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October 14, 2009

Jeffrey Riedler  
Scott Foley  
Division of Corporation Finance  
United States Securities and Exchange Commission  
100 F Street, N.E.  
Washington, D.C. 20549

**Re: PharmAthene, Inc.  
Amendment No. 1 to Registration Statement on Form S-3  
Filed August 31, 2009  
File No. 333-161587**

Dear Messrs. Riedler and Foley:

By letter dated September 17, 2009, the staff (the "Staff") of the Securities and Exchange Commission (the "Commission") provided comments on Amendment No. 1 to Registration Statement on Form S-3 filed by the Company with the Commission on August 31, 2009 (File No. 333-161587) (the "Registration Statement").

This letter sets forth the Company's responses to the Staff's comments. For your convenience, we have reproduced below in italics each comment and have provided the Company's response immediately below the comment.

General

1. *We note that you are registering the sale of 11,704,010 common shares. Given the size relative to the number of shares outstanding held by non-affiliates, the nature of the offering and the selling security holders, the transaction appears to be a primary offering. Because you are not eligible to conduct a primary offering on Form S-3 you are not eligible to conduct a primary at-the-market offering under Rule 415(a)(4).*

*If you disagree with our analysis, please advise the staff of the company's basis for determining that the transaction is appropriately characterized as a transaction that is eligible to be made under Rule 415(a)(1)(i). In your analysis, please address the following among any other relevant factors:*

Brussels    Chicago    Dallas    Kansas City    Los Angeles    New York    Phoenix    St. Louis  
San Francisco    Short Hills, N.J.    Silicon Valley    Washington, D.C.    Zurich

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- *The date on which and the manner in which each selling shareholder received the shares and/or the overlying securities;*
  - *The relationship of each selling shareholder with the company, including an analysis of whether the selling shareholder is an affiliate of the company;*
  - *Any relationships among the selling shareholders;*
  - *The dollar value of the shares registered in relation to the proceeds that the company received from the selling shareholders for the securities, excluding amounts of proceeds that were returned (or will be returned) to the selling shareholders and/or their affiliates in fees or other payments;*
  - *The discount at which the shareholders will purchase the common stock underlying the convertible notes (or any related security, such as a warrant or option) upon conversion or exercise; and*
  - *Whether or not any of the selling shareholders is in the business of buying and selling securities.*

Response:

For the reasons set forth below, the Company respectfully asserts that the offering of securities to be registered pursuant to the Registration Statement is a valid secondary offering and is eligible to be made under Rule 415(a)(1)(i) under the Securities Act of 1933 (the "Act") as contemplated by the Registration Statement.

Summary Conclusion — This transaction is not of the type that raises concerns about a disguised primary offering.

The terms of the Financing, in which the Notes and Warrants (all as defined under "Background" below) were issued, do not include any price "resets", floating price conversion rights or other "toxic" features that have previously prompted the Staff's concerns regarding "Extreme Convertible" transactions. Further, the Notes and Warrants do not even provide for anti-dilution protection based on the price of future issuances by the Company. The

only anti-dilution provisions in the Notes and Warrants are customary “plain vanilla” structural anti-dilution protection provisions in the event of fundamental organic changes in the Company’s capital structure, such as stock splits. These anti-dilution adjustments are consistent with those that the Staff has previously indicated on numerous occasions do not raise a concern with respect

to the Staff’s interpretation of Rule 415(1). As John White, former Director of Corporation Finance, stated in a speech on February 23, 2007 in Dallas Texas, “I’ll be very clear about this — the staff’s view of PIPE transactions has not changed; we have simply addressed the recent development where convertible note transactions are structured in an abusive manner.”

Where a PIPE is not structured in an abusive manner, the number of shares registered is not a central concern. However, it bears noting that, while the total number of shares registered under the Registration Statement represents 85.1% of the Company’s public float, the number of shares actually issuable upon the closing of the Financing on July 28, 2009, not including the shares representing interest on the Notes that had not yet accrued or shares issuable upon exercise of the Warrants that are not exercisable for six months from the closing, represents only 55.2% of the Company’s public float. Since the investors would have to hold the Notes over the long term in order to receive the shares that are issuable in lieu of interest, and must hold the Warrants for six months in any event, and the investors will bear full market risk on such securities since they contain no toxic price reset provisions, the shares issuable in lieu of interest and upon exercise of the Warrants do not raise the short-term flipping concerns that might call into question the true nature of a secondary offering.

Additionally, in connection with the Financing, the Company cancelled its previously issued 8% Notes (as defined below) convertible into shares representing 5.5% of the Company’s public float, the resale of which was previously registered. Less than a week after the closing of the Financing, the remaining 8% Notes, representing another 3.5% of the Company’s public float, matured and were repaid. As a result, the net addition of shares issuable upon the closing and subject to registration represents only 46.3% of the Company’s public float.

Finally, the Financing was priced as an “at-market” deal for purposes of NYSE Amex rules, i.e., the conversion price of the Notes and the exercise price of the Warrants are equal to or greater than the closing price of the Company’s shares on the NYSE Amex immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants. Such closing price also represents the closing price of the Company’s shares on the NYSE Amex immediately preceding the public announcement of the Financing by the Company. We refer to such closing price as the “Date of Sale Price.”

At the time of the Financing, an investment bank evaluated market conditions for financing alternatives and the only available financing alternative was on terms significantly less favorable to the Company. Accordingly, not only does the Financing not have the type of toxic price reset provisions that trigger a Rule 415 concern, the financial terms of the Financing were very reasonable.

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(1) See Speech by John W. White, Director, Division of Corporation Finance, February 23, 2007; Keller, Stanley and Hicks, William, “Unblocking Clogged PIPEs: SEC Focuses on Availability of Rule 415,” Insights, May 2007.

Since the Financing was not a toxic reset deal, the number of shares issuable as of the closing was only 55.2% of the public float (and 46.3% net of the shares underlying the cancelled and matured 8% Notes) and the shares are not issuable at a discount, this deal is not the type of abusive transaction that the Securities and Exchange Commission (the “SEC”) is concerned about and the registration of the shares issuable under the Financing should not be considered a primary offering by the Company.

#### Background

On July 28, 2009, the Company issued, in a private placement (the “Financing”), the 10% convertible notes due July 28, 2011 (the “Notes”) and related warrants (the “Warrants”) to purchase up to 2,572,775 shares of the Company’s common stock, par value \$0.0001 per share (the Common Stock”) to (i) holders (the “Existing Noteholders”) of then outstanding 8% senior unsecured convertible notes, due August 3, 2009 (the “8% Notes”), in lieu of a cash payment covering principal and accrued interest on the 8% Notes, in the aggregate amount of \$8,767,606, and (ii) certain other new investors (collectively with the Existing Noteholders, the “Investors”) for \$10,528,196 in cash.

The Notes mature on July 28, 2011 (the “Maturity Date”) and are immediately convertible into shares of Common Stock at a conversion price of \$2.541667 per share (the “Conversion Price”). Interest on each Note accrues over the term of the Note at a rate of 10% per annum and, in the event of a conversion, is converted into Common Stock along with the principal amount of such Note. The Warrants are exercisable for shares of Common Stock from January 28, 2010 through January 28, 2015, at an exercise price of \$2.50 per share (the “Exercise Price”). The closing price of the Common Stock on the NYSE Amex immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants was \$2.50 per share.

The maximum number of shares of Common Stock (the “Shares”) into which the Notes and the Warrants can be converted or exercised, as applicable, assuming conversion of all of the Notes on the Maturity Date, is 11,704,010. Of that amount, up to 7,591,790 shares are issuable upon conversion of the aggregate principal amount of the Notes, up to 1,539,445 shares are issuable in respect of interest that has begun accruing and will continue to accrue throughout the term of the Notes and up to 2,572,775 shares are issuable upon exercise of the Warrants.

In connection with the Financing, the Company and the Investors entered into a note and warrant purchase agreement, dated as of July 24, 2009 and as amended as of July 26, 2009 and July 28, 2009 (as so amended, the “Note and Warrant Purchase Agreement”). The Company and the Investors also entered into a registration rights agreement (the “Registration Rights

Agreement”), which provides the Investors with, among other things, registration rights covering the Shares. The Registration Rights Agreement requires the Company to file with the SEC a registration statement covering such shares within 30 days after closing of the Financing and to use its best efforts to cause the registration statement to become effective no later than 90 days after closing, or 120 days in case the SEC reviews the registration statement.

The Investors in the Financing were:

- Baker Bros. Investments II, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P. (collectively, “Baker Brothers”);
- MPM Asset Management Investors 2004 BVIII LLC, MPM Bioventures III, LP, MPM Bioventures III GmbH & Co. Beteiligungs KG, MPM Bioventures III Parallel Fund, LP and MPM Bioventures III-QP, LP. (collectively, “MPM”);
- Healthcare Ventures VII, LP (“HCV”);
- Ontario Teachers’ Pension Plan Board;
- Mary Pappajohn;
- Derace Schaffer;
- James Desnick;
- Edward Heil;
- Argyris (R.J.) Vassiliou;
- The Ann Vassiliou Children’s Trust;
- Jerome Parks;
- Joel McCleary;
- David Wright;
- Eric Richman; and
- Christopher Camut.

