option equity instruments tendered. Net unrealized gains losses on available-for-sale securities. Accumulated other comprehensive loss gain net unrealized loss on securities available for sale Stock awards including restricted stock grants and option grants issued and exercised. 2013 Equity Compensation Plan [Member] Reverse Stock Split [Policy Text Block] Reverse Stock Split [Member] Assets, Current Restricted Cash, Noncurrent Assets, Noncurrent Assets Liabilities, Current Liabilities, Noncurrent Liabilities Equity, Attributable to Parent Liabilities and Equity Costs and Expenses Operating Income (Loss) Other Comprehensive Income (Loss), Net of Tax Comprehensive Income (Loss), Net of Tax, Attributable to Parent Shares, Outstanding Increase (Decrease) in Prepaid Expense and Other Assets Increase (Decrease) in Accounts Payable Net Cash Provided by (Used in) Operating Activities Payments to Acquire Marketable Securities Net Cash Provided by (Used in) Investing Activities Finance Lease, Principal Payments Net Cash Provided by (Used in) Financing Activities Cash, Cash Equivalents, Restricted Cash, and Restricted Cash Equivalents, Period Increase (Decrease), Including Exchange Rate Effect Cash, Cash Equivalents, Restricted Cash, and Restricted Cash Equivalents, Including Disposal Group and Discontinued Operations Forgone Recovery, Individual Name Outstanding Recovery, Individual Name Awards Close in Time to MNPI Disclosures, Individual Name Trading Arrangement, Individual Name Lessee, Operating Leases [Text Block] Accounts Payable and Other Accrued Liabilities, Current Share-Based Compensation Arrangement by Share-Based Payment Award, Non-Option Equity Instruments, Outstanding, Number NetUnrealizedGainsLossesOnAvailableforsaleSecurities Share-Based Compensation Arrangement by Share-Based Payment Award, Options, Outstanding, Number Share-Based Compensation Arrangement by Share-Based Payment Award, Options, Forfeitures in Period Share-Based Compensation Arrangement by Share-Based Payment Award, Options, Expirations in Period EX-101.PRE 10 mtnb-20240930_pre.xml XBRL PRESENTATION FILE XML 12 R1.htm IDEA: XBRL DOCUMENT

Cover - \$ / shares	9 Months Ended	
	Sep. 30, 2024	Nov. 13, 2024
Cover [Abstract]		
Document Type	10-Q	
Amendment Flag	false	
Document Quarterly Report	true	
Document Transition Report	false	
Document Period End Date	Sep. 30, 2024	
Document Fiscal Period Focus	Q3	
Document Fiscal Year Focus	2024	
Current Fiscal Year End Date	--12-31	
Entity File Number	001-38022	
Entity Registrant Name	MATINAS BIOPHARMA HOLDINGS, INC.	
Entity Central Index Key	0001582554	
Entity Tax Identification Number	46-3011414	
Entity Incorporation, State or Country Code	DE	
Entity Address, Address Line One	1545 Route 206 South	
Entity Address, Address Line Two	Suite 302	
Entity Address, City or Town	Bedminster	
Entity Address, State or Province	NJ	
Entity Address, Postal Zip Code	07921	
City Area Code	908	
Local Phone Number	484-8805	
Title of 12(b) Security	Common Stock	

Trading Symbol	MTNB
Security Exchange Name	NYSEAMER
Entity Current Reporting Status	Yes
Entity Interactive Data Current	Yes
Entity Filer Category	Non-accelerated Filer
Entity Small Business	true
Entity Emerging Growth Company	false
Entity Shell Company	false
Entity Common Stock, Shares Outstanding	5,086,985
Entity Listing, Par Value Per Share	\$ 0.0001

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Condensed Consolidated Balance Sheets - USD (\$) \$ in Thousands	Sep. 30, 2024	Dec. 31, 2023
Current assets:		
Cash and cash equivalents	\$ 10,295	\$ 4,787
Marketable debt securities	500	8,969
Restricted cash – security deposit	50	50
Prepaid expenses and other current assets	896	1,737
Total current assets	11,741	15,543
Non-current assets:		
Leasehold improvements and equipment – net	1,648	1,923
Operating lease right-of-use assets – net	2,618	3,064
Finance lease right-of-use assets – net	17	21
In-process research and development	3,017	3,017
Goodwill	1,336	1,336
Restricted cash – security deposit	200	200
Total non-current assets	8,836	9,561
Total assets	20,577	25,104
Current liabilities:		
Accounts payable	349	514
Accrued expenses	1,037	1,447
Operating lease liabilities – current	733	656
Financing lease liabilities – current	5	5
Total current liabilities	2,124	2,622
Non-current liabilities:		
Deferred tax liability	341	341
Operating lease liabilities – net of current portion	2,319	2,877
Financing lease liabilities – net of current portion	14	18
Total non-current liabilities	2,674	3,236
Total liabilities	4,798	5,858
Stockholders’ equity:		
Common stock par value \$0.0001 per share, 250,000,000 shares authorized at September 30, 2024 and December 31, 2023; 5,086,985 and 4,345,291 issued and outstanding as of September 30, 2024 and December 31, 2023, respectively	[1] 1	
Additional paid-in capital	207,169	195,040
Accumulated deficit	(191,391)	(175,573)
Accumulated other comprehensive loss		(221)
Total stockholders’ equity	15,779	19,246
Total liabilities and stockholders’ equity	\$ 20,577	\$ 25,104

[1] Adjusted to reflect the impact of the 1-for-50 reverse stock split effective as of August 30, 2024.

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Condensed Consolidated Balance Sheets (Parenthetical) - \$ / shares	Aug. 30, 2024	Sep. 30, 2024	Dec. 31, 2023
Statement of Financial Position [Abstract]			
Common stock, par value		\$ 0.0001	\$ 0.0001
Common Stock, Shares Authorized		250,000,000	250,000,000
Common stock shares issued		5,086,985	4,345,291
Common stock shares outstanding		5,086,985	4,345,291
Stockholders' equity, reverse stock split	1-for-50 reverse stock split		

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Condensed Consolidated Statements of Operations and Comprehensive Loss (Unaudited) - USD (\$) \$ in Thousands	3 Months Ended		9 Months Ended	
	Sep. 30, 2024	Sep. 30, 2023	Sep. 30, 2024	Sep. 30, 2023
Revenue:				
Contract revenue				\$ 1,096
Costs and expenses:				
Research and development	2,239	3,295	9,057	10,824
General and administrative	2,142	2,839	7,067	8,151
Total costs and expenses	4,381	6,134	16,124	18,975
Loss from operations	(4,381)	(6,134)	(16,124)	(17,879)
Other income, net	106	79	306	251
Net loss	\$ (4,275)	\$ (6,055)	\$ (15,818)	\$ (17,628)
Net loss per share - basic	[1] \$ (0.85)	\$ (1.39)	\$ (3.30)	\$ (4.06)
Net loss per share - diluted	[1] \$ (0.85)	\$ (1.39)	\$ (3.30)	\$ (4.06)
Weighted average common shares outstanding:				
Weighted average common shares outstanding - basic	[1] 5,037,829	4,345,291	4,791,572	4,345,291
Weighted average common shares outstanding - diluted	[1] 5,037,829	4,345,291	4,791,572	4,345,291
Other comprehensive gain, net of tax				
Unrealized gain on securities available-for-sale	\$ 51	\$ 155	\$ 221	\$ 465
Other comprehensive gain, net of tax	51	155	221	465
Comprehensive loss	\$ (4,224)	\$ (5,900)	\$ (15,597)	\$ (17,163)

[1] Basic and diluted net loss per common share and basic and diluted weighted average common shares outstanding used in computing basic and diluted loss per common share for the three and nine months ended September 30, 2024 and 2023 have been adjusted to reflect the impact of the 1-for-50 reverse stock split effective as of August 30, 2024.

