
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**FORM S-3
REGISTRATION STATEMENT**

*UNDER
THE SECURITIES ACT OF 1933*

A.P. Pharma, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

94-2875566
(I.R.S. Employer
Identification No.)

123 Saginaw Drive
Redwood City, CA 94063
(650) 366-2626

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

John B. Whelan
Acting Chief Executive Officer
Chief Financial Officer
A. P. Pharma, Inc.
123 Saginaw Drive
Redwood City, California 94063
(650) 366-2626

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

Copies to:
Alan C. Mendelson, Esq.
Latham & Watkins LLP
140 Scott Drive
Menlo Park, CA 94025
(650) 328-4600

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

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

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b2 of the Exchange Act.

Large accelerated filer Accelerated filer
Non-accelerated filer (Do not check if a smaller reporting company) Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title Of Each Class Of Securities To Be Registered	Amount to be Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit (2)	Proposed Maximum Aggregate Offering Price	Amount Of Registration Fee
Common Stock, \$0.01 par value per share	421,926 shares	\$0.71	\$299,568 ⁽²⁾	\$22
Common Stock, par value \$0.01 per share, issuable upon exercise of warrants to purchase shares of common stock	3,977,270 shares	\$0.71	2,823,862	202
Total	4,399,196 shares		\$3,123,430	\$224

- (1) Pursuant to Rule 416(a) of the Securities Act of 1933, as amended, this registration statement also covers such additional shares as may hereafter be offered or issued to prevent dilution resulting from stock splits, stock dividends, recapitalizations or certain other capital adjustments.
- (2) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(c) under the Securities Act of 1933, as amended. The price per share and aggregate offering price are based on the average of the high and low prices of the registrant's common stock on June 28, 2010 as reported on the Nasdaq Capital Market.

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

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

Subject to Completion, Dated June 30, 2010

PROSPECTUS



A. P. PHARMA, INC.

4,399,196 Shares of Common Stock

This prospectus relates to the proposed resale or other disposition of up to 4,399,196 shares of A.P. Pharma, Inc. common stock, \$0.01 par value per share, by the selling stockholders identified in this prospectus. Of these shares, 421,926 shares are outstanding shares of common stock held by the selling stockholders identified in this prospectus and 3,977,270 shares are shares of common stock issuable upon exercise of warrants held by the selling stockholders identified in this prospectus. We are not selling any common stock under this prospectus and will not receive any of the proceeds from the sale or other disposition of shares by the selling stockholders. We will, however, receive the net proceeds of any warrants exercised for cash.

The selling stockholders or their pledgees, assignees or successors-in-interest may offer and sell or otherwise dispose of the shares of common stock described in this prospectus from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. The selling stockholders will bear all commissions and discounts, if any, attributable to the sales of shares. We will bear all other costs, expenses and fees in connection with the registration of the shares. See "Plan of Distribution" beginning on page 8 for more information about how the selling stockholders may sell or dispose of their shares of common stock.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 1.

Our common stock is traded on the Nasdaq Capital Market under the symbol "APPA". On June 29, 2010, the last reported sale price for our common stock on the Nasdaq Capital Market was \$0.65 per share.

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

The date of this prospectus is _____, 2010

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ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under this shelf registration process, certain selling stockholders may from time to time sell the shares of common stock described in this prospectus in one or more offerings.

We have not authorized anyone to give any information or to make any representation other than those contained or incorporated by reference in this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus. The selling stockholders are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where it is lawful to do so. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any shares other than the registered shares to which they relate, nor does this prospectus constitute an offer to sell or the solicitation of an offer to buy shares in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or shares are sold on a later date.

Unless the context requires otherwise, in this prospectus the terms “A.P. Pharma, Inc.,” “the Company,” “we,” “us” and “our” refer to A.P. Pharma, Inc. A.P. Pharma and Biochronomer are our registered trademarks. Other trademarks, trade names and service marks used in this prospectus are the property of their respective owners.

ABOUT THE COMPANY

A.P. Pharma is a specialty pharmaceutical company focused on developing products using our proprietary Biochronomer polymer-based drug delivery technology. Our primary focus is on our lead product candidate, APF530, which is being developed for the prevention of chemotherapy-induced nausea and vomiting (CINV). APF530 contains the 5-HT₃ antagonist, granisetron, formulated in our proprietary Biochronomer drug delivery system, which allows therapeutic drug levels to be maintained for five days with a single subcutaneous injection. In May 2009, we filed a New Drug Application (NDA) with the U.S. Federal Drug Administration (FDA) seeking approval for APF530. In March 2010, we received a Complete Response Letter on the APF530 NDA and we intend to respond to the issues in the Complete Response Letter in as timely and expeditious a manner as possible. Until we meet with the FDA and clarify the actions we need to take prior to resubmitting the NDA for APF530, we will not know what additional expenses and how much time may be required for approval of APF530. If we obtain regulatory approval for APF530, we intend to seek a collaborative arrangement to commercialize APF530.