Of the \$19,295,802 in aggregate principal amount of Notes and Warrants to purchase 2,572,775 shares issued in the Financing, Notes in the aggregate principal amount of \$9,706,270 and Warrants to purchase 1,294,170 shares of Common Stock (representing approximately 50.3% of the Financing and the Shares), were issued to persons that, as of the date of this letter, are deemed to be “affiliates” of the Company (“Affiliates”), as that term is defined in Rule 405 under the Act (“Rule 405”) and using the definition of “beneficial ownership” in Rule 13d-3

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under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). The Investors deemed to be Affiliates(2) are:

- MPM, beneficial owner of 18.59% of the Common Stock, has the right to designate a nominee for director on the Company’s Board of Directors (the “Board”). Dr. Steven St. Peter, a director of the Company, is affiliated with MPM but is not a member of the general partners and thus is not deemed to have beneficial ownership of the shares of Common Stock owned by MPM.
- HCV, beneficial owner of 14.39% of the Common Stock, has the right to designate a nominee for director on the Company’s board of directors (the “Board”) as required by the Note and Warrant Purchase Agreement. Dr. James Cavanaugh, a director of the Company, is a general partner of the general partner of HCV.
- Mary Pappajohn, the spouse of John Pappajohn, the chairman of the Company’s Board.
- Derace Schaffer, director.
- Joel McCleary, director.
- David Wright, CEO and director.
- Eric Richman, Senior VP, Business Development and Strategic Planning.
- Christopher Camut, CFO at the time of the Financing and currently Vice President, Government Contracts and Special Projects.

The Notes and Warrants were issued pursuant to the exemption from registration provided by Section 4(2) of the Securities Act of 1933, as amended (the “Act”) and Regulation D promulgated thereunder. In the Note and Warrant Purchase Agreement, the Investors made representations and warranties regarding their investment intent, including, among others, representations that they were purchasing their securities for their own accounts, for investment purposes and not with a view to distribution or resale of the securities except in full compliance with all applicable provisions of the Act. In addition, each of the Investors represented that it had made its own independent decision to purchase securities in the Financing.

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(2) The Notes purchased by Baker Brothers, if fully converted within 60 days of August 25, 2009 (the date as of which information was provided in the Registration Statement) would amount to approximately 11.7% of the Company’s outstanding Common Stock. However, as disclosed in the Registration Statement, the Notes and Warrants issued to Baker Brothers provide that such Notes and Warrants are only convertible or exercisable to the extent that the holders thereof and their affiliates would beneficially own no more than 9.999% of the outstanding shares of Common Stock after such conversion or exercise and that such limitations on conversion and exercise may not be waived. In light of these provisions (and the fact that Baker Brothers does not have any board representation), the Company does not deem Baker Brothers to be an Affiliate.

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As disclosed in the Company’s definitive proxy statement filed with the Commission on September 29, 2009, as of September 11, 2009, the Company had an aggregate of 28,427,348 shares of Common Stock outstanding. Of the number of shares of Common Stock outstanding, 13,747,978 shares, representing the “public float”, were held by non-affiliates of the Company. The number of shares outstanding on a fully diluted basis, i.e., assuming conversion or exercise of all outstanding notes, warrants or options convertible or exercisable into Common Stock, was 47,528,366.

On August 31, 2009, the Company filed the Registration Statement with the Commission. Pursuant to the Registration Statement, the Company seeks to register an aggregate of 11,704,010 Shares, representing the maximum number of shares of Common Stock into which the Notes and the Warrants can be converted and exercised, assuming conversion of all of the Notes on the Maturity Date. Based on the amounts disclosed in the previous paragraph, the shares covered by the Registration Statement represent approximately 41.2% of the Common Stock outstanding, 85.1% of the Company’s public float and 24.6% of the fully diluted shares. However, as of the closing, 4,122,220 of the Shares covered by the Registration Statement were not then issuable, since they represented unaccrued interest on the Notes and shares issuable under the Warrants that cannot be exercised for six months following the closing. The

shares representing unaccrued interest on the Notes will accrue over the term of the Notes and, in any event, will not fully accrue unless the Investors hold the Notes until the Maturity Date. Shares representing interest that will only accrue over time for as long as the overlying securities are held should not raise concerns about a disguised primary offering, nor should warrants that cannot be exercised for six months, in each case because of the requisite holdings periods and attendant market risk.

Additionally, in connection with or immediately following the Financing, the Company's 8% Notes that were convertible into shares representing 9.0% of the Company's public float and were previously registered, were canceled or matured. As a result, the net addition of shares issuable upon the closing and subject to registration is actually much less than 85.1% of the Company's public float, as demonstrated in the table below.

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<u>Date</u>	<u>Number of shares Investors would be able to sell under the Registration Statement</u>	<u>Percentage of public float as of September 11, 2009</u>	<u>Percentage of public float net of shares underlying 8% Notes removed from registration</u>
Closing on July 28, 2009	7,591,790	55.2%	46.3%
Six months from Closing on January 28, 2010	10,552,591(1)	76.8%	67.8%
Maturity Date on July 28, 2011	11,704,010	85.1%	76.2%

(1) Includes 2,572,775 shares underlying the Warrants that first become exercisable on January 28, 2010 and 388,026 shares issuable with respect to interest accruable by January 28, 2010.

#### Rule 415 Analysis

Rule 415 promulgated under the Act provides that "(a) Securities may be registered for an offering to be made on a continuous or delayed basis in the future, provided, that: (1) The registration statement pertains only to: (i) Securities which are to be offered or sold solely by or on behalf of a person or persons other than the registrant, a subsidiary of the registrant, or a person of which the registrant is a subsidiary...."

In the event that an offering registered in reliance on Rule 415(a)(1)(i) is deemed to be an offering that is "by or on behalf of the registrant" as specified in Rule 415(a)(1)(x), Rule 415 contains additional limitations. Rule 415(a)(4) provides that:

"In the case of a registration statement pertaining to an at the market offering of equity securities by or on behalf of the registrant, the offering must come within paragraph (a)(1)(x) of this section. As used in this paragraph, the term 'at the market offering' means an offering of equity securities into an existing trading market for outstanding shares of the same class at other than a fixed price."

As a result, if an offering which purports to be a secondary offering is recharacterized as an offering "by or on behalf of the registrant," Rule 415 is only available to register an "at the market offering" if the registrant is eligible to use Form S-3 or Form F-3 to register a primary

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offering. The Company is not eligible to use Form S-3 to effect a primary offering.(3) Therefore, it cannot use Rule 415 to register a primary offering "at the market."

In the event that the offering covered by the Registration Statement is recharacterized as a primary offering on behalf of the Company, (i) the offering would have to be made on a fixed price basis (in other words, the Investors would not be able to sell their securities at prevailing market prices), (ii) the Investors would be deemed to be "underwriters" with respect to the Financing (with the attendant liabilities under Section 11 of the Act) and (iii) in accordance with the Staff's long-standing interpretive position, Rule 144 would never be available to them to effect resales of their securities.

Because of the requirements of Rule 415, the Staff's interpretation that the offering of the Shares appears to be a primary offering would have a dramatic impact on the ability of a selling shareholder to effect the resale of its shares. Because such a recharacterization would have such a dramatic impact, and a mischaracterization could have a chilling effect on the ability of smaller public companies, like the Company, to raise capital, the Staff should only recharacterize a secondary offering as being on behalf made of a registrant after careful and complete review of the relevant facts and circumstances.

In Compliance and Disclosure Interpretation 612.09 ("CDI 612.09") with respect to the rules under the Act, the Staff acknowledged that:

[i]t is important to identify whether a purported secondary offering is really a primary offering, i.e., the selling shareholders are actually underwriters selling on behalf of an issuer. Underwriter status may involve additional disclosure, including an acknowledgment of the seller's prospectus delivery requirements. In an offering involving Rule 415 or Form S-3, if the offering is deemed to be on behalf of the issuer, the Rule and Form in some cases will be unavailable (e.g., because of the Form S-3 "public float" test for a primary offering, or because Rule 415(a)(1)(i) is available for secondary offerings, but primary offerings must meet the requirements of one of the other subsections of Rule 415). *The question of whether an offering styled a secondary one is really on behalf of the issuer is a difficult factual one, not merely a question of who receives the proceeds.*

(3) While General Instruction I.B.6. to Form S-3 now permits registrants ineligible for S-3 status by virtue of General Instruction I.B.1. thereof to conduct primary offerings on Form S-3, so long as the aggregate market value of the securities sold by or on behalf of the registrant pursuant to the new instruction during the period of 12 calendar months immediately prior to, and including, the sale is no more than one-third of the registrant's public float, the Company has already relied on this General Instruction I.B.6. in an offering in March 2009 and only a relatively small number of additional securities could potentially be registered pursuant to such instruction at this time.