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Condensed Consolidated Statements of Operations and Comprehensive Loss (Unaudited) (Parenthetical)	Aug. 30, 2024
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Condensed Consolidated Statements of Stockholders' Equity (Unaudited) - USD (\$) \$ in Thousands	Common Stock [Member]	Additional Paid-in Capital [Member]	Retained Earnings [Member]	AOCI Attributable to Parent [Member]	Total
Balance at Dec. 31, 2022		[1] \$ 190,092	\$ (152,631)	\$ (824)	\$ 36,637
Balance, shares at Dec. 31, 2022	[1] 4,345,291				
Stock-based compensation		[1] 3,676			3,676
Other comprehensive income		[1]		465	465
Net loss		[1]	(17,628)		(17,628)
Balance at Sep. 30, 2023		[1] 193,768	(170,259)	(359)	23,150
Balance, shares at Sep. 30, 2023	[1] 4,345,291				
Balance at Jun. 30, 2023		[1] 192,572	(164,204)	(514)	27,854
Balance, shares at Jun. 30, 2023	[1] 4,345,291				
Stock-based compensation		[1] 1,196			1,196
Other comprehensive income		[1]		155	155
Net loss		[1]	(6,055)		(6,055)
Balance at Sep. 30, 2023		[1] 193,768	(170,259)	(359)	23,150
Balance, shares at Sep. 30, 2023	[1] 4,345,291				
Balance at Dec. 31, 2023		[1] 195,040	(175,573)	(221)	19,246
Balance, shares at Dec. 31, 2023	[1] 4,345,291				
Stock-based compensation		[1] 2,951			2,951
Issuance of common stock and warrants in public offering, net of stock issuance cost	\$ 1	[1] 9,178			9,179
Issuance of common stock and warrants in public offering, net, shares	[1] 671,033				
Issuance of common stock in reverse stock split		[1]			
Issuance of common stock in reverse stock split, shares	[1] 70,661				
Other comprehensive income		[1]		221	221
Net loss		[1]	(15,818)		(15,818)
Balance at Sep. 30, 2024	\$ 1	[1] 207,169	(191,391)		15,779
Balance, shares at Sep. 30, 2024	[1] 5,086,985				
Balance at Jun. 30, 2024	\$ 1	[1] 206,269	(187,116)	(51)	19,103
Balance, shares at Jun. 30, 2024	[1] 5,016,324				
Stock-based compensation		[1] 965			965
Issuance of common stock and warrants in public offering, net of stock issuance cost		[1] (65)			(65)
Issuance of common stock in reverse stock split		[1]			
Issuance of common stock in reverse stock split, shares	[1] 70,661				
Other comprehensive income		[1]		51	51
Net loss		[1]	(4,275)		(4,275)
Balance at Sep. 30, 2024	\$ 1	[1] \$ 207,169	\$ (191,391)		\$ 15,779
Balance, shares at Sep. 30, 2024	[1] 5,086,985				

[1] Adjusted to reflect the impact of the 1-for-50 reverse stock split effective as of August 30, 2024.

Condensed Consolidated Statements of Stockholders' Equity (Unaudited) (Parentetical) - USD (\$) \$ in Thousands	3 Months Ended Sep. 30, 2024	9 Months Ended Sep. 30, 2024
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Statement of Stockholders' Equity [Abstract]			
Stock issuance cost	\$ 65	\$ 877	[1]

[1] Adjusted to reflect the impact of the 1-for-50 reverse stock split effective as of August 30, 2024.

Condensed Consolidated Statements of Cash Flow (Unaudited) - USD (\$) \$ in Thousands	9 Months Ended Sep. 30, 2024	Sep. 30, 2023
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Cash flows from operating activities:

Net loss	\$ (15,818)	\$ (17,628)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	275	288
Stock based compensation expense	2,951	3,676
Amortization of operating lease right-of-use assets	446	406
Amortization of finance lease right-of-use assets	4	7
Amortization of bond (premium)/discount	(16)	90
Changes in operating assets and liabilities:		
Operating lease liabilities	(481)	(411)
Prepaid expenses and other current assets	839	3,996
Accounts payable	(165)	217
Accrued expenses and other liabilities	(410)	(1,340)
Net cash used in operating activities	(12,375)	(10,699)
Cash flows from investing activities:		
Purchase of marketable debt securities	(8,437)	
Proceeds from maturities of marketable debt securities	17,145	10,500
Purchases of leasehold improvements and equipment		(218)
Net cash provided by investing activities	8,708	10,282
Cash flows from financing activities:		
Net proceeds from public offerings of common stock and warrants	9,179	
Payments of finance lease liability - principal	(4)	(6)
Net cash provided by/(used in) financing activities	9,175	(6)
Net increase/(decrease) in cash, cash equivalents and restricted cash	5,508	(423)
Cash, cash equivalents and restricted cash at beginning of period	5,037	7,080
Cash, cash equivalents and restricted cash at end of period	10,545	6,657
Supplemental non-cash financing and investing activities:		
Unrealized gain on marketable debt securities	\$ 221	\$ 465

Pay vs Performance Disclosure - USD (\$) \$ in Thousands	3 Months Ended Sep. 30, 2024	9 Months Ended Sep. 30, 2024	Sep. 30, 2023
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Pay vs Performance Disclosure [Table]				
Net Income (Loss)	\$ (4,275)	\$ (6,055)	\$ (15,818)	\$ (17,628)

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Insider Trading Arrangements	9 Months Ended Sep. 30, 2024
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[Insider Trading Arrangements \[Line Items\]](#)

Rule 10b5-1 Arrangement Adopted	false
Non-Rule 10b5-1 Arrangement Adopted	false
Rule 10b5-1 Arrangement Terminated	false
Non-Rule 10b5-1 Arrangement Terminated	false

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Description of Business	9 Months Ended Sep. 30, 2024
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[Organization, Consolidation and Presentation of Financial Statements \[Abstract\]](#)

[Description of Business](#)

Note 1 - Description of Business

Matinas BioPharma Holdings Inc. ("Holdings") is a Delaware corporation formed in 2013. Holdings is the parent company of Matinas BioPharma, Inc. ("BioPharma"), and Matinas BioPharma Nanotechnologies, Inc. ("Nanotechnologies," formerly known as Aquarius Biotechnologies, Inc.), its operating subsidiaries ("Nanotechnologies", and together with "Holdings" and "BioPharma", "the Company"). The Company is a clinical-stage biopharmaceutical company with a focus on identifying and developing novel pharmaceutical products.

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Liquidity, Plan of Operations and Going Concern	9 Months Ended Sep. 30, 2024
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[Organization, Consolidation and Presentation of Financial Statements \[Abstract\]](#)

[Liquidity, Plan of Operations and Going Concern](#)

Note 2 - Liquidity, Plan of Operations and Going Concern

The Company has experienced net losses and negative cash flows from operations each period since its inception. Through September 30, 2024, the Company had an accumulated deficit of \$191,391. The Company's net loss was \$15,818 for the nine months ended September 30, 2024.

The Company has been engaged in developing its lipid nanocrystal ("LNC") platform delivery technology and a pipeline of associated product candidates, including MAT2203, since 2011. To date, the Company has not obtained regulatory approval for any of its product candidates nor generated any revenue from product sales, and the Company expects to incur significant expenses to complete development of its product candidates. The Company may never be able to obtain regulatory approval for the marketing of any of its product candidates in any indication in the United States or internationally and there can be no assurance that the Company will generate revenues or ever achieve profitability.

