

PROSPECTUS



**Up to \$45,000,000 of Shares
Common Stock**

We have entered into a Controlled Equity OfferingSM Sales Agreement, as amended, with Cantor Fitzgerald & Co., or Cantor, relating to shares of our common stock offered by this prospectus. In accordance with the terms of the Sales Agreement, as amended, we may offer and sell shares of our common stock, \$0.0001 par value per share, having an aggregate offering price of up to \$45,000,000 from time to time through Cantor, acting as agent.

Our common stock is listed on The NASDAQ Capital Market under the symbol "SNSS." The last reported sale price of our common stock on The NASDAQ Capital Market on November 20, 2017 was \$2.87 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be "at-the-market" equity offerings as defined in Rule 415(a) (4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. Cantor will act as sales agent on a best efforts basis and use commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between Cantor and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Cantor will be entitled to compensation at a fixed commission rate of up to 3.0% of the gross proceeds from the sale of any shares sold under the Sales Agreement. In connection with the sale of our common stock on our behalf, Cantor will be deemed to be an "underwriter" within the meaning of the Securities Act of 1933, as amended, or the Securities Act, and the compensation of Cantor will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Cantor with respect to certain liabilities, including liabilities under the Securities Act.

Investing in our common stock involves a high degree of risk. Before making any investment decisions, please read the information under the heading "[Risk Factors](#)" on page 3 of this prospectus and under similar headings in the other 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 determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.



The date of this prospectus is November 21, 2017.

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ABOUT THIS PROSPECTUS

This prospectus relates to the offering of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus, together with the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus. These documents contain important information that you should consider when making your investment decision.

This prospectus describes the specific terms of the common stock we are offering and also adds to, and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. 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 into this prospectus — the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained or incorporated by reference in this prospectus along with the information contained in any free writing prospectus that we may authorize for use in connection with this offering. We have not, and Cantor has not, authorized anyone to provide you with different or additional information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and Cantor 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 in this prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering is accurate only as of the respective dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

This prospectus contains and incorporates by reference market data and industry statistics and forecasts that are based on independent industry publications and other publicly available information. Although we believe that these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus and the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors, including those discussed under the heading “Risk Factors” contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. Accordingly, investors should not place undue reliance on this information.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading “Where You Can Find More Information.”

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus and any related free writing prospectus, including the risks of investing in our securities discussed under the heading “Risk Factors” contained in this prospectus and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Sunesis Pharmaceuticals, Inc.

Overview

Sunesis is a biopharmaceutical company focused on the development and commercialization of new oncology therapeutics for the treatment of solid and hematologic cancers. Our primary activities since incorporation have been conducting research and development internally and through corporate collaborators, in-licensing and out-licensing pharmaceutical compounds and technology, conducting clinical trials and raising capital.

In January 2014, we announced the expansion of our oncology pipeline through separate global licensing agreements for two preclinical kinase inhibitor programs. The first agreement, with Biogen Idec MA, Inc. (Biogen) is for global commercial rights to SNS-062, a selective non-covalently binding oral inhibitor of BTK. We filed a Clinical Trial Authorization application in the first quarter of 2016 in Belgium and enrolled the first patients in a Phase 1A study of SNS-062 in healthy volunteers. In September and again in December 2016, we announced results from our Phase 1A study in healthy volunteers evaluating oral non-covalent, reversible BTK inhibitor SNS-062. The study demonstrated a favorable safety, pharmacokinetic (PK) and pharmacodynamic (PD) profile for SNS-062 in healthy subjects. In December 2016 we filed an Investigational New Drug (IND) application with the U.S. Food and Drug Administration (FDA) to conduct a Phase 1B/2 trial in patients with various B-cell malignancies. In January 2017, we announced that our IND application with the FDA, for SNS-062 had become effective. In July 2017, we dosed the first patient in a Phase 1B/2 study to assess the candidate’s safety and activity of SNS-062 in patients with advanced B-cell malignancies after two or more prior therapies, including ibrutinib or other covalent BTK inhibitor, and including patients with BTK C481 mutations. In relation to the dosing of the first patient, we also made a milestone payment of \$2.5 million to Biogen under the licensing agreement.

We are also developing a pre-clinical inhibitor of the novel target PDK1, which we believe to have the potential to be first-in-class. We are currently evaluating SNS-510, a PDK1 inhibitor, in pre-clinical absorption, distribution, metabolism and excretion, and toxicology studies, and we expect to complete such evaluation with the goal of declaring a development candidate before the end of 2017.

We are in a collaboration with Takeda for the development of TAK-580 (formerly MLN2480), an oral pan-RAF inhibitor, for which Takeda is conducting a multi-arm, open-label Phase 1B/2 study in combination with various anti-cancer agents in adult patients with advanced non-hematologic malignancies.

