

PROSPECTUS SUPPLEMENT DATED SEPTEMBER 2, 2022 (To Prospectus dated November 30, 2020)



APREA THERAPEUTICS, INC.

Up to \$14,744,728 of Common Stock

This Prospectus Supplement, amends and supplements the prospectus, dated November 30, 2020 (the “ATM Prospectus”), filed as part of our registration statement on Form S-3 (File No. 333-250041), relating to the offer and sale of shares of our common stock having an aggregate offering price of up to \$50,000,000 pursuant to the terms of a sales agreement, or the Sales Agreement, with SVB Securities LLC (formerly known as SVB Leerink LLC) (“SVB Securities”). This Prospectus Supplement should be read in conjunction with the ATM Prospectus, and is qualified by reference thereto, except to the extent that the information herein amends or supersedes the information contained in the ATM Prospectus. This Prospectus Supplement is not complete without, and may only be delivered or utilized in connection with, the ATM Prospectus, and any future amendments or supplements hereto or thereto.

On March 15, 2022, the date we filed our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, we became subject to the offering limits in General Instruction I.B.6 of Form S-3. As of the date of this Prospectus Supplement, the aggregate market value of our common stock held by non-affiliates pursuant to General Instruction I.B.6 of Form S-3 is \$44,680,995 which was calculated based on 35,744,796 shares of our outstanding common stock held by non-affiliates and a price of \$1.25 per share, the closing price of our common stock on July 19, 2022, which is the highest closing sale price of our common stock on the NASDAQ Global Select Market within the prior 60 days. As of the date of this Prospectus Supplement, we have not sold any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to, and including, the date of this Prospectus Supplement. Pursuant to General Instruction I.B.6 of Form S-3, in no event will we sell securities in public primary offerings on Form S-3 with a value exceeding one-third of our public float (as defined by General Instruction I.B.6) in any 12 calendar month period so long as our public float remains below \$75.0 million.

We are filing this Prospectus Supplement to amend the ATM Prospectus to reflect the limitations on the maximum amount of shares that we are eligible to sell under General Instruction I.B.6. As a result of these limitations, we may currently only offer and sell shares of our common stock having an aggregate offering price of up to \$14,744,728 pursuant to the Sales Agreement. However, in the event that our public float increases or decreases, we may sell securities in public primary offerings on Form S-3 with a value up to one-third of our public float, in each case calculated pursuant to General Instruction I.B.6 and subject to the terms of the Sales Agreement. In the event that our public float increases above \$75.0 million, we will no longer be subject to the limits in General Instruction I.B.6 of Form S-3.

In addition, the paragraph under “LEGAL MATTERS” on page S-15 of the ATM Prospectus is replaced in its entirety with the following: “Certain legal matters in connection with the securities offered hereby will be passed upon for us by Sidley Austin LLP, New York, New York. SVB Securities LLC is being represented in connection with this offering by Duane Morris LLP, New York, New York.”

INVESTING IN OUR SECURITIES INVOLVES SIGNIFICANT RISKS. SEE THE “RISK FACTORS” ON PAGE 4 OF THE ATM PROSPECTUS AND IN THE DOCUMENTS INCORPORATED BY REFERENCE IN THE REGISTRATION STATEMENT CONCERNING FACTORS YOU SHOULD CONSIDER BEFORE INVESTING IN OUR COMMON STOCK.

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 Supplement or the ATM Prospectus. Any representation to the contrary is a criminal offense.

SVB Securities

The date of this Prospectus Supplement to the ATM Prospectus is September 2, 2022.

NOVEMBER 30, 2020

PROSPECTUS

Up to \$50,000,000



Common Stock

We have entered into a sales agreement with SVB Leerink LLC ("SVB Leerink") relating to shares of our common stock, par value \$0.001 per share, offered by this prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$50,000,000 from time to time through SVB Leerink acting as our agent.

Our common stock is listed on The NASDAQ Global Select Market under the symbol "APRE". On November 23, 2020, the last reported sale price of our common stock on The NASDAQ Global Select Market was \$24.48 per share.