Our core Biochronomer technology, on which APF530 and our other products are based, consists of bioerodible polymers designed to release drugs over a defined period of time. We have completed over 100 in vivo and in vitro studies demonstrating that our Biochronomer technology is potentially applicable to a range of therapeutic areas, including prevention of nausea and vomiting, pain management, control of inflammation and treatment of ophthalmic diseases. We have also completed comprehensive animal and human toxicology studies that have established that our Biochronomer polymers are generally well tolerated. Furthermore, we believe that our Biochronomer technology can be designed to deliver drugs over periods varying from days to several months.

In addition to APF530, we have a pipeline of other product candidates that use our Biochronomer technology. One product candidate, an undisclosed opiate for a long-acting pain management product, has been licensed on a world-wide basis to Merial Limited for use with companion animals. Further development of our pipeline products has been temporarily deferred in order to focus managerial, technical and financial resources on a resubmission responsive to issues identified in the March 2010 Complete Response Letter.

We were founded in February 1983 as a California corporation under the name AMCO Polymeric, Inc., or AMCO. AMCO changed its name to Advanced Polymer Systems, Inc. in 1984 and was reincorporated in the state of Delaware in 1987. We changed our name to A.P. Pharma, Inc. in May 2001 to reflect our new pharmaceutical focus. Our offices are located at 123 Saginaw Drive, Redwood City, California 94063. Our telephone number is (650) 366-2626. Our website is located at www.appharma.com. Information contained on, or that can be accessed through, our website is not part of this prospectus.

RISK FACTORS

Before you decide whether to purchase any of our common stock, in addition to the other information in this prospectus, you should carefully consider the risk factors set forth below and under the heading "Risk Factors" in our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q, which are incorporated by reference into this prospectus, as the same may be updated from time to time by our future filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act. For more information, see the section entitled "Incorporation by Reference" elsewhere in this prospectus.

DISCLOSURE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference contain forward-looking statements. All statements contained or incorporated by reference in this prospectus other than statements of historical fact are forward-looking statements. When used in this prospectus or any document incorporated by reference in this prospectus, the words "believe," "anticipate," "intend," "plan," "estimate," "expect," "may," "will," "should," "seeks" and similar expressions are forward-looking statements. Such forward-looking statements are based on current expectations, but the absence of these words does not necessarily mean that a statement is not forward-looking.

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Forward-looking statements made or incorporated by reference in this prospectus include statements about, but are not limited to:

- the progress of our research, development and clinical programs, the possibility that the FDA will require us to take additional steps before resubmitting our NDA for APF530, which will require substantial time and expense on our part, and the timing of regulatory approval and commercial introduction of APF530 and future product candidates;
- estimates of the dates by which we expect to report results of our clinical trials and the anticipated results of these trials;
- our ability to market, commercialize and achieve market acceptance for APF530 or other future product candidates;
- our ability to establish collaborations for our technology, APF530 and other future product candidates;
- uncertainties associated with obtaining and enforcing patents
- our estimates for future performance; and
- our estimates regarding our capital requirements and our needs for additional financing.

Forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual events or results may differ materially from those discussed in the forward-looking statements as a result of various factors. For a more detailed discussion of such forward-looking statements and the potential risks and uncertainties that may impact upon their accuracy, see the “Risk Factors” section of this prospectus. These forward-looking statements reflect our view only as of the date of this prospectus. You should read this prospectus and the documents that we reference in this prospectus and have filed as exhibits to the registration statement, of which this prospectus is a part, completely and with the understanding that our actual future results may be materially different from what we expect. Except as required by law, we undertake no obligations to update any forward looking statements. Accordingly, you should also carefully consider the factors set forth in reports or documents that we file from time to time with the SEC.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of shares of our common stock in this offering. The selling stockholders will receive all of the proceeds from this offering.

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by the selling stockholders for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including, without limitation, all registration and filing fees, and fees and expenses of our counsel and our independent registered public accountants.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 100,000,000 shares of common stock, \$0.01 par value, and 2,500,000 shares of preferred stock, \$0.01 par value. As of June 28, 2010, there were 40,114,210 shares of our common stock outstanding that were held of record by approximately 119 stockholders, and options to purchase 3,185,270 shares of common stock were outstanding.

