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

FORM 10-Q

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

FOR THE QUARTERLY PERIOD ENDED SEPTEMBER 30, 2023

or

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

Commission File Number 001-39321

Avidity Biosciences, Inc.

(Exact name of registrant as specified in its charter)

Delaware	**46-1336960**
(State or other jurisdiction of incorporation or organization)	**(IRS Employer Identification No.)**
10578 Science Center Drive, Suite 125 San Diego, California	**92121**
(Address of principal executive offices)	**(Zip Code)**

(858) 401-7900

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value	RNA	The Nasdaq Global Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No o

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 (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No o

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

Large accelerated filer	x	Accelerated filer	o
Non-accelerated filer	o	Smaller reporting company	o
		Emerging growth company	o

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No x

As of October 23, 2023, the registrant had 74,101,254 shares of common stock outstanding.

Avidity Biosciences, Inc.

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PART I - FINANCIAL INFORMATION

Item 1. Condensed Financial Statements (unaudited)

Avidity Biosciences, Inc.
Condensed Balance Sheets
(in thousands, except par value)

	September 30, 2023	December 31, 2022
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 85,650	$ 340,396
Marketable securities	456,933	270,331
Prepaid and other assets	12,904	12,215
Total current assets	555,487	622,942
Property and equipment, net	8,130	6,254
Restricted cash	295	251
Right-of-use assets	8,907	8,755
Other assets	344	598
Total assets	$ 573,163	$ 638,800
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$ 31,981	$ 32,572
Accrued compensation	11,165	11,190
Lease liabilities, current portion	3,602	3,105
Deferred revenue, current portion	1,968	5,041
Total current liabilities	48,716	51,908
Lease liabilities, net of current portion	6,979	7,582
Deferred revenue, net of current portion	—	1,235
Total liabilities	55,695	60,725
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Common stock, $0.0001 par value; authorized shares – 400,000; issued and outstanding shares – 74,101 and 69,768 at September 30, 2023 and December 31, 2022, respectively	7	7
Additional paid-in capital	1,029,660	939,310
Accumulated other comprehensive loss	(1,878)	(2,698)
Accumulated deficit	(510,321)	(358,544)
Total stockholders' equity	517,468	578,075
Total liabilities and stockholders' equity	$ 573,163	$ 638,800

See accompanying notes.

Avidity Biosciences, Inc.
Condensed Statements of Operations and Comprehensive Loss
(in thousands, except per share data)
(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Collaboration revenue	$ 2,818	$ 2,482	$ 7,367	$ 6,455
Operating expenses:				
Research and development	47,714	37,317	138,151	104,794
General and administrative	13,729	10,094	38,071	27,349
Total operating expenses	61,443	47,411	176,222	132,143
Loss from operations	(58,625)	(44,929)	(168,855)	(125,688)
Other income (expense):				
Interest income	6,280	1,342	17,567	2,203
Other expense	(13)	(12)	(489)	(39)
Total other income	6,267	1,330	17,078	2,164
Net loss	(52,358)	(43,599)	(151,777)	(123,524)
Other comprehensive income (loss):				
Net unrealized gains (losses) on marketable securities	788	(477)	820	(3,276)
Comprehensive loss	$ (51,570)	$ (44,076)	$ (150,957)	$ (126,800)
Net loss per share, basic and diluted	$ (0.71)	$ (0.82)	$ (2.11)	$ (2.45)
Weighted-average shares outstanding, basic and diluted	74,097	53,069	71,987	50,432

See accompanying notes.

Avidity Biosciences, Inc.
Condensed Statements of Stockholders' Equity
(in thousands)
(unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2022	69,768	$ 7	$ 939,310	$ (2,698)	$ (358,544)	$ 578,075
Issuance of common stock upon exercise of stock options	102	—	520	—	—	520
Issuance of common stock in public offering, net of issuance costs of $408	943	—	22,441	—	—	22,441
Stock-based compensation	—	—	9,104	—	—	9,104
Net loss	—	—	—	—	(52,394)	(52,394)
Other comprehensive income	—	—	—	1,169	—	1,169
Balance at March 31, 2023	70,813	$ 7	$ 971,375	$ (1,529)	$ (410,938)	$ 558,915
Issuance of common stock upon exercise of stock options	12	—	7	—	—	7
Issuance of common stock in public offerings, net of issuance costs of $977	3,164	—	38,106	—	—	38,106
Issuance of common stock under Employee Stock Purchase Plan	81	—	859	—	—	859
Stock-based compensation	—	—	9,453	—	—	9,453
Net loss	—	—	—	—	(47,025)	(47,025)
Other comprehensive loss	—	—	—	(1,137)	—	(1,137)
Balance at June 30, 2023	74,070	$ 7	$ 1,019,800	$ (2,666)	$ (457,963)	$ 559,178
Issuance of common stock upon exercise of stock options	31	—	40	—	—	40
Stock-based compensation	—	—	9,820	—	—	9,820
Net loss	—	—	—	—	(52,358)	(52,358)
Other comprehensive income	—	—	—	788	—	788
Balance at September 30, 2023	74,101	$ 7	$ 1,029,660	$ (1,878)	$ (510,321)	$ 517,468

See accompanying notes.

Avidity Biosciences, Inc.
Condensed Statements of Stockholders' Equity
(in thousands)
(unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2021	47,754	$ 5	$ 566,161	$ (187)	$ (184,549)	$ 381,430
Issuance of common stock upon exercise of stock options	7	—	10	—	—	10
Vesting of early exercise options	—	—	1	—	—	1
Issuance of common stock in public offerings, net of issuance costs of $745	1,520	—	24,103	—	—	24,103
Stock-based compensation	—	—	6,238	—	—	6,238
Net loss	—	—	—	—	(34,235)	(34,235)
Other comprehensive loss	—	—	—	(1,839)	—	(1,839)
Balance at March 31, 2022	49,281	$ 5	$ 596,513	$ (2,026)	$ (218,784)	$ 375,708
Issuance of common stock upon exercise of stock options	5	—	4	—	—	4
Issuance of common stock in public offerings, net of issuance costs of $1,184	2,746	—	38,281	—	—	38,281
Issuance of common stock under Employee Stock Purchase Plan	49	—	499	—	—	499
Vesting of early exercise options	—	—	1	—	—	1
Stock-based compensation	—	—	6,508	—	—	6,508
Net loss	—	—	—	—	(45,690)	(45,690)
Other comprehensive loss	—	—	—	(960)	—	(960)
Balance at June 30, 2022	52,081	$ 5	$ 641,806	$ (2,986)	$ (264,474)	$ 374,351
Issuance of common stock upon exercise of stock options	270	—	303	—	—	303
Issuance of common stock in public offerings, net of issuance costs of $1,216	2,095	—	39,317	—	—	39,317
Vesting of early exercise options	—	—	1	—	—	1
Stock-based compensation	—	—	7,086	—	—	7,086
Net loss	—	—	—	—	(43,599)	(43,599)
Other comprehensive loss	—	—	—	(477)	—	(477)
Balance at September 30, 2022	54,446	$ 5	$ 688,513	$ (3,463)	$ (308,073)	$ 376,982

See accompanying notes.