If the Company obtains U.S. Food and Drug Administration ("FDA") approval for one or more of its product candidates, the Company expects that its expenses will continue to increase once the Company reaches commercial launch. The Company also expects that its research and development expenses will continue to increase as it moves forward with additional clinical studies for its current product candidates and development of additional product candidates. As a result, the Company expects to continue to incur substantial losses for the foreseeable future, and that these losses will be increasing.

As of September 30, 2024, the Company had cash and cash equivalents of \$10,295, marketable debt securities of \$500 and restricted cash of \$250. The Company does not believe the cash, cash equivalents and marketable debt securities on hand are sufficient to fund planned operations beyond the next twelve months from the filing date of these financial statements. As a result, substantial doubt exists about the Company's ability to continue as a going concern.

The ability of the Company to continue as a going concern is dependent upon control over its operating expenses, anticipated proceeds from future sales of common stock through its At-The-Market Sales Agreement ("ATM") with BTIG, LLC, and securing additional financing. While the Company believes in the viability of this strategy and believes the actions presently being taken by the Company provide the opportunity for it to continue as a going concern, there can be no assurance the Company will be successful in its implementation. In particular, utilization of the ATM may not be viable due to market conditions and new financing may not be available on acceptable terms, or at all. These consolidated financial statements do not include any adjustments related to the recoverability and classification of asset amounts or the amounts and classification of liabilities that might be necessary if the Company is unable to continue as a going concern.

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Summary of Significant Accounting Policies	9 Months Ended Sep. 30, 2024
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[Accounting Policies \[Abstract\]](#)

[Summary of Significant Accounting Policies](#)

Note 3 - Summary of Significant Accounting Policies

Basis of presentation and principles of consolidation

The accompanying unaudited condensed consolidated financial statements include the consolidated accounts of Holdings and its wholly owned subsidiaries, BioPharma, and Nanotechnologies. The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("U.S. GAAP") and reflect the operations of the Company and its wholly owned subsidiaries. All intercompany transactions have been eliminated in consolidation.

The Company's significant accounting policies are described in Note 3 within the Company's Notes to Consolidated Financial Statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2023.

The Company's management has considered all recent accounting pronouncements issued and believes that these recent pronouncements will not have a material effect on the Company's financial statements.

Reverse Stock Split

On August 30, 2024, the Company effected a 1-for-50 reverse stock split of its issued and outstanding common stock (the "Reverse Stock Split"). The Company's common stock began trading on a split adjusted basis on September 3, 2024. No fractional shares were issued as a result of the Reverse Stock Split as fractional shares of Common Stock were rounded up to the nearest whole share. Unless otherwise noted in these condensed consolidated financial statements, all shares of common stock, warrants convertible into shares of common stock, stock options, per share information, and related parameters specified in this quarterly report have been retroactively adjusted to reflect the Reverse Stock Split for all periods presented. Refer to Note 10 - *Stockholders' Equity* for additional information related to the Reverse Stock Split.

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Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities	9 Months Ended Sep. 30, 2024
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[Cash and Cash Equivalents \[Abstract\]](#)

[Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities](#)

Note 4 - Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities

The Company considers all highly liquid financial instruments with original maturities of three months or less when purchased to be cash and cash equivalents and all investments with maturities of greater than three months from date of purchase are classified as marketable debt securities. Cash and cash equivalents consist of cash in bank checking and savings accounts, money market funds and short-term U.S. treasury bonds that mature within three months of settlement date.

Cash, Cash Equivalents and Restricted Cash

The Company presents restricted cash with cash and cash equivalents in the Condensed Consolidated Statements of Cash Flows. Restricted cash at both September 30, 2024 and December 31, 2023 of \$250 represents funds the Company is required to set aside as collateral, primarily for one of the Company's operating leases.

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported in the Condensed Consolidated Balance Sheets to the total of the amounts in the Condensed Consolidated Statements of Cash Flows as of September 30, 2024, December 31, 2023, September 30, 2023 and December 31, 2022:

	September 30, 2024	December 31, 2023	September 30, 2023	December 31, 2022
Cash and cash equivalents	\$ 10,295	\$ 4,787	\$ 6,407	\$ 6,830
Restricted cash included in current/non-current assets	250	250	250	250
Cash, cash equivalents and restricted cash in the statement of cash flows	<u>\$ 10,545</u>	<u>\$ 5,037</u>	<u>\$ 6,657</u>	<u>\$ 7,080</u>

Marketable Debt Securities

The Company has classified its investments in marketable debt securities as available-for-sale and as a current asset. The Company's investments in marketable debt securities are carried at fair value, with unrealized gains and losses included as a separate component of stockholders' equity. Unrealized losses and gains are classified as other comprehensive (loss)/income and costs are determined on a specific identification basis. Realized gains and losses from our marketable debt securities are recorded in other income, net. The Company did not incur any realized gains and losses during the three and nine months ended September 30, 2024 and 2023. For the three and nine months ended September 30, 2024, the Company recorded unrealized gains of \$51 and \$221, respectively. For the three and nine months ended September 30, 2023, the Company recorded unrealized gains of \$155 and \$465, respectively. As of September 30, 2024 and December 31, 2023, the Company had net accumulated unrealized losses of \$0 and \$221, respectively.

The following tables summarize the Company’s marketable debt securities as of September 30, 2024:

	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Fair Value
Corporate Debt Securities	\$ 500	\$ —	\$ —	\$ 500
Total marketable debt securities	\$ 500	\$ —	\$ —	\$ 500

All debt securities classified as available-for-sale are due to mature within one year of September 30, 2024.

The following tables summarize the Company’s marketable debt securities as of December 31, 2023:

	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Fair Value
U.S. Treasury Bonds	\$ 999	\$ —	\$ (3)	\$ 996
U.S. Government Notes	8,191	—	(218)	7,973
Total marketable debt securities	\$ 9,190	\$ —	\$ (221)	\$ 8,969

All debt securities classified as available-for-sale are due to mature within one year of December 31, 2023.

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Fair Value
Measurements
[Fair Value
Disclosures
\[Abstract\]](#)
[Fair Value
Measurements](#)

9 Months Ended
Sep. 30, 2024

Note 5 - Fair Value Measurements

The Company uses the fair value hierarchy to measure the value of its financial instruments. The fair value hierarchy is based on inputs to valuation techniques that are used to measure fair value that are either observable or unobservable. Observable inputs reflect assumptions market participants would use in pricing an asset or liability based on market data obtained from independent sources, while unobservable inputs reflect a reporting entity’s pricing based upon its own market assumptions. The basis for fair value measurements for each level within the hierarchy is described below:

- Level 1 - Quoted prices for identical assets or liabilities in active markets.
- Level 2 - Quoted prices for identical or similar assets and liabilities in markets that are not active; or other model-derived valuations whose inputs are directly or indirectly observable or whose significant value drivers are observable.
- Level 3 - Valuations derived from valuation techniques in which one or more significant inputs to the valuation model are unobservable and for which assumptions are used based on management estimates.

The Company utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as considers counterparty credit risk in its assessment of fair value.

The carrying amounts of cash equivalents, current portion of restricted cash, prepaid expenses and other current assets, accounts payable, current portion of lease liabilities and accrued expenses approximate fair value due to the short-term nature of these instruments.