In October 2014, we announced the results of a Phase 3, multi-national, randomized, double-blind, placebo-controlled trial of vosaroxin in combination with cytarabine in patients with relapsed or refractory AML, or the VALOR trial. The VALOR trial did not meet its primary endpoint of demonstrating a statistically significant improvement in overall survival. However, based upon the favorable results of other predefined analyses of the data, in November 2014, we submitted a letter of intent to the European Medicines Agency (EMA) describing our intention to file a marketing authorization application (MAA) for marketing authorization of vosaroxin plus cytarabine for the treatment of relapsed or refractory AML. In June 2015, we met separately with the Rapporteur and Co-Rapporteur, who are two appointed members of the EMA’s Committee for Medicinal Products for Human Use (CHMP). Based upon feedback from these meetings, we filed an MAA with the EMA at the end of 2015. In April 2016, we received a list of questions relating to our MAA filing (the Day 120 Questions), and we responded to these questions in October 2016, and in December 2016 received a list of outstanding issues (the Day 180 LOI). In March 2017, we submitted responses to the EMA Day 180 List of Outstanding Issues issued by the CHMP as part of the centralized review process of the MAA for vosaroxin as a treatment for relapsed/refractory acute myeloid leukemia (AML) in patients aged 60 years and older. In April 2017, we presented to the Scientific Advisory Group—Oncology (SAG-O) and also to the CHMP. As a result of these interactions, feedback from its CHMP rapporteurs and its retained regulatory consultants and an internal assessment, we announced on May 1, 2017 the withdrawal of our MAA. It is our intention to continue to support investigator-sponsored group trials with vosaroxin and to resume company-sponsored studies if a development partner can be secured.

Company Information

We were incorporated in Delaware in February 1998 as Mosaic Pharmaceuticals, Inc., and we subsequently changed our name to Sunesis Pharmaceuticals, Inc. The address of our principal executive office is 395 Oyster Point Boulevard, Suite 400, South San Francisco, California 94080, and our telephone number is (650) 266-3500. Our website address is www.sunesis.com. We do not incorporate the information on our website into this prospectus, and you should not consider it part of this prospectus.

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The Offering	
Common stock offered by us pursuant to this prospectus	In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock from time to time through Cantor having an aggregate offering price of up to \$45,000,000.
Manner of offering	“At-the-market” offering that may be made from time to time through our agent, Cantor Fitzgerald & Co. See “Plan of Distribution” in this prospectus.
Use of proceeds	We currently intend to use the net proceeds from this offering for working capital, capital expenditures and general corporate purposes, including research and development expenses, general and administrative expenses and manufacturing expenses. See “Use of Proceeds” in this prospectus.
Risk factors	This investment involves a high degree of risk. Please read the information contained in and incorporated by reference under the heading “Risk Factors” on page 3 of this prospectus and under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus.
NASDAQ Capital Market symbol	“SNSS”

RISK FACTORS

Investing in our securities involves a high degree of risk. You should consider carefully the risks described below and discussed under the section captioned "Risk Factors" contained in our annual report on Form 10-K for the year ended December 31, 2016, and in our subsequent quarterly reports on Form 10-Q as updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, each of which is incorporated by reference in this prospectus in their entirety, together with other information in this prospectus, and the information and documents incorporated by reference in this prospectus, and any free writing prospectus that we have authorized for use in connection with this offering before you make a decision to invest in our common stock. If any of the following events actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. The risks below and incorporated by reference in this prospectus are not the only ones we face. Additional risks not currently known to us or that we currently deem immaterial may also affect our business operations. Please also read carefully the section below captioned "Forward-Looking Statements."

Risks Related to Our Common Stock and this Offering

The price of our common stock may continue to be volatile, and the value of an investment in our common stock may decline.

From 2016 until the end of the third quarter of 2017, our common stock traded as low as \$1.84 and as high as \$6.30. Factors that could cause continued volatility in the market price of our common stock include, but are not limited to:

- our ability to raise additional capital to carry through with our clinical development plans and current and future operations and the terms of any related financing arrangement;
- results from, and any delays in or discontinuance of, ongoing and planned clinical trials for vosaroxin and SNS-062, including investigator-sponsored trials;
- announcements of additional FDA requirements for a regulatory path for vosaroxin or non-approval of vosaroxin, such as the July 2015 request that we provide additional clinical evidence prior to any regulatory filing of vosaroxin in the United States;
- delays in filing regulatory documents with the EMA, FDA or other regulatory agencies, or delays in the review process by the EMA, FDA or other foreign regulatory agencies;
- announcements relating to restructuring and other operational changes;
- delays in the commercialization of vosaroxin, SNS-062 or our future products, if any;
- our ability to complete a commercialization agreement for vosaroxin in Europe on satisfactory terms;
- market conditions in the pharmaceutical, biopharmaceutical and biotechnology sectors;
- issuance of new or changed securities analysts' reports or recommendations;
- developments or disputes concerning our intellectual property or other proprietary rights;
- clinical and regulatory developments with respect to potential competitive products;
- failure to maintain compliance with the covenants in the Loan Agreement;
- introduction of new products by our competitors;
- issues in manufacturing vosaroxin or SNS-062 drug substance or drug product, or future products, if any;
- market acceptance of vosaroxin, SNS-062 or our future products, if any;
- announcements relating to our arrangements with Biogen, Takeda or RPI;
- actual and anticipated fluctuations in our quarterly operating results;
- deviations in our operating results from the estimates of analysts;
- third-party healthcare reimbursement policies;
- EMA, FDA or other European, U.S. or foreign regulatory actions affecting us or our industry;
- litigation or public concern about the safety of vosaroxin, SNS-062 or future products, if any;
- failure to develop or sustain an active and liquid trading market for our common stock;
- sales of our common stock by our officers, directors or significant stockholders; and
- additions or departures of key personnel.

