

Mail Stop 4720

July 8, 2009

Dr. Lawrence Helson
President and Chief Executive Officer and Director
SignPath Pharma, Inc.
1375 California Road
Quakertown, PA 18951

**Re: SignPath Pharma, Inc.
Registration Statement on Form S-1/A1
Filed June 22, 2009
File No. 333-158474**

Dear Dr. Helson:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. We note your response to prior comment 5. The transaction appears to be a primary offering and is not appropriately characterized as a transaction that is eligible to be made under Rule 415(a)(1)(i). It appears that you are now seeking to conduct an offering on an immediate and continuous basis at a fixed price in accordance with Rule 415(a)(1)(ix). Please revise your filing to clarify that this offering will be an immediate and continuous offering at a fixed price in accordance with Rule 415(a)(1)(ix) of the Securities Act. In addition, please remove the language on the

cover page “Until such time, if ever, that our common stock is listed on the OTCBB, or otherwise traded” and the similar language in the Plan of Distribution on page 56 as this implies that your common stock will be sold at a different price once quoted on the OTCBB.

2. Please clarify on the cover page and on page 56 that the selling shareholders are underwriters rather than stating that they “may be deemed to be underwriters.”

Risk Factors, page 6

“We have sales, marketing or distribution capabilities.” page 9

3. Your heading to this risk factor appears to be inconsistent with your disclosure in the risk factor and elsewhere throughout the filing. Similarly, on page 28 you state “The Company intends to manufactures good manufacturing practice (GMP) grade of liposomal curcumin and nanocurcumin.” This statement does not appear to be consistent with your disclosures throughout the filing. Please revise your disclosures on pages 9 and 28 accordingly.

“The Company’s officers, directors and principal stockholders...” page 21

4. You disclose that “The Company’s founder, Bruce Meyers,... Dr. Lawrence Helson, CEO, and Dr. Arthur Bollon, Director, beneficially own 2,350,000, 1,500,000, and 800,000 shares, respectively.” This does not appear consistent with your disclosure in the Principal Stockholders table on page 45. Please revise to explain or remove the inconsistencies.
5. With regard to Bruce Meyer’s beneficial ownership, we note that you state on page 46 that his beneficial ownership does not include any shares owned by Meyers Associates. We also note that you state on page 46 that Mr. Meyers has the power to vote and dispose of the shares owned by Meyers Associates. Please revise to include the shares owned by Meyers Associates in the beneficial ownership of Mr. Meyer. Alternatively, please provide us with an analysis which supports your apparent conclusion that Mr. Meyer is not a beneficial owner of the shares owned by Meyers Associates.

Dilution and Other Comparative Per Share Data, page 22

6. We note that you state that as of March 31, 2009, you had a net tangible book value for your common stock of (\$275,428), or approximately \$(0.02) per share. In the table, however, you state that your net tangible book value per share before the offering is \$0.02. Please supplementally explain why you used \$0.02 rather than \$(0.02).

Business, page 29

Raw Materials; Supplies, page 37

7. On page 17 you disclose that “Liposomal curcumin is manufactured in Vienna, Austria by Polymun Inc. which we obtain under contract from Sabunsa Inc. of New Jersey.” Please expand your disclosure on page 37 to clarify your relationship with Sabunsa. If you have an agreement with Sabunsa, please expand your disclosure to disclose all the material terms of this agreement, including any payment provisions, each parties’ material obligations, the term and any termination provisions and please file a copy of this agreement. Alternatively, please provide us with an analysis that supports your apparent conclusion that you are not substantially dependent on this agreement pursuant to Item 601(b)(10) of Regulation S-K.

Intellectual Property, page 38

Agreement with The Johns Hopkins University, page 38

8. We note that you state that your sponsored research agreement with Dr. Anirban Maitra ended on September 18, 2008. Please clarify the current status of this agreement and whether the terms of the agreement still apply to your business.

Management, page 41

9. We are re-issuing prior comment 52. Please note that Item 407(a)(1) of Regulation S-K requires you to identify each director that is independent under the applicable listing standards identified in that item. See Item 407(a)(1)(ii) for the independence definitions to be used when the registrant is not a listed issuer. In addition, if such independence standards contain independence requirements for the committees of the board, identify each member that is not independent under such committee independence standards. If you do not have any independent directors please revise to provide such disclosure.