Sales of our common stock, if any, under this prospectus will be made in sales deemed to be "at the market offerings" as defined in Rule 415 promulgated under the Securities Act of 1933, as amended (the "Securities Act"). SVB Leerink is not required to sell any specific amount of securities, but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between SVB Leerink and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to SVB Leerink for sales of common stock sold pursuant to the sales agreement will be an amount equal to 3% of the gross proceeds of any shares of common stock sold under the sales agreement. In connection with the sale of the common stock on our behalf, SVB Leerink will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of SVB Leerink will be deemed to be underwriting commissions or discounts. See "Plan of Distribution" beginning on page S-14 for additional information regarding the compensation to be paid to SVB Leerink. We have also agreed to provide indemnification and contribution to SVB Leerink with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act").

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."

Our business and an investment in our common stock involve significant risks. These risks are described under the caption "Risk Factors" beginning on page S-6 of this prospectus and in the documents incorporated by reference into 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.

SVB Leerink

November 30, 2020

TABLE OF CONTENTS

ABOUT THIS PROSPECTUS	S-3
MARKET DATA	S-3
PROSPECTUS SUMMARY	S-4
THE OFFERING	S-5
RISK FACTORS	S-6
SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS	S-8
USE OF PROCEEDS	S-9
DILUTION	S-10
DESCRIPTION OF CAPITAL STOCK	S-11
PLAN OF DISTRIBUTION	S-14
LEGAL MATTERS	S-15
EXPERTS	S-15
WHERE YOU CAN FIND MORE INFORMATION	S-16
INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE	S-16

ABOUT THIS PROSPECTUS

This prospectus is part of a shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the “SEC”). Under the shelf registration process, we may offer shares of our common stock having an aggregate offering price of up to \$50,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering.

We provide information to you about this offering of shares of our common stock in two separate documents that are bound together: (1) this at-the-market sales agreement prospectus, which describes the specific details regarding this offering; and (2) the accompanying base prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this “prospectus,” we are referring to both documents combined. If information in this at-the-market sales agreement prospectus is inconsistent with the accompanying base prospectus, you should rely on this prospectus. However, if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in this prospectus—the statement in the document having the later date modifies or supersedes the earlier statement as our business, financial condition, results of operations and prospects may have changed since the earlier dates.

You should rely only on the information contained in, or incorporated by reference into, this prospectus and in any free writing prospectus that we may authorize for use in connection with this offering. We have not, and SVB Leerink has not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and SVB Leerink is not, making an offer to sell or soliciting an offer to buy our securities in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information appearing in this prospectus, the documents incorporated by reference into this prospectus, and in any free writing prospectus that we may authorize for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus, the documents incorporated by reference into this prospectus, and any free writing prospectus that we may authorize for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus entitled “Where You Can Find More Information” and “Incorporation by Reference.”

We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

In this prospectus, the terms “Aprea,” “Company,” “we,” “us,” “our” and similar terms refer to Aprea Therapeutics, Inc., a Delaware corporation, and its subsidiaries unless the context otherwise requires.

This prospectus and the information incorporated herein by reference include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference in this prospectus are the property of their respective owners.

MARKET DATA

This prospectus and the documents incorporated by reference herein include market and industry data and forecasts concerning our business and the markets for certain cancers, including data regarding the estimated size of those markets and the incidence and prevalence of certain medical conditions, that we have derived from independent consultant reports, publicly available information, various industry, medical and general publications, other published industry sources, government data and our internal data and estimates. Independent consultant reports, industry publications and other published industry sources generally indicate that the information contained therein was obtained from sources believed to be reliable. Our internal data and estimates are based upon information obtained from trade and business organizations and other contacts in the markets in which we operate and our management’s understanding of industry conditions.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in the securities covered by this prospectus. For a more complete understanding of Aprea and this offering, we encourage you to read and consider carefully the more detailed information in this prospectus, including the information incorporated by reference in this prospectus and the information included in any free writing prospectus that we have authorized for use in connection with this offering, including the information referred to under the heading “Risk Factors” in this prospectus beginning on page S-6.

