

As filed with the Securities and Exchange Commission on April 3, 2024.

Registration No. 333-

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

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

APREA THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

84-2246769
(I.R.S. Employer
Identification Number)

**3805 Old Easton Road
Doylestown, PA 18902
(617) 463-9385**

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Oren Gilad, Ph.D.
President and Chief Executive Officer
Aprea Therapeutics, Inc.
3805 Old Easton Road
Doylestown, PA 18902
(617) 463-9385

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

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

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

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

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

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

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

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

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to such Section 8(a), may determine.

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

Subject to Completion, Dated April 3, 2024

PROSPECTUS



APREA THERAPEUTICS

APREA THERAPEUTICS, INC.

4,389,576 Shares of Common Stock

This prospectus relates to the possible resale, from time to time, by the selling stockholders identified in this prospectus of up to (i) 1,687,712 shares of our common stock, par value \$0.001 per share (the “Common Stock”), initially issued in a private placement on March 13, 2024 (the “Private Placement”), (ii) 507,076 shares of Common Stock underlying pre-funded warrants issued in the Private Placement, (iii) 1,097,394 shares of Common Stock underlying Tranche A common stock purchase warrants issued in the Private Placement, and (iv) 1,097,394 shares of Common Stock underlying Tranche B common stock purchase warrants issued in the Private Placement.

The selling stockholders may offer the shares from time to time as each selling stockholder may determine through public or private transactions or through other means described in the section entitled “Plan of Distribution” or a supplement to this prospectus. Each selling stockholder may also sell shares under Rule 144 under the Securities Act of 1933, as amended, if available, rather than under this prospectus.

The registration of these shares does not necessarily mean that any holders will sell any of their shares or exercise their warrants. We are not offering for sale any shares of our Common Stock pursuant to this prospectus. We will not receive any proceeds from the sale of these shares. We will, however, receive cash proceeds equal to the total exercise price of warrants that are exercised for cash.

Our common stock is listed on the Nasdaq Capital Market under the symbol “APRE.” On April 2, 2024, the last reported sale price of our common stock was \$6.60.

We are an “emerging growth company” and a “smaller reporting company” under federal securities laws and as such, have elected to comply with reduced public company reporting requirements for this prospectus and the documents incorporated by reference herein and may elect to comply with reduced public company reporting requirements in future filings. See “Summary — Implications of Being an Emerging Growth Company and Smaller Reporting Company.”

Investing in our securities involves significant risks. We strongly recommend that you read carefully the risks we describe in this prospectus and in any accompanying prospectus supplement, as well as the risk factors that are incorporated by reference into this prospectus from our filings made with the Securities and Exchange Commission. See “Risk Factors” on page 4 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2024

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You should rely only on the information contained in or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different or additional information. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock. Our business, financial condition, results of operations and prospects may have changed materially since such date.

The terms “Aprea,” the “Company,” “our,” “us” and “we,” as used in this prospectus, refer to Aprea Therapeutics, Inc., unless we state otherwise or the context indicates otherwise.

PROSPECTUS SUMMARY

PROSPECTUS SUMMARY

The following summary highlights information contained elsewhere in this prospectus. It may not contain all of the information that is important to you. You should read the entire prospectus carefully, especially the discussion regarding the risks of investing in our securities under the heading “Risk Factors,” before investing in our securities. All references to “Company” “we,” “our” or “us” refer solely to Aprea Therapeutics, Inc. and its subsidiaries and not to the persons who manage us or sit on our Board of Directors.

Overview

We are a clinical-stage biopharmaceutical company focused on precision oncology through synthetic lethality. Our approach is built upon a platform of integrated discovery technologies to enrich our pipeline with novel targets in synthetic lethality and cancer treatment. Together with our expertise in small molecule drug discovery, we are applying the capabilities of our discovery platform to the development of new precision oncology therapies and the identification of patient populations most likely to benefit.

Aprea Therapeutics AB was originally incorporated in 2002 and commenced principal operations in 2006. On September 20, 2019, we consummated a reorganization, pursuant to which all of the issued and outstanding stock and options of Aprea Therapeutics AB were exchanged for common stock, preferred stock or options, as applicable, of Aprea Therapeutics, Inc. As a result, Aprea Therapeutics AB became a wholly-owned subsidiary of Aprea Therapeutics, Inc.

On May 16, 2022, we acquired Atrin Pharmaceuticals Inc. (“Atrin”), in accordance with the terms of the Agreement and Plan of Merger dated May 16, 2022 (the “Merger Agreement”), by and among us, ATR Merger Sub I Inc., a Delaware corporation and our wholly owned subsidiary (“First Merger Sub”), ATR Merger Sub II LLC, a Delaware limited liability company and wholly owned subsidiary of Aprea (“Second Merger Sub”) and Atrin. Pursuant to the Merger Agreement, First Merger Sub merged with and into Atrin, pursuant to which Atrin was the surviving corporation and became a wholly owned subsidiary of Aprea (the “First Merger”). Immediately following the First Merger, Atrin merged with and into the second Merger Sub, pursuant to which Second Merger Sub was the surviving entity. The former Atrin business is now our business.

We believe that synthetic lethality has the potential to impact patients’ lives and treatment strategies for a wide range of cancer types. We aspire to become a leader in this emerging field and are establishing a pipeline of clinical and preclinical programs that we believe may have broad application to cancer treatment.

Our most advanced synthetic lethality product candidate is ATRN-119, a clinical-stage small molecule inhibitor of ataxia telangiectasia and Rad3-related, or ATR, a kinase that plays a critical role in DDR. ATR is one of several key regulators of the response to defective DNA replication and DNA damage, which occurs more commonly in cancer cells than in normal cells. We are enrolling patients into a Phase 1/2a clinical trial to evaluate ATRN-119 under an investigational new drug application, or IND. The first four dose cohorts have been completed, and patients with advanced solid tumors having mutations in defined DDR-related genes continue to be enrolled into additional cohorts of the Phase 1 dose escalation part of the trial. The primary endpoint of this Phase 1 part is to evaluate the tolerability and pharmacokinetics of ATRN-119 when administered orally on a continuous, once-daily schedule. We anticipate ATRN-119 Phase 1 readout to be available in the first quarter of 2025.

We have several additional, wholly owned synthetic lethality programs. We are targeting WEE1, a kinase that is a key regulator of multiple phases of the cell cycle. Our lead WEE1 inhibitor product candidate is APR-1051. In March 2024, the FDA cleared our IND application for APR-1051. In addition, we also have an early preclinical research program, which is currently in the lead optimization stage, for an undisclosed DDR target.

In addition to development of these drugs as single agents, we are evaluating potential expansion opportunities for our product candidates through combination with other agents such as poly (ADP-ribose) polymerase inhibitors, or PARPi, where we believe a combination of therapeutic agents may enhance

synthetic lethality. We are also evaluating combination opportunities within our pipeline, including research on the combination of ATRN-119 and APR-1051 that is supported by a Phase II SBIR grant from the National Cancer Institute.

Prior to the acquisition of Atrin, we were engaged in the clinical development of cancer therapeutics that reactivate the mutant p53 tumor suppressor protein. Our lead product candidate was APR-246, or eprenetapopt. Following our failed pivotal Phase 3 trial in December 2020, we engaged in a thorough evaluation of strategic options leading to the acquisition of Atrin and shifting our focus to the Atrin assets. We do not currently have any ongoing preclinical studies or clinical trials involving our reactivators of mutant p53 and our primary focus is on the discovery and development of molecules targeting DDR pathways in oncology through synthetic lethality.

We have assembled a team with extensive experience in the discovery, development and commercialization of oncology drugs to support our mission of developing novel synthetic lethality-based cancer therapeutics.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

We are an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. We may take advantage of certain exemptions from various public company reporting requirements, including not being required to have our internal control over financial reporting audited by our independent registered public accounting firm under Section 404 of the Sarbanes-Oxley Act of 2002 reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and any golden parachute payments. We may take advantage of these exemptions until December 31, 2024 or until we are no longer an “emerging growth company,” whichever is earlier. We will cease to be an emerging growth company prior to the end of such period if certain earlier events occur, including if we become a “large accelerated filer” as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or Exchange Act, our annual gross revenues exceed \$1.235 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This provision allows an emerging growth company to delay the adoption of accounting standards that have different effective dates for public and private companies until those standards would otherwise apply to private companies. We have not elected to avail ourselves of this exemption and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not “emerging growth companies.”