The following description is only a summary. You should also refer to our amended and restated certificate of incorporation and bylaws, both of which have been filed with the SEC as exhibits to our registration statement of which this prospectus forms a part.

Common Stock

The holders of common stock have one vote for each share on all matters submitted to a vote of the stockholders. Subject to preferences that may be applicable to any outstanding preferred stock, holders of common stock will receive ratably any dividends declared by the board of directors out of funds legally available for payment of dividends. In the event of a liquidation, dissolution or winding up of the company, holders of common stock will share ratably in all assets remaining after payment of liabilities and the liquidation preference of any outstanding preferred stock. Holders of common stock have no preemptive rights, no right to convert their common stock into any other securities, and no right to vote cumulatively for the election of directors. The outstanding shares of common stock are fully paid and nonassessable.

We have not paid cash dividends on our common stock and do not plan to pay any such dividends in the foreseeable future.

Preferred Stock

The board of directors may provide for the issuance of up to 2,500,000 shares of preferred stock in one or more series and fix the rights, preferences, privileges and restrictions thereof, including:

- dividend rights;
- conversion rights;
- voting rights;
- terms of redemption;
- liquidation preferences; and
- the number of shares constituting any series, or the designation of such series, without any further vote or action by the stockholders.

We designated 200,000 shares of our preferred stock as Series A Preferred. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change in control of the company without action by the stockholders and could adversely affect the rights and powers, including voting rights, of the holders of common stock. In certain circumstances, the issuance of preferred stock could depress the market price of common stock. As of June 28, 2010, there were no shares of preferred stock outstanding.

Registration Rights

In connection with the sale of an aggregate of 7,954,543 shares of our common stock and warrants to purchase an aggregate of 3,977,270 shares of common stock on October 22, 2009, pursuant to a securities purchase agreement among the Company and the purchasers listed herein, or the Purchase Agreement, the Company entered into a registration rights agreement with the purchasers, or the Registration Rights Agreement. Pursuant to the Registration Rights Agreement, the Company agreed to prepare and file a registration statement with the SEC within 30 days of October 22, 2009 for purposes of registering the resale of the shares, the shares of common stock issuable upon exercise of the warrants and any shares of common stock issued as a dividend or other distribution with respect to the shares or shares underlying the warrants. The Company agreed to use its best efforts to cause the registration statement to be declared effective by the SEC within 90 days after October 22, 2009 (or 120 days in the event the registration statement is reviewed by the SEC). If the Company fails to meet either of these deadlines, fails to meet filing or effectiveness deadlines with respect to any additional registration statements required by the Registration Rights Agreement or fails to keep any registration statements continuously effective (with limited exceptions), the Company

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may be obligated to pay to the holders of the shares and warrants liquidated damages in the amount of 1% per month of the purchase price for the shares and warrants, up to a maximum cap of 8%. The Company also agreed to indemnify the selling holders under the registration statements from certain liabilities and to pay all fees and expenses (excluding underwriting discounts and selling commissions and all legal fees of any selling holder) incident to the Company's obligations under the Registration Rights Agreement.

We registered for resale an aggregate of 7,532,617 shares of common stock subject to the Registration Rights Agreement on a registration statement on Form S-3 with the SEC on November 6, 2009, which was declared effective by the SEC on November 17, 2009. We are hereby registering for resale the balance of the shares of common stock issued pursuant to the Purchase Agreement and the shares of common stock underlying the warrants issued pursuant to the Purchase Agreement.

Delaware Anti-Takeover Law and Charter and Bylaw Provisions

Amended and Restated Certificate of Incorporation and Bylaws

Some provisions of Delaware law and our amended and restated certificate of incorporation and bylaws contain provisions that could make the following transactions more difficult:

- acquisition of us by means of a tender offer;
- acquisition of us by means of a proxy contest or otherwise; or
- removal of our incumbent officers and directors.

The provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids and to promote stability in our management. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue one or more series of preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the General Corporation Law of the State of Delaware. This law prohibits a publicly held Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that the stockholder became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which 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 commenced, excluding for purposes of determining the number of shares outstanding those shares owned by persons who are directors and also officers and by 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; or
- on or subsequent to the date of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines "business combination" to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of our assets involving the interested stockholder;

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- in general, any transaction that results in the issuance or transfer by us of any of our stock to the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an “interested stockholder” as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Shareholders’ Rights Plan

On December 18, 2006, the board of directors entered into a preferred shares rights agreement. As part of this agreement, preferred stock purchase rights were distributed to stockholders of record as of January 2, 2007, at the rate of one right for each share of common stock held. The rights become exercisable only upon the acquisition, or the acquisition of the right to acquire, by a person or group of affiliated or associated persons, 20% or more of the outstanding shares of our common stock. Once exercisable, each right entitles the holder to purchase, at a price of \$11.00, one one-thousandth of a share of Series A Participating Preferred Stock. For a limited period of time following the announcement of any such acquisition or offer, the rights are redeemable by us at a price of \$0.01 per right. If the rights are not redeemed or exchanged, each right will then entitle the holder to receive, upon exercise of such right, a number of shares of the our common stock having a then current value equal to two times the purchase price of such right. Similarly, if the rights are not redeemed or exchanged and following the acquisition of 20% or more of the outstanding shares of the our common stock by a person or group of affiliated or associated persons, (i) we consolidate with or merge into another entity, (ii) another entity consolidates with or merges into us or (iii) we sell or otherwise transfers 50% or more of its consolidated assets or earning power, each right will then entitle the holder to receive, upon exercise of such right, a number of shares of common stock of the acquiring company having a then current value equal to two times the purchase price. For a limited period of time after the exercisability of the rights, each right, at the discretion of the board of directors, may be exchanged for one share of common stock per right. We have initially reserved 200,000 shares of preferred stock pursuant to the exercise of these rights. These rights expire on December 31, 2016.

In connection with the transactions contemplated by the Purchase Agreement, the Company amended its Preferred Shareholders Rights Agreement with Computershare Trust Company N.A. dated as of December 18, 2006, as amended as of October 1, 2008, to permit Tang Capital Partners and Baker Brothers Investments, both purchasers under the Purchase Agreement, to beneficially own up to 34% and 30% of the Company’s outstanding common stock, respectively.

Listing

Our common stock is listed on the Nasdaq Capital Market under the symbol “APPA”.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company N.A.

SELLING STOCKHOLDERS

On October 19, 2009, we entered into a securities purchase agreement with the selling stockholders listed below, or the Purchase Agreement, pursuant to which we sold in a private placement transaction an aggregate of 7,954,543 shares of our common stock and issued warrants to purchase up to 3,977,270 shares of our common stock, at an exercise price of \$0.88 per share and which will expire on January 7, 2015. In addition, pursuant to the Purchase Agreement, each selling stockholder, in its sole discretion, had the right to purchase up to an aggregate of 5,165,286 shares of our common stock at a price of \$0.97 per share prior to May 14, 2010. The selling stockholders paid \$0.125 per share for this option right, which option right expired unexercised on May 14, 2010. This prospectus covers the sale or other disposition by the selling stockholders or their transferees of that number of shares of common stock set forth below issued to those selling stockholders pursuant to the Purchase Agreement. Throughout this prospectus, when we refer to the shares of our common stock being registered on behalf of the selling stockholders, we are referring to the shares of common stock issued to the selling stockholders under the Purchase Agreement and the shares of common stock underlying the warrants issued to the selling stockholders under the Purchase Agreement, and when we refer to the selling stockholders in this prospectus, we are referring to the purchasers under the Purchase Agreement.

We are registering the shares specified below to permit each of the selling stockholders and their pledgees, donees, transferees or other successors-in-interest that receive their shares after the date of this prospectus to resell or otherwise dispose of the shares in the manner contemplated under the “Plan of Distribution.”

Under the Purchase Agreement, Baker Bros. Advisors, LLC, which we refer to herein as Baker Brothers Investments, one of the selling stockholders, was granted the right to designate one director to the Board. In accordance with the terms of the Purchase Agreement, in February 2010, we increased the number of members of our Board from six members to seven members and Stephen R. Davis was appointed to our board of directors as the Baker Brothers Investments designee.

Except as otherwise disclosed herein with respect to Tang Capital Management and Baker Brothers Investments or disclosed in the footnotes below with respect to any other selling stockholder, none of the selling stockholders has, or within the past three years has had, any position, office or other material relationship with us.

We registered for resale an aggregate of 7,532,617 shares of common stock subject to the Registration Rights Agreement on a registration statement on Form S-3 with the SEC on November 6, 2009, which was declared effective by the SEC on November 17, 2009. We are hereby registering for resale the balance of the shares of common stock issued pursuant to the Purchase Agreement and the shares of common stock underlying the warrants issued pursuant to the Purchase Agreement. The following table sets forth the name of each selling stockholder, the number of shares owned by each of the respective selling stockholders, the number of shares that may be offered under this prospectus and the number of shares of our common stock owned by the selling stockholders assuming all of the shares covered hereby are sold. The number of shares in the column “Number of Shares Being Offered” represents all of the shares that a selling stockholder may offer under this prospectus. The selling stockholders may sell some, all or none of their shares. We do not know how long the selling stockholders will hold the shares before selling them, and we currently have no agreements, arrangements or understandings with the selling stockholders regarding the sale or other disposition of any of the shares. The shares covered hereby may be offered from time to time by the selling stockholders.