A summary of the assets and liabilities carried at fair value in accordance with the hierarchy defined above is as follows:

September 30, 2024	Total	(Level 1)	(Level 2)	(Level 3)
Assets				
Marketable Debt Securities:				
Corporate Debt Securities	\$ 500	\$ —	\$ 500	\$ —
Total	\$ 500	\$ —	\$ 500	\$ —
December 31, 2023	Total	(Level 1)	(Level 2)	(Level 3)
Assets				
Marketable Debt Securities:				
U.S. Treasury Bonds	\$ 996	\$ 996	\$ —	\$ —
U.S. Government Notes	7,973	—	7,973	—
Total	\$ 8,969	\$ 996	\$ 7,973	\$ —

U.S. treasury bonds are classified within Level 1 of the fair value hierarchy because they are valued using quoted market prices for identical assets in active markets. Marketable debt securities consisting of U.S. government notes and corporate debt securities are classified as Level 2 and are valued using quoted market prices in markets that are not active.

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Leasehold
Improvements and
Equipment
[Property, Plant and
Equipment \[Abstract\]](#)
[Leasehold
Improvements and
Equipment](#)

9 Months Ended
Sep. 30, 2024

Note 6 - Leasehold Improvements and Equipment

Leasehold improvements and equipment, summarized by major category, consist of the following as of September 30, 2024 and December 31, 2023:

	September 30, 2024	December 31, 2023
Equipment	\$ 2,463	\$ 2,463
Leasehold improvements	1,155	1,155
Total	3,618	3,618
Less: accumulated depreciation and amortization	1,970	1,695
Leasehold improvements and equipment, net	\$ 1,648	\$ 1,923

Depreciation and amortization expense for the three and nine months ended September 30, 2024 was \$90 and \$275, respectively, and the three and nine months ended September 30, 2023 were \$98 and \$288, respectively. During the nine month periods ended September 30, 2023, the Company purchased equipment of \$218. The Company did not purchase any equipment during the nine months ended September 30, 2024.

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Accrued Expenses
and Other Liabilities
[Payables and Accruals \[Abstract\]](#)
[Accrued Expenses and Other Liabilities](#)

9 Months Ended
Sep. 30, 2024

Note 7 - Accrued Expenses and Other Liabilities

Accrued Expenses, summarized by major category, as of September 30, 2024 and December 31, 2023 consist of the following:

	September 30, 2024	December 31, 2023
Payroll and incentives	\$ 720	\$ 1,176
General and administrative expenses	299	196
Research and development expenses	18	75
Total	\$ 1,037	\$ 1,447

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Leases
[Leases](#)

9 Months Ended
Sep. 30, 2024

Note 8 - Leases

The Company has various lease agreements, including leases of office space, a laboratory and manufacturing facility, and various equipment. Some leases include purchase, termination or extension options for one or more years. These options are included in the lease term when it is reasonably certain that the option will be exercised.

The assets and liabilities from operating and finance leases are recognized at the lease commencement date based on the present value of remaining lease payments over the lease term using the Company’s incremental borrowing rates or implicit rates, when readily determinable. Short-term leases, which have an initial term of 12 months or less, are not recorded on the balance sheet. The Company’s operating leases do not provide implicit rates, therefore the Company utilized a discount rate based on its incremental borrowing rate to record the lease obligations. The Company’s finance leases provide readily determinable implicit rates.

Operating lease obligations

The Company incurred lease expense for its operating leases of \$225 and \$677 for the three and nine month periods ended September 30, 2024 and 2023, respectively. The Company incurred amortization expense on its operating lease right-of-use assets of \$152 and \$139 for the three months ended September 30, 2024 and 2023, respectively, and \$446 and \$406 for the nine months ended September 30, 2024 and 2023, respectively.

Finance Leases

The Company incurred interest expense on its finance leases of \$1 and \$2 for the three and nine months ended September 30, 2024, respectively, and \$0 and \$2 for the three and nine months ended September 30, 2023, respectively. The Company incurred amortization expense on its finance lease right-of-use assets of \$1 and \$4 for the three and nine months ended September 30, 2024, respectively, and \$2 and \$7 for the three and nine months ended September 30, 2023, respectively.

The following table presents information about the amount and timing of liabilities arising from the Company’s operating leases and finance leases as of September 30, 2024:

Maturity of Lease Liabilities	Operating Lease Liabilities		Finance Lease Liabilities	
Remainder of 2024	\$	245	\$	2
2025		998		7
2026		1,040		7
2027		944		7
2028		273		—
Thereafter		138		—
Total undiscounted operating lease payments	\$	3,638	\$	23
Less: Imputed interest		586		4
Present value of operating lease liabilities	\$	3,052	\$	19
Weighted average remaining lease term in years		3.6		3.1
Weighted average discount rate		9.2%		11.6%

The following table presents information about the amount and timing of liabilities arising from the Company’s operating leases and finance leases as of December 31, 2023:

Maturity of Lease Liabilities	Operating Lease Liabilities		Finance Lease Liabilities	
2024	\$	956	\$	7
2025		998		7
2026		1,040		7
2027		944		7
2028		273		—
Thereafter		138		—
Total undiscounted operating lease payments	\$	4,349	\$	28
Less: Imputed interest		816		5
Present value of operating lease liabilities	\$	3,533	\$	23
Weighted average remaining lease term in years		4.3		3.9
Weighted average discount rate		9.2%		11.6%

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**Revenue Recognition,
Collaboration
Agreements and
Other**
[Revenue Recognition
Collaboration
Agreements And
Other](#)
[Revenue Recognition,
Collaboration
Agreements and Other](#)

**9 Months Ended
Sep. 30, 2024**

Note 9 - Revenue Recognition, Collaboration Agreements and Other

The Company did not enter into any revenue recognition or collaboration agreements during the nine months ended September 30, 2024.

BioNTech Research Collaboration

On April 8, 2022, the Company entered into the BioNTech Agreement to evaluate the combination of mRNA formats utilizing the Company’s proprietary LNC platform delivery technology. Under the terms of the BioNTech Agreement, the Company received an exclusivity fee in the amount of \$2,750, and BioNTech SE funded certain of the Company’s research expenses that were incurred under the agreement. The term of the agreement began on the effective date and expired on April 8, 2023.

The \$2,750 license fee was recorded as deferred revenue and was recognized over the term of the contract performance obligation period, which the Company concluded to be 12 months after the execution of the contract. The clinical research services were invoiced as service revenue was earned on a monthly basis during the term of the contract.

During the first quarter of 2023, \$688 of the contract research revenue was recognized from the license fee and \$375 was earned from the monthly clinical research services performed by the Company. As of March 31, 2023, the Company had recognized all of contract research revenue from the BioNTech Agreement.

Genentech Feasibility Study Agreement

On December 12, 2019, the Company entered into the Genentech Agreement which involves the development of oral formulations using the Company’s LNC platform delivery technology. Under the terms of the Genentech Agreement, Genentech paid the Company a total of \$100 for the development of three molecules, or \$33 per molecule, which is being recognized upon the Company fulfilling its obligations for each molecule under the Genentech Agreement. The Company recorded the upfront consideration as deferred revenue, which is included in accrued expenses on the consolidated balance sheets. As of December 31, 2022, the Company completed its obligations related to the first and second of the three molecules. During the three months ended March 31, 2023, the Company completed its obligations related to the remaining molecule.