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

Corporate Information

Our principal executive offices are located at 3805 Old Easton Road, Doylestown, Pennsylvania 18902, and our telephone number is (617) 463-9385. Our website address is www.aprea.com. The information contained on or accessible through our website is not incorporated by reference into this prospectus, and you should not consider any information contained on, or that can be accessed through, our website as part of this prospectus or in deciding whether to purchase our common stock.

Our filings with the SEC are posted on our website at www.aprea.com. Other than the specifically incorporated SEC filings, the information found on or accessible through our website is not part of this or any other report we file with or furnish to the SEC. The public can also obtain copies of these filings by accessing the SEC’s website at <http://www.sec.gov>.

THE OFFERING

We are registering for resale by the selling stockholders named herein an aggregate of 4,389,576 shares of our Common Stock as described below.

Securities being offered:	4,389,576 shares of our Common Stock, including (i) 1,687,712 shares of Common Stock issued to the selling stockholders in the Private Placement, (ii) 507,076 shares of Common Stock underlying pre-funded warrants issued in the Private Placement, (iii) 1,097,394 shares of Common Stock underlying Tranche A common stock purchase warrants issued to the selling stockholders in the Private Placement, and (iv) 1,097,394 shares of Common Stock underlying Tranche B common stock purchase warrants issued to the selling stockholders in the Private Placement.
Use of proceeds:	We will not receive any of the proceeds from the sale or other disposition of shares of our Common Stock by the selling stockholders. We may receive proceeds upon any exercise for cash of outstanding warrants, in which case such proceeds will be used for clinical trials, for working capital and other general corporate purposes. See “Use of Proceeds” on page 7 .
Market for common stock:	Our Common Stock is listed on The Nasdaq Capital Market under the symbol “APRE.” On April 2, 2024, the last reported sale price of our Common Stock on The Nasdaq Capital Market was \$6.60. The warrants issued in the Private Placement are not listed on Nasdaq, any national securities exchange or any other nationally recognized trading system.
Risk Factors	Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page 4 of this prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus, for a discussion of information that should be considered in connection with an investment in our securities.

RISK FACTORS

Investing in our securities involves risk. You should carefully consider the specific risks discussed or incorporated by reference into the applicable prospectus supplement, together with all the other information contained in the prospectus or incorporated by reference into this prospectus and the applicable prospectus supplement. You should also consider the risks, uncertainties and assumptions discussed under the caption "Risk Factors" included in our [Annual Report on Form 10-K for the year ended December 31, 2023](#), and in subsequent filings, which are incorporated by reference into this prospectus. These risk factors may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future or by a prospectus supplement relating to a particular offering of our securities. These risks and uncertainties are not the only risks and uncertainties we face. Additional risks and uncertainties not presently known to us, or that we currently view as immaterial, may also impair our business. If any of the risks or uncertainties described in our SEC filings or any prospectus supplement or any additional risks and uncertainties actually occur, our business, financial condition and results of operations could be materially and adversely affected. In that case, the trading price of our securities could decline and you might lose all or part of your investment.

A sale of a substantial number of shares of common stock by the selling stockholders could cause the price of our common stock to decline.

The securities that may be resold by the selling stockholders pursuant to this prospectus and without regard to beneficial ownership limitations contained in the warrants, represent a material portion of the total outstanding shares of our common stock as of April 2, 2024, and, following the effectiveness of the registration statement of which this prospectus forms a part, such securities may be sold by the selling stockholders in the public market without restriction. If the selling stockholders sell, or the market perceives that the selling stockholders intend to sell for various reasons, substantial amounts of such securities in the public market, the price of our Common Stock may decline. Additionally, such conditions may make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem reasonable or appropriate.

FORWARD-LOOKING STATEMENTS

This prospectus includes and incorporates by reference “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 and releases issued by the SEC and within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act. All statements other than statements of historical fact are “forward-looking statements” for purposes of this prospectus. In some cases, you can identify forward-looking statements by terminology such as “may,” “could,” “will,” “would,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “intend,” “predict,” “seek,” “contemplate,” “project,” “continue,” “potential,” “ongoing,” “goal,” or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- our ability to continue to operate as an integrated company subsequent to our acquisition of Atrin Pharmaceuticals Inc.;
- estimates of our expenses, capital requirements and our needs for additional financing;
- business interruptions, including delays in enrollment, patient follow-up and data collection of clinical trials, resulting from a public health emergency or pandemic;
- the prospects of our product candidates, all of which are still in development;
- outcome and results of ongoing or future preclinical studies and clinical trials of our product candidates;
- our expectations regarding our ability to identify, discover or acquire additional suitable product candidates;
- the design of our ongoing and planned clinical trials, including the sample size, trial duration, endpoint definition, event rate assumptions and eligibility criteria;
- our ability to enroll patients in clinical trials, to timely and successfully complete those trials and to receive necessary regulatory approvals;
- our expectations regarding the timing of initiation of data readout from our clinical trials;
- market acceptance or commercial success of any product candidate we develop and the degree of acceptance among physicians, patients, patient advocacy groups, healthcare payors and the medical community;
- our expectations regarding competition, potential market size, the size of the patient populations for our product candidates, if approved for commercial use, and market acceptance;
- our ability to obtain regulatory approval of our product candidates, and any restrictions, limitations and/or warnings in their labels, if approved;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates;
- potential claims relating to our intellectual property and third-party intellectual property;
- the duration of our intellectual property estate that will provide protection for our product candidates;
- developments relating to our competitors and our industry;
- our sales, marketing or distribution capabilities and our ability to commercialize our product candidates, if we obtain regulatory approval;
- current and future agreements with third parties in connection with conducting clinical trials, as well as the manufacturing of our product candidates;
- our expectations regarding the ability of our current contract manufacturing partners to produce our product candidates in the quantities and timeframe that we will require;
- our expectations regarding our future costs of goods;
- our ability to attract, retain and motivate key personnel and increase the size of our organization;

- our ability to establish collaborations in lieu of obtaining additional financing;
- the impact of government laws and regulations;
- our financial performance; and
- our expectations regarding the time during which we will be an emerging growth company under the JOBS Act or a smaller reporting company under the Exchange Act.

These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. In evaluating such forward-looking statements, you should specifically consider various factors that may cause actual results to differ materially from current expectations, including the risks outlined under the heading “Risk Factors” contained in this prospectus and any related free writing prospectus, and in any other documents incorporated herein or therein. Any forward-looking statement in this prospectus reflects our current view with respect to future events and is subject to these and other risks, uncertainties and assumptions relating to our operations, results of operations, industry and future growth. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

This prospectus and the documents incorporated by reference, may also contain estimates, projections and other information concerning our industry, our business and the markets for certain drugs, including data regarding the estimated size of those markets, their projected growth rates and the incidence of certain medical conditions. Information that is based on estimates, forecasts, projections or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances reflected in this information. Unless otherwise expressly stated, we obtained these industry, business, market and other data from reports, research surveys, studies and similar data prepared by third parties, industry, medical and general publications, government data and similar sources. In some cases, we do not expressly refer to the sources from which these data are derived.

USE OF PROCEEDS

We will receive no proceeds from the sale of shares of Common Stock by the selling stockholders.

A portion of the shares of Common Stock covered by this prospectus are issuable upon exercise of warrants issued to the selling stockholders. The exercise price of the outstanding warrants is \$7.29 per share with respect to the Tranche A common stock purchase warrants, \$9.1125 with respect to the Tranche B common stock purchase warrants and \$0.001 with respect to the pre-funded warrants. The exercise price and number of shares of Common Stock issuable upon exercise of the warrants may be adjusted in certain circumstances, including stock splits or dividends, mergers, or reclassifications or similar events. Upon any exercise of outstanding warrants, the applicable selling stockholders will pay us the exercise price.

To the extent we receive proceeds from the cash exercise of outstanding warrants, we intend to use the proceeds to support our operations, including for clinical trials, for working capital and for other general corporate purposes. We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes.

