

October 3, 2008

Mail Stop 6010

David J.B. Smith
Chief Financial Officer,
Vice President Finance & Operations
Peplin, Inc.
6475 Christie Avenue
Emeryville, California 94608

**Re: Peplin, Inc.
Registration Statement on Form 10-12G, filed September 12, 2008
File No. 0-53410**

Dear Mr. Smith:

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 supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not 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 on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. Please note that the Form 10 goes effective by lapse of time within 60 days of the date filed pursuant to Exchange Act Section 12(g)(1). If our comments are not addressed within this 60 day time period, you should withdraw the Form 10 prior to effectiveness and file a new Form 10 including changes responsive to our comments. Additionally, please note that the effectiveness of your Form 10 will commence your periodic reporting obligations.

Information Presented in this Registration Statement, page ii

2. Please define the term “ASX” in your first paragraph.

Item 1. Business, page 1

3. We note your disclosure in the last paragraph of page 1 stating that after completing your PEP005-006 Phase IIb clinical trial and submitting the results to the FDA, the FDA stated that the trial was an “adequate dose ranging trial of PEP005 Gel for AK in non-facial treatment locations.” We also note the following sentence stating that you subsequently submitted a request for a SPA for your “initial Phase III clinical trial for non-head applications.” Since the SPA related to “non-head” applications, please revise the first sentence to refer to “non-head treatment locations” rather than “non-facial treatment locations.” In addition, please make the same change to your disclosure on page 9, under the subheading “Non-head Phase III clinical trial.”

Item 1A. Risk Factors, page 20

We will continue to need significant amounts of additional financing..., page 26

4. Please revise the last sentence of your first paragraph to identify which product you are referring to.

Item 2. Financial Information, page 40

Management’s Discussion and Analysis of Financial Condition and Results of Operations, page 41

5. Please delete references to “this prospectus” in the italicized paragraph.

Contractual Obligations and Commitments, page 49

6. Please revise your contractual obligation table to include interest to be paid related to your Notes payable because it does not appear that you included the interest obligations in this table.

Item 6. Executive Compensation, page 61

7. To the extent you finalize separation arrangements with Mr. Moody prior to the effective date of this Form 10, please revise your disclosure under this Item 6 to describe the material terms of the separation arrangement. Also, please file any separation agreement as an exhibit to the filing.

As appropriate, please amend your filing 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 supplemental information. Detailed cover letters greatly facilitate our review. Please file your cover letter on EDGAR under the form type label CORRESP. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that,

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments in the filings reviewed by the staff do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact James Peklenk at (202) 551-3661 or Lisa Vanjoske at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Sebastian Gomez Abero at (202) 551-3578 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: B. Shayne Kennedy
Latham & Watkins LLP
650 Town Center Drive, 20th Floor

David J.B. Smith
Peplin, Inc.
October 3, 2008
Page 4

Costa Mesa, CA 92626-1925