The information set forth below is based upon information obtained from the selling stockholders and upon information in our possession regarding the issuance of shares of common stock to the selling stockholders in connection with the private placement transaction. The percentages of shares owned after the offering are based on 40,114,210 shares of our common stock outstanding as of June 28, 2010, including the shares of common stock covered hereby.

Name of Beneficial Owner	Shares of Common Stock Owned Prior to Offering ⁽¹⁾	Number of Shares Being Offered	Shares Owned After Offering ⁽²⁾	
			Number	Percent
667, L.P. ⁽³⁾	8,850,454	402,563	2,884,546	7.2%
Baker Brothers Life Sciences, L.P. ⁽³⁾	8,850,454	1,747,686	2,884,546	7.2%
14159, L.P. ⁽³⁾	8,850,454	49,352	2,884,546	7.2%
Boxer Capital, LLC ⁽⁴⁾	2,934,090	565,610	1,400,000	3.5%
Deerfield Special Situations Fund International Limited ⁽⁵⁾	2,773,191	180,428	2,006,147	5.0%
Deerfield Special Situations Fund, L.P. ⁽⁵⁾	2,773,191	102,376	2,006,147	5.0%
Tang Capital Partners, L.P. ⁽⁶⁾	11,658,096	1,351,181	7,993,325	19.9%

⁽¹⁾ The number of shares presented in this table as beneficially owned prior to the offering does not include any of the shares of common stock subject to the selling stockholders' option to purchase up to an aggregate of 5,165,286 shares of common stock pursuant to the Purchase Agreement, which option right expired unexercised on May 14, 2010.

⁽²⁾ The columns in the table below reflecting "shares owned after this offering" are prepared on the basis that all shares being registered in this prospectus and all shares issued pursuant to the Purchase Agreement that were previously registered on the registration statement on Form S-3 on November 17, 2009 are resold to third parties.

⁽³⁾ Includes (a) 2,104,651 shares held of record by Baker Brothers Life Sciences, L.P., 704,787 shares held of record by 667, L.P., 67,355 shares held of record by 14159, L.P., 5,967 shares held of record by Baker/Tisch Investments, L.P. and 1,786 shares held of record by Baker Bros. Investments II, L.P. (collectively referred to herein as the Baker Entities) and (b) warrants to purchase 363,952 shares of common stock held by 667, L.P., warrants to purchase 1,580,066 shares of common stock held by Baker Brothers Life Sciences, L.P. and warrants to purchase 44,618 shares of common stock held by 14159, L.P. pursuant to the Purchase Agreement. Mr. Julian Baker and Mr. Felix Baker share voting and investment power over the shares held by the Baker Entities. Mr. Julian Baker and Mr. Felix Baker disclaim beneficial ownership over all shares held by the Baker Entities, except to the extent of their pecuniary interest in such shares. Mr. Davis is the Baker Entities' designee to our board of directors. The address for the Baker Entities is 667 Madison Avenue, New York, NY 10065.

⁽⁴⁾ Includes warrants to purchase 511,363 shares of common stock pursuant to the Purchase Agreement and includes 400,000 shares beneficially owned by Ivan Lieberburg, an affiliate of Boxer Capital, LLC. Mr. Lieberburg disclaims beneficial ownership of such shares, except to the extent of his pecuniary interest in such shares. The shares being offered hereby are beneficially owned by Joseph C. Lewis, who has shared voting and investment power over such shares. The address for Boxer Capital, LLC is 445 Marine View Avenue, Suite 100, Del Mar, CA 92014.

⁽⁵⁾ Includes (a) 1,279,922 shares held of record by Deerfield Special Situations Fund International Limited and 726,225 shares held of record by Deerfield Special Situations Fund, L.P. (collectively referred to herein as the Deerfield Entities) and (b) warrants to purchase 163,124 shares of common stock held by Deerfield Special Situations Fund International Limited and warrants to purchase 92,557 shares of stock held by Deerfield Special Situations Fund, L.P. pursuant to the Purchase Agreement. James E. Flynn exercises sole voting and investment power over the shares held by the Deerfield Entities. The address for the Deerfield Entities is 780 Third Avenue, 37th Floor, New York, NY 10017.