Avidity Biosciences, Inc.
Condensed Statements of Cash Flows
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2023	**2022**
Cash flows from operating activities		
Net loss	$ (151,777)	$ (123,524)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	1,486	1,006
Stock-based compensation expense	28,377	19,832
Amortization of premiums and discounts on marketable securities, net	(8,037)	184
Non-cash operating lease costs	2,154	2,068
Changes in operating assets and liabilities:		
Prepaid and other assets	(435)	(3,242)
Accounts payable and accrued liabilities	(588)	12,028
Accrued compensation	(25)	(1,193)
Operating lease liabilities	(2,412)	(1,002)
Deferred revenue	(4,308)	(3,236)
Net cash used in operating activities	(135,565)	(97,079)
Cash flows from investing activities		
Maturities of marketable securities	229,450	85,975
Purchases of marketable securities	(407,195)	(266,189)
Purchases of property and equipment	(3,365)	(1,973)
Net cash used in investing activities	(181,110)	(182,187)
Cash flows from financing activities		
Proceeds from issuance of common stock in public offerings, net of issuance costs	60,547	101,701
Proceeds from issuance of common stock under employee incentive equity plans	1,426	816
Net cash provided by financing activities	61,973	102,517
Net decrease in cash, cash equivalents and restricted cash	(254,702)	(176,749)
Cash, cash equivalents and restricted cash at beginning of period	340,647	320,699
Cash, cash equivalents and restricted cash at end of period	$ 85,945	$ 143,950
Supplemental schedule of noncash investing and financing activities:		
Right-of-use assets obtained in exchange for operating lease liabilities	$ 1,741	$ —

See accompanying notes.

Avidity Biosciences, Inc.
Notes to Unaudited Condensed Financial Statements

1. Description of Business and Basis of Presentation

Description of Business

Avidity Biosciences, Inc. (the Company or Avidity) is a biopharmaceutical company committed to delivering a new class of RNA therapeutics called Antibody Oligonucleotide Conjugates (AOCs). The Company's proprietary AOC platform is designed to combine the specificity of monoclonal antibodies with the precision of RNA therapeutics to target the root cause of diseases previously untreatable with such therapeutics.

Liquidity

On June 16, 2020, the Company completed its initial public offering (IPO), and it has since raised additional capital in the public markets as described further in Note 8 (Stockholders' Equity).

To date, the Company has devoted substantially all of its resources to organizing and staffing the Company, business planning, raising capital, developing its proprietary AOC platform, identifying potential product candidates, establishing its intellectual property portfolio, conducting research, preclinical and clinical studies, and providing other general and administrative support for these operations. In addition, the Company has a limited operating history, has incurred operating losses since inception and expects that it will continue to incur net losses into the foreseeable future as it continues the development of its product candidates and development programs. As of September 30, 2023, the Company had an accumulated deficit of $510.3 million and cash, cash equivalents and marketable securities of $ 542.6 million.

The Company believes that existing cash, cash equivalents and marketable securities will be sufficient to fund the Company's operations for at least 12 months from the date of the filing of this Form 10-Q. The Company plans to finance its future cash needs through equity offerings, debt financings or other capital sources, including potential collaborations, licenses and other arrangements. If the Company is not able to secure adequate additional funding, it may be forced to make reductions in spending, extend payment terms with suppliers, liquidate assets where possible, and/or delay or reduce the scope of its planned development programs. Any of these actions could materially harm the Company's business, results of operations and future prospects.

Basis of Presentation

The accompanying unaudited interim condensed financial statements have been prepared in accordance with U.S. generally accepted accounting principles (GAAP) and the rules and regulations of the Securities and Exchange Commission (SEC) related to a quarterly report on Form 10-Q. Certain information and note disclosures normally included in annual financial statements prepared in accordance with GAAP have been condensed or omitted pursuant to those rules and regulations. The unaudited interim condensed financial statements reflect all adjustments which, in the opinion of management, are necessary for a fair statement of the results for the periods presented. All such adjustments are of a normal and recurring nature. The operating results presented in these unaudited interim condensed financial statements are not necessarily indicative of the results that may be expected for any future periods. These unaudited interim condensed financial statements should be read in conjunction with the audited financial statements and the notes thereto for the year ended December 31, 2022 included in the Company's annual report on Form 10-K filed with the SEC on February 28, 2023.

Immaterial Out of Period Adjustment

During the nine months ended September 30, 2023, the Company identified an immaterial adjustment to research and development expenses that impacted the Company's previously issued quarterly and annual financial statements. Therefore, the Company recorded an out of period adjustment that decreased research and development expenses for the nine months ended September 30, 2023 by $3.6 million, which related to periods prior to 2023.

2. Summary of Significant Accounting Policies

Use of Estimates

The Company's condensed financial statements are prepared in accordance with GAAP, which requires the Company to make estimates and assumptions that impact the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities in the condensed financial statements and accompanying notes. The most significant estimates in the Company's condensed financial statements relate to revenue recognition, stock-based compensation, and accrued research and development costs. Although these estimates are based on the Company's knowledge of current events and actions it may undertake in the future, actual results may ultimately materially differ from these estimates and assumptions.

Summary of Significant Accounting Policies

The Company's significant accounting policies are discussed in "Note 2 – Summary of Significant Accounting Policies" of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022 filed with the SEC on February 28, 2023. There have been no significant changes to these policies during the nine months ended September 30, 2023.

Marketable Securities

The Company's marketable securities primarily consist of U.S. Government and corporate debt securities. The Company classifies its marketable securities as available-for-sale and records such assets at estimated fair value in the condensed balance sheets, with unrealized gains and losses, if any, reported as a component of other comprehensive income (loss) within the condensed statements of operations and comprehensive loss and as a separate component of stockholders' equity. The Company classifies marketable securities with remaining maturities greater than one year as current assets because such marketable securities are available to fund the Company's current operations. Realized gains and losses are calculated on the specific identification method and recorded as interest income. There were no realized gains and losses during the periods presented.

At each balance sheet date, the Company assesses available-for-sale debt securities in an unrealized loss position to determine whether the unrealized loss or any potential credit losses should be recognized in net income (loss). For available-for-sale debt securities in an unrealized loss position, the Company first assesses whether it intends to sell, or it is more likely than not that it will be required to sell, the security before recovery of its amortized cost basis. If either of the criteria regarding intent or requirement to sell is met, the security's amortized cost basis is written down to fair value through net income (loss). For available-for-sale securities that do not meet the aforementioned criteria, the Company evaluates whether the decline in fair value has resulted from credit losses or other factors. In making this assessment, the Company considers the severity of the impairment, any changes in interest rates, underlying credit ratings and forecasted recovery, among other factors. The credit-related portion of unrealized losses, and any subsequent improvements, are recorded as an allowance in interest income. There have been no impairment or credit losses recognized during the periods presented.

The Company excludes the applicable accrued interest from both the fair value and amortized costs basis of the Company's available-for-sale securities for purposes of identifying and measuring an impairment. Accrued interest receivable on available-for-sale securities is recorded within prepaid and other assets on the balance sheets. The Company made an accounting policy election to (1) not measure an allowance for credit loss for accrued interest receivable, and (2) to write-off any uncollectible accrued interest receivable as a reversal of interest income in a timely manner, which the Company considers to be in the period in which it determines the accrued interest will not be collected.

See Note 4 (Marketable Securities) for further information.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents and marketable securities. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company has established guidelines regarding approved investments, credit quality, diversification, liquidity and maturities of investments, which are designed to maintain safety and liquidity. The Company has not experienced any losses in its accounts and believes it is not exposed to significant risk on its cash balances due to the financial position of the depository institutions in which those deposits are held.

Accounts Payable and Accrued Liabilities

(in thousands)	September 30, 2023	December 31, 2022
Accounts payable	$ 5,550	$ 4,637
Accrued non-clinical liabilities	21,006	22,535
Accrued clinical liabilities	5,425	5,400
Total accounts payable and accrued liabilities	$ 31,981	$ 32,572

Research and Development Costs and Accruals

Research and development costs are expensed as incurred and include salaries, benefits and stock-based compensation associated with research and development personnel, third-party research and development expenses, license fees, laboratory supplies, facilities, overhead costs, and consultants. Nonrefundable advance payments for goods and services that will be used in future research and development activities are capitalized and recorded as expense in the period that the Company receives the goods or when services are performed.