*Consideration should be given to how long the selling shareholders have held the shares, the circumstances under which they received them, their relationship to the issuer, the amount of shares involved, whether the sellers are in the business of underwriting securities, and finally, whether under all the circumstances it appears that the seller is acting as a conduit for the issuer. (emphasis added)*

After consideration of all of the factors listed in the Staff's comment and in CDI 612.09, which are discussed in detail below in the context of the Financing, it is the Company's view that the offering of securities to be registered pursuant to the Registration Statement is a valid secondary offering and is eligible to be made under Rules 415(a)(1)(i) under the Securities Act of 1933 (the "Act") as contemplated by the Registration Statement.

*The date on which and the manner in which each Investor received the shares and/or the overlying securities*

The Investors received their Notes and Warrants on July 28, 2009, the day that the Financing closed. It is important to note in this context, however, that of the \$19,295,802 in aggregate principal amount of Notes and 2,572,775 shares underlying Warrants issued in the Financing, Notes in the aggregate principal amount of \$10,795,802 and Warrants to purchase 1,439,441 shares were issued to Investors who were already security holders of the Company. In fact, Notes in the aggregate principal amount of \$8,767,606 and Warrants to purchase 1,169,015 shares were issued in lieu of cash payable at maturity on the previously outstanding 8% Notes, which in turn had been issued in August 2007 in exchange for 8% convertible notes that the Company's predecessor had sold to the Existing Noteholders in 2006. Accordingly, 45.4% of the Shares represent the replacement of equity securities acquired approximately three years ago. In addition, resale of the shares previously underlying the 8% Notes had been registered by the Company on a registration statement on Form S-3 (File No. 333-146463), which had been declared effective on January 29, 2008.

While the Notes are immediately convertible, no Investor has converted any portion of his or her Notes as of the date hereof and no Shares underlying Notes have therefore been issued. By their terms, the Warrants are not exercisable until January 28, 2010, which is six months after the closing date for the Financing.

In Compliance and Disclosure Interpretation 116.19 ("CDI 116.19") with respect to Securities Act Forms, the Staff noted that:

[i]n a PIPE transaction, a company will be permitted to register the resale of securities prior to their issuance if the company has completed a Section 4(2)-

exempt sale of the securities (or in the case of convertible securities, of the convertible security itself) to the investor, and the investor is at market risk at the time of filing of the resale registration statement.

CDI 116.19 therefore contemplates that a valid secondary offering of shares could occur without delay so long as the Company has completed the Section 4(2)-exempt sale of the convertible security and the investor carries the market risk at the time the resale registration statement is filed.

This concept is consistent with longstanding custom and practice in the PIPEs marketplace, as registration rights in connection with PIPEs transactions ordinarily require the filing of a resale registration statement shortly after closing (typically 30 days) and effectiveness of that registration statement shortly thereafter (typically 90 days after closing). A concern that a short period of time elapsing between closing and registration may indicate the presence of a primary offering is inconsistent with CDI 116.19.

In any event, however, the length of time for which the Investors will have held their Shares or overlying securities prior to resale pursuant to the registration statement is only one factor cited in the Staff's comment 1 and CDI 612.09, to be considered alongside the other factors listed therein in arriving at a conclusion, after careful and complete review of the relevant facts and circumstances, of whether the transaction at issue is in fact a primary offering.

Also relevant to the analysis is the manner in which the Investors received the Notes and Warrants and the underlying Shares. As described above, the Shares covered by the Registration Statement are issuable upon conversion and exercise of securities that were issued by the Company in a valid private placement that complied with CDI 116.19, Section 4(2) of the Act and Regulation D promulgated thereunder. The terms of the Notes and the terms of the Warrants contain no "toxic" provisions or other terms that have in the past merited special concerns by the Staff. The Conversion Price and Exercise Price are both fixed and only subject to adjustment upon fundamental organic changes in the Company's capital.

Furthermore, in a typical underwriting, the issuer issues securities to an underwriter for cash and the price is ordinarily less than the market price to compensate the underwriter for its selling efforts and for market risk. However, of the \$19,295,802 in aggregate principal amount of Notes issued in the Financing, Notes in the aggregate principal amount of \$8,767,606 were issued in exchange for the Company's 8% Notes and the outstanding principal and unpaid accrued interest thereunder, and all Shares are issuable at prices at least equal to the Date of Sale Price, i.e., the closing price of the Common Stock on the NYSE Amex immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants.

The Company hired an investment banker and performed an evaluation of market conditions in connection with the Financing, and the terms offered by the insider-led Investors (and long-term Company stockholders) were much more favorable to the Company than those offered by independent investors, who would have required shares to be issued at a discount.

In addition, all of the Investors acquired their Notes and Warrants for investment and specifically represented to the Company that they were not acquiring their securities with a view to distribution or resale of the securities except in full compliance with all applicable provisions of the Act. There is no evidence to suggest that those representations are false. The mere fact that the Shares are now being registered for resale is no evidence that the Investors

desire to effect an immediate distribution. In fact, there are a number of reasons why investors want shares registered other than to effect an immediate sale. Many private investment funds, for example, some of which are among the Investors, are required to mark their portfolios to market. If portfolio securities are not registered, such investors are required to mark down the book value of those securities to reflect an illiquidity discount. That portfolio valuation does not depend on whether the Investors intend to dispose of their shares or to hold them for an indefinite period. In addition, many investors are fiduciaries of other people's money and have a common law duty to act prudently. It would be irresponsible for those investors not to have their shares registered. Not registering the shares would prevent them from taking advantage of market opportunities or from liquidating their investment if there is a fundamental shift in their investment judgment about the Company. Finally, registered shares of many issuers are eligible to be used as margin collateral under the Federal Reserve's margin regulations. Restricted securities cannot be "margin stock." The potential diminution of value of holding unregistered securities relative to holding registered securities explains why the Investors negotiated for registration rights during the negotiations that preceded the Financing.

CDI 116.19 supports our view. If registration were tantamount to an intent to distribute, then no PIPE transaction could ever occur because the mere fact of registration would negate an investor's representation of investment intent which would undermine any private placement exemption. However, CDI 116.19 clearly indicates that an investor can have a valid investment intent, even if the shares purchased are registered for resale at the time of closing of the private placement.

There is also no evidence that the Investors are acting in concert to effect a distribution of the Shares. As described under "Background" above, in addition to the affiliated fund "groups" of Baker Brothers and MPM, there are 15 discrete persons for whom the sale of securities is being registered in the Registration Statement. It would require a significant undertaking for all of the persons whose shares are being registered to act in concert to effect a distribution of the Shares. There is no evidence that the Investors have any plan to act in concert with respect to

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their Shares. Under the Exchange Act, such a plan would make such investors a "group" under Section 13(d) of the Exchange Act. In similar circumstances, courts have found that investors who merely sign the same investment documents do not constitute a "group" for 13(d) purposes. See, e.g., *Litzler v. CC Investments*, 411 F.Supp. 2d 411 (S.D.N.Y. 2006) (investors participating in the same financing and signing the same investment documents prepared by one counsel are not a "group"). Accordingly, there does not appear to be any valid basis to impute to such investors any intent to act in concert.

Furthermore, under the Commission's own rules, a "distribution" requires special selling efforts. Rule 100(b) of Regulation M defines a "distribution" as

"an offering of securities, whether or not subject to registration under the Securities Act, that is distinguished from ordinary trading transactions by the magnitude of the offering and the presence of special selling efforts and selling methods." (emphasis added)

There is no evidence in this case that any special selling efforts or selling methods have taken place or would take place if the sale of all of the Shares were registered. Again, it is not credible to assume that the Investors in the Financing will band together to distribute their shares. Nor is there any evidence that any of the Investors have conducted any road shows or taken any other actions to condition or "prime" the market for their shares. To do so would violate the detailed representations made by them in the Note and Warrant Purchase Agreement.

Further reducing the probability of a distribution intent is the fact that approximately 50.3% of the Shares are issuable upon conversion and exercise of securities issued to Affiliates. Under Section 16(b) under the Exchange Act and Rule 16b-6 thereunder, Affiliates would be subject to short-swing profit liability if they sold any of the Shares within six months of the Financing.

Finally, for all practical purposes, it would be extremely difficult for the Investors to distribute even the Shares that are issuable to them from the outset. According to information accessible through the website Yahoo Finance, the three-month average daily trading volume of the Common Stock as of September 23, 2009 was approximately 86,228 shares. On the basis of this average trading volume, if the Investors attempted to liquidate their positions in the Shares in the open market it would take them approximately 136 trading days to do so, under the unreasonable assumption that no other person would sell a single share of stock during that entire period. No rational investor would purchase such a large block of shares with the intent of effecting an immediate distribution in light of the relatively low daily trading volume in the Common Stock. In this situation — as is the case with many PIPE transactions — the concept that

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the Investors have "freely tradable" shares is far more theoretical than real. For all practical purposes, the Investors would have difficulty completely liquidating their investments, regardless of whether their shares are registered. This practical limitation on liquidity illustrates why the Staff has been concerned about toxic, "extreme convertible" securities with price resets, that allow investors to flood the market with shares without concern that the massive selling will depress the stock price, because the reduction in stock price would entitle them to additional shares under the reset provisions. In our situation, the Notes and Warrants do not have this type of reset provision, so any attempt to flood the market with Shares will depress the stock price and harm the Investors themselves.