⁽⁶⁾ Includes warrants to purchase 1,221,590 shares of common stock pursuant to the Purchase Agreement. Tang Capital Management, LLC, the General Partner of Tang Capital Partners, L.P., and Mr. Kevin Tang, the Managing Member of Tang Capital Management, LLC, share voting and investment power with Tang Capital Partners, LP over the shares offered hereby. In addition to the shares owned by Tang Capital Partners, L.P., Mr. Kevin Tang may also be deemed to beneficially own 788,462 shares of common stock that are not owned by Tang Capital Partners. Mr. Kevin Tang disclaims beneficial ownership of all shares beneficially owned, except to the extent of his pecuniary interests therein. Mr. Tang is a member of our board of directors. The address for Tang Capital Partners, L.P. is 4401 Eastgate Mall, San Diego, CA 92121.

PLAN OF DISTRIBUTION

The selling stockholders and any of their pledgees, donees, transferees, assignees or other successors-in-interest may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. The selling stockholders may use one or more of the following methods when disposing of the shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through brokers, dealers or underwriters that may act solely as agents;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions entered into after the effective date of the registration statement of which this prospectus is a part, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of disposition; and
- any other method permitted pursuant to applicable law.

The selling stockholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended, or the Securities Act, if available, rather than under this prospectus.

Broker-dealers engaged by the selling stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the selling stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The selling stockholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The selling stockholders may from time to time pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell shares of common stock from time to time under this prospectus, or under a supplement or amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus.

Upon being notified in writing by a selling stockholder that any material arrangement has been entered into with a broker-dealer for the sale of common stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing (i) the name of each such selling stockholder and of the participating broker-dealer(s),

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(ii) the number of shares involved, (iii) the price at which such shares of common stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, and (vi) other facts material to the transaction. In addition, upon being notified in writing by a selling stockholder that a donee or pledge intends to sell more than 500 shares of common stock, we will file a supplement to this prospectus if then required in accordance with applicable securities law.

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

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

The selling stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The maximum commission or discount to be received by any member of the Financial Industry Regulatory Authority (FINRA) or independent broker-dealer will not be greater than 8% of the initial gross proceeds from the sale of any security being sold.

We have advised the selling stockholders that they are required to comply with Regulation M promulgated under the Exchange Act during such time as they may be engaged in a distribution of the shares. The foregoing may affect the marketability of the common stock.

The aggregate proceeds to the selling securityholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling securityholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

We are required to pay all fees and expenses incident to the registration of the shares. We have agreed to indemnify the selling stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act or otherwise.

We have agreed with the selling stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (a) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (b) the date on which the shares of common stock covered by this prospectus may be sold by non-affiliates without any volume limitations pursuant to Rule 144 of the Securities Act.

VALIDITY OF THE SECURITIES

The validity of the common stock being offered by this prospectus has been passed upon for us by Latham & Watkins LLP, Menlo Park, California.

EXPERTS

Odenberg, Ullakko, Muranishi & Co. LLP, independent registered public accounting firm, has audited our financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2009, 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 Odenberg, Ullakko, Muranishi & Co. LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549 or at the SEC's other public reference facilities. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room. You can request copies of these documents by writing to the SEC and paying a fee for the copying costs. Our SEC filings are also available at the SEC's website at <http://www.sec.gov>.

This prospectus is part of a registration statement that we filed with the SEC. The registration statement contains more information than this prospectus regarding us and our common stock, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's internet website.

INCORPORATION BY REFERENCE

We have elected to "incorporate by reference" certain information into this prospectus. By incorporating by reference, we can disclose important information to you by referring you to another document we have filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus, except for information incorporated by reference that is superseded by information contained in this prospectus. This prospectus incorporates by reference the documents set forth below that we have previously filed with the SEC:

- (a) The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2009, filed with the SEC on March 15, 2010;
- (b) The Registrant's Definitive Proxy Statement for its 2010 Annual Meeting of Stockholders, filed with the SEC on April 23, 2010;
- (c) The Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2010, filed with the SEC on May 17, 2010;
- (d) The Registrant's Current Reports on Forms 8-K or 8-K/A filed with the SEC on January 11, 2010, February 19, 2010, March 19, 2010, May 20, 2010, May 24, 2010, May 25, 2010 and June 1, 2010;

We are also incorporating by reference all other documents that we subsequently file with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act between the date of this prospectus and the termination of the offering.