The Company has entered into various research and development contracts with research institutions, clinical research organizations, clinical manufacturing organizations and other companies. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and payments made in advance of performance are reflected in the accompanying condensed balance sheets as prepaid and other assets or accrued liabilities. The Company records accruals for estimated costs incurred for ongoing research and development activities. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the services, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates may be made in determining the prepaid or accrued balances at the end of any reporting period. Actual results could differ from the Company's estimates.

Upfront and milestone payments to acquire contractual rights to licensed technology are expensed when incurred if there is uncertainty in the Company receiving future economic benefit from the acquired contractual rights. Certain of these contractual rights may require the Company to make additional milestone payments upon initiation of a pivotal trial and the U.S. Food and Drug Administration approval, which are not expected to exceed $10.9 million.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of common shares outstanding for the period, adjusted for the weighted-average number of common shares outstanding that are subject to repurchase or forfeiture. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of common shares and dilutive common stock equivalents outstanding for the period determined using the treasury-stock and if-converted methods. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding as inclusion of the common stock equivalent securities would be anti-dilutive.

Common stock equivalent securities not included in the calculation of diluted net loss per share, because to do so would be anti-dilutive, are as follows (in common stock equivalent shares; in thousands):

	September 30,	
	2023	2022
Common stock options	12,526	9,093
Restricted stock units	701	—
Performance stock units	750	—
Employee Stock Purchase Plan shares pending issuance	109	27
Total	14,086	9,120

Recently Issued Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (FASB) or other standard setting bodies that are adopted by the Company as of the specified effective

date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

Recently Adopted Accounting Pronouncements

In June 2016, the FASB issued Accounting Standards Update (ASU 2016-13), Financial Instruments-Credit Losses: Measurement of Credit Losses on Financial Instruments. ASU 2016-13 requires that an entity measure and recognize expected credit losses for financial assets held at amortized cost and replaces the incurred loss impairment methodology, and establishes additional disclosures related to credit risks. ASU 2016-13 also eliminates the concept of "other-than-temporary" impairment when evaluating available-for-sale debt securities and instead focuses on determining whether any impairment is a result of a credit loss or other factors. An entity will recognize an allowance for credit losses on available-for-sale debt securities rather than an other-than-temporary impairment that reduces the cost basis of the investment. The Company adopted ASU 2016-13 on January 1, 2023. The adoption of the new standard did not have a material impact on the Company's condensed financial statements.

3. Fair Value Measurements

The Company determines the fair value of its marketable securities based on one or more valuations from its investment and reporting service provider. The investment service provider values the securities using a hierarchical security pricing model that relies primarily on valuations provided by an industry-recognized valuation service. Such valuations may be based on the following:

- Level 1—Quoted prices in active markets for identical assets or liabilities.
- Level 2—Observable inputs, such as quoted prices in active markets for similar assets or liabilities, quoted prices in markets that are not active for identical or similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data.
- Level 3—Unobservable inputs that are supported by little or no market activity and that are significant to determining the fair value of the assets or liabilities, including pricing models, discounted cash flow methodologies and similar techniques.

The following tables summarize the Company's cash equivalents and marketable securities measured at fair value (in thousands):

		Fair Value Measurements Using		
As of September 30, 2023	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents:				
U.S. Treasury securities	$ 4,982	$ 4,982	$ —	$ —
Marketable securities:				
U.S. Treasury securities	443,385	443,385	—	—
U.S. Government agency securities	4,990	—	4,990	—
Negotiable certificates of deposit	7,313	—	7,313	—
Corporate debt securities	1,245	—	1,245	—
Total	$ 461,915	$ 448,367	$ 13,548	$ —

As of December 31, 2022	Total	Fair Value Measurements Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash equivalents:				
U.S. Treasury securities	$ 2,498	$ 2,498	$ —	$ —
Marketable securities:				
U.S. Treasury securities	244,945	244,945	—	—
U.S. Government agency securities	4,966	—	4,966	—
Negotiable certificates of deposit	4,346	—	4,346	—
Corporate debt securities	16,074	—	16,074	—
Total	$ 272,829	$ 247,443	$ 25,386	$ —

4. Marketable Securities

The Company's marketable securities, which consist of highly liquid marketable debt securities, are classified as available-for-sale and are stated at fair value. The following tables summarize the Company's marketable securities (in thousands):

As of September 30, 2023	Maturity (in years)	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury securities	1 or less	$ 318,419	$ 1	$ (1,142)	$ 317,278
U.S. Government agency securities	1 or less	5,000	—	(10)	4,990
Negotiable certificates of deposit	1 or less	5,880	—	(21)	5,859
Corporate debt securities	1 or less	1,256	—	(11)	1,245
U.S. Treasury securities	1 - 2	126,786	—	(679)	126,107
Negotiable certificates of deposit	1 - 2	1,470	—	(16)	1,454
Total		$ 458,811	$ 1	$ (1,879)	$ 456,933

As of December 31, 2022	Maturity (in years)	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
U.S. Treasury securities	1 or less	$ 230,349	$ 1	$ (2,283)	$ 228,067
U.S. Government agency securities	1 or less	5,000	—	(34)	4,966
Negotiable certificates of deposit	1 or less	3,911	1	(57)	3,855
Corporate debt securities	1 or less	16,360	—	(286)	16,074
U.S. Treasury securities	1 - 2	16,919	—	(41)	16,878
Negotiable certificates of deposit	1 - 2	490	1	—	491
Total		$ 273,029	$ 3	$ (2,701)	$ 270,331

The unrealized losses on the Company's marketable securities of $ 1.9 million as of September 30, 2023, $ 0.2 million of which were in a continuous unrealized loss position of greater than 12 months, were caused by interest rate increases which resulted in the decrease in market value of these securities. Because the decline in fair value is attributable to changes in interest rates and not credit quality, and because the Company does not intend to sell the investments and it is not more likely than not that the Company will be required to sell the investments before recovery of their amortized cost bases, which may be maturity, there were no allowances for credit losses at September 30, 2023 and December 31, 2022.

Accrued interest receivable on available-for-sale securities was $ 2.3 million and $1.3 million at September 30, 2023 and December 31, 2022, respectively. We have not written off any accrued interest receivable for the three or nine months ended September 30, 2023 and 2022.

5. Collaboration, License and Research Agreements

Research Collaboration and License Agreement with Eli Lilly and Company

In April 2019, the Company entered into a Research Collaboration and License Agreement (the Lilly Agreement) with Eli Lilly and Company (Lilly) for the discovery, development and commercialization of AOC products directed against certain targets in immunology and other select indications on a worldwide basis. In connection with the Lilly Agreement, the Company recognized revenue of $2.8 million and $2.4 million for the three months ended September 30, 2023 and 2022, respectively, and $7.3 million and $6.3 million for the nine months ended September 30, 2023 and 2022, respectively. Collaboration receivables related to the Lilly Agreement were $1.0 million and $2.1 million as of September 30, 2023 and December 31, 2022, respectively, which are included in prepaid and other assets on the condensed balance sheets.

Research Agreement with MyoKardia, Inc.

In December 2020, the Company entered into a research collaboration (the MyoKardia Agreement) with MyoKardia, Inc. (MyoKardia), a wholly-owned subsidiary of Bristol Myers Squibb, to demonstrate the potential utility of AOCs in cardiac tissue by leveraging MyoKardia's genetic cardiomyopathy platform including, among other aspects, its novel target discovery engine and proprietary cardiac disease models. In connection with the MyoKardia Agreement, the Company recognized an immaterial amount of revenue in each of the periods presented.