*The relationship of each Investor with the Company, including an analysis of whether the Investor is an affiliate of the Company*

#### Affiliates

As described under "Background" above, of the \$19,295,802 in aggregate principal amount of Notes and 2,572,775 Warrants issued in the Financing, Notes in the aggregate principal amount of \$9,706,270 and Warrants to purchase 1,294,170 shares of Common Stock (representing approximately 50.3% of the Financing and the Shares), were issued to Affiliates. However, all of these persons were already securityholders in the Company prior to the Financing and only two of them have, to the Company's knowledge, ever sold shares of the Company (in both cases, the shares were sold pursuant to the exercise of options that these Affiliates had granted to third parties).

In particular:

- Notes in the aggregate principal amount of \$7,678,075 and Warrants to purchase 1,023,744 shares of Common Stock (representing approximately 39.8% of the Financing and the Shares) were issued to Affiliates who were Existing Noteholders in lieu of principal and interest on the 8% Notes, which had in turn been issued in exchange for 8% convertible notes sold to the Existing Noteholders in the second and third quarters of 2006;
- Notes in the aggregate principal amount of \$18,196 and Warrants to purchase 2,426 shares of Common Stock were issued for cash to the Affiliates and Existing Noteholders Joel McCleary and Eric Richman in addition to the Notes and Warrants they received in lieu of principal and interest on the 8% Notes;

- Notes in the aggregate principal amount of \$2,010,000 and Warrants to purchase 268,000 shares of Common Stock (representing approximately 10.4% of the Financing and the Shares) were issued to the Affiliates Derace Schaffer, Christopher Camut and the spouse of John Pappajohn. Mr. Pappajohn and Dr. Schaffer have held their shares of Company stock for over three years.

The lack of sales of shares of Common Stock by all but two of the Affiliates and the fact that those two Affiliates sold shares pursuant to the exercise of stock purchase options they had granted to third parties clearly negates any inference that the Affiliates intend to effect a distribution of the Shares and provides compelling support for the Company's argument that they have purchased their securities for investment and not with the intent to effect an illegal distribution of the Shares.

#### Non-Affiliates

Of the \$19,295,802 in aggregate principal amount of Notes and Warrants to purchase 2,572,775 shares issued in the Financing, Notes in the aggregate principal amount of \$9,589,532 and Warrants to purchase 1,278,605 shares of Common Stock (representing approximately 49.7% of the Financing and the Shares), were issued to Investors who are not Affiliates ("Non-Affiliates").

Of the eight Non-Affiliates (counting Baker Brothers as one), three were Existing Noteholders (representing Notes in the aggregate principal amount of \$1,089,531 and Warrants to purchase 145,271 shares of Common Stock, or 5.6% of the Financing and the Shares) and have therefore been investors in the Company for at least the past three years.

Of the remaining five Non-Affiliates, four had no relationship with the Company prior to their investment in the Financing. One of them, Baker Brothers had never engaged in a transaction with the Company.

#### *Any relationship among the Investors*

Counting each of the MPM and Baker Brothers "groups" of affiliated funds as one Investor for purposes of this analysis, only the following relationships exist among the Investors:

- Argyris (RJ) Vassiliou is the son-in-law of Mary and John Pappajohn. Mr. Vassiliou is also the trustee of the Ann Vassiliou Children's Trust.

None of these relationships resemble traditional underwriting arrangements and there are no other relationships among the Investors.

*The dollar value of the shares registered in relation to the proceeds that the Company received from the Investors for the securities, excluding amounts of proceeds that were returned (or will be returned) to the Investors and/or their affiliates in fees or other payments*

The Registration Statement covers 11,704,010 shares of Common Stock. Of that amount, up to 7,591,790 shares are issuable upon conversion of the aggregate principal amount of the Notes, up to 1,539,445 shares are issuable in respect of interest that has begun accruing and will continue to accrue throughout the term of the Notes and up to 2,572,775 shares are issuable upon exercise of the Warrants. Using the Date of Sale Price, i.e., \$2.50 per share, the aggregate dollar value of the Shares to be registered is \$29,260,025. On the day of issuance of the Notes and Warrants, the Investors would only have been entitled to convert their Notes into an aggregate of 7,591,790 Shares, because no interest had yet accrued on the Notes and because the Warrants, by their terms, become exercisable on January 28, 2010. The 7,591,790 shares had a dollar value of \$18,979,475 using the Date of Sale Price.

In the Financing, the Company received \$10,528,196 in cash and cancelled \$8,767,606 in aggregate principal amount and accrued interest with respect to 8% Notes for total gross proceeds of \$19,295,802. As mentioned above, this was an "at-market" transaction in which both the Conversion Price of the Notes and the Exercise Price of the Warrants were set at or above the most recent market price of the Common Stock, with no price resets other than customary adjustments based on capitalization changes (e.g., stock splits) or distributions (e.g., dividends). As described in detail in the Company's response to comment No. 3, the Note and Warrant Purchase Agreement and the Registration Rights Agreement obligate the Company to make payments to the Investors in certain circumstances, such as late charges, payments upon an event of default, charges upon failure to convert, and charges relating to blackout periods or the failure of the Company to file, have declared or maintain effective, the Registration Statement. However, the Company does not contemplate currently that it will have an obligation to make any of such payments. In fact, the circumstances that trigger payment of these charges are largely within the control of the Company. As such, these payments cannot be deemed to be "amounts of proceeds that... will be returned... to the Investors and/or their affiliates in fees or other payments." (emphasis added.) The Notes and Warrants have none of the "synthetic discounts" or "equity conditions" that would compel the Company to return proceeds upon adverse trading events that are present in certain PIPEs the Staff might view as abusive.

The Company is obligated to reimburse MPM and HCV for standard reasonable legal costs and expenses incurred by MPM and HCV payable directly to their counsel in connection with the Financings.

In sum, the Company benefited in the Financing from a combination of canceled debt and new cash in the aggregate amount of \$19,295,802 and the Investors received Notes immediately convertible into Shares with a market value based on the Date of Sale Price of \$18,979,475. The Warrants, by their terms, become exercisable on January 28, 2010. Based on the Exercise Price, the Company could receive additional proceeds of up to \$6,431,937.50 if all of the Warrants are fully exercised, which is equivalent to the market value of the shares of Common Stock based on the Date of Sale Price. Finally, the dollar value of the Shares issuable in respect of interest on the Notes was \$0 on July 28, 2009 and will increase only over time commensurate with the accrual of interest at the rate of 10% per annum, deemed by the Board of Directors of the Company to be in line with the market for transactions of this type at the time of the Financing.

*The discount at which the Investors will purchase the common stock underlying the Notes and Warrants upon conversion or exercise*

Since the Exercise Price is equal to the Date of Sale Price, and the Conversion Price exceeds the Date of Sale Price by \$0.041667, the Investors **will not** purchase the Shares underlying the Notes and Warrants upon conversion or exercise at any “discount.”

*Whether or not any of the Investors is in the business of buying and selling securities*

The Investors are individuals and private investment funds that buy and sell portfolio securities for their own accounts and performed significant, fundamental due diligence on the Company prior to making their investment. All of the Investors represented at the time of purchase of the Notes and Warrants that they were buying for their own accounts, for investment and not with a view to distribution or resale of securities except in full compliance with all applicable provisions of the Act. There is no allegation that those representations and warranties are untrue and no factual basis for any such allegation.

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*The amount of shares involved*

While in practical application, it appears that the amount of shares being registered is relevant to the Staff in its determination of whether an offering should be deemed a primary or secondary offering, a single-minded focus on the number of shares is inconsistent with CDI 612.09 and the facts and circumstances recited above. As described below, the Staff’s more recent focus on toxic features (none of which are present in our financing) is far more likely to deter abusive practices and uncover disguised primary offerings.

We understand that several years ago the Staff became increasingly concerned about public resales of securities purchased in “toxic” transactions. The Staff believed that public investors often did not have an appropriate understanding as to the nature of the investment being made or the negative impact that such transactions could have on the market prices of the shares involved. In many of these “toxic” transactions, an issuer would commit to issuing shares at a conversion price that floated in accordance with the market price of the underlying common stock. When the deals were announced, the stock prices typically fell with the result that the issuer ended up issuing significant blocks of stock — in many cases well in excess of 100% of the shares previously outstanding. In these toxic situations, existing investors or investors who purchased shares after the announcement of the transaction frequently faced unrelenting downward pressure on the value of their investments. In too many of these cases, the shares held by non-participants in these transactions were ultimately rendered worthless.

In order to combat the effects of these toxic transactions, the Office of Chief Counsel and the senior Staff members of the Commission’s Division of Corporation Finance began to look at ways to discourage toxic transactions and to limit the impact of these transactions. One way to do so was to limit the ability of the investors in those transactions to have their shares registered.