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered a copy of any or all of the information that we have incorporated by reference into this prospectus but not delivered with this prospectus. To receive a free copy of any of the documents incorporated by reference in this prospectus, other than exhibits, unless they are specifically incorporated by reference in those documents, call or write John Whelan, Acting Chief Executive Officer, Chief Financial Officer, A.P. Pharma, Inc., 123 Saginaw Drive, Redwood City, California 94063, telephone: (650) 366-2626. The information relating to us contained in this prospectus does not purport to be comprehensive and should be read together with the information contained in the documents incorporated or deemed to be incorporated by reference in this prospectus.

PART II**INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other Expenses of Issuance and Distribution.**

The expenses to be paid by us in connection with the distribution of the securities being registered are as set forth in the following table:

SEC registration fee	\$ 224
Legal fees and expenses	25,000
Accounting fees and expenses	3,000
Miscellaneous	1,000
Total	\$29,224

Item 15. Indemnification of Directors and Officers.

The Registrant has the power to indemnify its officers and directors against liability for certain acts pursuant to Section 145 of the General Corporation Law of the State of Delaware. Section B of Article VI of the Registrant's Certificate of Incorporation provides:

“(1) Right to Indemnification. Each person who was or is made a party to or is threatened to be made a party to or is involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (hereinafter a “proceeding”), by reason of the fact that he or she, or a person of whom he or she is the legal representative, is or was a director or officer, of the Corporation or is or was serving at the request of the Corporation, as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans, whether the basis of such proceeding is alleged action in an official capacity as a director, officer, employee or agent or in any other capacity while serving as a director, officer, employee or agent, shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the General Corporation Law of the State of Delaware, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than said law permitted the Corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid or to be paid in settlement) reasonably incurred or suffered by such person in connection therewith and such indemnification shall continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of his or her heirs, executors and administrators; provided, however, that, the Corporation shall indemnify any such person seeking indemnification in connection with a proceeding (or part thereof) initiated by such person only if such proceeding (or part thereof) was authorized by the board of directors of the Corporation. The right to indemnification conferred in this Section B shall be a contract right and shall include the right to be paid by the Corporation the expenses incurred in defending any such proceeding in advance of its final disposition; provided, however, that, if the General Corporation Law of the State of Delaware requires, the payment of such expenses incurred by a director or officer in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such person while a director or officer, including, without limitation, service to an employee benefit plan) in advance of the final disposition of a proceeding, shall be made only upon delivery to the Corporation of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified under this Section or otherwise. The Corporation may, by action of its Board of Directors, provide indemnification to employees and agents of the Corporation with the same scope and effect as the foregoing indemnification of directors and officers.

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(2) Non-Exclusivity of Rights. The right to indemnification and the payment of expenses incurred in defending a proceeding in advance of its final disposition conferred in this Section B shall not be exclusive of any other rights which any person may have or hereafter acquire under any statute, provisions of this Certificate of Incorporation, Bylaw, agreement, vote of stockholders or disinterested directors or otherwise.

(3) Insurance. The Corporation may maintain insurance, at its expense, to protect itself and any director, officer, employee or agent of the Corporation or another corporation, partnership, joint venture, trust or other enterprise against any such expense, liability or loss, whether or not the Corporation would have the power to indemnify such person against such expense, liability or loss under Delaware General Corporation Law.”

The Registrant has obtained a liability insurance policy for the officers and directors that, subject to certain limitations, terms and conditions, will insure them against losses arising from wrongful acts (as defined by the policy) in their capacity as directors and officers.

In addition, the Registrant has entered into agreements to indemnify its directors and certain officers in addition to the indemnification provided for in the Certificate of Incorporation and Bylaws. These agreements, among other things, indemnify the Registrant’s directors and certain of its officers for certain expenses (including attorneys fees), judgments, fines and settlement amounts incurred by such person in any action or proceeding, including any action by or in the right of the Registrant, on account of services as a director or officer of the Registrant or as a director or officer, of any subsidiary of the Registrant, or as a director or officer of any other company or enterprise that the person provides services to at the request of the Registrant.

Item 16. Exhibits.