Through September 30, 2023, the aggregate funding received from collaboration and research service agreements was $ 42.3 million. A reconciliation of the closing balance of deferred revenue related to the Company's research collaboration and license agreements is as follows (in thousands):

Balance at December 31, 2022	$ 6,276
Revenue recognized that was included in the balance at the beginning of the period	(4,308)
Balance at September 30, 2023	$ 1,968

6. Property and Equipment, net

Property and equipment consist of the following (in thousands):

	September 30, 2023	December 31, 2022
Laboratory equipment	$ 10,350	$ 7,217
Computers and software	127	116
Office furniture and equipment	1,979	1,792
Leasehold improvements	280	249
Property and equipment, gross	12,736	9,374
Less accumulated depreciation	(4,606)	(3,120)
Total property and equipment, net	$ 8,130	$ 6,254

Depreciation expense related to property and equipment was $ 0.6 million and $0.4 million for the three months ended September 30, 2023 and 2022, respectively, and $1.5 million and $1.0 million for the nine months ended September 30, 2023 and 2022, respectively.

7. Commitments and Contingencies

Litigation

Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. There are no claims or actions pending or threatened against the Company that, if adversely determined, would in management's judgment have a material adverse effect on the Company.

Contractual Obligations

The Company enters into contracts in the normal course of business for contract research services, contract manufacturing services, professional services, and other services and products for operating purposes. These contracts may include certain provisions that could require payments for early termination. The amount of any such termination payments will vary depending on the timing of the termination and the specific terms of the contract.

8. Stockholders' Equity

Amended and Restated Certificate of Incorporation

On June 16, 2020, the Company's certificate of incorporation was amended and restated to authorize 400,000,000 shares of common stock and 40,000,000 shares of undesignated preferred stock, each with a par value of $ 0.0001 per share. There was no preferred stock outstanding during the periods presented in the condensed financial statements.

Common Stock

On July 2, 2021, the Company entered into a sales agreement (the 2021 Sales Agreement) with Cowen and Company, LLC (the Sales Agent), under which the Company may, from time to time, sell shares of its common stock having an aggregate offering price of up to $150.0 million through the Sales Agent. Sales of the Company's common stock made pursuant to the 2021 Sales Agreement are made under the Company's shelf registration statement on Form S-3, which became automatically effective upon filing on July 2, 2021 (the Shelf Registration Statement). During the nine months ended September 30, 2022, the Company sold 7,141,761 shares of its common stock pursuant to the 2021 Sales Agreement and received net proceeds of $121.3 million, after deducting offering-related transaction costs and commissions.

On November 8, 2022, the Company entered into a sales agreement (the 2022 Sales Agreement) with the Sales Agent, with substantially similar terms as the 2021 Sales Agreement. Under the 2022 Sales Agreement, the Company may, from time to time, sell shares of its common stock having an aggregate offering price of up to $200.0 million through the Sales Agent. Sales of the shares of common stock, if any, will be made at prevailing market prices at the time of sale, or as otherwise agreed with the Sales Agent. The Company is not obligated to sell, and the Sales Agent is not obligated to buy or sell, any shares of common stock under the 2022 Sales Agreement. Upon entry into the 2022 Sales Agreement, the 2021 Sales Agreement was terminated. During the nine months ended September 30, 2023, the Company sold 4,107,810 shares of its common stock pursuant to the 2022 Sales Agreement and received net proceeds of $60.5 million, after deducting offering-related transaction costs and commissions.

On December 15, 2022, the Company completed a public offering of 13,800,000 shares of its common stock at a public offering price of $ 17.25 per share. The net proceeds from the offering were $223.8 million, after deducting underwriting discounts, commissions and offering costs of $ 14.3 million. The shares sold in the offering were registered pursuant to the Company's Shelf Registration Statement.

Stock Options

Stock option activity for employee and non-employee awards and related information is as follows (in thousands, except per share data):

	Number of Options	Weighted-Average Exercise Price Per Share
Outstanding at December 31, 2022	9,352	$ 15.28
Granted	3,885	14.77
Exercised	(145)	3.88
Forfeited/expired	(566)	19.19
Outstanding at September 30, 2023	12,526	$ 15.08

Restricted Stock Units and Performance Stock Units

During the nine months ended September 30, 2023, under the 2020 Incentive Award Plan and the 2022 Employment Inducement Incentive Award Plan, the Company granted restricted stock units (RSUs) and performance stock units (PSUs) to employees of the Company.

RSUs are valued at the market price of a share of the Company's stock on the date of grant. RSUs vest ratably on an annual basis over a four-year service period and are payable in shares of common stock on the vesting date. Compensation expense for RSUs is recognized on a straight-line basis over the four-year service period. Forfeitures are recorded in the period in which they occur.

The following table summarizes the RSU activity for the nine months ended September 30, 2023 (in thousands, except per share data):

	Number of Shares	Weighted-Average Grant Date Fair Value
Unvested at December 31, 2022	—	$ —
Granted	757	20.03
Vested	—	—
Forfeited	(56)	20.70
Unvested at September 30, 2023	701	$ 19.98

During the nine months ended September 30, 2023, the Company granted 750,000 PSUs at a weighted-average grant date fair value of $ 6.57 per share. The PSUs vest upon achievement of certain clinical milestones and continued employment thereafter. The PSUs have a two-year term and any unvested awards at the end of the term will be forfeited. Compensation expense for PSUs is recognized on a straight-line basis over the requisite service periods when the achievement of the performance condition is determined to be probable. If a performance condition is not determined to be probable or is not met, no stock-based compensation expense is recognized, and any previously recognized expense is reversed. Forfeitures are recognized as a reduction of stock-based compensation expense in the period they occur.

There were no PSUs outstanding as of December 31, 2022. As of September 30, 2023, no PSUs were vested and no stock-based compensation expense was recognized as the performance conditions were not deemed probable.

Employee Stock Purchase Plan

The Company issued 81,005 and 48,760 shares of common stock under the Employee Stock Purchase Plan (ESPP) during the nine months ended September 30, 2023 and 2022, respectively. The Company had an outstanding liability of $0.6 million at September 30, 2023, which is included in accounts payable and accrued liabilities on the condensed balance sheet, for employee contributions to the ESPP for shares pending issuance at the end of the current offering period. As of September 30, 2023, 467,023 shares of common stock were available for issuance under the ESPP.

Stock-Based Compensation Expense

The assumptions used in the Black-Scholes model to determine the fair value of stock option grants were as follows:

	Options		ESPP	
	Nine Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Risk-free interest rate	3.5% - 4.5%	1.5% - 3.4%	5.4%	2.2%
Expected volatility	80% - 82%	85%	76%	79%
Expected term (in years)	5.5 - 6.1	5.5 - 6.1	0.5	0.5
Expected dividend yield	—%	—%	—%	—%

Risk-Free Interest Rate. The Company bases the risk-free interest rate assumption for equity awards on the rates for U.S. Treasury zero-coupon bonds with maturities similar to those of the expected term of the award being valued.

Expected Volatility. The expected volatility of stock options is estimated based on the average historical volatilities of common stock of comparable publicly traded companies and the Company's own volatility. The comparable companies are chosen based on their size and stage in the life cycle. The Company will continue to apply this process until a sufficient amount of historical information regarding the volatility of its own stock price becomes available. Prior to 2023, the Company exclusively used peer group companies to determine expected volatility.