Overview

We are a clinical-stage biopharmaceutical company focused on developing and commercializing novel cancer therapeutics that reactivate the mutant p53 tumor suppressor protein. p53 is the protein expressed from the *TP53* gene, the most commonly mutated gene in cancer. We believe that mutant p53 is an attractive therapeutic target due to the high incidence of p53 mutations across a range of cancer types and its involvement in key cellular activities such as apoptosis. Cancer patients with mutant p53 face a significantly inferior prognosis even when treated with the current standard of care, and a large unmet need for these patients remains. Our lead product candidate, APR-246, or *eprenetapopt*, is a small molecule p53 reactivator that is in late-stage clinical development for hematologic malignancies, including myelodysplastic syndromes, or MDS, and acute myeloid leukemia, or AML. Eprenetapopt has received orphan drug, fast track and breakthrough therapy designations from the U.S. Food and Drug Administration, or the FDA for MDS, and orphan drug designation from the European Commission for MDS and AML and we believe eprenetapopt will be a first-in-class therapy if approved by applicable regulators.

Our second product candidate, APR-548, is a pre-clinical, next generation p53 reactivator with the potential for oral administration. APR-548 exhibits high oral bioavailability in preclinical testing and is being developed in an oral dosage form. We completed Investigational New Drug, or IND, enabling preclinical studies of APR-548 and filed an IND with the FDA. Following a request for additional information by the FDA before the initiation of human clinical trials, we received clearance from the FDA in October 2020 to initiate Phase 1 clinical trials for APR-548.

Implications of Being an Emerging Growth Company and 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 \$1.07 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 535 Boylston Street, Boston, Massachusetts 02116, 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. 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

Common stock offered by us	Shares having an aggregate offering price of up to \$50,000,000.
Common stock to be outstanding after this offering	Up to 23,229,311 shares, assuming the sale of \$50,000,000 of shares at a sales price of \$24.48 per share, which was the last reported sale price on The NASDAQ Global Select Market on November 23, 2020. The actual number of shares issued and outstanding will vary depending on the sales price under this offering.
Manner of offering	“At-the-market” offering that may be made from time to time through our sales agent, SVB Leerink. See “Plan of Distribution” on page S-14 of this prospectus.
Use of proceeds	Our management will retain broad discretion regarding the allocation and use of the net proceeds from this offering. We currently intend to use the net proceeds from this offering, if any, for general corporate purposes, including for preclinical studies and clinical trials and the advancement of our product candidates. See “Use of Proceeds” on page S-9 of this prospectus.
NNASDAQ Global Select Market symbol	“APRE”
Risk factors	Investing in our securities involves a high degree of risk. See “Risk Factors” beginning on page S-6 of this prospectus and the other information included in, or incorporated by reference into, this prospectus for a discussion of certain factors that you should carefully consider before deciding to invest in shares of our common stock.

The number of shares of common stock shown above to be outstanding immediately following this offering is based on 21,186,827 shares outstanding as of September 30, 2020 and excludes:

- 3,771,459 shares of common stock, with a weighted-average exercise price of \$9.10 per share, issuable upon exercise of stock options outstanding as of September 30, 2020 under our 2019 Stock Incentive Plan; and
- 1,830,804 shares of common stock reserved for issuance pursuant to future awards under our 2019 Stock Incentive Plan or our Employee Stock Purchase Plan, plus any future increases in the number of shares of common stock reserved for issuance under our 2019 Stock Incentive Plan or our Employee Stock Purchase Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year.

This prospectus reflects and assumes no exercise of outstanding options or warrants.

RISK FACTORS

Investing in our securities involves risk. You should carefully consider the specific risks discussed below, together with all the other information contained in the prospectus or incorporated by reference into this prospectus. 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, 2019](#) and in our [Quarterly Reports on Form 10-Q](#) for the periods ended [March 31](#), [June 30](#) and [September 30, 2020](#), 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. 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 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.

Risks Related to This Offering

We have broad discretion in the use of the net proceeds from this offering.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways with which you may not agree. Accordingly, you will be relying on the judgment of our management with regard to the use of the net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be invested or otherwise used in a way that does not yield a favorable, or any, return for the Company.

Investors in this offering will experience immediate and substantial dilution in the net tangible book value per share of the common stock they purchase.

Since the price per share of our common stock being offered is higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. See the section entitled "Dilution" in this prospectus for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering. In addition, we have a significant number of options outstanding. If the holders of these options exercise such options, you may incur further dilution.

Our stockholders may experience significant dilution as a result of future equity offerings and exercise of outstanding options.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. We cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering.

In addition, we have a number of securities allowing the purchase of, our common stock. As of November 23, 2020, 1,580,804 shares of common stock were reserved for future issuance under our stock incentive plan. As of that date, there were also options to purchase 3,771,459 shares of our common stock outstanding. The exercise of outstanding options having an exercise price per share that is less than the offering price per share in this offering will increase dilution to investors in this offering.