Provisions of our charter documents or Delaware law could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders, and could make it more difficult to change management.

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Provisions of our amended and restated certificate of incorporation and amended and restated bylaws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders might otherwise consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. In addition, these provisions may frustrate or prevent any attempt by our stockholders to replace or remove our current management by making it more difficult to replace or remove our board of directors. These provisions include:

- a classified board of directors so that not all directors are elected at one time;
- a prohibition on stockholder action through written consent;
- limitations on our stockholders' ability to call special meetings of stockholders;
- an advance notice requirement for stockholder proposals and nominations; and
- the authority of our board of directors to issue preferred stock with such terms as our board of directors may determine.

In addition, Delaware law prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person who, together with its affiliates, owns or within the last three years has owned 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. Accordingly, Delaware law may discourage, delay or prevent a change in control of our company.

Provisions in our charter documents and provisions of Delaware law could limit the price that investors are willing to pay in the future for shares of our common stock.

We have never paid dividends on our capital stock and we do not anticipate paying any cash dividends in the foreseeable future.

We have never declared or paid cash dividends on our capital stock. We do not anticipate paying any cash dividends on our capital stock in the foreseeable future. In addition, under the terms of our Loan Agreement with the Lenders, we are precluded from paying cash dividends without the prior written consent of the Lenders. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. As a result, capital appreciation, if any, of our common stock will be our stockholders' sole source of gain for the foreseeable future.

We are at risk of securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology companies have experienced greater than average stock price volatility in recent years. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business.

You will experience immediate and substantial dilution.

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 15,000,000 shares of our common stock are sold at a price of \$3.00 per share, the last reported sale price of our common stock on The NASDAQ Capital Market on November 3, 2017, for aggregate gross proceeds of \$45,000,000, and after deducting commissions and estimated aggregate offering expenses payable by us, you will experience immediate dilution of \$1.81 per share, representing the difference between our as adjusted net tangible book value per share as of September 30, 2017, after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options and warrants will result in further dilution of your investment. See the section captioned "Dilution" below for a more detailed illustration of the dilution you would incur if you participate in this offering.

You may experience future dilution as a result of future equity offerings.

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 at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less 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 securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

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Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

We currently intend to use the net proceeds from this offering for working capital, capital expenditures and general corporate purposes, which may include research and development expenses, general and administrative expenses and manufacturing expenses. Pending the use of net proceeds, we intend to invest the net proceeds in short-term, investment-grade, interest bearing obligations, certificates of deposit or direct or guaranteed obligations of the United States. Our management has broad discretion as to the use of these proceeds and you will be relying on the judgment of our management regarding the application of these proceeds. We might apply these proceeds in ways with which you do not agree, or in ways that do not yield a favorable return. If our management applies these proceeds in a manner that does not yield a significant return, if any, on our investment of these net proceeds, it could compromise our ability to pursue our growth strategy and adversely affect the market price of our common stock.

FORWARD-LOOKING STATEMENTS

This prospectus and the documents we have filed with the SEC that are incorporated by reference contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or the “safe harbor” created by those sections. These statements involve known and unknown risks, uncertainties and important 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 the forward-looking statements. All statements, other than statements of historical facts, are forward-looking statements for purposes of these provisions, including without limitation any statements relating to:

- our future research and development activities, including clinical testing and the costs and timing thereof;
- our strategy, including clinical development of SNS-062, our regulatory and clinical strategies for SNS-062, vosaroxin and other product candidates, and the clinical and commercial potential of SNS-062 and vosaroxin;
- sufficiency of our cash resources;
- our ability to raise additional funding when needed;
- any statements concerning anticipated regulatory activities or licensing or collaborative arrangements;
- our research and development and other expenses;
- our operations and legal risks;
- our intended use of the net proceeds from the offering under this prospectus; and
- any statement of assumptions underlying any of the foregoing.

In some cases, you can identify forward-looking statements by terms such as “anticipates,” “believe,” “continue,” “could,” “estimates,” “expects,” “intend,” “look forward,” “may,” “could,” “plans,” “potential,” or “will” or the negative thereof or other comparable terminology intended to identify forward-looking statements. Discussions containing these forward-looking statements may be found, among other places, in the “Business” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections incorporated by reference from our most recent Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC, and in Current Reports on Form 8-K filed with the SEC. Forward-looking statements reflect our current views with respect to future events, are based on assumptions and are subject to risks, uncertainties and other important factors. We discuss many of these risks, uncertainties and other important factors in greater detail under the heading “Risk Factors” in this prospectus and in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2017, which are incorporated by reference in this prospectus in their entirety. Given these risks, uncertainties and other important factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date such forward-looking statements are made. You should carefully read this prospectus together with the information incorporated herein by reference as described under the heading “Where You Can Find More Information,” in this prospectus, completely and with the understanding that our actual future results may be materially different from what we expect. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our business, results of operations and financial condition. We hereby qualify these forward looking statements by these cautionary statements.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future. You are advised, however, to consult any further disclosures we make on related subjects in our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

USE OF PROCEEDS

We currently intend to use the net proceeds from the sale of the securities by us hereunder for working capital, capital expenditures and general corporate purposes, which may include research and development expenses, general and administrative expenses and manufacturing expenses.