Expected Term. The Company's limited option exercise history does not provide a reasonable basis for estimating expected term, therefore the Company has estimated the expected life of its stock options using the simplified method, whereby the expected life equals the average of the vesting term and the original contractual term of the option. The expected life assumption for employee stock purchases under the ESPP is six months to conform with the six-month ESPP offering period.

Expected Dividend Yield. The Company's expected dividend yield assumption is zero as it has never paid dividends and has no present intention to do so in the future.

The allocation of stock-based compensation expense for stock option, RSU awards, PSU awards, and shares purchasable under the ESPP was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Research and development expense	$ 5,611	$ 4,151	$ 16,325	$ 10,948
General and administrative expense	4,209	2,935	12,052	8,884
Total stock-based compensation expense	$ 9,820	$ 7,086	$ 28,377	$ 19,832

As of September 30, 2023, the unrecognized compensation cost related to outstanding time-based options and RSUs was $ 75.1 million and $11.8 million, respectively, which is expected to be recognized over a weighted-average period of 2.7 years and 3.4 years, respectively. Unrecognized compensation cost related to PSUs was $4.9 million. As of September 30, 2023, the unrecognized compensation cost related to stock purchase rights under the ESPP was $0.2 million, which is expected to be recognized over a weighted-average period of 0.2 years.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed financial statements and related notes thereto included elsewhere in this quarterly report on Form 10-Q and with our audited financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations, both of which are contained in our annual report on Form 10-K for the year ended December 31, 2022 filed with the Securities and Exchange Commission, or SEC, on February 28, 2023.

Cautionary Note Regarding Forward-Looking Statements

This quarterly report contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical fact contained in this quarterly report, including statements regarding our future results of operations and financial position, business strategies and plans, research and development plans, the timing and likelihood of resolution of the partial clinical hold on our completed Phase 1/2 MARINA clinical trial, the anticipated timing, costs, design and conduct of our ongoing and planned preclinical studies and clinical trials for our product candidates, the timing and likelihood of regulatory filings and approvals for our product candidates, the timing and likelihood of success, plans and objectives of management for future operations and future results of anticipated product development efforts, inflationary pressures, and the ongoing hostilities outside the United States on our business, are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "could," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "potential," "continue," or the negative of these terms or other comparable terminology. These forward-looking statements are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this quarterly report and are subject to a number of risks, uncertainties and assumptions, including those described in Part II, Item 1A, "Risk Factors." The events and circumstances reflected in our forward-looking statements may not be achieved or occur, and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events, changed circumstances or otherwise.

Overview

We are a biopharmaceutical company committed to delivering a new class of RNA therapeutics called Antibody Oligonucleotide Conjugates, or AOCs. Our proprietary AOC platform is designed to combine the specificity of monoclonal antibodies, or mAbs, with the precision of RNA therapeutics to target the root cause of diseases previously untreatable with such therapeutics. Our advancing and expanding pipeline has three programs in clinical development. AOC 1001 is designed to treat people with myotonic dystrophy type 1, or DM1, and is currently in Phase 1/2 development with the completed MARINA® trial and the ongoing MARINA open label extension study, or MARINA-OLE™. AOC 1020 is designed to treat people living with facioscapulohumeral muscular dystrophy, or FSHD, and is currently in Phase 1/2 development with the FORTITUDE™ trial. AOC 1044 is designed for people with Duchenne muscular dystrophy and is currently in Phase 1/2 development with the EXPLORE44™ trial. AOC 1044 is specifically designed for people with mutations amenable to exon 44 skipping, or DMD44, and is the first of multiple AOCs we are developing for DMD. AOC 1001, AOC 1020 and AOC 1044 have all been granted Orphan Designation by the FDA and the European Medicines Agency, or EMA, and Fast Track Designation by the FDA.

In October 2023, we announced new positive AOC 1001 data that demonstrated improvement in functional measures including hand grip, muscle strength (Manual Muscle Testing composite score and both upper and lower Quantitative Muscle Testing composite scores) and patient reported outcomes, augmenting data previously reported in April 2023 that showed improvements in myotonia, muscle strength and mobility. New long-term safety data for AOC 1001 continue to demonstrate favorable safety and tolerability. A first look at MARINA-OLE efficacy data is planned for the first half of 2024.

In May 2023, we announced that the FDA eased the partial clinical hold on AOC 1001 discussed below, allowing us to double the number of participants in the MARINA-OLE study receiving 4 mg/kg of AOC 1001 by dose-escalating 12 participants from 2 mg/kg to 4 mg/kg. FDA also allows for new participant enrollment for

AOC 1001 at 2 mg/kg, which has not occurred up to this point. The dose escalation of 12 participants in the MARINA-OLE from 2 mg/kg to 4 mg/kg has now been completed, and the data showed no neurological events and no MRI changes following dosing.

In April 2023, we reported top-line data of AOC 1001 from the MARINA trial. The MARINA trial concluded with 38 participants enrolled at 1 mg/kg, 2 mg/kg or 4 mg/kg of AOC 1001. Results from the MARINA trial demonstrated:

- Directional improvement in multiple functional assessments including measures of myotonia, strength and mobility:
    - Myotonia was measured by video hand opening time and is a hallmark of DM1 where relaxation of key muscle groups is impaired
    - Measures of strength included the Quantitative Muscle Testing total score which is based on six muscle groups from both the upper and lower body
    - Mobility was assessed by the 10-meter walk run test and the Timed Up and Go test
    - The endpoints used in MARINA measure important aspects of the disease and correspond to those utilized in the ongoing END-DM1 natural history study
- Meaningful DMPK reduction and splicing changes in participants treated with AOC 1001
- Splicing changes followed by directional improvements in functional measures at 2 mg/kg and 4 mg/kg doses of AOC 1001
- AOC 1001 demonstrated broad splicing improvements in more than a thousand genes impacted in DM1, confirming activity in the nucleus
- Favorable long-term safety and tolerability profile of AOC 1001 with most adverse events mild or moderate.

As previously disclosed, in September 2022, the FDA placed a partial clinical hold on new participant enrollment in the MARINA program after reviewing information we provided related to a serious adverse event (SAE) reported in a single participant in the 4 mg/kg cohort of the MARINA trial. The SAE was classified by the investigator as drug related. We conducted a thorough analysis with the help of multiple independent experts and concluded that the participant most likely experienced an extremely rare neurological event comprising of bilateral ischemia in the region of the lateral geniculate nuclei in the thalamus with subsequent hemorrhagic transformation. The location in the lateral geniculate nuclei and the bilateral nature of the event is what makes this event extremely rare. After this extensive investigation, we cannot identify a plausible biological link to any component of AOC 1001, the AOC platform, the transferrin receptor delivery mechanism or reduction of DMPK.

With three AOC product candidates in clinical development, we plan to report data from multiple ongoing trials over the next nine months. We anticipate reporting results from the healthy volunteer portion of the EXPLORE44 trial of AOC 1044 in the fourth quarter of 2023. In the first half of 2024, we plan to provide a first look at efficacy data from the AOC 1001 MARINA-OLE trial and we plan to conduct a preliminary assessment in approximately half of the study participants in the AOC 1020 FORTITUDE trial.

We continue to advance and expand our internal discovery pipeline with the addition of new research and development candidates to treat conditions in skeletal muscle and cardiology as we continue to deliver on the RNA revolution. In addition to our own internal research programs, we continue to explore the full potential of our AOC platform through collaborations and partnerships, including programs in immunology, cardiac and other select indications outside of muscle.