It is not possible to predict the aggregate proceeds resulting from sales made under the sales agreement.

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to deliver a placement notice to SVB Leerink at any time throughout the term of the sales agreement. The number of shares that are sold through SVB Leerink after delivering a placement notice will fluctuate based on a number of factors, including the market price of our common stock during the sales period, any limits we may set with SVB Leerink in any applicable placement notice and the demand for our common stock. Because the price per share of each share sold pursuant to the sales agreement will fluctuate over time, it is not currently possible to predict the aggregate proceeds to be raised in connection with sales under the sales agreement.

The common stock offered hereby will be sold in “at-the-market offerings” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and accordingly may experience different levels of dilution and different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices and number of shares sold in this offering. In addition, subject to the final determination by our board of directors or any restrictions we may place in any applicable placement notice, there is no minimum or maximum sales price for shares to be sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

The issuance of our common stock under this and subsequent offerings may result in an ownership change, which may have the effect of devaluing significant deferred tax assets of the company.

Our ability to use our net operating losses and other deferred tax assets to offset future taxable income in Sweden and the United States may be significantly limited if we experience an ownership change. The issuance of our common stock under this and subsequent offerings may result in an ownership change, depending on the amount of stock we issue. For Swedish income tax purposes, an ownership change will generally occur when one, or several shareholders together, acquire shares representing more than 50 percent of the voting power over a five year period (under special provisions in Chapter 40 of the Swedish Income Tax Act; 1999:1229). Such an ownership change results in the forfeiture of tax losses carried forward exceeding 200 percent of the cost of the change of control. In this calculation, capital contributions to the company prior to the ownership change and in the preceding two years should reduce the cost of the change of control. Due to potential ownership changes under the Swedish Income Tax Act, we may be limited in our ability to realize a tax benefit on our deferred tax assets, whether or not we attain profitability in future years.

For U.S. federal income tax purposes, an ownership change will generally occur when the percentage of our stock (by value) owned by one or more “5 percent shareholders” (as defined in the U.S. Internal Revenue Code of 1986, as amended) has increased by more than 50% over the lowest percentage owned by such shareholders at any time during the prior three years (calculated on a rolling basis). We anticipate that we will incur losses in the United States in the foreseeable future related to our research and development activities. Due to potential ownership changes under Section 382 of the Code, we may be limited in our ability to realize a tax benefit from the use of our deferred tax assets, whether or not we attain profitability in future years.

For these reasons, an ownership change would have an adverse effect on our results of operations and financial condition.

The price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock in this offering.

Our stock price has been and is likely to continue to be volatile. The stock market in general and the market for pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, our stockholders may not be able to sell our common stock at or above the price they paid for it. The market price for our common stock may be influenced by many factors, including:

- the timing and results of clinical trials of eprenetapopt and any of our other product candidates;
- regulatory actions with respect to our product candidates or our competitors’ products and product candidates;
- the success of existing or new competitive products or technologies;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- establishment or termination of collaborations for our product candidates or development programs;
- failure or discontinuation of any of our development programs;
- results of clinical trials of product candidates of our competitors;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or development programs;
- the results of our efforts to discover, develop, acquire or in-license additional product candidates or products;
- actual or anticipated changes in estimates as to financial results or development timelines;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or other stockholders;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in estimates or recommendations by securities analysts, if any, that cover our stock;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in the “Risk Factors” sections of our [Form 10-K for the year ended December 31, 2019](#) and in our Quarterly Reports on Form 10-Q for the periods ended [March 31](#), [June 30](#) and [September 30, 2020](#), and in subsequent filings, which are incorporated by reference into this prospectus

In addition, the spread of COVID-19 has caused a broad impact globally. While the potential economic impact brought by, and the duration of, COVID-19 may be difficult to assess or predict, it has significantly disrupted global financial markets, and a recession or market correction resulting from the spread or continuation of COVID-19 could materially affect our business and the value of our common stock.