The amounts and timing of our actual expenditures will depend on numerous factors, including the progress of our clinical trials, as well as the amount of cash used in our operations. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of any net proceeds from warrant exercises.

Based upon our historical and anticipated future growth and our financial needs, we may engage in additional financings of a character and amount that we determine as the need arises. We may raise additional capital through additional public or private financings, strategic partnerships, the incurrence of debt and other available sources.

SELLING STOCKHOLDERS

On March 11, 2024, we entered into a securities purchase agreement with certain institutional investors, pursuant to which we issued and sold to the investors (i) 1,687,712 shares of Common Stock, (ii) pre-funded Common Stock purchase warrants to purchase an aggregate of up to 507,076 shares of Common Stock at an exercise price of \$0.001 per share, (iii) Tranche A Common Stock purchase warrants to purchase up to 1,097,394 shares of Common Stock at an exercise price of \$7.29 per share, and (iv) Tranche B Common Stock purchase warrants to purchase up to 1,097,394 shares of Common Stock at an exercise price of \$9.1125 per share. The combined cash purchase price for each share of Common Stock, together with the accompanying portion of a Tranche A Warrant and Tranche B Warrant represents the “Minimum Price” in accordance with Nasdaq Listing Rule 5635(d). The closing of the Private Placement occurred on March 13, 2024 (the “Closing Date”).

The Tranche A Warrants will be exercisable until the earlier of (i) the three year anniversary of issuance and (ii) 30 days after we announce the recommended Phase 2 dose for ATRN-119, and, following such announcement, the daily volume weighted average price of the Company’s common stock equals or exceeds \$14.58 for 30 consecutive trading days. The Tranche B Warrants will be exercisable until the earlier of (i) the five year anniversary of issuance and (ii) 30 days after we announce the recommended Phase 2 dose for APR-1051 and, following such announcement, the daily volume weighted average price of our Common Stock equals or exceeds \$18.225 for 30 consecutive trading days. To the extent that the exercise of a Tranche A Warrant or Tranche B Warrant would result in the holder beneficially owning greater than 4.99% (or, at the election of the holder, greater than 9.99%) of our outstanding common stock immediately following such exercise, the holder will instead receive pre-funded warrants in substantially the same form as the Pre-Funded Warrants issued at closing.

The Pre-Funded Warrants will be exercisable from the date of issuance until exercised in full and may not be exercised to the extent that immediately following such exercise, the holder would beneficially own greater than 4.99% (or, at the election of the holder, greater than 9.99%) of our outstanding common stock.

In connection with the Private Placement, we and the investors entered into a Registration Rights Agreement, dated March 11, 2024 (the “Registration Rights Agreement”), which required us to file a registration statement registering the resale of the securities issued in the Private Placement and issuable upon exercise of the warrants issued in the Private Placement on or prior to the 60th day after the Closing Date.

This prospectus relates to the resale of up to (i) 1,687,712 shares of Common Stock, (ii) 507,076 shares of Common Stock underlying pre-funded warrants, (iii) 1,097,394 shares of Common Stock underlying Tranche A warrants, and (iv) 1,097,394 shares of Common Stock underlying Tranche B warrants, in each case issued in the Private Placement. We are registering the shares of Common Stock in order to permit the selling stockholders to offer the shares for resale from time to time.

The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholders after the closing of the Private Placement as of March 13, 2024. The information in the table below with respect to the selling stockholders has been obtained from the selling stockholders. When we refer to the “selling stockholders” in this prospectus, we mean the selling stockholders listed in the table below as offering shares, as well as their respective transferees, pledgees or donees or other successors-in-interest. The selling stockholders may sell all, some or none of the shares of common stock subject to this prospectus. See “Plan of Distribution.”

Under the terms of the warrants, a selling stockholder may not exercise the warrants to the extent such exercise would cause such selling stockholder, together with its affiliates and attribution parties, to beneficially own a number of shares of Common Stock which would exceed 4.99% (or, at the election of such selling stockholder, 9.99%), of our then outstanding Common Stock following such exercise, excluding for purposes of such determination shares of Common Stock issuable upon exercise of such warrants which have not been exercised. The number of shares in the table below do not reflect these limitations.

The number of shares of common stock beneficially owned prior to the offering for each selling stockholder includes (i) all shares of common stock held by such selling stockholder as of March 13, 2024, (ii) all shares as to which such selling stockholder has the right to acquire within 60 days of March 13, 2024,

and (iii) all shares of common stock purchased by such selling stockholder in the Private Placement. The percentages of shares owned before and after the offering are based on 5,430,215 shares of common stock outstanding as of March 13, 2024, which includes the outstanding shares of common stock offered by this prospectus. In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, we deemed outstanding shares of common stock issuable upon the exercise of options and warrants held by that selling stockholder that are exercisable within 60 days of March 13, 2024. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to shares. Unless otherwise indicated below, to our knowledge, each selling stockholder named in the table has sole voting and investment power with respect to the shares of common stock beneficially owned by it, except to the extent authority is shared by spouses under applicable law. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for any selling stockholder named below.

Name of Selling Stockholder	Shares of Common Stock Beneficially Owned Prior to Private Placement		Maximum Number of shares of Common Stock to be Sold Pursuant to this Prospectus ⁽¹⁾	Shares of Common Stock to be Beneficially Owned After Private Offering ⁽²⁾	
	Number	Percentage		Number	Percentage
AIGH Investment Partners, LP ⁽³⁾	684,399	11.9%	422,268	262,131	4.80%
WVP Emerging Manager Onshore Fund, LLC – Optimized Equity Series ⁽⁴⁾	50,589	*	31,832	18,757	*
WVP Emerging Manager Onshore Fund, LLC – AIGH Series ⁽⁵⁾	176,724	3.2%	108,312	68,412	1.3%
Altium Growth Fund, LP ⁽⁶⁾	435,684	7.7%	435,684	—	*
DAFNA Lifescience LP ⁽⁷⁾	197,532	3.6%	197,532	—	*
DAFNA Lifescience Select LP ⁽⁸⁾	76,816	1.4%	76,816	—	*
Dellora Investments LP ⁽⁹⁾	411,520	7.3%	411,520	—	*
Worldwide Healthcare Partners LLC ⁽¹⁰⁾	274,348	4.9%	274,348	—	*
Nantahala Capital Partners Limited Partnership ⁽¹¹⁾	85,060	1.6%	85,060	—	*
NCP RFM LP ⁽¹²⁾	72,320	1.3%	72,320	—	*
Blackwell Partners LLC – Series A ⁽¹³⁾	254,140	4.6%	254,140	—	*
The Red Hook Fund LP ⁽¹⁴⁾	54,868	1.0%	54,868	—	*
Lytton-Kambra Foundation ⁽¹⁵⁾	274,348	4.9%	274,348	—	*
Sphera Biotech Master Fund LP ⁽¹⁶⁾	1,097,392	17.4%	1,097,392	—	*
Sphera Global Healthcare Master Fund ⁽¹⁷⁾	274,348	4.9%	274,348	—	*
Stonepine Capital, LP ⁽¹⁸⁾	274,348	4.9%	274,348	—	*
Bernd R. Seizinger, M.D., Ph.D. ⁽¹⁹⁾	42,940	*	13,720	29,220	*
Daniel E. Levy ⁽²⁰⁾	4,000	*	4,000	*	*
Eric Brown, Ph.D. ⁽²¹⁾	25,677	*	1,500	24,177	*
John B. Henneman III ⁽²²⁾	18,314	*	13,720	4,594	*
John P. Hamill ⁽²³⁾	15,950	*	2,020	13,930	*
Oren Gilad, Ph.D. ⁽²⁴⁾	333,001	6.1%	4,000	329,001	6.0%
Ze'ev Weiss ⁽²⁵⁾	18,924	*	5,480	13,444	*/%