Since our inception in 2012, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, developing our proprietary AOC platform, identifying potential product candidates, establishing our intellectual property portfolio, conducting research, preclinical and clinical studies, and providing other general and administrative support for these operations. We have not generated any revenue from product sales. In June 2020, we completed our initial public offering, or IPO, and have since raised capital through additional public offerings, sales agreements, and under collaboration and research

service agreements. Refer to “Liquidity and Capital Resources” for further information on the capital raised since inception and our future capital requirements.

We have incurred operating losses in each year since inception. Our net losses were $174.0 million and $118.0 million for the years ended December 31, 2022 and 2021, respectively, and $151.8 million for the nine months ended September 30, 2023. As of September 30, 2023, we had an accumulated deficit of $510.3 million. We expect our expenses and operating losses will increase substantially as we conduct our ongoing and planned preclinical studies and clinical trials, continue our research and development activities, utilize third parties to manufacture our product candidates and related raw materials, hire additional personnel and protect our intellectual property. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our preclinical studies and clinical trials and our expenditures on other research and development activities, as well as the generation of any collaboration and services revenue.

Based upon our current operating plans, we believe that our existing cash, cash equivalents and marketable securities of $542.6 million will be sufficient to fund our operations for at least 12 months from the date of the filing of this Form 10-Q. While we may generate revenue under our current and/or future collaboration agreements, we do not expect to generate any revenues from product sales until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take a number of years and may never occur. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Accordingly, until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including potential collaborations, licenses and other arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed, on favorable terms or at all. Our failure to raise capital or enter into such other arrangements when needed would have a negative impact on our financial condition and could force us 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.

Research Collaboration and License Agreement with Eli Lilly and Company

In April 2019, we entered into a Research Collaboration and License Agreement, or the Lilly Agreement, with Eli Lilly and Company, or Lilly, for the discovery, development and commercialization of AOC products in immunology and other select indications on a worldwide basis. Under the Lilly Agreement, we and Lilly will collaborate on preclinical research and discovery activities for such products, with Lilly being responsible for funding the cost of such activities by both parties. Lilly will also lead the clinical development, regulatory approval and commercialization of all such products, at its sole cost. We granted Lilly an exclusive, worldwide, royalty-bearing license, with the right to sublicense, under our technology to research, develop, manufacture, and sell products containing AOCs that are directed to up to six mRNA targets. We retain the right to use our technology to perform our obligations under the agreement and for all purposes not granted to Lilly. Lilly paid us an upfront license fee of $20.0 million in 2019, and we are eligible to receive up to $60.0 million in development milestone payments per target, up to $140.0 million in regulatory milestone payments per target and up to $205.0 million in commercialization milestone payments per target. We are eligible to receive a tiered royalty ranging from the mid-single to low-double digits from Lilly on worldwide annual net sales of licensed products, subject to specified and capped reductions for the market entry of biosimilar products, loss of patent coverage of licensed products and for payments owed to third parties for additional rights necessary to commercialize licensed products in the territory.

Components of Results of Operations

Revenue

Our revenue to date has been derived from payments received under the Lilly Agreement and other license and research collaboration agreements. For the foreseeable future, we may generate revenue from reimbursements of services under the Lilly Agreement, as well as a combination of upfront payments and milestone payments under our current and/or future collaboration agreements. We do not expect to generate any revenue from the sale of products unless and until such time that our product candidates have advanced through clinical development and regulatory approval, if ever. We expect that any revenue we generate, if at all, will fluctuate from quarter-to-quarter as a result of the timing and amount of payments relating to such services and milestones and the extent to which any of our products are approved and successfully commercialized. If

we fail to complete preclinical and clinical development of product candidates or obtain regulatory approval for them, our ability to generate future revenues and our results of operations and financial position would be adversely affected.

Operating Expenses

Research and Development

Research and development expenses consist of external and internal costs associated with our research and development activities, including our discovery and research efforts, and the preclinical and clinical development of our product candidates. Our research and development expenses include:

- external costs, including expenses incurred under arrangements with third parties, such as contract research organizations, contract manufacturers, consultants and our scientific advisors; and
- internal costs, including;
  - employee-related expenses, including salaries, benefits and stock-based compensation;
  - the costs of laboratory supplies and acquiring, developing and manufacturing preclinical study materials; and
  - facilities, information technology and depreciation, which include direct and allocated expenses for rent and maintenance of facilities and depreciation of leasehold improvements and equipment.

Research and development costs, including costs reimbursed under the Lilly Agreement, are expensed as incurred, with reimbursements of such amounts being recognized as revenue. We account for nonrefundable advance payments for goods and services that will be used in future research and development activities as expenses when the service has been performed or when the goods have been received.

At any one time, we are working on multiple programs. Our internal resources, employees and infrastructure are not directly tied to any one research or drug discovery program and are typically deployed across multiple programs.

We expect our research and development expenses to increase for the foreseeable future as we continue to conduct our ongoing research and development activities, advance our preclinical research programs toward clinical development, including conducting IND-enabling studies, and conduct clinical trials. The process of conducting preclinical studies and clinical trials necessary to obtain regulatory approval is costly and time consuming. We may never succeed in achieving marketing approval for any of our product candidates.

The timelines and costs associated with research and development activities are uncertain, can vary significantly for each product candidate and development program, and are difficult to predict. We anticipate we will make determinations as to which programs to pursue and how much funding to direct to each program on an ongoing basis in response to preclinical and clinical results, regulatory developments, ongoing assessments as to each program's commercial potential, and our ability to maintain or enter into new collaborations, to the extent we determine the resources or expertise of a collaborator would be beneficial for a given program. We will need to raise substantial additional capital in the future. In addition, we cannot forecast which development programs may be subject to future collaborations, when such arrangements will be secured, if at all, and to what degree such arrangements would affect our development plans and capital requirements.

Our development costs may vary significantly based on factors such as:

- the number and scope of clinical, preclinical and IND-enabling studies;
- the timing and likelihood of resolution of the partial clinical hold on our ongoing Phase 1/2 MARINA clinical trial;
- per patient trial costs;
- the number of trials required for approval;
- the number of sites included in the trials;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible patients;
- the number of patients that participate in the trials;

- the number of doses that patients receive;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing our product candidates;
- the phase of development of our product candidates; and
- the efficacy and safety profile of our product candidates.

General and Administrative

General and administrative expenses consist primarily of employee-related expenses, including salaries, benefits and stock-based compensation, for employees in our executive, finance, accounting, legal, business development and support functions. Other general and administrative expenses include allocated facility, information technology and depreciation related costs not otherwise included in research and development expenses and professional fees for auditing, tax, intellectual property and legal services. Costs related to filing and pursuing patent applications are recognized as general and administrative expenses as incurred since recoverability of such expenditures is uncertain.

We expect our general and administrative expenses will increase for the foreseeable future to support our increased research and development activities and other corporate activities.

Other Income (Expense)

Other income (expense) consists primarily of interest earned on our cash, cash equivalents and marketable securities.

Results of Operations

Comparison of the Three and Nine Months Ended September 30, 2023 and 2022

The following table summarizes our results of operations for the periods presented (in thousands):

	Three Months Ended September 30,		Change	Nine Months Ended September 30,		Change
	2023	2022		2023	2022	
Revenue	$ 2,818	$ 2,482	$ 336	$ 7,367	$ 6,455	$ 912
Research and development expenses	47,714	37,317	10,397	138,151	104,794	33,357
General and administrative expenses	13,729	10,094	3,635	38,071	27,349	10,722
Other income	6,267	1,330	4,937	17,078	2,164	14,914

Revenue

Revenue increased by $0.3 million and $0.9 million for the three and nine months ended September 30, 2023 and 2022, respectively, primarily due to an increase in direct billable charges to Lilly under the Lilly Agreement.