SPECIAL NOTE REGARDING 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:

- 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 the outbreak of the novel coronavirus, COVID-19;
- the prospects of eprenetapopt and other product candidates, which are still in development;
- outcome and results of ongoing or future preclinical studies and clinical trials of eprenetapopt;
- the design of our multiple clinical trials, including the sample size, trial duration, endpoint definition, event rate assumptions and eligibility criteria;
- our expectations regarding the timing of data from our Phase 3 and additional clinical trials;
- market acceptance or commercial success of eprenetapopt and the degree of acceptance among physicians, patients, patient advocacy groups, health care payors and the medical community;
- our expectations regarding competition, potential market size, the size of the patient populations for eprenetapopt, if approved for commercial use, and market acceptance;
- our ability to maintain regulatory approval of eprenetapopt, and any related restrictions, limitations and/or warnings in the label of eprenetapopt;
- the scope of protection we are able to establish, maintain and enforce for intellectual property rights covering eprenetapopt;
- potential claims relating to our intellectual property and third-party intellectual property;
- the duration of our intellectual property estate that will provide protection for eprenetapopt;
- developments relating to our competitors and our industry;
- our sales, marketing or distribution capabilities and our ability to commercialize eprenetapopt, if we obtain regulatory approval;
- current and future agreements with third parties in connection with the manufacturing, commercialization, packaging and distribution of eprenetapopt;
- our expectations regarding the ability of our current contract manufacturing partners to produce eprenetapopt in the quantities and timeframe that we will require;
- our expectations regarding our future costs of goods;
- our ability to generate sufficient or positive preclinical, toxicology, or other *in vivo* or *in vitro* data to support the initiation of clinical trials of APR-548;
- 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.

USE OF PROCEEDS

We may issue and sell shares of our common stock having an aggregate sales proceeds of up to \$50,000,000 from time to time. The amount of proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under, or fully utilize, the sales agreement with SVB Leerink as a source of financing.

We will retain broad discretion over the use of the net proceeds from the sale of the securities offered hereby. We currently intend to use the net proceeds from this offering, if any, for general corporate purposes, including for preclinical studies and clinical trials and the advancement of our product candidates. The amount and timing of these expenditures will depend on a number of factors, such as the timing, scope, progress and results of our research and development efforts, the timing and progress of any partnership efforts, and the competitive environment for our product candidates.

As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering, if any. As a result, our management will have broad discretion regarding the timing and application of the net proceeds from this offering. Pending the application of the net proceeds, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

DILUTION

If you invest in our common stock, you will experience dilution to the extent of the difference between the price per share you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of September 30, 2020 was approximately \$89.0 million or \$4.20 per share of our common stock. Net tangible book value per share as of September 30, 2020 is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding as of September 30, 2020.

After giving effect to the sale of \$50,000,000 of shares of our common stock in this offering at an assumed offering price of \$24.48 per share, the last reported sale price of our common stock on The NASDAQ Global Select Market on November 23, 2020, and after deducting estimated offering commissions and expenses payable by us, our as adjusted net tangible book value would have been approximately \$137.3 million or \$5.91 per share of common stock, as of September 30, 2020. This represents an immediate increase in net tangible book value of approximately \$1.71 per share to existing stockholders and an immediate dilution of approximately \$18.57 per share to investors in this offering. The following table illustrates this calculation on a per share basis.

Assumed public offering price per share		\$	24.48
Net tangible book value per share as of September 30, 2020	\$	4.20	
Increase in net tangible book value per share attributable to this offering	\$	1.71	
As adjusted net tangible book value per share as of September 30, 2020, after giving effect to this offering		\$	5.91
Dilution per share to new investors purchasing shares in this offering		\$	18.57

The table above assumes for illustrative purposes that an aggregate of 2,042,484 shares of our common stock are sold at a price of \$24.48 per share, the last reported sale price of our common stock on The NASDAQ Global Select Market on November 23, 2020, for aggregate gross proceeds of \$50,000,000. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$24.48 per share shown in the table above, assuming \$50,000,000 of shares of our common stock is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$5.93 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$19.55 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$24.48 per share shown in the table above, assuming \$50,000,000 of shares of our common stock is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$5.89 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$17.59 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

The number of shares of common stock shown above to be outstanding immediately following this offering is based on 21,186,827 shares outstanding as of September 30, 2020 and excludes:

- 3,771,459 shares of common stock, with a weighted-average exercise price of \$9.10 per share, issuable upon exercise of stock options outstanding as of September 30, 2020 under our 2019 Stock Incentive Plan; and
- 1,830,804 shares of common stock reserved for issuance pursuant to future awards under our 2019 Stock Incentive Plan or our Employee Stock Purchase Plan, plus any future increases in the number of shares of common stock reserved for issuance under our 2019 Stock Incentive Plan or our Employee Stock Purchase Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year.