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Stockholders’ Equity
[Equity \[Abstract\]](#)
[Stockholders’ Equity](#)

**9 Months Ended
Sep. 30, 2024**

Note 10 - Stockholders’ Equity

Common Stock

On August 30, 2024, the Company effected the Reverse Stock Split. Accordingly, each of the Company’s stockholders received one share of the Company’s common stock for every 50 shares of the Company’s common stock that such stockholder held immediately prior to the effective time of the Reverse Stock Split. The Reverse Stock Split affected all of the Company’s issued and outstanding shares of common stock equally provided that no fractional shares of common stock were issued as a result of the Reverse Stock Split as fractional shares of common stock were rounded up to the nearest whole share. The Reverse Stock Split also affected the Company’s outstanding stock-based awards, warrants and other exercisable or convertible securities and resulted in the shares of common stock underlying such instruments being reduced and the exercise price or conversion price being increased proportionally by the Reverse Stock Split ratio.

As a result of the Reverse Stock Split, the number of shares of common stock authorized for issuance was adjusted from 500,000,000 to 250,000,000, and the par value of \$0.0001 per share was not affected. Additionally, the number of issued and outstanding shares of the Company’s common stock was adjusted from 250,816,164 shares to 5,086,985 shares on August 30, 2024.

For the nine months ended September 30, 2024, the Company sold 671,033 shares of its common stock. On April 5, 2024, the Company closed a registered direct offering of 666,667 shares of its common stock and warrants to purchase up to an aggregate of 666,667 additional shares of common stock, at a combined purchase price of \$15.00 per share and accompanying warrant. The Company generated gross proceeds of \$10,000 and net proceeds of \$9,190, after deducting underwriting discounts and commissions and other offering expenses. In addition, in February 2024, the Company sold 4,366 shares of its common stock under the ATM with BTIG, LLC generating net proceeds of \$54.

The Company did not sell any shares of its common stock during the nine months ended September 30, 2023.

Warrants

As of September 30, 2024, the Company had outstanding warrants to purchase 666,667 shares of the Company’s common stock at an exercise price of \$17.50 per share.

The warrants are exercisable six months after issuance date, April 5, 2024, and have a five-year term. Once exercisable, the warrants may be exercised at any time in whole or in part upon payment of the applicable exercise price until expiration of the Warrants. No fractional shares will be issued upon the exercise of the Warrants. The exercise price and the number of warrant shares purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of certain events, which may include stock dividends, stock splits, combination and reclassifications of the Company capital stock or other similar changes to the equity structure of the Company. The warrants do not have a redemption feature. They may be exercised on a cashless basis at the holder’s option and are classified as equity instruments.

The following table summarizes the changes in warrants outstanding for the nine months ended September 30, 2024:

	Shares
Outstanding at December 31, 2023	-
Issued	666,667
Exercised	-
Tendered	-
Expired	-
Outstanding at September 30, 2024	666,667

Basic and diluted net loss per common share

Net loss per share information is determined using the two-class method, which includes the weighted-average number of shares of common stock outstanding during the period and other securities.

Under the two-class method, basic net loss per share attributable to common stockholders is computed by dividing the net income attributable to common stockholders by the weighted-average number of

shares of common stock outstanding during the period. Diluted net loss per share attributable to common stockholders is computed using the more dilutive of (1) the two-class method or (2) the if-converted method.

During the three and nine months ended September 30, 2024 and 2023, diluted loss per common share is the same as basic loss per common share because, as the Company incurred a net loss during each period presented, the potentially dilutive securities from the assumed exercise of all outstanding stock options and warrants, would have an anti-dilutive effect. The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share because including them would have been anti-dilutive as of September 30, 2024 and 2023:

	As of September 30,	
	2024	2023
Stock options	872,063	664,689
Warrants	666,667	—
Total	1,538,730	664,689

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Accumulated Other Comprehensive Loss
Equity [Abstract]

9 Months Ended
Sep. 30, 2024

Accumulated Other Comprehensive Loss Note 11 - Accumulated Other Comprehensive Loss

The following table summarizes the changes in accumulated other comprehensive loss by component during the nine months ended September 30, 2024 and 2023:

	Net Unrealized Gain/(Loss) on Available-for-Sale Securities	Accumulated Other Comprehensive Loss
Balance, December 31, 2023	\$ (221)	\$ (221)
Net unrealized gain on securities available-for-sale	221	221
Balance, September 30, 2024	\$ —	\$ —
Balance, December 31, 2022	\$ (824)	\$ (824)
Net unrealized gain on securities available-for-sale	465	465
Balance, September 30, 2023	\$ (359)	\$ (359)

All components of accumulated other comprehensive income are net of tax.

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Stock-based Compensation
Share-Based Payment Arrangement [Abstract]
Stock-based Compensation

9 Months Ended
Sep. 30, 2024

Note 12 - Stock-based Compensation

The Company’s Amended and Restated 2013 Equity Compensation Plan (the “Plan”), which expired on May 7, 2024, provided for the granting of incentive stock options, nonqualified stock options, restricted stock units, performance units, and stock purchase rights. There were no significant modifications to the Plan during the nine month periods ended September 30, 2024 and 2023. The term of the Plan was for 10 years. The Company intends to adopt a new equity compensation plan at its 2024 Annual Meeting, pending shareholder approval.

As of September 30, 2024, there were 965,678 awards, including both restricted stock grants and option grants, issued and exercised under the Plan and no remaining shares available for grant under the Plan.

The Company recognized stock-based compensation expense (options and restricted share grants) in its condensed consolidated statements of operations as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
Research and Development	\$ 387	\$ 507	\$ 1,212	\$ 1,576
General and Administrative	578	689	1,739	2,100
Total	\$ 965	\$ 1,196	\$ 2,951	\$ 3,676

As of September 30, 2024, total compensation costs related to unvested awards not yet recognized was \$4,597 and the weighted-average periods over which the awards are expected to be recognized was 2.2 years.

Stock Options

The following table summarizes the activity for Company’ stock options for the nine months ended September 30, 2024:

	Stock Options
Outstanding at December 31, 2023	934,243
Granted	—
Exercised	—
Forfeited	(18,649)
Expired	(43,531)
Outstanding at September 30, 2024	872,063

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Subsequent Events
Subsequent Events [Abstract]
Subsequent Events

9 Months Ended
Sep. 30, 2024

Note 13 - Subsequent Events

On October 31, 2024, the Company announced that negotiations under a previously disclosed non-binding term sheet regarding global rights to MAT2203 have been terminated following notification from the prospective partner. As a result, the Company implemented an 80% workforce reduction effective on that date and ceased all product development. The severance cost associated with this initiative, which will be settled in cash, totaled approximately \$2,150 and will be paid over a twelve-month period following the workforce reduction effective date.

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Summary of Significant Accounting Policies (Policies)
Accounting Policies [Abstract]
Basis of presentation and principles of consolidation

9 Months Ended
Sep. 30, 2024

Basis of presentation and principles of consolidation

The accompanying unaudited condensed consolidated financial statements include the consolidated accounts of Holdings and its wholly owned subsidiaries, BioPharma, and Nanotechnologies. The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“U.S. GAAP”) and reflect the operations of the Company and its wholly owned subsidiaries. All intercompany transactions have been eliminated in consolidation.

The Company’s significant accounting policies are described in Note 3 within the Company’s Notes to Consolidated Financial Statements included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2023.

The Company’s management has considered all recent accounting pronouncements issued and believes that these recent pronouncements will not have a material effect on the Company’s financial statements.