Research and Development Expenses

The following tables illustrate the components of our research and development expenses for the periods presented (in thousands):

	Three Months Ended September 30,		Change	Nine Months Ended September 30,		Change
	2023	2022		2023	2022	
External costs:						
AOC 1001	$ 7,301	$ 6,146	$ 1,155	$ 18,477	$ 13,549	$ 4,928
AOC 1020	3,840	3,036	804	12,957	8,499	4,458
AOC 1044	5,195	1,496	3,699	12,887	6,741	6,146
Other programs	1,744	3,074	(1,330)	6,732	12,108	(5,376)
Unallocated	7,122	6,764	358	22,114	18,327	3,787
Total external costs	25,202	20,516	4,686	73,167	59,224	13,943
Internal costs:						
Employee-related expenses	17,102	12,299	4,803	50,075	33,472	16,603
Facilities, lab supplies and other	5,410	4,502	908	14,909	12,098	2,811
Total internal costs	22,512	16,801	5,711	64,984	45,570	19,414
Total research and development expenses	$ 47,714	$ 37,317	$ 10,397	$ 138,151	$ 104,794	$ 33,357

Research and development expenses increased by $10.4 million for the three months ended September 30, 2023 as compared to the same period in 2022, primarily due to higher external costs associated with the progression of clinical trials and preclinical studies as well as higher personnel costs, including increases of $3.3 million for salaries and benefits and $1.5 million for stock-based compensation. During the nine months ended September 30, 2023, we recorded an out of period adjustment that decreased external research and development expenses and accrued clinical liabilities by $3.6 million, which relates to periods prior to 2023. Research and development expenses increased by $33.4 million for the nine months ended September 30, 2023 as compared to the same period in 2022. Excluding the adjustment, research and development expense increased $37.0 million primarily due to $17.5 million in higher external costs associated with the progression of clinical trials and preclinical studies, as well as higher personnel costs, including increases of $11.2 million for salaries and benefits, $5.4 million for stock-based compensation and $2.8 million in higher facilities and lab related overhead charges related to our research and development activities.

General and Administrative Expenses

General and administrative expenses increased by $3.6 million for the three months ended September 30, 2023 as compared to the same period in 2022, primarily due to higher personnel costs, including increases of $1.3 million for stock-based compensation and $0.8 million for salaries and benefits, as well as $1.3 million in higher professional fees to support our expanded operations. Similarly, general and administrative expenses increased by $10.7 million for the nine months ended September 30, 2023 as compared to the same period in 2022, primarily due to higher personnel costs, including increases of $3.2 million for stock-based compensation and $2.4 million for salaries and benefits, as well as increases of $4.2 million in professional fees to support our expanded operations.

Other Income

Other income increased by $4.9 million and $14.9 million for the three and nine months ended September 30, 2023 and 2022, respectively, due to higher interest income earned on marketable securities investments.

Liquidity and Capital Resources

Sources of Liquidity

In June 2020, we completed our IPO of 18,720,000 shares of our common stock, including exercise of the underwriters' option to purchase additional shares, at a price to the public of $18.00 per share. Our aggregate net proceeds from the offering were $274.1 million, net of underwriting discounts, commissions and offering costs. In August 2021, we completed a public offering of 9,200,000 shares of our common stock at a public offering price of $18.00 per share, for aggregate net proceeds of $155.1 million, after deducting underwriting discounts, commissions and offering costs.

In July 2021, we entered into a sales agreement (the 2021 Sales Agreement) with Cowen and Company, LLC (the Sales Agent), under which we may, from time to time, sell shares of common stock having an aggregate offering price of up to $150.0 million through the Sales Agent. Through its termination in November 2022, we sold 8,552,361 shares of our common stock pursuant to the 2021 Sales Agreement and received net proceeds of $140.6 million, after deducting offering-related transaction costs and commissions.

On November 8, 2022, we entered into a new sales agreement (the 2022 Sales Agreement) with the Sales Agent, with substantially similar terms as the 2021 Sales Agreement described above. Under the 2022 Sales Agreement, we may, from time to time, sell shares of our common stock having an aggregate offering price of up to $200.0 million through the Sales Agent. Upon entry into the 2022 Sales Agreement, the 2021 Sales Agreement was terminated. During the nine months ended September 30, 2023, we sold 4,107,810 shares of our common stock under the 2022 Sales Agreement and received net proceeds of $60.5 million, after deducting offering-related transaction costs and commissions. We sold no shares during the three months ended September 30, 2023.

On December 15, 2022, we completed a public offering of 13,800,000 shares of our common stock at a public offering price of $17.25 per share, for aggregate net proceeds of $223.8 million, after deducting underwriting discounts, commissions and offering costs.

Since our inception through September 30, 2023, other significant sources of capital raised to fund our operations were comprised of aggregate gross proceeds of $131.6 million from the sale and issuance of convertible preferred stock and convertible notes, and $42.3 million from funding under collaboration and research services agreements.

Future Capital Requirements

As of September 30, 2023, we had cash, cash equivalents and marketable securities of $542.6 million. Based upon our current operating plans, we believe that our existing cash, cash equivalents, and marketable securities will be sufficient to fund our operations for at least 12 months from the date of the filing of this Form 10-Q. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could deplete our capital resources sooner than we expect. Additionally, the process of conducting preclinical studies and testing product candidates in clinical trials is costly, and the timing of progress and expenses in these studies and trials is uncertain.

Our future capital requirements are difficult to forecast and will depend on many factors, including but not limited to:

- the type, number, scope, progress, expansions, results, costs, and timing of discovery, preclinical studies, and clinical trials of our product candidates that we are pursuing or may choose to pursue in the future, including the impact of any resolution of the partial clinical hold on our completed Phase 1/2 MARINA clinical trial;
- the costs and timing of manufacturing for our product candidates and commercial manufacturing if any product candidate is approved;
- the costs, timing, and outcome of regulatory review of our product candidates;
- the terms and timing of establishing and maintaining collaborations, licenses and other arrangements;

- the costs of obtaining, maintaining, and enforcing our patents and other intellectual property rights;
- the costs associated with hiring additional personnel and consultants as our preclinical and clinical activities increase;
- the timing and amount of the milestone or other payments made to us under the Lilly Agreement or any future collaboration agreements;
- the costs and timing of establishing or securing sales and marketing capabilities if any product candidate is approved;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products; and
- costs associated with any products or technologies that we may in-license or acquire.

While we may generate revenue under our current and/or future collaboration agreements, we do not expect to generate any revenues from product sales until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take a number of years and may never occur. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Accordingly, until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including current and potential future collaborations, licenses and other arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed, on favorable terms or at all. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Our failure to raise capital or enter into such other arrangements when needed would have a negative impact on our financial condition and could force us 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.

Cash Flows

The following table summarizes our cash flows for the periods presented (in thousands):

	Nine Months Ended September 30,		Change
	2023	2022	
Net cash provided by (used in):			
Operating activities	$ (135,565)	$ (97,079)	$ (38,486)
Investing activities	(181,110)	(182,187)	1,077
Financing activities	61,973	102,517	(40,544)
Net decrease in cash, cash equivalents and restricted cash	$ (254,702)	$ (176,749)	$ (77,953)

Operating Activities

Net cash used in operating activities of $135.6 million and $97.1 million for the nine months ended September 30, 2023 and 2022, respectively, consisted primarily of cash used to fund our operations related to the development of AOC 1001, AOC 1044, AOC 1020 and other programs. The increase is due to increased research and development costs as well as general and administrative expenses as described under “Results of Operations” above.