This prospectus also reflects and assumes no exercise of outstanding options or warrants.

The above illustration of dilution per share to investors participating in this offering assumes no exercise of outstanding options to purchase our common stock. The exercise of outstanding options having an exercise price per share that is less than the offering price per share in this offering will increase dilution to investors in this offering.

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 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 November 23, 2020, we had outstanding 21,186,827 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 immediately prior to the completion of this offering, there will be no shares of preferred stock outstanding, and we have no present plans to issue any shares of preferred stock.

Registration rights

We are party to an amended and restated registration rights agreement, dated as of September 20, 2019, pursuant to which certain of our stockholders, including certain holders of five percent or more of our capital stock and their affiliates and entities affiliated with certain of our directors, have the right to demand that we file a registration statement for their shares of our common stock or request that their shares of our common stock be covered by a registration statement that we are otherwise filing, including, in each case, shares of our common stock that were issued upon conversion of convertible preferred stock. These shares are referred to as registrable securities.

Demand registration rights

The stockholders, as defined in the Registration Rights Agreement, holding not less than fifty percent of the registrable securities have the right to demand that we file, a registration statement to register all or a portion of their registrable securities, provided that the expected aggregate proceeds to be received from the sale of the registrable securities to be sold under the registration statement is equal to or exceeds \$10.0 million. We are not obligated to file a registration statement pursuant to this demand provision (i) on more than one occasion within any six-month period or (ii) if at the time of such request, four or more such demand registrations and underwritten takedowns, as defined in the Registration Rights Agreement, have previously been effected or deemed effected.

Form S-3 registration rights

In addition, if, at any time after the first anniversary our IPO, we become eligible to file a registration statement on Form S-3 under the Securities Act, subject to specified limitations, a stockholder or a group of stockholders, as defined in the Registration Rights Agreement, may demand in writing that we register on Form S-3 all or part of the registrable securities held by them. We are not obliged to effect more than one such underwritten takedown, as defined in the Registration Rights Agreement, within any six-month period.

Piggyback registration rights

If we propose to file a registration statement to register any of our common stock under the Securities Act (other than (i) a registration statement on Form S-3 or (ii) a registration statement relating to any employee benefit plan), either for our own account or for the account of any of our stockholders that are not holders of registrable securities, the holders of our registrable securities are entitled to notice of registration and, subject to specified exceptions, we will be required to use our commercially reasonable efforts to register the registrable securities then held by them that they request that we register. Such stockholders have agreed not to exercise their registration rights in relation to this offering.

Expenses of registration

Pursuant to the Registration Rights Agreement, we are required to pay all registration expenses, including registration fees, printing expenses, fees and disbursements of our counsel and accountants and reasonable fees and disbursements of one counsel representing all stockholders, as defined in the Registration Rights Agreement, participating in the offering, other than any underwriting discounts and commissions attributable to the sale of registrable securities, as defined in the Registration Rights Agreement.

The Registration Rights Agreement contains customary cross-indemnification provisions, pursuant to which we are obligated to indemnify stockholders, as defined in the Registration Rights Agreement, beneficially owning registrable securities covered by a registration statement in the event of material misstatements or omissions in the registration statement attributable to us, and each stockholder, as defined in the Registration Rights Agreement, is obligated to indemnify us for material misstatements or omissions in the registration statement attributable to them.

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 Global Select Market

Our common stock is listed on The Nasdaq Global Select 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 Global Select 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.

PLAN OF DISTRIBUTION

We have entered into a sales agreement with SVB Leerink LLC (“SVB Leerink”) under which we may issue and sell from time to time up to \$50,000,000 of our common stock through SVB Leerink as our sales agent. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market” offering as defined in Rule 415 under the Securities Act, including sales made directly on The Nasdaq Global Select Market or any other trading market for our common stock. If authorized by us in writing, SVB Leerink may purchase shares of our common stock as principal.