Executive and Consultant Compensation, page 43

10. You disclose in the first paragraph of this section, “During the calendar year ended December 31, 2008, Dr. Helson was paid \$49,632 and \$100,000 of his salary was unpaid. The Company may elect to pay the unpaid salary in shares of the Company’s Common Stock.” In footnote (1) to the table, however, you state “Under Dr. Helson’s employment contract he is to receive a base salary of \$200,000 per annum. He received \$49,632 during 2008 and does not expect to be paid the additional \$150,368 due under his employment contract, which amount has not been accrued.” Please revise your disclosure to clarify the following:

- The amount of Dr. Helson's salary that was due under his contract but unpaid in 2008, and
- Whether the unpaid salary will be paid in common stock and, if so, the number of shares of common stock which you expect to issue.

Selling Stockholders, page 46

Additional Disclosures, page 49

Comparison of Company Proceeds from the Preferred Stock Offering to Potential Investor Profit, page 50

11. Please compare your proceeds from the offering to the investor profit by including a line item in the table depicting the total amounts the investors will receive if they sell all the shares they are entitled to obtain.
12. You disclose in footnote (2) that the amount of net proceeds includes fees paid in connection with this offering. Please revise your table to separately list each of these fees and identify to whom the fees were paid. In addition, to the extent these fees differ from the fees you have disclosed on page 49, please provide an explanation as to why and how they are different.

Relationships and Arrangements with Selling Stockholders..., page 50

13. We note that you state that you have no relationships or arrangements with any person with whom any of the selling stockholders has a contractual relationship regarding the transaction. It appears that your selling stockholders had a contractual relationship with Meyers Associates as you disclose on page 49, "Meyers Associates LP, a FINRA member firm participating in the private placement, received cash compensation of \$150,188, plus reimbursement for expenses in the amount of \$57,789." Please provide all of the information previously requested in prior comment 12 regarding descriptions of the relationships and arrangements in the past three years with Meyers Associates and copies of the relevant agreements.

Financial Statements

Statements of Cash Flows, page F-11

14. We acknowledge your response to prior comment 60. With regards to the common stock issued for services of \$737,406 in 2008, we noted that the majority of this expense relates to stock issued in conjunction with preferred stock bridge financing in the amount of \$633,000. Please tell us what the remaining \$104,000

balance comprises and where these expenses are classified in your statements of operations.

15. Under financing activities you disclosed cash proceeds from notes payable as a negative cash inflow. Please revise to present the financing cash proceeds and repayments on a gross basis.
16. You disclosed cash flows from financing activities arising from proceeds from notes payable of \$590,500 and preferred stock issued for cash of \$612,000 for 2008 in your initial Form S-1 registration statement. In the recently filed amended Form S-1 registration statement you disclosed proceeds from notes payable of \$257,000 and preferred stock issued for cash of \$1,501,876 for 2008. Since notes payable and preferred stock issuances represent a significant source of financing and are included in audited financial statements please tell us how and why the financing cash flow amounts changed. Please also incorporate these revisions to the audited financial statements in the restatement footnote.

Note 4- Equity Transactions, page F-15

17. We acknowledge your responses to prior comments 65 and 66. Please tell us why you assumed a warrant exercise price of \$.85 rather than \$1.27 to determine the warrant expense. In addition, please tell us how you determined the number of warrants used in the calculation as it appears it should have been 2,132,590 to represent the aggregate number of warrants.
18. We acknowledge your response to prior comment 66. Please disclose the assumptions used to determine the value the warrants issued.

Note 7. Restatement, page F-17

19. Provide a comparison of the cash flow statement for the year ended December 31, 2008 as revised and as originally presented and disclose the correction of the error(s) in your cash flow statement for the year ended December 31, 2008.

* * *

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

Dr. Lawrence Helson
SignPath Pharma, Inc.
July 8, 2009
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You may contact Sasha Parikh at (202) 551-3627 or Gustavo Rodriguez at (202) 551-3752 if you have questions regarding comments on the financial statements and related matters. Please contact Jennifer Riegel at (202) 551-3575, Suzanne Hayes at (202) 551-3675 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Elliot H. Lutzker, Esq.
Phillips Nizer LLP
666 Fifth Avenue, 28th Floor
New York, New York 10103-0084