Reverse Stock Split

Reverse Stock Split

On August 30, 2024, the Company effected a 1-for-50 reverse stock split of its issued and outstanding common stock (the “Reverse Stock Split”). The Company’s common stock began trading on a split adjusted basis on September 3, 2024. No fractional shares were issued as a result of the Reverse Stock Split as fractional shares of Common Stock were rounded up to the nearest whole share. Unless otherwise noted in these condensed consolidated financial statements, all shares of common stock, warrants convertible into shares of common stock, stock options, per share information, and related parameters specified in this quarterly report have been retroactively adjusted to reflect the Reverse Stock Split for all periods presented. Refer to Note 10 - *Stockholders’ Equity* for additional information related to the Reverse Stock Split.

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Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities (Tables)
Cash and Cash Equivalents [Abstract]
Schedule of Cash, Cash

9 Months Ended
Sep. 30, 2024

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported in the Condensed Consolidated Balance Sheets to the total of the amounts in the Condensed

	September 30, 2024	December 31, 2023	September 30, 2023	December 31, 2022
Cash and cash equivalents	\$ 10,295	\$ 4,787	\$ 6,407	\$ 6,830
Restricted cash included in current/non-current assets	250	250	250	250
Cash, cash equivalents and restricted cash in the statement of cash flows	<u>\$ 10,545</u>	<u>\$ 5,037</u>	<u>\$ 6,657</u>	<u>\$ 7,080</u>

Schedule of Marketable Debt Securities

The following tables summarize the Company’s marketable debt securities as of September 30, 2024:

	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Fair Value
Corporate Debt Securities	\$ 500	\$ —	\$ —	\$ 500
Total marketable debt securities	<u>\$ 500</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 500</u>

The following tables summarize the Company’s marketable debt securities as of December 31, 2023:

	Amortized Cost	Unrealized Gain	Unrealized (Loss)	Fair Value
U.S. Treasury Bonds	\$ 999	\$ —	\$ (3)	\$ 996
U.S. Government Notes	8,191	—	(218)	7,973
Total marketable debt securities	<u>\$ 9,190</u>	<u>\$ —</u>	<u>\$ (221)</u>	<u>\$ 8,969</u>

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Fair Value Measurements (Tables)

Fair Value Disclosures [Abstract]

Schedule of Fair Value Measurement of Assets and Liabilities A summary of the assets and liabilities carried at fair value in accordance with the hierarchy defined above is as follows:

September 30, 2024	Total	Fair Value Hierarchy		
Assets		(Level 1)	(Level 2)	(Level 3)
Marketable Debt Securities:				
Corporate Debt Securities	\$ 500	\$ —	\$ 500	\$ —
Total	<u>\$ 500</u>	<u>\$ —</u>	<u>\$ 500</u>	<u>\$ —</u>
December 31, 2023	Total	Fair Value Hierarchy		
Assets		(Level 1)	(Level 2)	(Level 3)
Marketable Debt Securities:				
U.S. Treasury Bonds	\$ 996	\$ 996	\$ —	\$ —
U.S. Government Notes	7,973	—	7,973	—
Total	<u>\$ 8,969</u>	<u>\$ 996</u>	<u>\$ 7,973</u>	<u>\$ —</u>

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Leasehold Improvements and Equipment (Tables)

Property, Plant and Equipment [Abstract]

Schedule of Leasehold Improvements and Equipment Leasehold improvements and equipment, summarized by major category, consist of the following as of September 30, 2024 and December 31, 2023:

	September 30, 2024	December 31, 2023
Equipment	\$ 2,463	\$ 2,463
Leasehold improvements	1,155	1,155
Total	<u>3,618</u>	<u>3,618</u>
Less: accumulated depreciation and amortization	<u>1,970</u>	<u>1,695</u>
Leasehold improvements and equipment, net	<u>\$ 1,648</u>	<u>\$ 1,923</u>

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Accrued Expenses and Other Liabilities (Tables)

Payables and Accruals [Abstract]

Schedule of Accrued Expenses

Accrued Expenses, summarized by major category, as of September 30, 2024 and December 31, 2023 consist of the following:

	September 30, 2024	December 31, 2023
Payroll and incentives	\$ 720	\$ 1,176
General and administrative expenses	299	196
Research and development expenses	18	75
Total	<u>\$ 1,037</u>	<u>\$ 1,447</u>

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Leases (Tables)

Leases

Schedule of Maturity of Operating and Finance Liabilities

The following table presents information about the amount and timing of liabilities arising from the Company’s operating leases and finance leases as of September 30, 2024:

Maturity of Lease Liabilities	Operating Lease Liabilities	Finance Lease Liabilities
Remainder of 2024	\$ 245	\$ 2
2025	998	7
2026	1,040	7
2027	944	7
2028	273	—
Thereafter	138	—
Total undiscounted operating lease payments	\$ 3,638	\$ 23
Less: Imputed interest	586	4
Present value of operating lease liabilities	<u>\$ 3,052</u>	<u>\$ 19</u>
Weighted average remaining lease term in years	3.6	3.1
Weighted average discount rate	9.2%	11.6%

The following table presents information about the amount and timing of liabilities arising from the Company’s operating leases and finance leases as of December 31, 2023:

Maturity of Lease Liabilities	Operating Lease Liabilities	Finance Lease Liabilities
2024	\$ 956	\$ 7
2025	998	7
2026	1,040	7
2027	944	7
2028	273	—
Thereafter	138	—
Total undiscounted operating lease payments	\$ 4,349	\$ 28
Less: Imputed interest	816	5
Present value of operating lease liabilities	<u>\$ 3,533</u>	<u>\$ 23</u>
Weighted average remaining lease term in years	4.3	3.9
Weighted average discount rate	9.2%	11.6%

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Stockholders’ Equity (Tables)

Equity [Abstract]

Schedule of Shareholder Equity Warrants Outstanding

9 Months Ended Sep. 30, 2024

The following table summarizes the changes in warrants outstanding for the nine months ended September 30, 2024:

	Shares
Outstanding at December 31, 2023	-
Issued	666,667
Exercised	-

Tendered	-
Expired	-
Outstanding at September 30, 2024	666,667

Schedule of Anti-dilutive Securities Excluded from Computation of Earning Per Share

	As of September 30,	
	2024	2023
Stock options	872,063	664,689
Warrants	666,667	—
Total	1,538,730	664,689

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Accumulated Other Comprehensive Loss (Tables)

Equity [Abstract]

Schedule of Components of Accumulated Other Comprehensive Loss

9 Months Ended Sep. 30, 2024	
The following table summarizes the changes in accumulated other comprehensive loss by component during the nine months ended September 30, 2024 and 2023:	

	Net Unrealized Gain/(Loss) on Available-for-Sale Securities	Accumulated Other Comprehensive Loss
Balance, December 31, 2023	\$ (221)	\$ (221)
Net unrealized gain on securities available-for-sale	221	221
Balance, September 30, 2024	\$ —	\$ —
Balance, December 31, 2022	\$ (824)	\$ (824)
Net unrealized gain on securities available-for-sale	465	465
Balance, September 30, 2023	\$ (359)	\$ (359)

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Stock-based Compensation (Tables)

Share-Based Payment Arrangement [Abstract]

Schedule of Recognized Stock-Based Compensation

9 Months Ended Sep. 30, 2024				
The Company recognized stock-based compensation expense (options and restricted share grants) in its condensed consolidated statements of operations as follows:				
	Three Months Ended September 30,		Nine Months Ended September 30,	
	2024	2023	2024	2023
Research and Development	\$ 387	\$ 507	\$ 1,212	\$ 1,576
General and Administrative	578	689	1,739	2,100
Total	\$ 965	\$ 1,196	\$ 2,951	\$ 3,676