DILUTION

Our net tangible book value as of September 30, 2017, was \$2.9 million, or \$0.12 per share of common stock. Net tangible book value per share is calculated by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the number of shares of common stock outstanding. After giving effect to the sale of our common stock in the aggregate amount of \$45 million at an assumed offering price of \$3.00 per share, the last reported sale price of our common stock on The NASDAQ Capital Market on November 3, 2017, and after deducting estimated offering commissions and expenses payable by us, our net tangible book value as of September 30, 2017, would have been \$46.5 million, or \$1.19 per share of common stock. This represents an immediate increase in the net tangible book value of \$1.07 per share to our existing stockholders and an immediate and substantial dilution in net tangible book value of \$1.81 per share to new investors. The following table illustrates this per share dilution:

Assumed offering price per share		\$3.00
Net tangible book value per share as of September 30, 2017	\$0.12	
Increase per share attributable to new investors	<u>\$1.07</u>	
As-adjusted net tangible book value per share after this offering		<u>\$1.19</u>
Net dilution per share to new investors		\$1.81

The table above assumes for illustrative purposes that an aggregate of 15,000,000 shares of our common stock are sold at a price of \$3.00 per share, the last reported sale price of our common stock on The NASDAQ Capital Market on November 3, 2017, for aggregate gross proceeds of \$45,000,000. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$0.50 per share in the price at which the shares are sold from the assumed offering price of \$3.00 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$45 million is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$1.26 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$2.24 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$0.50 per share in the price at which the shares are sold from the assumed offering price of \$3.00 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$45 million is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$1.11 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$1.39 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

The above discussion and table are based on 23,998,692 shares of our common stock outstanding as of the close of business on September 30, 2017. This number excludes, as of the close of business on September 30, 2017:

- options representing the right to purchase a total of 2,458,126 shares of common stock at a weighted average exercise price of \$7.36 per share;
- 1,164,722 shares of common stock which were reserved for future equity awards that may be granted in the future under our equity incentive plans;
- 202,773 shares of common stock which were reserved for issuance under our employee stock purchase plan;
- warrants representing the right to purchase a total of 218,247 shares of common stock at exercise prices between \$3.25 and \$13.32 per share;
- 2,273,170 shares of our common stock, issuable upon conversion of 13,639 shares of our Series B Convertible Preferred Stock;
- 1,558,000 shares of our common stock issuable upon the conversion of 1,558 shares of our Series C Convertible Preferred Stock; and
- a total of 7,500,000 shares of common stock, 2,500,000 shares of common stock issuable upon conversion of 2,500 shares of our Series D Convertible Preferred Stock, and 5,000,000 shares of common stock issuable upon exercise of warrants, which common stock, Series D Convertible Preferred Stock and warrants were issued in our offerings conducted in October 2017.

To the extent that outstanding options have been or may be exercised or other shares issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our amended and restated certificate of incorporation, as amended, authorizes us to issue 400,000,000 shares of common stock, \$0.0001 par value per share, and 10,000,000 shares of preferred stock, \$0.0001 par value per share.

The following summary describes the material terms of our capital stock. The description of our capital stock is based on the provisions of our amended and restated certificate of incorporation and amended bylaws, and the applicable provisions of the Delaware General Corporation Law, or DGCL. This information may not be complete in all respects and is qualified entirely by reference to our amended and restated certificate of incorporation, our amended and restated bylaws and the Delaware General Corporation Law. For more information on how to obtain copies of our amended and restated certificate of incorporation and our amended and restated bylaws which are incorporated by reference as exhibits into the registration statement of which this prospectus is a part, please see the section captioned “Where You Can Find More Information” in this prospectus.

Common Stock

The holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders and do not have cumulative voting rights with respect to the election of directors. Generally, all matters to be voted on by stockholders must be approved by the holders of a majority of the common stock and preferred stock (voting together as a single class on an as-if converted basis), or, in the case of the election of directors, a plurality, represented at a meeting at which a quorum is present. Subject to preferences that may be applicable to the outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably such dividends as may be declared by the board of directors out of funds legally available therefor. Upon the liquidation, dissolution or winding up of Sunesis, holders of our common stock are entitled to share ratably in all assets legally available for distribution to stockholders remaining after payment of liabilities and the liquidation preferences of outstanding shares of preferred stock. Holders of common stock have no preemptive rights and no right to convert their common stock into any other securities. There are no redemption or sinking fund provisions applicable to our common stock. All outstanding shares of common stock are, and all shares of common stock to be outstanding upon the completion of any offering pursuant to this registration statement of which this prospectus is a part, will be fully paid and non-assessable.

Preferred Stock

General. Our amended and restated certificate of incorporation authorizes our board of directors to issue up to 10,000,000 shares of our preferred stock, par value \$0.0001 per share.

Subject to the limitations prescribed by our amended and restated certificate of incorporation, our board of directors is authorized to establish the number of shares constituting each series of preferred stock and to fix the designations, powers, preferences and rights of the shares of each of those series and the qualifications, limitations and restrictions of each of those series, all without any further vote or action by our stockholders.