We understand that, in order to monitor these types of transactions, the Staff compared the number of shares an issuer sought to register with the number of shares outstanding and held by non-affiliates as disclosed in the issuer’s Annual Report on Form 10-K or Form 10-KSB. As we understand it, the Staff was instructed to look more closely at any situation where an offering involved more than approximately one-third of the public float. If an issuer sought to register more than one-third of its public float, the Staff was instructed to examine the transaction to see if it implicated Staff concerns that a secondary offering might be a “disguised” primary offering for Rule 415 purposes. According to the Office of Chief Counsel, the test was intended to be a mere screening test and was not intended to substitute for a complete analysis of the factors cited in CDI 612.09. As far as we are aware, no rationale for the one-third threshold has ever been articulated by the Staff, other than that it is an easy criteria to apply. In partial response to criticism over the Staff’s interpretive position, we understand that the Staff’s focus shifted in late

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2006 to “Extreme Convertible” transactions to avoid disrupting legitimate PIPE transactions(4). As described above, the terms of the Financing do not implicate any of the concerns leading to the focus on Extreme Convertible situations.

The availability of Rule 415 depends on whether the offering is in fact made by selling shareholders or deemed to be made by or on behalf of the issuer. In order for the Staff to determine that the offering is really being made on behalf of the issuer, by definition, the Staff must conclude that the selling shareholders are seeking to effect a distribution of the shares. However, if the Staff’s concern is that a distribution is taking place, the number of shares being registered should be one of the less important factors in the Staff’s analysis. An illegal distribution of shares can take place whether or not the amount of shares involved is less or more than one-third. In fact, for the reasons described above, it is far easier to effect an illegal distribution when the number of shares involved is relatively small in relation to the shares outstanding or the public float. As demonstrated above, when investors buy a large stake of a small public company, it is difficult for them to sell the stock in an expedited manner. Accordingly, the larger the investment, the harder it is for an investor to effect a distribution, especially in the case of a small public company with a limited trading market.

Focusing solely on the number of shares being registered in relation to the shares outstanding or the public float has a disproportionate impact on smaller public companies — exactly those issuers who are limited in their use of Form S-3 to register their shares on the shelf and have very limited options to raise funds.



A focus on sheer numbers also ignores a fundamental aspect of these transactions: investors in PIPEs are funding business plans and strategic initiatives, not looking to take control of public issuers or to illegally distribute stock. In this case, the Investors evaluated an investment in the Company on the basis of the business purpose for the offering and whether they believed the Company's proposed use of proceeds was rational and likely to produce above average investment returns. The number of Shares they may end up owning is just a mathematical result of the size of the investment, the price per share and the Company's market capitalization. In our experience, PIPE investors don't look to acquire a specific proportion of a company and then calculate an investment amount based on a desired level of ownership. A focus on the percentage of the public float or the percentage of the shares outstanding, would unfairly penalize smaller companies without apparent justification.

Limiting the number of shares being registered doesn't affect any significant change in the circumstances of a proposed offering. If the Investors were acting as a mere conduit for the

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(4) See Speech by John W. White; Keller and Hicks: Unblocking Clogged PIPEs.

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Company, rather than funding a business plan, cutting back on the number of shares being sold would only make it easier for them to accomplish their goal by cutting back on the number of shares they sell. It would not change the actual investment intent of the selling shareholders or the ability of the Investors to effect a distribution if, in fact, that was their intent.

In fact, CDI 612.12 with respect to the Securities Act rules describes a scenario where a holder of well over one-third of the outstanding stock is able to effect a valid secondary offering. The interpretation states, in relevant part, that:

A controlling person of an issuer owns a 73% block. That person will sell the block in a registered "at-the-market" equity offering. Rule 415(a)(4) applies only to offerings by or on behalf of the registrant. A secondary offering by a control person that is not deemed to be by or on behalf of the registrant is not restricted by Rule 415(a)(4).

In addition Release No. 33-8878 that amended Form S-3 acknowledged the Staff's historical position on page 22 that "Form S-3 has for many years allowed registrants to conduct secondary offerings on the form irrespective of public float, so long as the securities offered thereby were listed securities."

These interpretive positions makes clear that the holder of well in excess of one-third of the public float can effect a valid secondary offering of its shares unless other facts — beyond the mere level of ownership — indicate that the affiliate is acting as a conduit for the issuer.

Conclusion: Considering all circumstances, the Investors are not acting as a conduit for the Company.

Considering the factors in the Staff's comment number 1, as well as the factors listed in CDI 612.09, (i) the Investors made fundamental decisions to invest in the Company, almost half of which received the Notes and the Warrants in exchange for securities acquired three years ago (before the Company was publicly listed) — a period of time that far exceeds the period sanctioned in CDI 116.19, (ii) the Investors have represented their investment intent and disclaimed any intent to illegally distribute their Shares, the Notes contain no toxic or other abusive provisions that have in the past merited special concerns by the Staff, and the Conversion and Exercise Price were at or above the closing price of the Common Stock on the NYSE Amex immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants, (iii) as stated above, almost half of the Investors are Existing Noteholders, who had been investing in the Company for at least three years, while the largest Investor in the Financing, Baker Brothers, had not engaged in prior transactions with the

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Company, (iv) the Investors are individuals and private investment funds that buy and sell portfolio securities for their own accounts and (v) as all of the facts and analysis provided above demonstrate, the Investors are not engaging in a distribution and are not acting as conduits for the Company. There is no evidence to suggest that any of the Investors are acting in concert to effect a coordinated distribution of the Shares. In addition, the Investors beneficially own so much Common Stock that it would be very difficult for them to immediately distribute all of the Shares. The number of Shares initially covered by the Registration Statement is reasonable in relation to other transactions that have been reviewed and cleared by the Staff. None of the Investors are in the business of underwriting securities. In these circumstances we believe that the offering the Company seeks to register is a valid secondary offering and may proceed consistent with Rule 415.

2. *Please provide us, with a view toward disclosure in the prospectus, with the total dollar value of the securities underlying the convertible notes and warrants that you have registered for resale (using the number of underlying securities that you have registered for resale and the market price per share for those securities on the date of the sale of the convertible notes and warrants).*

Response:

The Company proposes to add the disclosure appearing below to a pre-effective amendment to the Registration Statement ("Amendment No. 2"):

The closing price per share of our common stock on the NYSE Amex on July 24, 2009, i.e., immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants, was \$2.50. The number of shares that are being registered for resale pursuant to the registration statement of which this prospectus is part, is 11,704,010, which includes up to 1,539,445 shares of common stock issuable in respect of interest that accrues on the Notes, assuming the Notes are converted on July 28, 2011. Based on the closing price per share of our common stock on July 24, 2009, the dollar value of the securities underlying the Notes and warrants in the aggregate is \$29,260,025.

3. *Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of the dollar amount of each payment (including the value of any payments to be made in common stock) in connection with the transaction that you have made or may be required to make to any selling shareholder, any affiliate of a selling shareholder, or any person with whom any selling shareholder has a contractual relationship regarding the transaction (including any interest payments, liquidated damages, payments made to "finders" or*

“placement agents,” and any other payments or potential payments). Please provide footnote disclosure of the terms of each such payment. Please do not include any repayment of principal on the convertible notes in this disclosure.

Further, please provide us, with a view toward disclosure in the prospectus, with disclosure of the net proceeds to the issuer from the sale of the convertible notes and warrants and the total possible payments to all selling shareholders and any of their affiliates in the first year following the sale of convertible notes.

Response:

The Company proposes to add the disclosure appearing below to Amendment No. 2. The Company respectfully advises the Staff that the net proceeds to the Company from the sale of the Notes and Warrants is proposed to be disclosed in response to Comment 6.

Possible Payments to Selling Stockholders and Affiliates

The table below summarizes the maximum dollar amount of interest payments and initial registration default payments, as well as the monthly dollar amount of registration default payments, that we may be required to make to selling stockholders, affiliates of selling stockholders or any person with whom any selling stockholder has a contractual relationship regarding the sale of the Notes and warrants or the resale of the underlying shares. In addition to the payments disclosed in the table, we are obligated to reimburse MPM and Healthcare Ventures VII, L.P. for certain reasonable legal costs and expenses incurred by them and payable directly to their counsel in connection with the sale of the Notes and warrants.

