

Via Facsimile and U.S. Mail
Mail Stop 4720

November 6, 2009

Michael Cohen
President, Chief Executive Officer and Chairman of the Board
Proteonomix, Inc.
187 Mill Lane
Mountainside, New Jersey 07052

Re: Proteonomix, Inc.
Registration Statement on Form 10
Filed August 4, 2009
File No. 000-53750

Dear Mr. Cohen:

We have reviewed your October 19, 2009 response to our August 31, 2009 comment letter and have the following additional 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.

Form 10-12G/A filed October 20, 2009

General

1. We note your response to our prior comment 4 and advise you that the supplemental support provided as the basis for each listed statement is not sufficient. We ask that supportive documentation be from objective unbiased sources and that the correlation between the statement and support provided be

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clear. Also, please direct us to the specific portion of any materials provided that are relevant in directly proving each statement and provide an analysis as to how the supplemental support provides the basis thereof. Accordingly, we reissue our prior comment 4 or ask that you delete the referenced statements from your filing.

Item 1. Business, page 2

2. We note your response to our prior comment 5 and your added statement that Azurel, Ltd. was a public company. Please revise your disclosure to state the exchange on which the company was traded and the ticker symbol thereof, and the date on which the company's registration was terminated under Section 12(g) of the Securities Exchange Act of 1934.
3. We note your statement that National Stem Cell was formed on January 14, 2005. However, your disclosure under Item 5, "Directors and Executive Officers," indicates that Mr. Cohen founded National Stem Cell in 2002. Please revise your disclosure to correct this inconsistency.
4. We note your response to our prior comment 6 and your statement that zero dollars (\$0) were spent by the company on research and development in 2008, despite the fact that throughout the filing you claim to have conducted various research studies and tests for your potential products and technologies. Please revise your disclosure to explain this inconsistency. If you did not conduct any research and development activities in 2008, please make this clear throughout your document where you discuss research and development and explain the reasons why such activities ceased.
5. We note the following statement on page 2 of the registration statement: "On July 7, 2008, we formed Proteoderm, Inc. in New York State, as a wholly-owned subsidiary, to develop, market, and sell our cosmeceutical line using technology licensed to us by Michael Cohen, our President..." Please revise this sentence to include the titles of all positions held by Michael Cohen with the company, including Chief Executive Officer and Chairman of the Board of Directors.
6. We note your response to our prior comment 7. Please further explain what a "biologic state" is and give specific examples of some of the uses of biomarkers.
7. We note your response to our prior comment 8. Please revise your disclosure to clearly state the aggregate potential payments, whether milestone or otherwise, to be made under the license agreement. If no payments will be made under the agreement, please so state. In addition, please clearly identify that the technologies were licensed to the company from Michael Cohen and, if true, his brother, Jacob Cohen.

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8. In your revised document, please provide a clear discussion, in one place, of all licenses granted by Michael Cohen and Jacob Cohen to National Stem Cell Holding, Inc. or any of its subsidiaries, and include the nature of, and material terms of, each license.
9. In your discussion of the cell therapies research by Michael Cohen, it is unclear what respective roles were played in this research by the Johns Hopkins University and the University of Miami. The sentence that begins “Through research by Michael Cohen...initially as JHU and now at Miami, we have identified...” is somewhat ambiguous. As written, it is unclear whether Mr. Cohen worked or was affiliated with JHU or Miami, or conducted research himself at JHU or Miami. In addition, it is unclear whether the identification of stem cells in the pancreas was made at JHU or Miami, or prior to the company’s relationship with those institutions. Please clarify.
10. Please revise to describe with more specificity the nature and extent of the University of Miami’s involvement in your research and development activities.
11. We note your response to our prior comment 9 and we reissue the comment. Please revise your disclosure to clearly describe the actual source of your support for the following statements contained on page 5 of the filing: “Based on the fact that these cells are autologous rather than from a non-related donor, we anticipate that the cells that we are able to isolate will substantially reduce rejection when transplanted into the liver of the same diabetic patient... We anticipate that our autologous cells will not be rejected, which is the case with allogenic cells as our cells will be injected and attach to the liver of the donor of the cells.” Please revise these statements to make it clear that you do not have clinical results to substantiate these statements and provide the source of information on which you are relying in your belief that the cells you plan to develop will have a lower rejection rate than current methods. If your anticipated rejection rate is based on conjecture only at this stage, please so state.
12. We note your response to our prior comment 10. Please revise your disclosure to explain why the liver is a “safer” organ than the pancreas in which to inject beta cells and the significance of the liver being “blood vessel rich.”
13. We note your response to our prior comment 12 and we reissue the comment. Please revise your disclosure to specifically quantify the additional funding needed by the company to continue operations. We note that you have quantified how much you expect to be required for clinical trials on page 9; however, we ask that you provide an estimate of the total amount the company will require in additional funding for all activities.
14. We note your estimates of the costs of each phase of clinical trials on page 4, as follows: “...Phase I trials of this and other technologies will cost in the range of