Series A Preferred Stock

Our board of directors has designated 5,000,000 of the 10,000,000 authorized shares of preferred stock as Series A Preferred Stock. The following summary of certain terms and provisions of the Series A Preferred Stock is subject to, and qualified in its entirety by reference to, the terms and provisions set forth in our certificate of designation of preferences, rights and limitations of Series A Convertible Preferred Stock, as amended. The Series A Preferred Stock ranks senior to all of our common stock in each case, as to distributions of assets upon our liquidation, dissolution or winding up whether voluntarily or involuntarily. Each share of the Series A Preferred Stock is convertible into shares of our common stock at any time at the option of the holder at the Series A Preferred Conversion Rate (as calculated in the certificate of designation). In the event of our liquidation, dissolution, or winding up, holders of the Series A Preferred Stock will receive a payment equal to \$10.35 per share (subject to adjustment as provided in the related certificate of designation of preferences) of Series A Preferred Stock before any proceeds are distributed to the holders of our common stock. The shares of Series A Preferred Stock will generally vote together with share of common stock on all matters, and the consent of holders of a majority of the outstanding Series A Preferred Stock will be required for certain actions such as amendment of the terms of the Certificate of Incorporation or Bylaws or a change of control. The shares of Series A Preferred Stock will be entitled to receive any dividends payable to holder of common stock. The shares of Series A Preferred Stock are not entitled to any redemption rights. We have not listed the Series A Preferred Stock on The NASDAQ Capital Market, any national securities exchange or other nationally recognized trading system. The common stock issuable upon conversion of the Series A Preferred Stock has been listed on The NASDAQ Capital Market.

Series B Preferred Stock

Our board of directors has designated 30,000 of the 10,000,000 authorized shares of preferred stock as Series B Preferred Stock. The following summary of certain terms and provisions of the Series B Preferred Stock is subject to, and qualified in its entirety by reference to, the terms and provisions set forth in our certificate of designation of preferences, rights and limitations of Series B Convertible Preferred Stock.

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Rank. The Series B Preferred Stock ranks:

- senior to all of our common stock;
- senior to our authorized but unissued Series A Preferred Stock;
- senior to any class or series of our capital stock hereafter created specifically ranking by its terms junior to the Series B Preferred Stock;
- on parity with any class or series of our capital stock hereafter created specifically ranking by its terms on parity with the Series B Preferred Stock; and
- junior to any class or series of our capital stock hereafter created specifically ranking by its terms senior to the Series B Preferred Stock;

in each case, as to distributions of assets upon our liquidation, dissolution or winding up whether voluntarily or involuntarily.

Conversion. Each share of the Series B Preferred Stock is convertible into 166 shares of our common stock (subject to adjustment as provided in the related certificate of designation of preferences) at any time at the option of the holder, provided that the holder will be prohibited from converting the Series B Preferred Stock into shares of our common stock if, as a result of such conversion, the holder, together with its affiliates, would own more than 9.98% of the total number of shares of our common stock then issued and outstanding.

Liquidation Preference. In the event of our liquidation, dissolution, or winding up, holders of the Series B Preferred Stock will receive a payment equal to \$0.0001 per share of Series B Preferred Stock before any proceeds are distributed to the holders of our common stock.

Voting Rights. The shares of Series B Preferred Stock will generally have no voting rights, except as required by law and except that the consent of holders of a majority of the outstanding Series B Preferred Stock will be required to amend the terms of the Series B Preferred Stock.

Dividends. The shares of Series B Preferred Stock will not be entitled to receive any dividends, unless and until specifically declared by our board of directors.

Redemption. We are not obligated to redeem or repurchase any shares of Series B Preferred Stock. The shares of Series B Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous fund provisions.

Exchange Listing. We have not listed the Series B Preferred Stock on The NASDAQ Capital Market, any national securities exchange or other nationally recognized trading system. The common stock issuable upon conversion of the Series B Preferred Stock has been listed on The NASDAQ Capital Market.

Series C Preferred Stock

Our board of directors has designated 3,000 of the 10,000,000 authorized shares of preferred stock as Series C Preferred Stock. The following summary of certain terms and provisions of the Series C Preferred is subject to, and qualified in its entirety by reference to, the terms and provisions set forth in our certificate of designation of preferences, rights and limitations of Series C Convertible Preferred Stock.

Rank. The Series C Preferred Stock ranks:

- senior to all of our common stock;
- senior to our authorized but unissued Series A Preferred Stock;
- senior to any class or series of our capital stock hereafter created specifically ranking by its terms junior to the Series C Preferred Stock;
- on parity with all of our Series B Preferred Stock;
- on parity with any class or series of our capital stock hereafter created specifically ranking by its terms on parity with the Series C Preferred Stock; and
- junior to any class or series of our capital stock hereafter created specifically ranking by its terms senior to the Series C Preferred Stock;

in each case, as to distributions of assets upon our liquidation, dissolution or winding up whether voluntarily or involuntarily.

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Conversion. Each share of the Series C Preferred Stock is convertible into 1,000 shares of our common stock (subject to adjustment as provided in the related certificate of designation of preferences) at any time at the option of the holder, provided that the holder will be prohibited from converting the Series C Preferred Stock into shares of our common stock if, as a result of such conversion, the holder, together with its affiliates, would own more than 9.98% of the total number of shares of our common stock then issued and outstanding.

Liquidation Preference. In the event of our liquidation, dissolution, or winding up, holders of the Series C Preferred Stock will receive a payment equal to \$0.0001 per share of Series C Preferred Stock before any proceeds are distributed to the holders of our common stock.

