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

**FORM S-8
REGISTRATION STATEMENT
UNDER
*THE SECURITIES ACT OF 1933***

AUSPEX PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

3333 N. Torrey Pines Court, Suite 400
San Diego, California
(Address of Principal Executive Offices)

95-4862842
(I.R.S. Employer
Identification No.)

92037
(Zip Code)

2014 Equity Incentive Plan
2014 Employee Stock Purchase Plan
(Full titles of the plans)

Pratik Shah, Ph.D.
President and Chief Executive Officer

Auspex Pharmaceuticals, Inc.
3333 N. Torrey Pines Court, Suite 400
San Diego, California 92037
(858) 558-2400

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Frederick T. Muto, Esq.
Kenneth J. Rollins, Esq.
Cooley LLP
4401 Eastgate Mall
San Diego, California 92121
Tel: (858) 550-6000

John Schmid
Chief Financial Officer
Auspex Pharmaceuticals, Inc.
3333 N. Torrey Pines Court, Suite 400
San Diego, California 92037
(858) 558-2400

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of “large accelerated filer,” “accelerated filer” and “smaller reporting company” in Rule 12b-2 of the Exchange Act. (Check one):

Large Accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input type="checkbox"/>

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
2014 Equity Incentive Plan Common Stock, \$0.0001 par value per share	1,109,847 shares (3)	\$69.19	\$76,790,314	\$8,924
2014 Employee Stock Purchase Plan Common Stock, \$0.0001 par value per share	277,461 shares (4)	\$69.19	\$19,197,527	\$2,231

- (1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the “Securities Act”), this Registration Statement shall also cover any additional shares of the Registrant’s Common Stock (“Common Stock”) that become issuable under the plans by reason of any stock dividend, stock split, recapitalization or other similar transaction.
- (2) This estimate is made pursuant to Rule 457(h)(1) and Rule 457(c) of the Securities Act solely for purposes of calculating the registration fee. The price per share and aggregate offering price are based upon the average of the high and low prices of the Common Stock on March 9, 2015, as reported on the Nasdaq Stock Market.
- (3) Represents shares of Common Stock that were automatically added to the shares authorized for issuance under the Auspex Pharmaceuticals, Inc. 2014 Equity Incentive Plan (the “2014 Plan”) on January 1, 2015 pursuant to an “evergreen” provision contained in the 2014 EIP. Pursuant to such provision, on January 1 of each year from 2015 until 2024, the number of shares authorized for issuance under the 2014 EIP is automatically increased by: (a) a number equal to 4% of the total number of shares of Common Stock outstanding on December 31 of the preceding calendar year; or (b) a number of shares of Common Stock that may be determined by the Registrant’s board of directors (the “Board”) that is less than the preceding clause (a).
- (4) Represents shares of Common Stock that were automatically added to the shares authorized for issuance under the Auspex Pharmaceuticals, Inc. 2014 Employee Stock Purchase Plan (the “2014 ESPP”) on January 1, 2015 pursuant to an “evergreen” provision contained in the 2014 ESPP. Pursuant to such provision, on January 1 of each year from 2015 until 2024, the number of shares authorized for issuance under the 2014 ESPP is automatically increased by a number equal to the least of: (a) 1% of the total number of shares of Common Stock outstanding on December 31 of the preceding calendar year; (b) 530,000 shares of Common Stock; or (c) a number of shares of Common Stock that may be determined by the Board that is less than the preceding clauses (a) and (b).

INCORPORATION OF DOCUMENTS BY REFERENCE

This Registration Statement is being filed for the purpose of increasing the number of securities of the same class as other securities for which a Registration Statement of the Registrant on Form S-8 relating to the same employee benefit plans is effective.

The Registrant previously registered shares of its Common Stock for issuance under the 2014 EIP and the 2014 ESPP under a Registration Statement on Form S-8 filed with the Securities and Exchange Commission (the “Commission”) on February 5, 2014 (File No. 333-193775). Pursuant to General Instruction E to Form S-8, this Registration Statement hereby incorporates by reference the contents of the Registration Statement referenced above.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on March 16, 2015.

AUSPEX PHARMACEUTICALS, INC.

By: /s/ Pratik Shah

Pratik Shah, Ph.D.

President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Pratik Shah, Ph.D. and John Schmid, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments to this Registration

Statement (including post-effective amendments), and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
<div>/s/ Pratik Shah, Ph.D.</div> <div>Pratik Shah, Ph.D.</div>	President, Chief Executive Officer and Member of the Board of Directors <i>(Principal Executive Officer)</i>	March 16, 2015
<div>/s/ John Schmid</div> <div>John Schmid</div>	Chief Financial Officer <i>(Principal Financial and Accounting Officer)</i>	March 16, 2015
<div>/s/ Samuel Saks, M.D.</div> <div>Samuel Saks, M.D.</div>	Chief Development Officer and Member of the Board of Directors	March 16, 2015
<div>/s/ Lynn D. Bleil</div> <div>Lynn D. Bleil</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ Rod Ferguson, Ph.D.</div> <div>Rod Ferguson, Ph.D.</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ R. Scott Greer</div> <div>R. Scott Greer</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ Gerald Proehl</div> <div>Gerald Proehl</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ Sepehr Sarshar, Ph.D.</div> <div>Sepehr Sarshar, Ph.D.</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ Phillip M. Schneider</div> <div>Phillip M. Schneider</div>	Member of the Board of Directors	March 16, 2015
<div>/s/ Alex Zisson</div> <div>Alex Zisson</div>	Member of the Board of Directors	March 16, 2015

EXHIBIT INDEX

**Exhibit
Number****Description**

4.1 ⁽¹⁾	Amended and Restated Certificate of Incorporation of the Registrant.
4.2 ⁽²⁾	Amended and Restated Bylaws of the Registrant.
4.3 ⁽³⁾	Form of Common Stock Certificate of the Registrant.
5.1	Opinion of Cooley LLP.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Cooley LLP. Reference is made to Exhibit 5.1.
24.1	Power of Attorney. Reference is made to the signature page hereto.
99.2 ⁽⁴⁾	Auspex Pharmaceuticals, Inc. 2014 Equity Incentive Plan and Forms of Stock Option Agreement, Notice of Exercise and Stock Option Grant Notice thereunder.
99.3 ⁽⁵⁾	Auspex Pharmaceuticals, Inc. 2014 Employee Stock Purchase Plan.

⁽¹⁾ Previously filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed with the Commission on February 11, 2014, and incorporated herein by reference.

⁽²⁾ Previously filed as Exhibit 3.2 to the Registrant's Quarterly Report on Form 10-Q, filed with the Commission on May 14, 2014, and incorporated herein by reference.

⁽³⁾ Previously filed as Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-193013), originally filed with the Commission on December 20, 2013, as amended, and incorporated herein by reference.

⁽⁴⁾ Previously filed as Exhibit 10.3 to the Registrant's Registration Statement on Form S-1 (File No. 333-193013), originally filed with the Commission on December 20, 2013, as amended, and incorporated herein by reference.

⁽⁵⁾ Previously filed as Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 (File No. 333-193013), originally filed with the Commission on December 20, 2013, as amended, and incorporated herein by reference.