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- \$3 million to \$10 million...Phase II trials would cost in the range of \$10 million to \$50 million...[Phase III studies] may cost between \$30 million to more than \$300 million.” These ranges appear too broad to provide a meaningful approximation of the company’s cash needs to investors. Moreover, we note that you have provided similar estimates, without ranges, on page 9 for each clinical phase. Please revise your disclosure on pages 4 and 9 to be consistent and provide the basis for your estimates. To the extent that you retain estimated ranges of required funding, you should revise to more narrowly state the estimated cost of each phase of trials. In addition, please disclose the funding you will require for the remainder of 2009 and 2010 for research and development related to the development of your islet cells.
15. We note the following statement on page 5: “Proteoderm is regulated by the Personal Care Products Council (“PCPC”) ... the leading national trade association for the cosmetic and personal care products industry ... it is a leading and trusted source of information for and about the industry and a vocal advocate for consumer safety and continued access to new, innovative products.” Please revise your disclosure to discuss the nature and scope of the PCPC’s regulatory authority over the cosmetic and personal care products industry. For example, you should discuss how the PCPC regulates activity, its legal authority to regulate, and its methods for enforcing its regulations. In addition, please address the PCPC’s membership requirements and the other products and services it offers its members.
 16. We note the following statement on page 5: “The Cosmetic Ingredient Review (‘CIR’) Expert Panel is an independent, nonprofit panel of scientists and physicians established in 1976 to assess the safety of ingredients used in cosmetics in the U.S. with the support of the U.S. Food and Drug Administration and the Consumer Federation of America.” Please revise your disclosure to discuss the membership of the CIR, the method of appointment to the CIR, its legal authority to assess the safety of cosmetics, whether a safety assessment is required to commercialize cosmetics in the U.S., its process for evaluating cosmetics and its relationship with the FDA. If the company’s cosmeceutical products have been evaluated by the CIR, please revise your disclosure to provide a description of their review and any findings thereof.
 17. We note the following statement on page 5: “We and our subsidiary, Proteoderm, conducted tests of the efficacy of our cosmeceutical kit on a dozen women and have found that our kit removed age lines in the faces and under the eyes of each person we tested.” Please provide support for this statement by elaborating on your discussion of the tests conducted, including a description of your research methodology, efficacy metrics used and documentation of your research and results. In the alternative, if you do not have research results sufficient to support the statement, please delete this statement from the filing.

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18. We note your response to our prior comment 13; however, your disclosure regarding the stage of development of your cosmeceutical products is inconsistent and confusing. We note the following statements throughout the filing:

- “However, we have determined that we need a more formal and more extensive study to verify or contradict our preliminary conclusions related to efficacy.” (Page 5)
- “The study, originally scheduled to commence during the third week of May, 2009 has been postponed pending production of a sufficient number of cosmeceutical kits.” (Page 5)
- “We have not received any revenues from these therapies; and the only products which have been commercialized are cosmeceutical.” (Page 6)
- “All our products need development except our cosmeceutical products which are ready to market.” (Page 7)
- “The cosmeceutical kits are ready for commercialization.” (Page 8)
- “We await funding to manufacturer (sic) and package the raw material for our kits for retail sales or to package in bulk for sales through the China-based companies or other distributors which desire to create their own packaging.” (Page 8)
- “In fiscal 2008, we completed the development of our cosmeceuticals products and we anticipate sales to begin in the last quarter of 2009.” (Page 9)

On the one hand, you state that you need a more formal and extensive study to verify “preliminary conclusions related to efficacy,” that the planned study was postponed pending production of kits and that the company needs funding to manufacture and package the kits for retail sales; however, on the other hand, you state that your cosmeceuticals are ready to market and ready for commercialization. Please revise your disclosure in all places appropriate throughout the filing to clarify the stage of development of your cosmeceutical products and provide a realistic estimate of the time period in which you anticipate sales to begin. Because it is already November 2009, it does not appear appropriate to say that you “anticipate sales to begin in the last quarter of 2009.” Please revise. If you plan to begin selling the kits before you have completed the studies of efficacy, please so state.

19. We note your response to our prior comment 15 and your statement on page 5 that your study with Dr. Khan has been postponed pending production of a sufficient number of cosmeceutical kits. Please revise your disclosure to state the anticipated commencement date of the study.