Schedule of Stock Option Activity

9 Months Ended Sep. 30, 2024	
The following table summarizes the activity for Company' stock options for the nine months ended September 30, 2024:	
	Stock Options
Outstanding at December 31, 2023	934,243
Granted	—
Exercised	—
Forfeited	(18,649)
Expired	(43,531)
Outstanding at September 30, 2024	872,063

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Liquidity, Plan of Operations and Going Concern (Details Narrative) - USD (\$)
\$ in Thousands

Organization, Consolidation and Presentation of Financial Statements [Abstract]

3 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2023		9 Months Ended Dec. 31, 2023	
Accumulated deficit	\$ 191,391	\$ 191,391	\$ 175,573				
Net loss	4,275	6,055	15,818	17,628			
Cash and cash equivalents	10,295	6,407	10,295	6,407	4,787	6,830	
Marketable securities	500		500		8,969		
Restricted cash	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	\$ 250	

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Summary of Significant Accounting Policies (Details Narrative)

Aug. 30, 2024

Accounting Policies [Abstract]

Stockholders' equity, reverse stock split 1-for-50 reverse stock split

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Schedule of Cash, Cash Equivalents and Restricted Cash (Details) - USD (\$)
\$ in Thousands

Cash and Cash Equivalents [Abstract]

3 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2023		9 Months Ended Dec. 31, 2023	
Cash and cash equivalents	\$ 10,295	\$ 4,787	\$ 6,407	\$ 6,830			
Restricted cash included in current/non-current assets	250	250	250	250			
Cash, cash equivalents and restricted cash in the statement of cash flows	\$ 10,545	\$ 5,037	\$ 6,657	\$ 7,080			

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Schedule of Marketable Debt Securities (Details) - USD (\$)
\$ in Thousands

Debt Securities, Held-to-Maturity, Allowance for Credit Loss [Line Items]

3 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2024		9 Months Ended Sep. 30, 2023		9 Months Ended Dec. 31, 2023	
Debt Securities, Available-for-Sale, Amortized Cost	\$ 500	\$ 9,190					
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Gain, before Tax							
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Loss, before Tax		(221)					
Debt Securities, Available-for-Sale	500	8,969					
Corporate Debt Securities [Member]							
Debt Securities, Held-to-Maturity, Allowance for Credit Loss [Line Items]							
Debt Securities, Available-for-Sale, Amortized Cost	500				999		
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Gain, before Tax							
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Loss, before Tax		(3)					
Debt Securities, Available-for-Sale		996					
US Treasury Securities [Member]							
Debt Securities, Held-to-Maturity, Allowance for Credit Loss [Line Items]							
Debt Securities, Available-for-Sale, Amortized Cost		8,191					
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Gain, before Tax							
Debt Securities, Available-for-Sale, Accumulated Gross Unrealized Loss, before Tax		(218)					
Debt Securities, Available-for-Sale		\$ 7,973					

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Cash, Cash Equivalents, Restricted Cash and Marketable Debt Securities (Details Narrative) - USD (\$) \$ in Thousands	3 Months Ended		9 Months Ended			
	Sep. 30, 2024	Sep. 30, 2023	Sep. 30, 2024	Sep. 30, 2023	Dec. 31, 2023	Dec. 31, 2022
XML 49 R38.htm IDEA: XBRL DOCUMENT						

Schedule of Fair Value Measurement of Assets and Liabilities (Details) - USD (\$) \$ in Thousands			Sep. 30, 2024Dec. 31, 2023			
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Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total			\$ 500		\$ 8,969	
Fair Value, Inputs, Level 1 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total					996	
Fair Value, Inputs, Level 2 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total			500		7,973	
Fair Value, Inputs, Level 3 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
Corporate Debt Securities [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total			500			
Corporate Debt Securities [Member] Fair Value, Inputs, Level 1 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
Corporate Debt Securities [Member] Fair Value, Inputs, Level 2 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total			500			
Corporate Debt Securities [Member] Fair Value, Inputs, Level 3 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
US Treasury Securities [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total					996	
US Treasury Securities [Member] Fair Value, Inputs, Level 1 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total					996	
US Treasury Securities [Member] Fair Value, Inputs, Level 2 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
US Treasury Securities [Member] Fair Value, Inputs, Level 3 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
US Government Agencies Debt Securities [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total					7,973	
US Government Agencies Debt Securities [Member] Fair Value, Inputs, Level 1 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						
US Government Agencies Debt Securities [Member] Fair Value, Inputs, Level 2 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total					7,973	
US Government Agencies Debt Securities [Member] Fair Value, Inputs, Level 3 [Member]						
Fair Value, off-Balance-Sheet Risks, Disclosure Information [Line Items]						
Total						

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Schedule of Leasehold Improvements and Equipment (Details) - USD (\$) \$ in Thousands	Sep. 30, 2024Dec. 31, 2023	
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Property, Plant and Equipment [Line Items]		
Leasehold improvements and equipment, gross	\$ 3,618	\$ 3,618
Less: accumulated depreciation and amortization	1,970	1,695
Leasehold improvements and equipment, net	1,648	1,923
Equipment [Member]		
Property, Plant and Equipment [Line Items]		
Leasehold improvements and equipment, gross	2,463	2,463
Leasehold Improvements [Member]		
Property, Plant and Equipment [Line Items]		
Leasehold improvements and equipment, gross	\$ 1,155	\$ 1,155

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Leasehold Improvements and Equipment (Details Narrative) - USD (\$) \$ in Thousands	3 Months Ended		9 Months Ended	
	Sep. 30, 2024	Sep. 30, 2023	Sep. 30, 2024	Sep. 30, 2023

Property, Plant and Equipment [Abstract]				
Depreciation and amortization expenses	\$ 90	\$ 98	\$ 275	\$ 288
Purchase of equipment and leasehold improvements				\$ 218
XML 52 R41.htm IDEA: XBRL DOCUMENT				
Schedule of Accrued Expenses (Details) - USD (\$) \$ in Thousands	Sep. 30, 2024Dec. 31, 2023			
Payables and Accruals [Abstract]				
Payroll and incentives	\$ 720	\$ 1,176		
General and administrative expenses	299	196		
Research and development expenses	18	75		
Total	\$ 1,037	\$ 1,447		

Schedule of Maturity of Operating and Finance Liabilities (Details) - USD (\$) \$ in Thousands	Sep. 30, 2024	Dec. 31, 2023
Leases		
Operating Lease Liabilities, Remainder of Fiscal Year	\$ 245	
Finance Lease Liabilities, Remainder of Fiscal Year	2	
Operating Lease Liabilities, Year One	998	\$ 956
Finance Lease Liabilities, Year One	7	7
Operating Lease Liabilities, Year Two	1,040	998
Finance Lease Liabilities, Year Two	7	7
Operating Lease Liabilities, Year Three	944	1,040
Finance Lease Liabilities, Year Three	7	7
Operating Lease Liabilities, Year Four	273	944
Finance Lease Liabilities, Year Four		7
Operating lease Liabilities, Year After Four	138	
Finance Lease Liabilities, Year After Four		
Operating lease Liabilities, Year Five		273
Finance Lease Liabilities, Year Five		
Operating Lease Liabilities, Thereafter		138
Finance Lease Liabilities, Thereafter		
Total undiscounted operating lease payments	3,638	4,349
Total undiscounted finance lease payments	23	28
Operating Lease Liabilities, less: Imputed interest	586	816
Finance Lease Liabilities, less: Imputed interest	4	5
Present value of operating lease liabilities	3,052	3,533
Present value of finance lease liabilities	\$ 19	\$ 23
Operating Lease Liabilities, weighted average remaining lease term in years	3 years 7 months 6 days	4 years 3 months 18 days
Finance Lease Liabilities, weighted average remaining lease term in years	3 years 1 month 6 days	3 years 10 months 24 days
Operating Lease Liabilities, weighted average discount rate	9.20%	9.20%
Finance Lease Liabilities, weighted average discount rate	11.60%	11.60%