SVB Leerink will offer our common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and SVB Leerink. We will designate the maximum amount of common stock to be sold through SVB Leerink on a daily basis or otherwise determine such maximum amount together with SVB Leerink. Subject to the terms and conditions of the sales agreement, SVB Leerink will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct SVB Leerink not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. SVB Leerink or we may suspend the offering of our common stock being made through SVB Leerink under the sales agreement upon proper notice to the other party. SVB Leerink and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s discretion at any time.

The aggregate compensation payable to SVB Leerink as sales agent equals up to 3.0% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse SVB Leerink up to \$50,000 of SVB Leerink’s actual outside legal expenses incurred by SVB Leerink in connection with this offering, plus an additional amount of up to \$15,000 in connection with determining our compliance with the rules and regulations of the Financial Industry Regulatory Authority, Inc. (“FINRA”). We estimate that the total expenses of the offering payable by us, excluding commissions payable to SVB Leerink under the sales agreement, will be approximately \$250,000.

The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

SVB Leerink will provide written confirmation to us following the close of trading on The Nasdaq Global Select Market on each day in which common stock is sold through it as sales agent under the sales agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares sold, the percentage of the daily trading volume and the net proceeds to us.

To the extent any sales are made, we will report at least quarterly the number of shares of common stock sold through SVB Leerink under the sales agreement, the net proceeds to us and the compensation paid by us to SVB Leerink in connection with the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the second business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, SVB Leerink may be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to SVB Leerink may be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to SVB Leerink against certain liabilities, including liabilities under the Securities Act. As sales agent, SVB Leerink will not engage in any transactions that stabilizes our common stock.

Our common stock is listed on The Nasdaq Global Select Market and trades under the symbol “APRE.” The transfer agent of our common stock is Computershare.

SVB Leerink and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future receive, customary fees.

In addition, in the ordinary course of its business activities, SVB Leerink and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. SVB Leerink and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

LEGAL MATTERS

Certain legal matters in connection with the securities offered hereby will be passed upon for us by Sidley Austin LLP, New York, New York. SVB Leerink is being represented in connection with this offering by Davis Polk and Wardwell LLP, New York, New York.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2019, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

The consolidated financial statements of Aprea Therapeutics AB as of December 31, 2018 and for each of the two years in the period ended December 31, 2018 appearing in Aprea Therapeutics Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2019, have been audited by Ernst & Young AB, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

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. This prospectus does not contain all of the information set forth in the registration statement, of which it is a part, 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, you should read the registration statement, including its exhibits and schedules. Statements contained in this prospectus, 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 are subject to the information and periodic reporting requirements of the Exchange Act, and we file annual, quarterly and current reports, proxy statements and other documents with the SEC. 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, and you should not consider it part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

SEC rules permit us to incorporate information by reference in this prospectus. 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, except for information superseded by information contained in this prospectus itself or in any subsequently filed incorporated document. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC (Commission File No. 001-39069), 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, 2019, filed with the SEC on March 27, 2020;](#)
- [the information contained in our definitive proxy statement on Schedule 14A for our 2020 annual meeting of stockholders filed with the SEC on April 29, 2020, to the extent incorporated by reference in Part III of the Form 10-K;](#)
- [Quarterly Report on Form 10-Q for the period ended March 31, 2020, filed with the SEC on May 15, 2020;](#)
[Quarterly Report on Form 10-Q for the period ended June 30, 2020, filed with the SEC on August 11, 2020;](#)
- [Quarterly Report on Form 10-Q for the period ended September 30, 2020, filed with the SEC on November 6, 2020;](#)
- Current Reports on Form 8-K, filed with the SEC on [April 3, 2020](#), [June 29, 2020](#), [September 18, 2020](#) (other than the information furnished pursuant to Item 7.01 and Exhibit 99.1) and [September 29, 2020](#) (other than the information furnished pursuant to Item 7.01 and Exhibit 99.1); 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 and any previously filed documents.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference in this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus, 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.

You can obtain any of the filings incorporated by reference into this prospectus 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. Prospective investors may obtain documents incorporated by reference in this prospectus by requesting them in writing or by telephone from us at our executive offices at:

Aprea Therapeutics, Inc.
535 Boylston Street
Boston MA 02116
(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 and you should not consider it a part of this prospectus or the registration statement.

Up to \$50,000,000



Common Stock

PROSPECTUS

SVB Leerink

November 30, 2020