20. We note your response to our prior comment 19; however, it does not appear that you have discussed your relationship with the Sperm and Embryo Bank of New Jersey. Please revise your disclosure to discuss this relationship, the material

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terms of any agreements in place, whether oral or written, and file any relevant agreements as exhibits to the registration statement.

21. We note your response to our prior comment 20 and we reissue the comment. It does not appear that you have disclosed where your reproductive cell and storage facility is accredited, the agency or body which confers accreditation and the criteria required to obtain and maintain accreditation. If your reproductive cell and storage facility is not accredited, please delete your reference to accreditation on page 2. If it is in fact accredited, please revise your disclosure to discuss the requested items.
22. We note your response that the company's stem and embryo bank subsidiary operates under the Clinical Laboratory and Improvement Amendments and adheres to medical and ethical standards set forth by the American Society for Reproductive Medicine and related and scientific associations and regulatory government agencies. Please revise your disclosure to discuss in greater detail:
- the Clinical Laboratory and Improvement Amendments;
 - the medical and ethical standards set forth by the American Society for Reproductive Medicine;
 - the medical and ethical standards set forth by related and scientific associations and regulatory government agencies, and identify such entities
23. We note your response to our prior comment 21 and the following statements:
- "Our management anticipates shorter time periods to reach the human clinical trial stage and to complete these trials." (Page 6)
 - "Thus, we believe that our non-embryonic stem cell therapy candidate for diabetes has key advantages compared to competitors with respect to: . . . reduced time until return on investment . . ." (Page 6)
 - "As a result, we can bypass laborious and time-consuming studies for safety and efficacy that the FDA requires of our competitors before advancing to human clinical trials and eventually to market." (Page 7)

Please revise your disclosure to include a more robust discussion of the three phases of clinical trials and the standards and scrutiny imposed by the FDA throughout the clinical trial process. Also, it does not appear that the above listed statements are supported by your disclosure; therefore, we ask that you either revise the statements to be clearly stated as hypotheses of the company that have not been verified or delete them from the filing.

24. We note your response to our prior comment 23 and the following statements:
"Specifically, a reactor is a device, essentially an incubator for cells and is not a

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- medium. The use of a reactor requires a medium. Our medium does not require a reactor.” Please revise your disclosure to clarify why not requiring a reactor to grow its medium confers an advantage to the company over its competitors.
25. We note that your explanation of what a “medium” is and the meaning of “cell differentiation” appear in your discussion of Platform CB-500, but these terms are first used earlier in your discussion of your competitors, Regentech and Pluristem. To improve readability, please define these terms the first time you use them. In addition, the term “diversification” used in this discussion appears to be synonymous with “differentiation.” Please make this clear.
 26. Please refer to our prior comment 24. It does not appear that you have clarified which protein you are describing in this section. Please revise your disclosure to clarify whether you are talking about your Platform CB-500, Platform ES-400 or E.S.E.F-99 Device technology and explain why it is an advantage to the company that none of its competitors includes this protein.
 27. We note the following statements on page 7: “We are unaware of any direct competition to our cosmeceutical products. However, a substantial number of companies are offering anti-aging cosmetics.” These statements are inconsistent. Please reconcile.
 28. We note your response to our prior comment 26. It does not appear that you have addressed the term and termination provisions of the agreement between National Stem Cell, Inc. and The Johns Hopkins University. Please revise your disclosure to describe these provisions, where appropriate. Also, your response letter states that there are no milestone payments due under the agreement; however, the registration statement itself states that milestone payments of between 2-3% of net revenue depending on the specific patent and product are called for. These payments appear to be royalty payments rather than milestone payments. Please revise your disclosure to clarify.
 29. We note your response to our prior comments 14 and 32 and your statement that the purchase order for Proteoderm’s cosmeceutical kits expired but may be reinstated if financial ability is shown. We also note that the disclosure discussing the Cosmeceutical Sales Agreement added to page 8 is written in the past tense; therefore, it sounds as if the agreement may have been terminated along with the expiration of the purchase order. Please revise your disclosure to clarify the current status of the Cosmeceutical Sales Agreement and to describe how and if you intend to satisfy the requirements to reinstate the referenced purchase order.

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Item 2. Financial Information, page 9

Overview, page 9

30. We note your response to our prior comment 38 and advise you that page F-33 still includes a reference to the company's emergence from the development stage. Please delete this statement.
31. We note your response to our prior comment 40 and we reissue the comment. Please describe in more detail the nature and purposes of the professional, consulting and marketing fees totaling \$2,181,756 during the six months ended June 30, 2008.