* Less than 1%

- (1) Includes shares of Common Stock issuable upon exercise of warrants issued in the Private Placement determined as if the outstanding warrants were exercised in full as of the trading day immediately preceding the date this registration statement was initially filed with the SEC, each as of the trading day immediately preceding the applicable date of determination and all subject to adjustment as provided in the registration right agreement, without regard to any limitations on the exercise of the warrants.
- (2) We do not know when or in what amounts a selling stockholder may offer shares for sale. The selling stockholders might not sell any or might sell all of the shares offered by this prospectus. Because the selling stockholders may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of the shares that will be held by the selling stockholders after completion of the offering. However, for purposes of this table, we have assumed that, after completion of the offering, none of the shares covered by this prospectus will be held by the selling stockholders.
- (3) AIGH Investment Partners, LP holds (i) 119,928 shares of common stock issued in the Private Placement, (ii) pre-funded warrants issued in the Private Placement to purchase 91,206 shares of common stock, (iii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 105,567 shares of common stock, (iv) Tranche B common stock purchase warrants issued in the Private Placement to purchase 105,567 shares of common stock, and (v) 262,131 additional shares of common stock. AIGH Capital Management, LLC serves as an advisor or sub-advisor with respect to shares securities held by AIGH Investment Partners, LP. Orin Hirschman is the Managing Member of AIGH Capital Management, LLC. The principal place of business of AIGH Investment Partners, LP is 6006 Berkeley Avenue, Baltimore, MD 21209.
- (4) WVP Emerging Manager Onshore Fund, LLC — Optimized Equity Series holds (i) 15,916 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 7,958 shares of common stock, (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 7,958 shares of common stock, and (iv) 18,757 additional shares of common stock. AIGH Capital Management, LLC serves as an advisor or sub-advisor with respect to shares securities held by WVP Emerging Manager Onshore Fund, LLC — Optimized Equity Series. Orin Hirschman is the Managing Member of AIGH Capital Management, LLC. The principal place of business of WVP Emerging Manager Onshore Fund, LLC — Optimized Equity Series is 6006 Berkeley Avenue, Baltimore, MD 21209.
- (5) WVP Emerging Manager Onshore Fund, LLC — AIGH Series holds (i) 54,156 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 27,078 shares of common stock, (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 27,078 shares of common stock, and (iv) 68,412 additional shares of common stock. AIGH Capital Management, LLC serves as an advisor or sub-advisor with respect to shares securities held by WVP Emerging Manager Onshore Fund, LLC — AIGH Series. Orin Hirschman is the Managing Member of AIGH Capital Management, LLC. The principal place of business of WVP Emerging Manager Onshore Fund, LLC — AIGH Series is 6006 Berkeley Avenue, Baltimore, MD 21209.
- (6) Altium Growth Fund, LP holds (i) 217,842 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 108,921 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 108,921 shares of common stock. Altium Capital Management, LP, the investment manager of Altium Growth Fund, LP, has voting and investment power over these securities. Jacob Gottlieb is the managing member of Altium Capital Growth GP, LLC, which is the general partner of Altium Growth Fund, LP. Each of Altium Growth Fund, LP and Jacob Gottlieb disclaims beneficial ownership over these securities. The principal address of Altium Capital Management, LP is 152 West 57th Street, 20th Floor, New York, NY 10019.
- (7) DAFNA Lifescience LP holds (i) 98,766 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 49,383 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private

Placement to purchase 49,383 shares of common stock. DAFNA Capital Management LLC is the sole general partner of DAFNA LifeScience LP. The Chief Executive Officer and Chief Investment Officer of DAFNA Capital Management LLC are Dr. Nathan Fischel and Dr. Fariba Ghodsian, respectively. These individuals may be deemed to have shared voting and investment power of the shares held by DAFNA LifeScience LP. Each of Dr. Fischel and Dr. Ghodsian disclaim beneficial ownership of such shares, except to the extent of his or her pecuniary interest therein.

- (8) DAFNA Lifescience Select LP holds (i) 38,408 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 19,204 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 19,204 shares of common stock. DAFNA Capital Management LLC is the sole general partner of DAFNA LifeScience Select LP. The Chief Executive Officer and Chief Investment Officer of DAFNA Capital Management LLC are Dr. Nathan Fischel and Dr. Fariba Ghodsian, respectively. These individuals may be deemed to have shared voting and investment power of the shares held by DAFNA LifeScience Select LP. Each of Dr. Fischel and Dr. Ghodsian disclaim beneficial ownership of such shares, except to the extent of his or her pecuniary interest therein.
- (9) Dellora Investments LP holds (i) 205,760 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 102,880 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 102,880 shares of common stock. Kevin Pyun, Managing Partner of Dellora Investments LP has voting and investment power over the shares held by Dellora Investments LP. The business address of each of Dellora Investments LP and Kevin Pyun is 283 Greenwich Ave., 3rd Floor, Greenwich, CT 06830.
- (10) Worldwide Healthcare Partners LLC holds (i) 137,174 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock. Samuel D. Isaly, Managing Member of Worldwide Healthcare Partners LLC, has voting and investment power over the shares held by Worldwide Healthcare Partners LLC. The business address of each of Worldwide Healthcare Partners LLC and Mr. Isaly is 330 Madison Avenue, Suite 3010, New York, NY 10017.
- (11) Nantahala Capital Partners Limited Partnership holds (i) 42,530 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 21,265 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 21,265 shares of common stock. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The principal business address for Nantahala Capital Partners Limited Partnership is 130 Main St. 2nd Floor, New Canaan, CT 06840.
- (12) NCP RFM LP holds (i) 36,160 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 18,080 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 18,080 shares of common stock. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and

dispositive power over the shares held by the selling stockholder. The principal business address for NCP RFM LP is 130 Main St. 2nd Floor, New Canaan, CT 06840.

- (13) Blackwell Partners LLC — Series A holds (i) 127,070 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 63,535 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 63,535 shares of common stock. Nantahala Capital Management, LLC is a Registered Investment Adviser and has been delegated the legal power to vote and/or direct the disposition of such securities on behalf of the selling stockholder as a General Partner, Investment Manager, or Sub-Advisor and would be considered the beneficial owner of such securities. The above shall not be deemed to be an admission by the record owners or the selling stockholder that they are themselves beneficial owners of these securities for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or any other purpose. Wilmot Harkey and Daniel Mack are managing members of Nantahala Capital Management, LLC and may be deemed to have voting and dispositive power over the shares held by the selling stockholder. The principal business address for Blackwell Partners LLC — Series A is 280 South Mangum Street, Suite 210, Durham, NC 27701.
- (14) The Red Hook Fund LP holds (i) 27,434 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 13,717 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 13,717 shares of common stock. The principal business address of The Red Hook Fund LP is 44 Ball Road, Mountain Lakes, NJ 07046.
- (15) Lytton-Kambra Foundation holds (i) 137,174 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock. Laurence Lytton, the President of the Lytton-Kambara Foundation, has the power to vote and dispose of the securities held by Lytton-Kambara Foundation. The principal place of business of Lytton-Kambara Foundation is 467 Central Park West 17-A, New York, NY 10025.
- (16) Sphera Biotech Master Fund LP holds (i) 216,000 shares of common stock issued in the Private Placement, (ii) pre-funded warrants issued in the Private Placement to purchase 332,696 shares of common stock, (iii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 274,348 shares of common stock, and (iv) Tranche B common stock purchase warrants issued in the Private Placement to purchase 274,348 shares of common stock. Sphera Biotech GP LP (the “General Partner”) is the general partner of Sphera Biotech Master Fund LP. Sphera Global Healthcare Management LP is the general partner of the General Partner and acts as the Investment Manager for Sphera Biotech Master Fund and holds voting and investment power over the shares held by Sphera Biotech Master Fund. Accordingly, Sphera Global Healthcare Management LP may be deemed to have beneficial ownership of the shares held by Sphera Biotech Master Fund LP. Sphera Global Healthcare Management LP disclaims beneficial ownership of such shares, except to the extent of its pecuniary interest therein. The address of Sphera Biotech Master Fund LP is 4 Yitzhak Sadeh, Entrance A, 29th Floor, Tel Aviv 6777520, Israel.
- (17) Sphera Global Healthcare Master Fund holds (i) 54,000 shares of common stock issued in the Private Placement, (ii) pre-funded warrants issued in the Private Placement to purchase 83,174 shares of common stock, (iii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock, and (iv) Tranche B common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock. Sphera Global Healthcare Management LP acts as the Investment Manager for Sphera Global Healthcare Master Fund and holds voting and investment power over the shares held by Sphera Global Healthcare Master Fund. Accordingly, Sphera Global Healthcare Management LP may be deemed to have beneficial ownership of the shares held by Sphera Global Healthcare Master Fund LP. Sphera Global Healthcare Management LP disclaims beneficial ownership of such shares, except to the extent of its pecuniary interest therein. The address of Sphera Global Healthcare Master Fund LP is 4 Yitzhak Sadeh, Entrance A, 29th Floor, Tel Aviv 6777520, Israel.