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Selling Stockholders	Interest Payments(1)*	Potential Registration Default Payments(2)*	Potential On-Going Registration Default Payments(2)*
Mary Pappajohn	\$ 202,777.78	\$ 10,000.00	\$ 10,000/month
Derace Schaffer	\$ 202,777.78	\$ 10,000.00	\$ 10,000/month
Joel McCleary	\$ 8,565.74	\$ 422.42	\$ 422.42/month
David Wright	\$ 12,526.95	\$ 617.77	\$ 617.77/month
Christopher Camut	\$ 2,027.78	\$ 100.00	\$ 100.00/month
Eric Richman	\$ 3,336.48	\$ 164.54	\$ 164.54/month
Healthcare Ventures VII, L.P.	\$ 427,350.67	\$ 21,074.83	\$ 21,074.83/month
MPM Asset Management Investors 2004 BVIII LLC, MPM Bioventures III, L.P., MPM Bioventures III GmbH & Co. Beteiligungs KG, MPM Bioventures III Parallel Fund, L.P. and MPM Bioventures III-QP, L.P.	\$ 1,108,852.77	\$ 54,683.15	\$ 54,683.15/month
Jerome Parks	\$ 12,526.95	\$ 617.77	\$ 617.77/month
Ronald Kaiser	\$ 1,932.80	\$ 95.32	\$ 95.32/month
Ontario Teachers' Pension Plan Board	\$ 206,473.00	\$ 10,182.23	\$ 10,182.23/month
James H. Desnick	\$ 101,388.89	\$ 5,000.00	\$ 5,000.00/month
Edward F. Heil	\$ 101,388.89	\$ 5,000.00	\$ 5,000.00/month
Argyis (R.J.) Vassiliou	\$ 40,555.56	\$ 2,000.00	\$ 2,000.00/month
Ann Vassiliou Children's Trust	\$ 60,833.33	\$ 3,000.00	\$ 3,000.00/month
Baker Bros. Investments II, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P. (the "Baker Entities")	\$ 1,419,444.45	\$ 70,000.00	\$ 70,000.00/month
<b>TOTAL</b>	<b>\$ 3,912,759.82</b>	<b>\$ 192,958.02</b>	<b>\$ 192,958.02/month</b>

\* Amounts are rounded up to the nearest cent.

(1) Represents total interest accruing on the Notes at a rate of 10% per annum through the maturity date on July 28, 2011. Interest on the Notes will accrue at a rate of 14% per annum upon an event of default, as defined in the Notes.

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(2) Under the terms of the Notes, if (i) the registration statement is (A) not filed within 30 days of the closing, ("Filing Failure"), or (B) not declared effective as specified in the Note and Warrant Purchase Agreement ("Effectiveness Failure"), or (ii) after the effective date of the registration statement, after the 2nd consecutive business day (other than during an allowable blackout period pursuant to the registration rights agreement, dated as of July 28, 2009, among PharmAthene and the purchasers of the Notes and warrants (the "Registration Rights Agreement")) on which sales of all of the securities required to be included on the registration statement cannot be made pursuant to the registration statement (a "Maintenance Failure"), we will be required to pay to each selling stockholder a one-time payment of 1.0% of the aggregate principal amount of the Notes relating to the affected shares on each of the following dates: (i) the day of a Filing Failure, (ii) the day of an Effectiveness Failure and (iii) the initial day of a Maintenance Failure.

Following a Filing Failure, Effectiveness Failure or Maintenance Failure, we will also be required to make to each selling stockholder monthly payments of 1.0% of the aggregate principal amount of the Notes relating to the affected shares on each of the following dates: (i) on every 30<sup>th</sup> day after the initial day of a Filing Failure, (ii) on every 30<sup>th</sup> day after the initial day of an Effectiveness Failure and (iii) on every 30<sup>th</sup> day after the initial day of a Maintenance Failure, in each case prorated for shorter periods and until the failure is cured.

If the Company fails to make any of these payments in a timely manner, the amount due will bear interest at 1.5% per month (prorated for partial months) until paid in full.

The amounts included in the column "Registration Default Payments" represent only a one-time payment of 1.0% of the aggregate principal amount of the Notes, and do not reflect the additional monthly payments described above.

Based on the above, in the first year following the sale of the Notes and warrants, we could be required to pay to the selling stockholders and any of their affiliates an aggregate of \$3,693,002, assuming the registration statement is not declared effective by November 25, 120 days following the closing date, all required payments have been made on time and no late fees or interest on these payments has been incurred, and no Event of Default, as defined in Section 4 of the Notes, has occurred. This amount also reflects interest incurred during this period, at a rate of 10% per annum, as provided in the Notes.

The Note and Warrant Purchase Agreement also provides that we are obligated to pay, and save the selling stockholders harmless from, any and all liabilities with respect to any stamp or similar taxes which may be determined to be payable in connection with the execution and performance of the Note and Warrant Purchase Agreement, and the other documents executed in connection therewith (the "Transaction Documents") or any modification, amendment or alteration of the terms or provisions of the Transaction Documents (excluding taxes on the income or gain of any selling stockholder).

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We may also be obligated to make following potential payments to selling stockholders and their affiliates upon the events described below. We do not anticipate having to pay any of these amounts, but we are unable to estimate at this time if any such payments will be payable, or, if payable, the amount of such payments.

- *Late Charge.* The terms of the Notes provide that any amount due by us pursuant to the sale of the Notes and warrants, other than interest, which is not paid when due shall result in a late charge being incurred and payable by us in an amount equal to interest on such amount at the rate of 5.0% per annum from the date such amount was due until the same is paid in full ("Late Charge").
- *Event of Default Under the Notes.* Upon an event of default (as defined in the Notes), we are required to deliver notice of such event to the holder of the Note.

Upon the occurrence and continuation of certain events of default (as defined in the Notes) under subsections 4(a)(iv), 4(a)(v) and 4(a)(viii), which include the bankruptcy or insolvency of the Company, or related events, or the Company's failure to appoint a "Noteholder Director," as such term is defined in the Notes, all the Notes outstanding at that time will automatically become due and payable.

Upon the occurrence and continuation of any other event of default identified in the Notes, the holders of not less than a majority of the aggregate principal amount of the Notes then outstanding may at any time in their option, by notice or notices to us, declare all of the Notes then outstanding to be immediately due and payable.

Upon any Notes becoming due and payable due to an event of default described above, whether automatically or by declaration, such Notes will mature and the entire unpaid principal, plus all accrued and unpaid interest and Late Charges, shall become immediately due and payable.

- *Change of Control Redemption.* Upon a change of control (as defined in the Notes), a selling stockholder may elect to redeem all of his or her Notes at a price equal to the "Conversion Amount," which is defined as the sum of (A) the portion of the principal to be converted, redeemed or otherwise with respect to which this determination is being made, (B) accrued and unpaid interest with respect to the principal and (C) accrued and unpaid Late Charges with respect to the principal and interest.
- *Company's Right to Redemption.* After July 28, 2010, we have the right to redeem all or any portion of the Conversion Amount, as defined above, then remaining under the

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Note to be redeemed as of that date. The portion of the Note to be redeemed subject to such redemption shall be redeemed at a price equal to the Conversion Amount being redeemed.

- *Failure to Convert.* If we fail to timely issue a certificate of common stock to a selling stockholder upon conversion of any amount of the Notes, on or prior to seven business days following the conversion date, we must pay damages to the selling stockholder for each day of such failure in an amount equal to 1.5% of the product of (i) the sum of the number of shares not issued on or prior to the third business day following the delivery of the conversion notice and (ii) the closing sale price of our common stock on the share delivery date.
- *Indemnification Obligations.* Under the Registration Rights Agreement, we have agreed to indemnify each selling stockholder for any losses arising out of or based upon any untrue statement or alleged untrue statement of any material fact contained in this prospectus, prospectus supplement or registration statement of which this prospectus is a part, or any amendment or supplement thereof, or arising out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading. We will reimburse the selling stockholder for any reasonable legal or other expenses incurred in connection with investigating or defending any such losses, subject to certain exceptions set forth in the Registration Rights Agreement.

4. Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of:

- *the total possible profit the selling shareholders could realize as a result of the conversion discount for the securities underlying the convertible notes, presented in a table with the following information disclosed separately:*
  - *the market price per share of the securities underlying the convertible notes on the date of the sale of the convertible notes;*
  - *the conversion price per share of the underlying securities on the date of the sale of the convertible notes, calculated as follows:*
    - *if the conversion price per share is set at a fixed price, use the price per share established in the convertible notes; and*

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- *if the conversion price per share is not set at a fixed price and, instead, is set at a floating rate in relationship to the market price of the underlying security, use the conversion discount rate and the market rate per share on the date of the sale of the convertible notes and determine the conversion price per share as of that date;*
- *the total possible shares underlying the convertible notes (assuming no interest payments and complete conversion throughout the term of the notes);*
- *the combined market price of the total number of shares underlying the convertible notes, calculated by using the market price per share on the date of the sale of the convertible notes and the total possible shares underlying the convertible notes;*
- *the total possible shares the selling shareholders may receive and the combined conversion price of the total number of shares underlying the convertible notes calculated by using the conversion price on the date of the sale of the convertible notes and the total possible number of shares the selling shareholders may receive; and*
- *the total possible discount to the market price as of the date of the sale of the convertible notes, calculated by subtracting the total conversion price on the date of the sale of the convertible notes from the combined market price of the total number of shares underlying the convertible notes on that date.*

*If there are provisions in the convertible notes that could result in a change in the price per share upon the occurrence of certain events, please provide additional tabular disclosure as appropriate. For example, if the conversion price per share is fixed unless and until the market price falls below a stated price, at which point the conversion price per share drops to a lower price, please provide additional disclosure.*

Response:

The Company respectfully advises the Staff that (i) the Conversion Price is \$2.541667, subject to customary antidilution provisions strictly for fundamental organic changes to the Common Stock, such as stock splits, stock dividends or other distributions to all holders of Common Stock, and (ii) the closing price per share of the Common Stock on the NYSE Amex on July 24, 2009, i.e., immediately preceding the time that the Company entered into the binding

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agreement to issue the Notes and Warrants, was \$2.50. Since the Conversion Price exceeds such closing price by \$0.041667, the Investors will not receive the Shares underlying the Notes upon conversion at a “discount” to the market price as of the date of sale of the Notes, and since there are no provisions for adjustment to the Conversion Price based upon market price, the Company respectfully submits that the information requested pursuant to this Comment No. 4 would not be appropriate for inclusion in Amendment No. 2.