Item 4. Security Ownership of Certain Beneficial Owners and Management, page 13

32. We note your response to our prior comments 49 and 54 with respect to whether Dr. Ian McNiece should be considered a named executive officer. The definition of "executive officer" contained in Rule 3b-7 of the Securities Exchange Act of 1934 includes "any other person who performs similar policy making functions for the registrant." Although you state in your response to comment 49 that Dr. McNiece is a "researcher only and does not exercise any authority or perform duties as an officer of the Company", your response to comment 54 indicates that Dr. McNiece, as a member of the Scientific Advisory Board, performs "advisory and consulting functions" with regard to research and development activities and commercialization relating to the company's technologies and potential products. In particular, we note that members of the Scientific Advisory Board provide input into the company's "strategic decision-making." This description strongly suggests that Dr. McNiece is an executive officer in function, if not in name. Therefore, please provide your analysis why Dr. McNiece does not have a policy making function with the company and should not be considered an executive officer for purposes of Rule 3b-7. Alternatively, please revise the beneficial ownership table on page 13 to include Dr. McNiece as a named executive officer.

Item 5. Directors and Executive Officers, page 14

33. We note your response to our prior comment 52 and advise you that the explanation provided to support the quoted statement is not sufficient. Please provide support from an objective unbiased source demonstrating that Mr. Moura was instrumental in securing working capital that propelled North American Outdoor Products from \$4 million to over \$36 million in annual sales, or, in the alternative, delete this statement.

Item 6. Executive Compensation, page 16

34. We note your response to our prior comment 59 and your statement that you have revised the salary listed for Mr. Cohen in the Summary Compensation Table as

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\$250,000 to \$250,000; however, this revision has not been made. Therefore, we reissue the comment.

35. We note your response to our prior comment 61 and your statement that the 480,000 shares of common stock issued to Mr. Pensley and the 104,000 shares of common stock issued to Mr. Moura under each individual's retainer agreement are listed in the Summary Compensation Table; however, it does not appear that they are. We note that they are described in the footnotes to the table; however, they should also be listed in the table itself to the extent issued in 2008. Please revise.
36. We note the following statement added to the revised disclosure on page 17: "Mr. Cohen has not earned a bonus except for the bonus stipulated in his employment agreement..." Please revise your disclosure to discuss the bonus stipulated in Mr. Cohen's employment agreement and the amount paid to Mr. Cohen in light thereof.
37. We note that you have included the Outstanding Equity Awards at Fiscal Year-End table on page 18; however, you have not included Mr. Cohen in that table. Please revise the table to include Mr. Cohen or, in the alternative, provide an explanation as to why he has not been listed.

Item 7. Certain Relationships and Related Transactions, and Director Independence, page 18

38. We note your response to our prior comment 66; however, it does not appear that the statements listed in your response letter have been included in the registration statement itself. Please revise the filing to include these statements, or, if you have included the revised disclosure, please direct us to the page on which such disclosure appears.

Consolidated Financial Statements at December 31, 2008

Consolidated Statements of Cash Flows, page F-7

39. The increase decrease in accounts payable and accrued expenses in your statements of cash flows of \$759,386 does not reconcile with the change in accounts payable and accrued expenses observable in your balance sheet of \$663,136. Please revise your statements of cash flows in 2008 to reflect the change in your accounts payable and accrued expenses.

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Notes to Consolidated Financial Statements December 31, 2008 and 2007, page F-8

Note 5—Promissory Notes, page 18

40. We note your response to our prior comment 81. Please revise your disclosure to describe the consequences of the company's default on the promissory notes.

Note 9 – Stockholders' Equity (Deficit), page F-20
Common Stock

41. You state that you converted \$1,023,336 at par value of \$.001. Please provide us with qualitative and quantitative support for the \$.001 value of your common stock. Please be sure to provide us with sufficient detail of the period that you are assuming a \$.001 market value.

Note 11 – Fair value Measurements, page F-24

42. Please refer to your responses to comments 78 and 86. Please remove the Notes payable line item from the fair value hierarchy table given that you did not elect to account for these notes at fair value under SFAS 159.

Note 12 – Segment Information, page F-25

43. The information included in your segment note for the year ended December 31, 2007 should reconcile to the amounts presented on the face of your consolidated statements of operations. For example, the operating expenses amount of \$165,146 and the net loss amount of \$248,977 in the segment note do not appear to agree with their respective amounts in the statement of operations.

Exhibits, page 22

44. Please revise footnote 1 to the exhibits index to state the date on which the Form 10 was initially filed.

* * *

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 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 filing to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information

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investors require for an informed investment decision. 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert this action 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 connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

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You may contact Ibolya Ignat at (202) 551-3656 or Gus Rodriguez at (202) 551-3752 if you have questions regarding comments on the financial statements and related matters. Please contact Laura Crotty at (202) 551-3563, Daniel S. Greenspan, Special Counsel, at (202) 551-3623 or myself at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director