Leases (Details Narrative) - USD (\$) \$ in Thousands	3 Months Ended		9 Months Ended	
	Sep. 30, 2024	Sep. 30, 2023	Sep. 30, 2024	Sep. 30, 2023
Leases				
Operating lease option to extend, description	Some leases include purchase, termination or extension options for one or more years.			
Remaining lease term	12 months		12 months	
Operating lease interest expense	\$ 225	\$ 225	\$ 677	\$ 677
Operating lease right-of-use assets	152	139	446	406
Finance lease interest expense	1	0	2	2
Finance lease right-of-use assets	\$ 1	\$ 2	\$ 4	\$ 7

Revenue Recognition, Collaboration Agreements and Other (Details Narrative) - USD (\$) \$ in Thousands	Apr. 08, 2022	Dec. 12, 2019	3 Months Ended			9 Months Ended	
			Sep. 30, 2024	Sep. 30, 2023	Mar. 31, 2023	Sep. 30, 2024	Sep. 30, 2023
Revenue							\$ 1,096
BioNTech Agreement [Member]							
Fees received	\$ 2,750						
Deferred revenue	\$ 2,750						
Revenue recognized					\$ 688		
Revenue					\$ 375		
Genentech Feasibility Study Agreement [Member]							
Revenue	\$ 33						
Genentech Feasibility Study Agreement [Member] Three Molecules [Member]							
Revenue recognized	\$ 100						
Genentech Feasibility Study Agreement [Member] Genentech [Member]							
Agreement description		Genentech paid the Company a total of \$100 for the development of three molecules, or \$33 per molecule, which is being recognized upon the Company fulfilling its obligations for each molecule under the Genentech Agreement.					

Schedule of Shareholder Equity Warrants Outstanding (Details) Equity [Abstract]	9 Months Ended Sep. 30, 2024 shares
Shares outstanding, beginning	
Shares issued	666,667
Shares exercised	
Shares tendered	
Shares expired	
Shares outstanding, ending	666,667

Schedule of Anti-dilutive Securities Excluded from Computation of Earning Per Share (Details) - shares	9 Months Ended	
	Sep. 30, 2024	Sep. 30, 2023
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]		
Antidilutive securities excluded from computation of earnings per share, amount	1,538,730	664,689
Equity Option [Member]		
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]		
Antidilutive securities excluded from computation of earnings per share, amount	872,063	664,689
Warrant [Member]		
Antidilutive Securities Excluded from Computation of Earnings Per Share [Line Items]		
Antidilutive securities excluded from computation of earnings per share, amount	666,667	

Schedule of Components of	3 Months Ended	9 Months Ended
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Accumulated Other Comprehensive Loss (Details) - USD (\$)
\$ in Thousands

Sep. 30, 2024Sep. 30, 2023Sep. 30, 2024Sep. 30, 2023

Equity [Abstract]

Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Beginning Balance			\$ (221)	\$ (824)
Accumulated Other Comprehensive Loss, Beginning Balance			(221)	(824)
Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Net unrealized loss on securities available-for-sale	\$ 51	\$ 155	221	465
Accumulated Other Comprehensive Loss, Net unrealized loss on securities available-for-sale			221	465
Net Unrealized Gains/(Loss) on Available-for-Sale Securities, Ending Balance		(359)		(359)
Accumulated Other Comprehensive Loss, Ending Balance		\$ (359)		\$ (359)

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Stockholders' Equity (Details Narrative) - USD (\$)	1 Months Ended	9 Months Ended			
\$ / shares in Units, \$ in Thousands	Apr. 05, 2024	Feb. 29, 2024	Sep. 30, 2024	Aug. 30, 2024	Aug. 29, 2024 Dec. 31, 2023

Accumulated Other Comprehensive Income (Loss) [Line Items]

Common stock, shares authorized			250,000,000		250,000,000
Common stock per share			\$ 0.0001		\$ 0.0001
Common stock, shares issued			5,086,985		4,345,291
Common stock, shares outsatnding			5,086,985		4,345,291
Net of proceeds shares	\$ 10,000				
Net proceeds from sale of common stock	\$ 9,190				

Reverse Stock Split [Member]

Accumulated Other Comprehensive Income (Loss) [Line Items]

Common stock, shares authorized			250,000,000	500,000,000
Common stock per share			\$ 0.0001	
Common stock, shares issued			5,086,985	250,816,164
Common stock, shares outsatnding			5,086,985	250,816,164
Common Stock [Member]				

Accumulated Other Comprehensive Income (Loss) [Line Items]

Issuance of common stock and warrants in public offering, net of stock issuance cost	[1]	671,033
Common Stock [Member] BTIG, LLC [Member] At-The-Market Sales Agreement [Member]		

Accumulated Other Comprehensive Income (Loss) [Line Items]

Net proceeds from sale of common stock	\$ 54
Number of shares sold	4,366,000
Warrant [Member]	

Accumulated Other Comprehensive Income (Loss) [Line Items]

Common stock per share	\$ 15.00
Issuance of common stock and warrants in public offering, net of stock issuance cost	666,667
Outstanding warrants to purchase of shares	666,667
Exercise price per share	\$ 17.50
Warrants exercisable term	5 years

[1] Adjusted to reflect the impact of the 1-for-50 reverse stock split effective as of August 30, 2024.

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Schedule of Recognized Stock-Based Compensation (Details) - USD (\$) \$ in Thousands	3 Months Ended	9 Months Ended		
	Sep. 30, 2024	Sep. 30, 2023	Sep. 30, 2024	Sep. 30, 2023

Share-Based Payment Arrangement, Expensed and Capitalized, Amount [Line Items]

Share-based compensation expense	\$ 965	\$ 1,196	\$ 2,951	\$ 3,676
Research and Development Expense [Member]				

Share-Based Payment Arrangement, Expensed and Capitalized, Amount [Line Items]

Share-based compensation expense	387	507	1,212	1,576
General and Administrative Expense [Member]				

Share-Based Payment Arrangement, Expensed and Capitalized, Amount [Line Items]

Share-based compensation expense	\$ 578	\$ 689	\$ 1,739	\$ 2,100
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Schedule of Stock Option Activity (Details)	9 Months Ended Sep. 30, 2024 shares
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Share-Based Payment Arrangement [Abstract]

Stock Options, Outstanding	934,243
Granted	
Exercised	
Forfeited	(18,649)
Expired	(43,531)
Stock Options, Outstanding	872,063

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Stock-based Compensation (Details Narrative) \$ in Thousands	9 Months Ended Sep. 30, 2024 USD (\$) shares
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Share-Based Compensation Arrangement by Share-Based Payment Award [Line Items]

Term of the award	The term of the Plan was for 10 years.
Unrecognized share based compensation \$	4,597
Unrecognized share based compensation, recognition period	2 years 2 months 12 days
2013 Equity Compensation Plan [Member]	

Share-Based Compensation Arrangement by Share-Based Payment Award [Line Items]

Stock awards including restricted stock options grants awards issued and exercised shares	965,678
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Subsequent Events (Details Narrative)	1 Months Ended Oct. 31, 2024 USD (\$)
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Subsequent Event [Member]

Subsequent Event [Line Items]

Severance costs	\$ 2,150
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