5. *Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of:*

- *the total possible profit to be realized as a result of any conversion discounts for securities underlying any other warrants, options, notes, or other securities of the issuer that are held by the selling shareholders or any affiliates of the selling shareholders, presented in a table with the following information disclosed separately:*
  - *market price per share of the underlying securities on the date of the sale of that other security;*
  - *the conversion/exercise price per share as of the date of the sale of that other security, calculated as follows:*
    - *if the conversion/exercise price per share is set at a fixed price, use the price per share on the date of the sale of that other security; and*
    - *if the conversion/exercise price per share is not set at a fixed price and, instead, is set at a floating rate in relationship to the market price of the underlying security, use the conversion/exercise discount rate and the market rate per share on the date of the sale of that other security and determine the conversion price per share as of that date;*
- *the total possible shares to be received under the particular securities (assuming complete conversion/exercise);*

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- *the combined market price of the total number of underlying shares, calculated by using the market price per share on the date of the sale of that other security and the total possible shares to be received;*
- *the total possible shares to be received and the combined conversion price of the total number of shares underlying that other security calculated by using the conversion price on the date of the sale of that other security and the total possible number of underlying shares; and*
- *the total possible discount to the market price as of the date of the sale of that other security, calculated by subtracting the total conversion/exercise price on the date of the sale of that other security from the combined market price of the total number of underlying shares on that date.*

Response:

The Company respectfully advises the Staff that (i) the Exercise Price is \$2.50, subject to customary antidilution provisions for fundamental organic changes, and (ii) the closing price per share of the Common Stock on the NYSE Amex on July 24, 2009, i.e., immediately preceding the time that the Company entered into the binding agreement to issue the Notes and Warrants, was \$2.50. Since the Exercise Price equals such closing price, the Investors will not receive the Shares underlying the Warrants upon exercise at a “discount” to the market price as of the date of sale of the Warrants.

Similarly, the exercise prices of the options to purchase common stock referred to above and held by investors Derace Schaffer, Joel McCleary, David Wright, Christopher Camut, Eric Richman and James Cavanaugh equal the closing price of the Common Stock on the NYSE Amex on the corresponding grant date. As a result, such investors will not purchase the shares underlying such options upon exercise at a “discount” to the market price as of the date of grant of the options.

For the foregoing reasons, the Company respectfully submits that the information requested pursuant to this Comment No. 5 would not be appropriate for inclusion in Amendment No. 2.

6. *Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of:*

- *the gross proceeds paid or payable to the issuer in the convertible note transaction;*
- *all payments that have been made or that may be required to be made by the issuer that are disclosed in response to Comment 3 above;*
- *the resulting net proceeds to the issuer; and*
- *the combined total possible profit to be realized as a result of any conversion discounts regarding the securities underlying the convertible notes and any other warrants, options, notes, or other securities of the issuer that are held by the selling shareholders or any affiliates of the selling shareholders that is disclosed in response to Comment 4 and Comment 5 above.*

*Further, please provide us, with a view toward disclosure in the prospectus, with disclosure — as a percentage — of the total amount of all possible payments as disclosed in response to Comment 3 and the total possible discount to the market price of the shares underlying the convertible note as disclosed in response to Comment 4 divided by the net proceeds to the issuer from the sale of the convertible notes, as well as the amount of that resulting percentage averaged over the term of the convertible notes.*

Response:

The Company proposes to add the disclosure appearing below to Amendment No. 2:

Comparison of Proceeds:

Gross Proceeds from the Sale of the Notes and Warrants(1)	\$ 19,295,802
Less Payments Made or Required to be Made to Selling Stockholders and Affiliates(2)	\$ 3,912,760
Less Estimated Payments Made or Required to be Made to Counsel to MPM and Healthcare Ventures VII, L.P. for certain reasonable legal costs and expenses	\$ 75,000
Resulting Net Proceeds from Sale of the Notes and Warrants(1)	\$ 15,308,042
Total Possible Discount to Market Price of Stock Registered Hereunder	\$ 0

(1) Represents a combination of canceled debt (8% convertible notes) and new cash. Does not include \$6,431,938 receivable by us upon the full exercise of all warrants.

(2) This amount reflects interest payments we would owe the selling stockholders assuming they hold their notes through the maturity date, but excludes one-time payments of \$192,958.02 and \$192,958.02/month payable in the event the Company breaches provisions described above. We are unable, at this time, to estimate the amount of any other payments that may be required to be made to the selling stockholders in the future.

The total amount of all possible payments payable to the selling stockholders in connection with the sale of the Notes and warrants reflected in the table above, represents approximately 24% of the resulting net proceeds to us from such sale, which is approximately 12% per annum averaged over the two-year term of the Notes.

7. Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure of all prior securities transactions between the issuer (or any of its predecessors) and the selling shareholders, any affiliates of the selling shareholders, or any person with whom any selling shareholder has a contractual relationship regarding the transaction (or any predecessors of those persons), with the table including the following information disclosed separately for each transaction:

- the date of the transaction;
- the number of shares of the class of securities subject to the transaction that were outstanding prior to the transaction;
- the number of shares of the class of securities subject to the transaction that were outstanding prior to the transaction and held by persons other than the selling shareholders, affiliates of the company, or affiliates of the selling shareholders;
- the number of shares of the class of securities subject to the transaction that were issued or issuable in connection with the transaction;
- the percentage of total issued and outstanding securities that were issued or issuable in the transaction (assuming full issuance), with the percentage

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calculated by taking the number of shares issued and outstanding prior to the applicable transaction and held by persons other than the selling shareholders, affiliates of the company, or affiliates of the selling shareholders, and dividing that number by the number of shares issued or issuable in connection with the applicable transaction;

- the market price per share of the class of securities subject to the transaction immediately prior to the transaction (reverse split adjusted, if necessary); and
- the current market price per share of the class of securities subject to the transaction (reverse split adjusted, if necessary).

Response:

The Company proposes to add the disclosure appearing below to Amendment No. 2:

Prior Securities Transactions

The following table and accompanying footnotes show the prior securities transactions effected between HAQ and the selling stockholders in this prospectus (or their affiliates) since HAQ's initial public offering in August 2005, and do not include any grants of stock options or restricted stock made under our 2007 Long-Term Incentive Compensation Plan. Except for grants under our 2007 Long-Term Incentive Compensation Plan and the sale of the Notes and warrants in July 2007, we have not effected any securities transactions with the selling stockholders identified in this prospectus (or their affiliates) since merging with HAQ's wholly-owned subsidiary in August 2007.

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Selling stockholder	August 2007 HAQ Merger(1)	August 2 and 3, 2007 HAQ Private Placement(2)
Mary Pappajohn		
Derace Schaffer		
Joel McCleary	X	
David Wright	X	X
Christopher Camut		
Eric Richman	X	
Healthcare Ventures VII, L.P. ("HCV") (3)	X	X
MPM Asset Management Investors 2004 BVIII LLC, MPM Bioventures III, L.P., MPM Bioventures III GmbH & Co. Beteiligungs KG, MPM Bioventures III Parallel Fund, L.P. and MPM Bioventures III-QP, L.P. (the "MPM Entities") (4)	X	X
Jerome Parks	X	
Ronald Kaiser	X	
Ontario Teachers' Pension Plan Board	X	
James H. Desnick		
Edward F. Heil		
Argyis (R.J.) Vassiliou		
Ann Vassiliou Children's Trust		
Baker Bros. Investments II, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P. (the "Baker Entities")		

(1) August 2007 Merger of PharmAthene, Inc. into wholly-owned subsidiary of Healthcare Acquisition Corp. ("HAQ").

- Common stock outstanding prior to transaction: 11,650,000 (not including shares issued in the private placement described below)
- Common stock outstanding prior to transaction held by persons other than selling stockholders or affiliates or our current affiliates: 9,445,000 (not including shares issued in the private placement described below)

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- Common stock issued or issuable subject to transaction: 14,050,688
- Ratio of (i) common stock outstanding prior to transaction held by persons other than selling stockholders or affiliates or our current affiliates to (ii) common stock issued or issuable in connection with transaction: 67%
- Market price per share of common stock immediately prior to transaction: \$6.89 on August 2, 2007 (closing price)
- Market price per share of common stock on October 5, 2009: \$4.06

(2) August 2 and 3, 2007 Private Placement by HAQ.