Voting Rights. The shares of Series C Preferred Stock will generally have no voting rights, except as required by law and except that the consent of holders of a majority of the outstanding Series C Preferred Stock will be required to amend the terms of the Series C Preferred Stock.

Dividends. The shares of Series C Preferred Stock will not be entitled to receive any dividends, unless and until specifically declared by our board of directors.

Redemption. We are not obligated to redeem or repurchase any shares of Series C Preferred Stock. The shares of Series C Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous fund provisions.

Fundamental Transaction. If a fundamental transaction (as defined below) occurs while any of the Series C Preferred Stock is outstanding, then upon any subsequent conversion of this Series C Preferred Stock the holders shall have the right to receive, in lieu of the right to receive the shares of our common stock that would have been issuable upon such conversion immediately prior to the occurrence of such fundamental transaction, the same kind and amount of securities, cash or property as such holder would have been entitled to receive upon the occurrence of such fundamental transaction if it had been, immediately prior to such fundamental transaction, the holder of one share of our common stock, the Alternate Consideration. For purposes of any such subsequent conversion, the determination of the conversion ratio of the Series C Preferred Stock will be adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of our common stock in the fundamental transaction, and we will adjust the conversion ratio of the Series C Preferred Stock in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of our common stock are given any choice as to the securities, cash or property to be received in a fundamental transaction, then the holders of the Series C Preferred Stock will be given the same choice as to the Alternate Consideration they receive upon any conversion of this Series C Preferred Stock.

To the extent the surviving corporation following a fundamental transaction is not our company, any successor or surviving entity in the fundamental transaction will file a new certificate of designations with the same terms and conditions and issue to the holders of the Series C Preferred Stock new preferred stock consistent with the foregoing provisions. The terms of any agreement to which we are a party and pursuant to which a fundamental transaction is effected shall include terms requiring any such successor or surviving entity to assume all our obligations set forth in the certificate of designations of the Series C Preferred “Fundamental transaction” means (A) we affect any merger or consolidation with or into another person (other than a merger in which we are the surviving or continuing entity and our common stock is not exchanged for or converted into other securities, cash or property), (B) we effect any sale of all or substantially all of our assets in one transaction or a series of related transactions, (C) any tender offer or exchange offer (whether by us or another person) is completed pursuant to which all of our common stock is exchanged for or converted into other securities, cash or property, or (D) we effect any reclassification of our common stock or any compulsory share exchange pursuant (other than as a result of specified dividends, subdivisions or combinations) to which our common stock is effectively converted into or exchanged for other securities, cash or property.

Exchange Listing. We have not listed the Series C Preferred Stock on The NASDAQ Capital Market, any national securities exchange or other nationally recognized trading system. The common stock issuable upon conversion of the Series C Preferred Stock has been listed on The NASDAQ Capital Market.

Series D Preferred Stock

Our board of directors has designated 2,500 of the 10,000,000 authorized shares of preferred stock as Series D Preferred Stock. The following summary of certain terms and provisions of the Series D Preferred is subject to, and qualified in its entirety by reference to, the terms and provisions set forth in our certificate of designation of preferences, rights and limitations of Series D Convertible Preferred Stock.

Rank. The Series D Preferred Stock ranks:

- senior to all of our common stock;
- senior to our authorized but unissued Series A Preferred Stock;
- senior to any class or series of our capital stock hereafter created specifically ranking by its terms junior to the Series D Preferred Stock;

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- on parity with all of our Series B Preferred Stock;
- on parity with all of our Series C Preferred Stock;
- on parity with any class or series of our capital stock hereafter created specifically ranking by its terms on parity with the Series D Preferred Stock; and
- junior to any class or series of our capital stock hereafter created specifically ranking by its terms senior to the Series D Preferred Stock;

in each case, as to distributions of assets upon our liquidation, dissolution or winding up whether voluntarily or involuntarily.

Conversion. Each share of the Series D Preferred Stock is convertible into 1,000 shares of our common stock (subject to adjustment as provided in the related certificate of designation of preferences) at any time at the option of the holder, provided that the holder will be prohibited from converting the Series D Preferred Stock into shares of our common stock if, as a result of such conversion, the holder, together with its affiliates, would own more than 9.98% of the total number of shares of our common stock then issued and outstanding.

Liquidation Preference. In the event of our liquidation, dissolution, or winding up, holders of the Series D Preferred Stock will receive a payment equal to \$0.0001 per share of Series D Preferred Stock before any proceeds are distributed to the holders of our common stock.

Voting Rights. The shares of Series D Preferred Stock will generally have no voting rights, except as required by law and except that the consent of holders of a majority of the outstanding Series D Preferred Stock will be required to amend the terms of the Series D Preferred Stock.

Dividends. The shares of Series D Preferred Stock will not be entitled to receive any dividends, unless and until specifically declared by our board of directors.

Redemption. We are not obligated to redeem or repurchase any shares of Series D Preferred Stock. The shares of Series D Preferred Stock are not otherwise entitled to any redemption rights, or mandatory sinking fund or analogous fund provisions.