- (18) Stonepine Capital, LP holds (i) 137,174 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock, and (iv) Tranche B common stock purchase warrants issued in the Private Placement to purchase 68,587 shares of common stock. Stonepine Capital Management, LLC is the investment adviser of Stonepine Capital, LP and Stonepine GP, LLC is the general partner of Stonepine Capital, LP. Jon Plexico and Timothy P. Lynch are the control persons of Stonepine Capital Management, LLC. Stonepine Capital Management, LLC and each of Messrs. Plexico and Lynch disclaim beneficial ownership of the securities except to the extent of their pecuniary interest therein. The principal place of business of Stonepine Capital, LP is 919 NW Bond Street, Suite 204, Bend, OR 97703.
- (19) Bernd R. Seizinger, M.D., Ph.D. holds (i) 26,325 shares of common stock, (ii) 2,895 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (iii) 6,860 shares of common stock issued in the Private Placement, (iv) Tranche A common stock purchase warrants issued in the Private Placement to purchase 3,430 shares of common stock, and (v) Tranche B common stock purchase warrants issued in the Private Placement to purchase 3,430 shares of common stock.
- (20) Daniel E. Levy holds (i) 2,000 shares of common stock issued in the Private Placement, (ii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 1,000 shares of common stock, and (iii) Tranche B common stock purchase warrants issued in the Private Placement to purchase 1,000 shares of common stock.
- (21) Eric Brown, Ph.D. holds (i) 9,709 shares of common stock, (ii) 14,468 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (iii) 750 shares of common stock issued in the Private Placement, (iv) Tranche A common stock purchase warrants issued in the Private Placement to purchase 375 shares of common stock, and (v) Tranche B common stock purchase warrants issued in the Private Placement to purchase 375 shares of common stock.
- (22) John B. Henneman III holds (i) 779 shares of common stock, (ii) 3,815 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (iii) 6,860 shares of common stock issued in the Private Placement, (iv) Tranche A common stock purchase warrants issued in the Private Placement to purchase 3,430 shares of common stock, and (v) Tranche B common stock purchase warrants issued in the Private Placement to purchase 3,430 shares of common stock.
- (23) John Hamill holds (i) 5,497 shares of common stock, (ii) 8,433 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (iii) 1,010 shares of common stock issued in the Private Placement, (iv) Tranche A common stock purchase warrants issued in the Private Placement to purchase 505 shares of common stock, and (v) Tranche B common stock purchase warrants issued in the Private Placement to purchase 505 shares of common stock.
- (24) Oren Gilad, Ph.D. holds (i) 318,526 shares of common stock, 1,800 shares of which are held by Dr. Gilad's adult children, (ii) 10,475 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (iii) 2,000 shares of common stock issued in the Private Placement, (iv) Tranche A common stock purchase warrants issued in the Private Placement to purchase 1,000 shares of common stock, and (v) Tranche B common stock purchase warrants issued in the Private Placement to purchase 1,000 shares of common stock. Dr. Gilad disclaims the beneficial ownership of the shares held by his adult children.
- (25) Ze'ev Weiss holds (i) 13,444 shares of common stock issuable upon exercise of stock options exercisable within 60 days of March 13, 2014, (ii) 2,740 shares of common stock issued in the Private Placement, (iii) Tranche A common stock purchase warrants issued in the Private Placement to purchase 1,370 shares of common stock, and (iv) Tranche B common stock purchase warrants issued in the Private Placement to purchase 1,370 shares of common stock.

Relationships with Selling Stockholders

Bernd R. Seizinger, M.D., Ph.D. has served as a member of our board of directors since 2015.

Eric Brown, Ph.D., serves as one of our scientific consultants.

John B. Henneman III has been a member of our board of directors since August 2019.

John P. Hamill has served as our Senior Vice President, Chief Financial Officer and Secretary since January 2023.

Oren Gilad, Ph.D. has served as our Chief Executive Officer since July 2022 and as our President and a member of our board of directors since May 2022.

Ze'ev Weiss has served as our Chief Business Advisor since May 2022.

Daniel E. Levy has served as a chemistry, manufacturing and controls consultant to us since July 2023.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, assignees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer (the "Selling Stockholders"), may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The Selling Stockholders may use any one or more of the following methods when disposing of their securities or interests therein:

- on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale;
- in the over-the-counter market;
- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through brokers, dealers or underwriters that may act solely as agents;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- delivery of shares in settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell securities under Rule 144 or any other exemption from registration under the Securities Act of 1933, as amended (the "Securities Act"), if available, rather than under this prospectus. Broker-dealers engaged by the Selling Stockholders may arrange for other brokers-dealers to participate in sales. Broker-dealers, underwriters and other agents may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of securities, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.

The Selling Stockholders may from time to time pledge or grant a security interest in some or all of the shares of common stock owned by them and the pledgee or other secured party, transferee or other successor in interest may sell shares of common stock from time to time under this prospectus, or under a supplement or amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledgee, secured party, transferee or other successors in interest as Selling Stockholders under this prospectus. The Selling Stockholders also may transfer the shares of common stock in other circumstances in which case the donees, pledgees, assignees, transferees or other successors-in-interest may be the selling beneficial owners for purposes of this prospectus and may sell such shares of common stock from time to time under this prospectus after an amendment or supplement has been filed under Rule 424(b)(3) under, or another applicable provision of, the Securities Act, amending, if necessary, the list of Selling Stockholders to include the donees, pledgees, assignees, transferees or other successors-in-interest as a Selling Stockholder under this prospectus.

Upon being notified in writing by the Selling Stockholder that any material arrangement has been entered into with a broker-dealer for the sale of shares of common stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act will be filed, disclosing (i) the name of each such Selling Stockholder and of the participating broker-dealer(s), (ii) the number of shares of common stock involved, (iii) the price at which such shares of common stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, if applicable, and (vi) other facts material to the transaction.

The Selling Stockholders also may transfer the shares of common stock in other circumstances, in which case the donees, pledgees, assignees, transferees or other successors-in-interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of the securities or interests therein, the Selling Stockholders may enter into hedging transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions, which may in turn engage in short sales of the securities in the course of hedging the positions they assume. The Selling Stockholders may also sell securities short after the effective date of the registration statement of which this prospectus forms a part and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions after the effective date of the registration statement of which this prospectus forms a part with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction), including in the short sale transactions.

The Selling Stockholders and any broker-dealers or agents that are involved in selling the securities may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the securities purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Stockholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the securities. Any compensation paid to underwriters, broker-dealers or agents in connection with the offering of the securities, and any discounts, concessions or commissions allowed by underwriters to participating dealers will be provided in the applicable prospectus supplement and shall comply with the rules and requirements of the Financial Industry Regulatory Authority.

We are required to pay certain fees and expenses incurred by us incident to the registration of the securities. We have agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities to which they may become subject, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date that such securities become eligible for resale without volume or manner-of-sale restrictions and without current public information pursuant to Rule 144 and certain other conditions have been satisfied, or (ii) all of the securities have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect.

There can be no assurance that any Selling Stockholder will sell any or all of the shares of common stock registered pursuant to the registration statement of which this prospectus forms a part.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the resale securities may not simultaneously engage in market making activities with respect to the common stock for the applicable restricted period, as defined in Regulation M, prior to the commencement of the distribution. In addition, the Selling Stockholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common stock by the Selling Stockholders or any other person. Regulation M may also restrict the ability of any person engaged in the distribution of the shares of common stock to engage in market-making activities with respect to the shares of common stock. All of the foregoing may affect the marketability of the shares of common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of common stock.