- Common stock outstanding prior to transaction: 11,650,000 (not including shares issued in HAQ merger described above)
- Common stock outstanding prior to transaction held by persons other than selling stockholders or affiliates or our current affiliates: 9,445,000 (not including shares issued in HAQ merger above)
- Common stock issued or issuable subject to transaction: 850,000
- Ratio of (i) common stock outstanding prior to transaction held by persons other than selling stockholders or affiliates or our affiliates to (ii) common stock issued or issuable in connection with transaction: 1,112%
- Market price per share of common stock immediately prior to transaction: \$7.01 on August 1, 2007
- Market price per share of common stock on October 5, 2009: \$4.06

8. Please provide us, with a view toward disclosure in the prospectus, with tabular disclosure comparing:

- the number of shares outstanding prior to the convertible note transaction that are held by persons other than the selling shareholders, affiliates of the company, and affiliates of the selling shareholders;
- the number of shares registered for resale by the selling shareholders or affiliates of the selling shareholders in prior registration statements;
- the number of shares registered for resale by the selling shareholders or affiliates of the selling shareholders that continue to be held by the selling shareholders or affiliates of the selling shareholders;

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- the number of shares that have been sold in registered resale transactions by the selling shareholders or affiliates of the selling shareholders; and
- the number of shares registered for resale on behalf of the selling shareholders or affiliates of the selling shareholders in the current transaction.

In this analysis, the calculation of the number of outstanding shares should not include any securities underlying any outstanding convertible securities, options, or warrants.

Response:

The Company proposes to add the disclosure appearing below to Amendment No. 2:

Shares registered for resale pursuant to prior Registration Statements

Prior to the issuance of the Notes and the warrants, 11,802,235 shares of our common stock were held by persons other than the selling stockholders, our affiliates or affiliates of the selling stockholders. The following table shows the number of shares that have been registered for resale by the selling stockholders or their affiliates pursuant to prior registration statements, the number of shares so registered that continue to be held by the selling stockholders or their affiliates, and the number of shares registered for resale pursuant to this registration statement.

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Selling stockholder	Number of shares previously registered for resale by the selling stockholders or their affiliates	Number of shares previously registered for resale by the selling stockholders or their affiliates held as of October 9, 2009	Number of shares that have been sold in registered resale transactions by the selling stockholders or their affiliates	Number of shares registered for resale on behalf of the selling stockholders or their affiliates
Mary Pappajohn	894,653(1)	451,164	230,549(2)	606,557
Derace Schaffer	823,673(3)	451,164	230,549(2)	606,557

Joel McCleary	104,083(4)	101,410	0	25,623
David Wright	107,135(4)	101,815	0	37,471
Christopher Camut	0	0	0	6,065
Eric Richman	814(4)	0	0	9,980
Healthcare Ventures VII, L.P.	3,498,748(4)	3,317,243	0	1,278,309
MPM Asset Management Investors 2004 BVIII LLC, MPM Bioventures III, L.P., MPM Bioventures III GmbH & Co. Beteiligungs KG, MPM Bioventures III Parallel Fund, L.P. and MPM Bioventures III-QP, L.P. (5)	3,960,396(4)	3,489,443	0	3,316,846
Jerome Parks	5,320(4)	0	0	37,471
Ronald Kaiser	820(4)	0	0	5,782
Ontario Teachers' Pension Plan Board	855,261(4)	767,568	0	617,611
James H. Desnick	0	0	0	303,279
Edward F. Heil	0	0	0	303,279
Argyis (R.J.) Vassiliou	0	0	0	121,312
Ann Vassiliou Children's Trust	0	0	0	181,967
Baker Bros. Investments II, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P. (the "Baker Entities")	0	0	0	4,245,901
<b>TOTAL</b>	<b>10,180,513</b>	<b>8,679,807</b>	<b>461,098(2)</b>	<b>11,704,010</b>

- (1) Consists of 681,713 shares registered for resale by the selling stockholder's spouse, John Pappajohn, pursuant to Registration Statement on Form S-3, as amended, File No. 333-155692, declared effective

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February 12, 2009, and 141,960 and 70,980 shares registered for resale by John Pappajohn and Matthew Kinley (an employee of a company controlled by Mr. Pappajohn), respectively, pursuant to Registration Statement on Form S-3, as amended, File No. 333-146463, declared effective January 29, 2008. The 141,960 and 70,980 shares were issuable upon exercise of our warrants that expired unexercised in July 2009.

- (2) These shares were sold pursuant to Registration Statement on Form S-3, as amended, File No. 333-155692, declared effective February 12, 2009, for \$0.0001 per share upon the exercise by certain third parties of stock purchase options granted to them by John Pappajohn and Derace Schaffer, respectively.
- (3) Consists of 681,713 shares registered for resale pursuant to Registration Statement on Form S-3, as amended, File No. 333-155692, effective February 12, 2009, and 141,960 shares registered for resale pursuant to Registration Statement on Form S-3, as amended, File No. 333-146463, effective January 29, 2008. The 141,960 shares were issuable upon exercise of our warrants that expired unexercised in July 2009.
- (4) Shares registered pursuant to Registration Statement on Form S-3, as amended, File No. 333-146463, declared effective January 29, 2008. The following shares registered on such registration statement were issuable upon conversion of our 8% convertible notes, which are no longer outstanding: (a) 470,953 shares registered by MPM Entities; (b) 87,693 shares registered by Ontario Teachers' Pension Plan Board; (c) 181,505 shares registered by HCV; (d) 2,673 shares registered by Joel McCleary; (e) 5,320 shares registered by David Wright; (f) 814 shares registered by Eric Richman; (g) 820 shares registered by Ronald Kaiser; and (h) 5,320 shares registered by Jerome Parks.
- (5) Shares registered for resale pursuant to the prior registration statement are held by MPM BioVentures III-QP, L.P., MPM BioVentures III GmbH & Co. Beteiligungs KG, MPM BioVentures III, L.P., MPM BioVentures III Parallel Fund, L.P., and MPM Asset Management Investors 2004 BVIII LLC. Shares registered for resale pursuant to the current registration statement are held by MPM Asset Management, MPM Bioventures III, MPM Bioventures III GmbH, MPM Bioventures III Parallel and MPM Bioventures III-QP.

9. Please provide us, with a view toward disclosure in the prospectus, with the following information:

- whether the issuer has the intention, and a reasonable basis to believe that it will have the financial ability, to make all payments on the overlying securities; and
- whether — based on information obtained from the selling shareholders — any of the selling shareholders have an existing short position in the company's common stock and, if any of the selling shareholders have an

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existing short position in the company's stock, the following additional information:

- the date on which each such selling shareholder entered into that short position; and
- the relationship of the date on which each such selling shareholder entered into that short position to the date of the announcement of the convertible note transaction and the filing of the registration statement (e.g., before or after the announcement of the convertible note transaction, before the filing or after the filing of the registration statement, etc.).



Response:

The Company proposes to add the disclosure appearing below to Amendment No. 2:

We have the intention, and a reasonable basis to believe that we will have the financial ability to, repay the Notes on the maturity date as provided in the Notes.

Based upon information provided by the selling stockholders, we have a reasonable basis to believe that no selling stockholder currently has a short position in our common stock.

10. Please provide us, with a view toward disclosure in the prospectus, with:

- a materially complete description of the relationships and arrangements that have existed in the past three years or are to be performed in the future between the issuer (or any of its predecessors) and the selling shareholders, any affiliates of the selling shareholders, or any person with whom any selling shareholder has a contractual relationship regarding the transaction (or any predecessors of those persons) — the information provided should include, in reasonable detail, a complete description of the rights and obligations of the parties in connection with the sale of the convertible notes; and
- copies of all agreements between the issuer (or any of its predecessors) and the selling shareholders, any affiliates of the selling shareholders, or any person with whom any selling shareholder has a contractual relationship

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*regarding the transaction (or any predecessors of those persons) in connection with the sale of the convertible notes.*

*If it is your view that such a description of the relationships and arrangements between and among those parties already is presented in the prospectus and that all agreements between and/or among those parties are included as exhibits to the registration statement, please provide us with confirmation of your view in this regard.*

Response:

Other than what has been disclosed in the Registration Statement and the documents incorporated by reference therein, there are no material relationships between any of the Investors and the Company.

11. Please provide us, with a view toward disclosure in the prospectus, with a description of the method by which the company determined the number of shares it seeks to register in connection with this registration statement.

Response:

The Company will supplement its existing disclosure in the first paragraph of the “Selling Stockholders” section of the prospectus in response to the Staff’s comment, by adding a sentence stating that the number of shares issuable upon conversion of the Notes has been calculated by dividing the sum of the aggregate principal amount and the maximum interest payable, assuming conversion of all of the Notes on the date of maturity, by the conversion price of \$2.541667 per share.

12. With respect to the shares to be offered for resale by each selling shareholder that is a legal entity, please disclose the natural person or persons who exercise the sole or shared voting and/or dispositive powers with respect to the shares to be offered by that shareholder.

Response:

To the extent not yet included in the Registration Statement, the Company will add the requested disclosure to Amendment No. 2.

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Should you have any questions, or if we can provide any further clarification, please do not hesitate to call the undersigned at (973) 912-7189 or Roland S. Chase at (973) 912-7179.

Very truly yours,

/s/ Jeffrey A. Baumel  
Jeffrey A. Baumel

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