Investing Activities

Net cash used in investing activities of $181.1 million for the nine months ended September 30, 2023 consisted primarily of $407.2 million for purchases of marketable securities due to investing the proceeds from the sale of common stock of $223.8 million in December 2022 and reinvestment of proceeds from matured marketable securities as well as $3.4 million in purchases of property and equipment, offset by $229.5 million of proceeds from maturities of marketable securities. Net cash used in investing activities of $182.2 million for the

nine months ended September 30, 2022 consisted of $266.2 million for purchases of marketable securities and $2.0 million in purchases of property and equipment, partially offset by $86.0 million of proceeds from maturities of marketable securities.

Financing Activities

Net cash provided by financing activities of $62.0 million for the nine months ended September 30, 2023 consisted primarily of net proceeds from sales of our common stock made pursuant to the 2022 Sales Agreement. Net cash provided by financing activities of $102.5 million for the nine months ended September 30, 2022 consisted primarily of net proceeds from sales of our common stock made pursuant to the 2021 Sales Agreement.

Critical Accounting Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our condensed financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP. The preparation of these condensed financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses. On an ongoing basis, we evaluate these estimates and judgments. We base our estimates on historical experience and on various assumptions that we believe to be reasonable under the circumstances. These estimates and assumptions form the basis for making judgments about the carrying values of assets and liabilities and the recording of revenue and expenses that are not readily apparent from other sources. Actual results may differ materially from these estimates. As of September 30, 2023, there have been no material changes to our critical accounting estimates from those disclosed in "Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies and Estimates," included in our annual report on Form 10-K for the year ended December 31, 2022 filed with the SEC on February 28, 2023.

Contractual Obligations and Commitments

As of September 30, 2023, there have been no material changes outside the ordinary course of our business to the contractual obligations we reported in "Management's Discussion and Analysis of Financial Condition and Results of Operations – Contractual Obligations and Commitments," included in our annual report on Form 10-K for the year ended December 31, 2022 filed with the SEC on February 28, 2023.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As of September 30, 2023, there have been no material changes in our market risk from that described in “Quantitative and Qualitative Disclosures About Market Risk,” included in our annual report on Form 10-K for the year ended December 31, 2022 filed with the SEC on February 28, 2023.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our periodic and current reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable and not absolute assurance of achieving the desired control objectives. In reaching a reasonable level of assurance, management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. In addition, the design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated, as of the end of the period covered by this quarterly report on Form 10-Q, the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Based on such evaluation, our principal executive officer and principal financial officer have concluded that, as of September 30, 2023, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting during the quarter ended September 30, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We are not currently subject to any material legal proceedings. From time to time, we may be involved in legal proceedings or subject to claims incident to the ordinary course of business. Regardless of the outcome, such proceedings or claims can have an adverse impact on us because of defense and settlement costs, diversion of resources and other factors, and there can be no assurances that favorable outcomes will be obtained.

ITEM 1A. RISK FACTORS

We do not believe that there have been any material changes to the risk factors set forth in Part I, Item 1A of our annual report on Form 10-K for the year ended December 31, 2022 filed with the SEC on February 28, 2023, other than as previously reported in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2023 filed with the SEC on May 9, 2023. The risk factors described in such reports are not the only risks we face. Factors that are not currently known to us, factors that we currently consider immaterial or factors that are not specific to us, such as general economic conditions, may also materially adversely affect our business or financial condition.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Unregistered Sales of Equity Securities

None.

Use of Proceeds

As of September 30, 2023, we have used all of the approximately $274.1 million in net proceeds from our IPO for general corporate purposes, including the advancement of our development programs consistent with our planned use of such proceeds as described in the prospectus for our IPO dated June 11, 2020.

Issuer Repurchases of Equity Securities

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

Rule 10b5-1 Trading Arrangements

From time to time, our officers (as defined in Rule 16a–1(f)) and directors may enter into Rule 10b5-1 or non-Rule 10b5-1 trading arrangements (as each such term is defined in Item 408 of Regulation S-K). During the

three months ended September 30, 2023, our officers and directors took the following actions with respect to 10b5-1 trading arrangements:

			Trading Arrangement			
	Action	Date	Rule 10b5-1	Non-Rule 10b5-1	Total Shares to be Sold	Expiration Date
Sarah Boyce (President, Chief Executive Officer and Director)	Adopt	9/26/2023	X		(1)	(2)
Michael MacLean (Chief Financial and Chief Business Officer)	Adopt	9/27/2023	X		(1)	(2)
Michael Flanagan (Chief Scientific and Technical Officer)	Adopt	9/26/2023	X		(1)	(2)
Teresa McCarthy (Chief Human Resources Officer)	Adopt	9/26/2023	X		(1)	(2)
Arthur Levin, Ph.D.(Distinguished Scientist and Strategic Leader; Director)	Adopt	9/27/2023	X		(1)	(2)

(1) Under our 2020 Incentive Award Plan, recipients of RSUs and PSUs are required to sell a number of shares that satisfies applicable tax withholding obligations upon a taxable event such as a vesting date. Each participant listed in this table has executed an instruction letter to our broker for the sale of such minimum number of shares, at the then-applicable market price, sufficient to cover applicable tax withholding obligations, at the statutory minimum applicable statutory rate, for each such person. These instruction letters qualify as Rule 10b5-1 trading arrangements but may exist concurrent with another 10b5-1 trading arrangement for the same individual, as permitted by Rule 10b5-1(c)(1)(ii)(D)(3) under the Exchange Act.

(2) These instruction letters shall remain in effect for so long as the individual owns RSUs or PSUs.

Item 6. Exhibits

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Date	Number	
3.1	Amended and Restated Certificate of Incorporation	8-K	6/16/2020	3.1	
3.2	Amended and Restated Bylaws	8-K	6/16/2020	3.2	
4.1	Form of Common Stock Certificate	S-1	5/22/2020	4.1	
31.1	Certification of Chief Executive Officer of Avidity Biosciences, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
31.2	Certification of Chief Financial Officer of Avidity Biosciences, Inc., as required by Rule 13a-14(a) or Rule 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.				X
32.1*	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
32.2*	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.				X
101.INS	Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document.				X
101.SCH	Inline XBRL Taxonomy Extension Schema Document				X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document				X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document				X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document				X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document				X
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)				X

* This certification is deemed not filed for purpose of section 18 of the Exchange Act or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

SIGNATURES

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.

Avidity Biosciences, Inc.

Date: November 8, 2023

By: /s/ Sarah Boyce

Sarah Boyce
President, Chief Executive Officer and Director
(Principal Executive Officer)

Date: November 8, 2023

By: /s/ Michael F. MacLean

Michael F. MacLean
Chief Financial and Chief Business Officer
(Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Sarah Boyce, certify that:

1.I have reviewed this quarterly report on Form 10-Q of Avidity Biosciences, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 8, 2023

/s/ Sarah Boyce

Sarah Boyce

President, Chief Executive Officer and Director

(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Michael F. MacLean, certify that:

1.I have reviewed this quarterly report on Form 10-Q of Avidity Biosciences, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 8, 2023

/s/ Michael F. MacLean

Michael F. MacLean

Chief Financial and Chief Business Officer

(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the quarterly report of Avidity Biosciences, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Sarah Boyce, President, Chief Executive Officer and Director of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

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

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

Date: November 8, 2023

/s/ Sarah Boyce

Sarah Boyce

President, Chief Executive Officer and Director

(Principal Executive Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the quarterly report of Avidity Biosciences, Inc. (the "Company") on Form 10-Q for the quarter ended September 30, 2023, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael F. MacLean, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

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

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

Date: November 8, 2023

/s/ Michael F. MacLean
Michael F. MacLean
Chief Financial and Chief Business Officer
(Principal Financial Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Report or as a separate disclosure document.