DESCRIPTION OF CAPITAL STOCK

The following description is a general summary of the terms of the shares of common stock or shares of preferred stock that we may issue. The description below and in any prospectus supplement does not include all of the terms of the shares of common stock or shares of preferred stock and should be read together with our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, copies of which have been filed previously with the SEC. For more information on how you can obtain copies of our Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws, see “Where You Can Find More Information.”

General

Our charter authorizes us to issue up to 400,000,000 shares of common stock, par value \$0.001 per share, and 40,000,000 shares of preferred stock, par value \$0.001 per share. The following summary sets forth some of the general terms of our common stock. Because this is a summary, it does not contain all of the information that may be important to you. For a more detailed description of our common stock, you should read our amended and restated certificate of incorporation and the amended and restated bylaws, each of which is an exhibit to our Annual Report on Form 10-K to which this summary is also an exhibit, and the applicable provisions of the Delaware General Corporation Law (the “DGCL”).

Common stock

As of April 2, 2024, we had outstanding 5,430,215 shares of common stock.

Voting Rights

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. An election of directors by our stockholders will be determined by a plurality of the votes cast by the stockholders entitled to vote on the election. Other matters shall be decided by the affirmative vote of our stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter, except as otherwise disclosed below.

Dividends

Holders of common stock are entitled to receive proportionately any dividends as may be declared by our board of directors, subject to any preferential dividend rights of outstanding preferred stock.

Liquidation

In the event of our liquidation or dissolution, the holders of common stock are entitled to receive proportionately all assets available for distribution to stockholders after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock. Holders of common stock have no preemptive, subscription, redemption or conversion rights.

Rights and Preferences

The rights, preferences and privileges of holders of common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Preferred stock

Our board of directors is authorized to issue shares of preferred stock in one or more series without stockholder approval. Our board of directors has the discretion to determine the rights, preferences, privileges and restrictions, including voting rights, dividend rights, conversion rights, redemption privileges and liquidation preferences, of each series of preferred stock. You should refer to the applicable certificate of designation for complete information regarding a series of preferred stock to be issued under this prospectus and the applicable prospectus supplement.

The purpose of authorizing our board of directors to issue preferred stock and determine its rights and preferences is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions, future financings and other corporate purposes, could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a majority of our outstanding voting stock. As of December 31, 2023, there were 56,227 shares of Series A Preferred Stock outstanding. We have no present plans to issue any additional shares of preferred stock.

Anti-Takeover effects of Delaware law and our charter and bylaws

Delaware law, our certificate of incorporation and our bylaws contain provisions that could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors.

Staggered board; removal of directors

Our certificate of incorporation and bylaws divides our board of directors into three classes with staggered three-year terms. In addition, a director may only be removed for cause and only by the affirmative vote of the holders of a majority of the votes that all of our stockholders would be entitled to cast in an annual election of directors. Any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, will only be able to be filled by vote of a majority of our directors then in office. The classification of our board of directors and the limitations on the removal of directors and filling of vacancies could make it more difficult for a third party to acquire, or discourage a third party from seeking to acquire, control of our company.

Stockholder action by written consent; special meetings

Our certificate of incorporation provides that any action required or permitted to be taken by our stockholders must be effected at a duly called annual or special meeting of such holders and may not be effected by any consent in writing by such holders. Our certificate of incorporation and bylaws also provide that, except as otherwise required by law, special meetings of our stockholders can only be called by our chairman of the board, our Chief Executive Officer or our board of directors.

Advance notice requirements for stockholder proposals

Our bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of stockholders, including proposed nominations of persons for election to our board of directors. Stockholders at an annual meeting are only able to consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of our board of directors or by a stockholder of record on the record date for the meeting who is entitled to vote at the meeting and who has delivered timely written notice in proper form to our secretary of the stockholder's intention to bring such business before the meeting. These provisions could have the effect of delaying until the next stockholder meeting stockholder actions that are favored by the holders of a majority of our outstanding voting securities.

Delaware business combination statute

We are subject to Section 203 of the DGCL. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that the person became an interested stockholder, unless the interested stockholder attained such status with the approval of our board of directors or unless the business combination is approved in a prescribed manner. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Amendment of certificate of incorporation and bylaws

DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our bylaws may be amended or repealed by a majority vote of our board of directors or by the affirmative vote of the holders of at least 75% of the votes that all of our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all of our stockholders would be entitled to cast in any annual election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our certificate of incorporation described above under "Staggered board; removal of directors" and "Stockholder action by written consent; special meetings."

Exclusive forum selection

Our certificate of incorporation provides, unless we consent in writing to the selection of an alternative forum, to the fullest extent permitted by law, the Court of Chancery of the State of Delaware (or if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for (1) any derivative action or proceeding brought on behalf of our company under Delaware law, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or employees to our company or our stockholders, (3) any action asserting a claim against our company arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws, (4) any action asserting a claim against our company governed by the internal affairs doctrine or (5) any other action asserting an "internal corporate claim," as defined in Section 115 of the DGCL. These exclusive-forum provisions do not currently apply to claims under the Securities Act of 1933, as amended, or the Exchange Act. Any person or entity purchasing or otherwise acquiring any interest in our securities shall be deemed to have notice of and consented to this provision. Although we believe these provisions benefit us by providing increased consistency in the application of Delaware law for the specified types of actions and proceedings, the provisions may have the effect of discouraging lawsuits against us or our directors and officers.

Listing on The Nasdaq Capital Market

Our common stock is listed on The Nasdaq Capital Market under the symbol "APRE."

Authorized but unissued shares

The authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing requirements of The Nasdaq Capital Market. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make it more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Transfer agent and registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent and registrar's address is 150 Royall St., Canton, MA 02021.

LEGAL MATTERS

The validity of the securities being offered hereby will be passed upon for us by DLA Piper LLP (US), Philadelphia, Pennsylvania.

EXPERTS

The consolidated balance sheet of Aprea Therapeutics, Inc. and Subsidiaries as of December 31, 2023, and the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity, and cash flows for the year then ended, have been audited by EisnerAmper LLP, independent registered public accounting firm, as stated in their report dated March 26, 2024, which is incorporated herein by reference. Such financial statements have been incorporated herein by reference in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

The consolidated balance sheets of Aprea Therapeutics, Inc. as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, stockholders' equity, and cash flows for each of the years then ended, have been audited by Ernst & Young LLP, independent registered public accounting firm, as stated in their report dated March 30, 2023. Such financial statements have been incorporated herein by reference in reliance on the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act of 1933, as amended (the “Securities Act”), with respect to the securities offered by this prospectus and any applicable prospectus supplement. This prospectus and any applicable prospectus supplement do not contain all of the information set forth in the registration statement and its exhibits and schedules in accordance with SEC rules and regulations. For further information with respect to us and the securities being offered by this prospectus and any applicable prospectus supplement, you should read the registration statement, including its exhibits and schedules. Statements contained in this prospectus and any applicable prospectus supplement, including documents that we have incorporated by reference, as to the contents of any contract or other document referred to are not necessarily complete, and, with respect to any contract or other document filed as an exhibit to the registration statement or any other such document, each such statement is qualified in all respects by reference to the corresponding exhibit. You should review the complete contract or other document to evaluate these statements. You may obtain copies of the registration statement and its exhibits via the SEC’s website at <http://www.sec.gov>.

We file annual, quarterly and current reports, proxy statements and other documents with the SEC under the U.S. Securities Exchange Act of 1934, as amended (the “Exchange Act”). The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers, including us, that file electronically with the SEC. You may obtain documents that we file with the SEC at <http://www.sec.gov>. We also make these documents available on our website at www.aprea.com. Our website and the information contained or accessible through our website is not incorporated by reference in this prospectus or any prospectus supplement, and you should not consider it part of this prospectus or any prospectus supplement.