Fundamental Transaction. If a fundamental transaction (as defined below) occurs while any of the Series D Preferred Stock is outstanding, then upon any subsequent conversion of this Series D Preferred Stock the holders shall have the right to receive, in lieu of the right to receive the shares of our common stock that would have been issuable upon such conversion immediately prior to the occurrence of such fundamental transaction, the same kind and amount of securities, cash or property as such holder would have been entitled to receive upon the occurrence of such fundamental transaction if it had been, immediately prior to such fundamental transaction, the holder of one share of our common stock, the Alternate Consideration. For purposes of any such subsequent conversion, the determination of the conversion ratio of the Series D Preferred Stock will be adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of our common stock in the fundamental transaction, and we will adjust the conversion ratio of the Series D Preferred Stock in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of our common stock are given any choice as to the securities, cash or property to be received in a fundamental transaction, then the holders of the Series D Preferred Stock will be given the same choice as to the Alternate Consideration they receive upon any conversion of this Series D Preferred Stock.

To the extent the surviving corporation following a fundamental transaction is not our company, any successor or surviving entity in the fundamental transaction will file a new certificate of designations with the same terms and conditions and issue to the holders of the Series D Preferred Stock new preferred stock consistent with the foregoing provisions. The terms of any agreement to which we are a party and pursuant to which a fundamental transaction is effected shall include terms requiring any such successor or surviving entity to assume all our obligations set forth in the certificate of designations of the Series D Preferred Stock.

“Fundamental transaction” means (A) we effect any merger or consolidation with or into another person (other than a merger in which we are the surviving or continuing entity and our common stock is not exchanged for or converted into other securities, cash or property), (B) we effect any sale of all or substantially all of our assets in one transaction or a series of related transactions, (C) any tender offer or exchange offer (whether by us or another person) is completed pursuant to which all of our common stock is exchanged for or converted into other securities, cash or property, or (D) we effect any reclassification of our common stock or any compulsory share exchange pursuant (other than as a result of specified dividends, subdivisions or combinations) to which our common stock is effectively converted into or exchanged for other securities, cash or property.

Exchange Listing. We have not listed the Series D Preferred Stock on the NASDAQ Capital Market, any national securities exchange or other nationally recognized trading system. The common stock issuable upon conversion of the Series D Preferred Stock has been listed on the NASDAQ Capital Market.

The General Corporation Law of the State of Delaware, the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

Anti-Takeover Effects of Provisions of Charter Documents and Delaware Law

Charter Documents. In accordance with our amended and restated certificate of incorporation, our board of directors is divided into three classes, with staggered three-year terms. Only one class of directors is elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, in the case of the election of directors, holders of a plurality of the common stock represented at a meeting at which a quorum is present will be able to elect all of our directors. Our amended and restated certificate of incorporation and amended and restated bylaws provide that all actions taken by the holders of common stock must be effected at a duly called meeting of stockholders and not by a consent in writing, and that only our board of directors, chairman of the board, chief executive officer, or president (in the absence of a chief executive officer) or holder of greater than 10% of our common stock may call a special meeting of stockholders. Our amended and restated certificate of incorporation requires a 66- 2/3% stockholder vote for the amendment, repeal or modification of certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws relating to the absence of cumulative voting, the classification of our board of directors, the requirement that stockholder actions be effected at a duly called meeting, and the designated parties entitled to call a special meeting of the stockholders.

The classification of our board of directors, the lack of cumulative voting and the 66- 2/3% stockholder voting requirements make it more difficult for our existing common stockholders to replace our board of directors as well as for another party to obtain control of us by replacing our board of directors. Since our board of directors has the power to retain and discharge our officers, these provisions could also make it more difficult for existing common stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for our board of directors to issue shares of preferred stock with voting or other rights or preferences that could impede the success of any attempt to change our control.

These provisions may have the effect of deterring hostile takeovers or delaying changes in our control or management. These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage certain types of transactions that may involve an actual or threatened change in control. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts. Such provisions also may have the effect of preventing changes in our management.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the DGCL, which prohibits a Delaware corporation from engaging in a business combination with any interested stockholder for a period of three years following the date the person became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested holder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (a) by persons who are directors and also officers and (b) pursuant to employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; and
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 of the DGCL defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; and

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- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits by or through the corporation.

Section 203 of the DGCL defines an “interested stockholder” as an entity or person who, together with the entity’s or person’s affiliates and associates, beneficially owns, or is an affiliate of the corporation and within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation. A Delaware corporation may “opt out” of these provisions with an express provision in its certificate of incorporation. We have not opted out of these provisions, which may as a result, discourage or prevent mergers or other takeover or change of control attempts of us.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company. Its address is 6201 15th Avenue, Brooklyn, New York 11219. Its phone number is (718) 921-8124.

Listing on the NASDAQ Capital Market

Our common stock is listed on the NASDAQ Capital Market under the symbol “SNSS.”