Exhibit Number	Description of Document
3.1	Certificate of Incorporation, as amended, filed as exhibit 3.1 to the Registrant’s Form 10-Q filed with the SEC on August 4, 2009 and incorporated herein by reference.
3.2	Bylaws, as amended, filed as an exhibit to the Registrant’s Registration Statement on Form S-1 (Registration No. 33-15429) and incorporated herein by reference.
4.1	Specimen Common Stock Certificate, filed as an exhibit to the Registrant’s Registration Statement on Form S-3 (Registration No. 33-162968) and incorporated herein by reference.
4.2	Preferred Shares Rights Agreement, dated as of December 18, 2006, by and between the Company and Computershare Trust Company N.A., filed as exhibit 4.A to the Registrant’s Form 8-K filed with the SEC on December 19, 2006 and incorporated herein by reference.
4.3	First Amendment to Preferred Shares Rights Agreement, dated as of October 1, 2008, by and between the Company and Computershare Trust Company N.A., filed as exhibit 4.1 to the Registrant’s Form 8-K filed with the SEC on October 7, 2008 and incorporated herein by reference.
4.4	Second Amendment to Preferred Shares Rights Agreement, dated as of October 20, 2009, by and between the Company and Computershare Trust Company N.A., filed as exhibit 10.4 to the Registrant’s Form 8-K filed with the SEC on October 22, 2009 and incorporated herein by reference.

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4.5	Form of Warrant issued in connection with the Securities Purchase Agreement, dated as of October 19, 2009, by and among A.P. Pharma, Inc. and the purchasers listed therein, filed as exhibit 10.3 to the Registrant's Form 8-K filed with the SEC on October 22, 2009 and incorporated herein by reference.
4.6	Registration Rights Agreement, dated as of October 22, 2009, by and among A.P. Pharma, Inc. and the purchasers listed therein, filed as exhibit 10.2 to the Registrant's Form 8-K filed with the SEC on October 22, 2009 and incorporated herein by reference.
5.1	Opinion of Latham & Watkins LLP.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Latham & Watkins LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on signature page hereto).

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the registration statement is on Form S-3 and the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or 15(d) of the Exchange Act (15 U.S.C. 78m or 78o(d)) that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) (§ 230.424(b) of this chapter) that is part of the registration statement.

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

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

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(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated

by reference into the registration statement or prospectus that is a part of the registration statement will, as to a purchaser with a time of contract sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was a part of the registration statement or made in any such document immediately prior to such effective date.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act and (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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

The undersigned registrant hereby undertakes that:

(i) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

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

EXHIBIT INDEX

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4.1	Specimen Common Stock Certificate, filed as an exhibit to the Registrant's Registration Statement on Form S-3 (Registration No. 33-162968) and incorporated herein by reference.
4.2	Preferred Shares Rights Agreement, dated as of December 18, 2006, by and between the Company and Computershare Trust Company N.A., filed as exhibit 4.A to the Registrant's Form 8-K filed with the SEC on December 19, 2006 and incorporated herein by reference.
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24.1	Power of Attorney (included on signature page hereto).

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LATHAM & WATKINS^{LLP}

June 30, 2010

A.P. Pharma, Inc.
123 Saginaw Drive
Redwood City, CA 94063

Re: A.P. Pharma, Inc.

Ladies and Gentlemen:

We have acted as special counsel to A.P. Pharma, Inc., a Delaware corporation (the "Company"), in connection with the resale from time to time by the selling stockholders of up to 421,926 shares (the "Shares") of the Company's common stock, par value \$0.01 per share (the "Common Stock"), and 3,977,270 shares of Common Stock (the "Warrant Shares") upon exercise of warrants held by the selling stockholders (the "Warrants"). The Shares and the Warrant Shares are included in a registration statement on Form S-3 under the Securities Act of 1933, as amended (the "Act"), filed with the Securities and Exchange Commission (the "Commission") on June 30, 2010 (the "Registration Statement"). This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related prospectus (the "Prospectus"), other than as expressly stated herein with respect to the issue of the Shares and Warrant Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are opining herein as to General Corporation Law of the State of Delaware, and we express no opinion with respect to any other laws.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, (a) the issue and sale of the Shares have been duly authorized by all necessary corporate action of the Company, and the Shares are validly issued, fully paid and nonassessable, and (b) the issue and sale of the Warrant Shares have been duly authorized by all necessary corporate action of the Company, and upon issuance, delivery and payment therefore in the manner contemplated by the Registration Statement and the Warrants, will be validly issued, fully paid and non-assessable.

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Registration Statement and to the reference to our firm in the Prospectus under the heading "Validity of the Securities." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Latham & Watkins LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated March 11, 2010 relating to the financial statements and financial statement schedule of A.P. Pharma, Inc., which appear in its Annual Report on Form 10-K for the year ended December 31, 2009, filed with the Securities and Exchange Commission.

/s/ ODENBERG, ULLAKKO, MURANISHI & CO. LLP

San Francisco, California

June 28, 2010