INFORMATION INCORPORATED BY REFERENCE

SEC rules permit us to incorporate information by reference in this prospectus and any applicable prospectus supplement. This means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be part of this prospectus and any applicable prospectus supplement, except for information superseded by information contained in this prospectus or any applicable prospectus supplement itself or in any subsequently filed incorporated document. This prospectus and any applicable prospectus supplement incorporate by reference the documents set forth below that we have previously filed with the SEC, other than information in such documents that is deemed to be furnished and not filed. These documents contain important information about us and our business and financial condition.

- [Annual Report on Form 10-K for the year ended December 31, 2023, filed with the SEC on March 26, 2024](#);
- Current Reports on Form 8-K, filed with the SEC on [January 4, 2024](#), [January 26, 2024](#), [February 6, 2024](#), [March 12, 2024](#) (other than the information furnished pursuant to Item 7.01), and [March 26, 2024](#) (other than the information furnished pursuant to Item 2.02); and
- [the description of our Common Stock contained in our Registration Statement on Form 8/A, dated September 30, 2019, including any amendments or reports filed for the purpose of updating such description.](#)

All documents that we file (but not those that we furnish) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, after the date of the initial registration statement of which this prospectus is a part and prior to the effectiveness of the registration statement shall be deemed to be incorporated by reference into this prospectus and will automatically update and supersede the information in this prospectus, and any previously filed documents. All documents that we file (but not those that we furnish) pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and prior to the termination of the offering of any of the securities covered under this prospectus shall be deemed to be incorporated by reference into this prospectus and will automatically update and supersede the information in this prospectus, the applicable prospectus supplement and any previously filed documents.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference in this prospectus or any applicable prospectus supplement shall be deemed to be modified or superseded for purposes of this prospectus and such applicable prospectus supplement to the extent that a statement contained in this prospectus or such applicable prospectus supplement, or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus and such applicable prospectus supplement, modifies or supersedes such earlier statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus or such applicable prospectus supplement.

You can obtain any of the filings incorporated by reference into this prospectus or any applicable prospectus supplement through us or from the SEC through the SEC's website at <http://www.sec.gov>. Upon request, we will provide, without charge, a copy of any or all of the reports and documents referred to above which have been incorporated by reference into this prospectus or any applicable prospectus supplement. Prospective investors may obtain documents incorporated by reference in this prospectus or any applicable prospectus supplement by requesting them in writing or by telephone from us at our executive offices at:

Aprea Therapeutics, Inc.
3805 Old Easton Road
Doylestown, PA 18902
(617) 463-9385

Our reports and documents incorporated by reference herein may also be found in the "Investor Relations" section of our website at www.aprea.com. The content of our website and any information that is linked to or accessible from our website (other than our filings with the SEC that are incorporated by reference, as set forth under "Incorporation of Certain Documents by Reference") is not incorporated by reference into this prospectus or any applicable prospectus supplement and you should not consider it a part of this prospectus, any applicable prospectus supplement, or the registration statement.



**APREA
THERAPEUTICS**

4,389,576 Shares of Common Stock

, 2024

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution

Set forth below is an estimate (except in the case of the registration fee) of the amount of fees and expenses to be incurred in connection with the issuance and distribution of the offered securities, other than underwriting discounts and commissions. All amounts are estimates except the SEC registration fee.

SEC registration fee	\$4,117.41
Legal fees and expenses	*
Accounting fees and expenses	*
Total	

* Estimated expenses not presently known.

Item 15. Indemnification of Directors and Officers

Section 102 of the Delaware General Corporation Law permits a corporation to eliminate the personal liability of its directors for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our certificate of incorporation provides that none of our directors shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the Delaware General Corporation Law prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

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

Our certificate of incorporation provides that we will indemnify each person who was or is a party or is threatened to be made a party or is involved in any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnitee"), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our certificate of incorporation also provides that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to

become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we do not assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into indemnification agreements with each of our executive officers and directors. In general, these agreements provide that we will indemnify the director or executive officer to the fullest extent permitted by law for claims arising in his or her capacity as a director or executive officer of our company or in connection with their service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or executive officer makes a claim for indemnification and establish certain presumptions that are favorable to the director or executive officer.

We maintain a general liability insurance policy that covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

The underwriting agreement, to be filed by an amendment to this registration statement, will provide for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Exchange Act.

Insofar as the forgoing provisions permit indemnification of directors, executive officers, or persons controlling us for liability arising under the Securities Act of 1933, as amended, or the Securities Act, we have been informed that, in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 16. Exhibits

Exhibit No.	Description
3.1*	<u>Amended and Restated Certificate of Incorporation of the Registrant (previously filed in the Company's Current Report on Form 8-K dated October 7, 2019).</u>
3.2*	<u>Certificate of Amendment to Amended and Restated Certificate of Incorporation of Aprea Therapeutics, Inc. (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on February 13, 2023).</u>
3.3*	<u>Certificate of Designation of Series A Non-Voting Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on May 17, 2022).</u>
3.3*	<u>Amended and Restated Bylaws of the Registrant (previously filed in the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2023).</u>
4.1*	<u>Form of Pre-Funded Warrant (March 2024 Offering) (incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-k filed on March 12, 2024).</u>
4.2*	<u>Form of Tranche A Warrant (March 2024 Offering) (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-k filed on March 12, 2024).</u>
4.3*	<u>Form of Tranche B Warrant (March 2024 Offering) (incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-k filed on March 12, 2024).</u>

Exhibit No.	Description
5.1	Opinion of DLA Piper LLP (US).
10.1**+	Form of Securities Purchase Agreement, dated as of March 11, 2024, by and between Aprea Therapeutics, Inc. and the purchasers named therein (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-k filed on March 12, 2024).
10.2*	Form of Registration Rights Agreement, dated as of March 11, 2024, by and between Aprea Therapeutics, Inc. and the purchasers (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-k filed on March 12, 2024).
23.1	Consent of DLA Piper LLP (US) (included in Exhibit 5.1).
23.2	Consent of EisnerAmper LLP.
23.3	Consent of Ernst & Young LLP.
24.1	Power of Attorney (included in Signature Page).
107	Filing fee table.

* Previously filed.

+ Schedules and exhibits have been omitted from this exhibit pursuant to Item 601(a)(5) of Regulation S-K. The registrant hereby undertakes to furnish copies of any of the omitted schedules and exhibits upon request by the U.S. Securities and Exchange Commission.

Item 17. *Undertakings*

(a) The undersigned Registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by section 10(a)(3) of the Securities Act;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

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

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

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

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

- (i) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or their securities provided by or on behalf of the undersigned Registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.
- (b) The undersigned Registrant hereby further undertakes that, for the purposes of determining any liability under the Securities Act, each filing of the annual reports of the Registrant pursuant to Section 13(a) or Section 15(d) of the Exchange Act that are incorporated by reference in this registration statement, if any, shall be deemed to be a new registration statement relating to the securities offered herein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
 - (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the provisions described under Item 15 of this registration statement, or otherwise, the Registrant has been advised that in the opinion of the

Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in such the Securities Act and will be governed by the final adjudication of such issue.

- (d) The undersigned Registrant hereby undertakes that:
- (1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective; and
 - (2) For purposes of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

The undersigned Registrant hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of Doylestown, State of Pennsylvania, on April 3, 2024.