PLAN OF DISTRIBUTION

On August 11, 2011, we entered into a Controlled Equity OfferingSM sales agreement, or the Sales Agreement, with Cantor, under which we may issue and sell our common stock having an aggregate gross sales price of up to \$20.0 million from time to time through Cantor acting as agent and/or principal. We entered into an amendment to the Sales Agreement on April 10, 2013 and March 12, 2015, or the 2013 Amendment and 2015 Amendment, respectively, to primarily provide for an increase in the offering sales price under the Sales Agreement and again entered into an amendment to the Sales Agreement, or the Amendment, on November 7, 2017, to primarily provide for an increase in the offering sales price under the Sales Agreement by an additional \$41.51 million. After the Amendment, as of November 7, 2017, we have \$45.0 million of common stock available for sale pursuant to the Sales Agreement, as amended. The Sales Agreement was filed as an exhibit to Current Report on Form 8-K filed with the SEC on August 11, 2011, the 2013 Amendment was filed as an exhibit to a Current Report on Form 8-K filed with the SEC on April 10, 2013, the 2015 Amendment was filed as an exhibit to a Current Report on Form 8-K filed with the SEC on March 12, 2015, and the Amendment was filed as an exhibit to a Current Report on Form 8-K filed with the SEC on November 7, 2017.

Upon delivery of a placement notice and subject to the terms and conditions of the Sales Agreement, as amended, Cantor may sell our common stock by any method permitted by law deemed to be an “at-the-market” offering as defined in Rule 415 promulgated under the Securities Act, including sales made directly on The NASDAQ Capital Market, or on any other existing trading market for our common stock. We may instruct Cantor not to sell common stock if the sales cannot be effected at or above the price designated by us from time to time. We or Cantor may suspend the offering of common stock upon notice and subject to other conditions

We will pay Cantor commissions for its services in acting as agent in the sale of common stock. Cantor will be entitled to compensation at a fixed commission rate of 3.0% of the gross sales price per share sold. We estimate that the total expenses for the offering, excluding compensation payable to Cantor under the terms of the Sales Agreement, as amended, will be approximately \$75,000. Cantor has entered into a fee sharing agreement with Cowen and Company LLC, or Cowen, pursuant to which Cowen will be entitled to receive one third (1/3) of the net commissions payable to Cantor, solely with respect to the additional up to \$30.0 million of sales of our common stock under the Sales Agreement, as amended, in consideration for Cowen’s services to us as a financial advisor under this offering. Other than serving as a financial advisor to us, Cowen will have no other obligation or responsibility in connection with the sale of the common stock covered by this prospectus.

Settlement for sales of common stock will occur on the second business day following the date on which any sales are made, or on some other date that is agreed upon by us and Cantor in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our common stock as contemplated in this prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and Cantor may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

Cantor will use its commercially reasonable efforts, consistent with its normal trading and sales practices, to solicit offers to purchase the common stock shares under the terms and subject to the conditions set forth in the Sales Agreement, as amended. In connection with the sale of the common stock on our behalf, Cantor will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Cantor will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Cantor against certain civil liabilities, including liabilities under the Securities Act. We have also agreed to reimburse Cantor for certain other specified expenses.

Under the terms of the Sales Agreement, as amended, we also may sell our common stock to Cantor, as principal for its own account, at a price negotiated at the time of sale. If we sell shares to Cantor in this manner, we will enter into a separate agreement setting forth the terms of such transaction, and we will describe the agreement in a separate prospectus supplement or pricing supplement.

The offering pursuant to the Sales Agreement, as amended, will terminate upon the earlier of (i) the sale of shares of our common stock subject to the Sales Agreement, as amended, or (ii) termination of the Sales Agreement, as amended, as permitted therein. We and Cantor may each terminate the sales agreement at any time upon ten days’ prior notice.

Cantor and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees. To the extent required by Regulation M, Cantor will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus.

This prospectus in electronic format may be made available on a website maintained by Cantor and Cantor may distribute this prospectus electronically.

LEGAL MATTERS

The validity of the shares of common stock being offered has been passed upon for us by Cooley LLP, Palo Alto, California. Cantor is being represented in connection with this offering by Reed Smith 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, 2016, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements as of December 31, 2016, are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all of the information set forth in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document.

Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You also may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Sunesis Pharmaceuticals, Inc. The SEC's Internet site can be found at www.sec.gov.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to other documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus. We incorporate by reference into this prospectus and the registration statement of which this prospectus is a part the information or documents listed below that we have filed with the SEC (Commission File No. 000-51531):

- our Annual Report on Form 10-K for the year ended December 31, 2016, filed with the SEC on March 9, 2017;
- the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2016, from our definitive proxy statement in connection with our 2017 Annual Meeting of Stockholders, filed with the SEC on April 20, 2017;
- our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2017, filed with the SEC on May 8, 2017, for the quarter ended June 30, 2017, filed with the SEC on July 27, 2017, and for the quarter ended September 30, 2017, filed with the SEC on November 2, 2017;
- our Current Reports on Form 8-K, filed with the SEC on March 27, 2017, April 12, 2017, April 28, 2017, May 1, 2017, June 5, 2017, June 30, 2017, August 28, 2017, October 26, 2017, and November 7, 2017; and
- the description of our common stock, which is registered under Section 12 of the Exchange Act, in our registration statement on Form 8-A, filed with the SEC on September 19, 2005, including any amendments or reports filed for the purpose of updating such description.

We also incorporate by reference any future filings (other than Current Reports or portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus and will become a part of this prospectus from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

You may request a copy of these filings, at no cost, by writing to or telephoning us at the following address:

Sunesis Pharmaceuticals, Inc.
Attention: Corporate Secretary
395 Oyster Point Boulevard, Suite 400
South San Francisco, California 94080
(650) 266-3500



SUNESIS

Up to \$45,000,000 of Shares

Common Stock

PROSPECTUS



November 21, 2017