APREA THERAPEUTICS, INC.By: /s/ Oren Gilad

Oren Gilad, Ph.D.
President, Chief Executive Officer and
Director
(Principal Executive Officer)

/s/ John P. Hamill

John P. Hamill
Senior Vice President and Chief Financial
Officer
(Principal Financial Officer and Principal
Accounting Officer)

POWER OF ATTORNEY

We, the undersigned directors and officers of Aprea Therapeutics, Inc. (the Company), hereby severally constitute and appoint Oren Gilad and John Hamill, and each of them singly, our true and lawful attorneys, with full power to them, and to each of them singly, to sign for us and in our names in the capacities indicated below, the registration statement on Form S-3 filed herewith, and any and all pre-effective and post-effective amendments to said registration statement, and any registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, in connection with the registration under the Securities Act of 1933, as amended, of equity securities of the Company, and to file or cause to be filed the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as each of them might or could do in person, and hereby ratifying and confirming all that said attorneys, and each of them, or their substitute or substitutes, shall do or cause to be done by virtue of this Power of Attorney. This Power of Attorney does not revoke any power of attorney previously granted by the undersigned, or any of them.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities indicated on the date indicated:

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Oren Gilad</u> Oren Gilad, Ph.D.	President, Chief Executive Officer and Director (Principal Executive Officer)	April 3, 2024
<u>/s/ John P. Hamill</u> John P. Hamill	Senior Vice President and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	April 3, 2024

Signature	Title	Date
<u>/s/ Marc Duey</u> Marc Duey	Director	April 3, 2024
<u>/s/ Michael Grissinger</u> Michael Grissinger	Director	April 3, 2024
<u>/s/ John B. Henneman</u> John B. Henneman III	Director	April 3, 2024
<u>/s/ Rifat Pamukcu</u> Rifat Pamukcu, M.D.	Director	April 3, 2024
<u>/s/ Richard Peters</u> Richard Peters, M.D., Ph.D.	Director	April 3, 2024
<u>/s/ Gabriel Gruia</u> Gabriel Gruia, M.D.	Director	April 3, 2024
<u>/s/ Bernd Seizinger</u> Bernd R. Seizinger, M.D., Ph.D.	Director	April 3, 2024
<u>/s/ Jean-Pierre Bizzari</u> Jean-Pierre Bizzari, M.D.	Director	April 3, 2024

DLA Piper LLP (US)
One Liberty Place
1650 Market Street, Suite 5000
Philadelphia, PA 19103-7300
www.dlapiper.com

April 3, 2024

Aprea Therapeutics, Inc.
3805 Old Easton Road
Doylestown, PA 18902

Re: Aprea Therapeutics, Inc. Registration Statement on Form S-3

Ladies and Gentlemen:

We have acted as counsel to Aprea Therapeutics, Inc., a Delaware corporation (the "Company"), in connection with the filing by the Company of the referenced Registration Statement (the "Registration Statement") under the Securities Act of 1933, as amended (the "Act") with the Securities and Exchange Commission (the "SEC") pursuant to Rule 415 under the Act. The Registration Statement relates to the proposed offering and sale of an aggregate of 4,389,576 shares of common stock, par value \$0.001 per share ("Common Stock"), consisting of (i) 1,687,712 shares of Common Stock (the "Common Shares"), (b) 507,076 shares (the "Pre-Funded Warrant Shares") of Common Stock underlying pre-funded warrants (the "Pre-Funded Warrants"), (c) 1,097,394 shares (the "Tranche A Warrant Shares") of Common Stock underlying Tranche A common stock purchase warrants (the "Tranche A Warrants"), and (d) 1,097,394 shares (the "Tranche B Warrant Shares" and, together with the Pre-Funded Warrant Shares and the Tranche A Warrant Shares, the "Warrant Shares") of Common Stock underlying Tranche B common stock purchase warrants (the "Tranche B Warrants" and, together with the Pre-Funded Warrants and the Tranche A Warrants, the "Warrants"). The Common Shares, Warrants and Warrant Shares are referred to herein collectively as the "Securities". The Securities were issued pursuant to a securities purchase agreement between the Company and the purchasers named therein dated as of March 11, 2024 (the "Purchase Agreement"). This opinion is being rendered in connection with the filing of the Registration Statement with the SEC.

In connection with this opinion, we have examined and relied upon the Registration Statement and the prospectus contained therein, the Company's Amended and Restated Certificate of Incorporation, as amended (the "Charter"), the Company's Amended and Restated Bylaws, the Purchase Agreement, and such instruments, documents, certificates and records that we have deemed relevant and necessary for the basis of our opinion hereinafter expressed. In such examination, we have assumed: (i) the authenticity of original documents and the genuineness of all signatures; (ii) the conformity to the originals of all documents submitted to us as copies; (iii) the truth, accuracy and completeness of the information, representations and warranties contained in the records, documents, instruments and certificates we have reviewed; and (iv) the due execution and delivery of all documents where due execution and delivery are a prerequisite to the effectiveness thereof. For purposes of the opinion set forth below, we have assumed that before the Warrant Shares are issued the Company does not issue shares of Common Stock or reduce the total number of shares of Common Stock the Company is authorized to issue under the Charter such that the number of unissued shares of Common Stock authorized under the Charter is less than the number of Warrant Shares.

Based upon the foregoing, and subject to the additional qualifications set forth below, we are of the opinion that (i) the Common Shares have been duly authorized and validly issued and are fully paid and nonassessable and (ii) the Warrant Shares, when delivered and paid for upon exercise of the Warrants in accordance with the terms of the Warrants, will have been duly authorized and validly issued and will be fully paid and nonassessable.

This opinion is limited to the General Corporate Law of the State of Delaware, and we express no opinion with respect to the laws of any other jurisdiction. No opinion is expressed herein with respect to the qualification of the Shares under the securities or blue sky laws of any state or foreign jurisdiction.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the reference to this firm under the caption "Legal Matters" in the Registration Statement.

In giving this consent, we do not admit that we are within the category of persons whose consent is required by Section 7 of the Securities Act or the rules and regulations promulgated thereunder by the SEC. This opinion letter is given to you solely for use in connection with the resale of the Warrant Shares and Common Shares while the Registration Statement is in effect and is not to be relied upon for any other purpose. Our opinion is expressly limited to the matters set forth above, and we render no opinion, whether by implication or otherwise, as to any other matters relating to the Company, the Securities or the Registration Statement.

Very truly yours,

/s/ **DLA Piper LLP (US)**

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement of Aprea Therapeutics, Inc. on Form S-3 to be filed on or about April 3, 2024 of our report dated March 26, 2024, on our audit of the financial statements as of December 31, 2023 and for the year then ended, which report was included in the Annual Report on Form 10-K filed March 26, 2024. We also consent to the reference to our firm under the caption “Experts” in this Registration Statement.

/s/ EisnerAmper LLP

EISNERAMPER LLP
Philadelphia, Pennsylvania
April 3, 2024

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in this Registration Statement (Form S-3) and related Prospectus of Aprea Therapeutics, Inc. for the registration of (i) 1,687,712 shares of common stock, par value \$0.001 per share (the "Common Stock"), initially issued in a private placement on March 13, 2024 (the "Private Placement"), (ii) 507,076 shares of Common Stock underlying pre-funded warrants issued in the Private Placement, (iii) 1,097,394 shares of Common Stock underlying Tranche A common stock purchase warrants issued in the Private Placement, and (iv) 1,097,394 shares of Common Stock underlying Tranche B common stock purchase warrants issued in the Private Placement and to the incorporation by reference therein of our report dated March 30, 2023, with respect to the consolidated financial statements of Aprea Therapeutics, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2022 filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP
Iselin, New Jersey
April 3, 2024

Calculation of Filing Fee Tables
FORM S-3
(Form Type)
APREA THERAPEUTICS, INC.
(Exact Name of Registrant as Specified in its Charter)
Table 1: Newly Registered Securities

Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered ⁽¹⁾ (2)	Proposed Maximum Offering Price Per Unit ⁽³⁾	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee ⁽³⁾	
Newly Registered Securities								
Fees to Be Paid	Equity	Common Stock, par value \$0.001 per share	Rule 457(c)	4,389,576	\$ 6.355	\$27,895,755.48	\$ 0.0001476	\$ 4,117.41
Fees Previously Paid	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Offering Amounts						\$27,895,755.48		\$ 4,117.41
Total Fees Previously Paid								\$ 0.00
Total Fee Offsets								\$ 0.00
Net Fee Due								\$ 4,117.41

(1) The shares will be offered for resale by the selling stockholders pursuant to the prospectus contained in the Registration Statement. Represents shares of common stock and shares of common stock issuable upon exercise of outstanding warrants to purchase shares of common stock of the Company.

(2) Pursuant to Rule 416 under the Securities Act of 1933, as amended, the shares being registered in the Registration Statement include such indeterminate number of shares of common stock as may be issuable with respect to the shares being registered hereunder to prevent dilution resulting from stock splits, stock dividends, or similar transactions.

(3) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) under the Securities Act of 1933, as amended, based on the average of the high and low sale price of the Company's common stock on March 28, 2024 as reported on The Nasdaq Stock Market LLC, which date is within five business days prior to filing the Registration Statement.