



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

August 5, 2011

Via E-mail

Edward F. Smith
Vice President & Chief Financial Officer
PolyMedix, Inc.
170 N. Radnor-Chester Road; Suite 300
Radnor, PA 19087

**Re: PolyMedix, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2010
Filed March 7, 2011
File No. 000-51895**

Dear Mr. Smith:

We have limited our review of your filing to the issues we have addressed in our comments.

Please respond to this letter within ten business days by amending your filing or by advising us when you will provide the requested response. If you do not believe a comment applies to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response. Please furnish us a letter on EDGAR under the form type label CORRESP that keys your responses to our comment.

After reviewing any amendment to your filing and the information you provide in response to this comment, we may have additional comments.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Overview, page 35

1. You have qualitatively disclosed the nature, objective, and current status of each of your various product candidates being developed, which focus primarily on your two leading products (PMX-30063 and PMX-60056). Please revise your disclosure to address the following for each of your material product candidates:
 - The costs incurred during each period presented and to date;
 - The nature of efforts and steps necessary to complete the project;
 - The risks and uncertainties associated with completing development;
 - The extent and nature of additional resources that need to be obtained if current liquidity is not expected to be sufficient to complete the project; and

- Your estimate of the date of completion of any future milestone such as completion of a development phase, date of filing an NDA with a regulatory agency, or approval from a regulatory agency.

Executive Compensation, page 50

2. The section entitled “Narrative Disclosure to Summary Compensation Table” is not a substitute for the Compensation Discussion and Analysis requested by Item 402(b) of Regulation S-K and the instructions there under. Please revise your disclosure to include a CD&A addressing the functions, actions and decisions of the Committee and the Board regarding each major element of compensation including salary, cash bonus and equity incentive compensation.
3. We note the Compensation Committee instructed Compensation Resources, Inc. to:
 - Analyze your position in the marketplace with respect to total compensation packages for your executive officers;
 - Clarify your executive compensation philosophy;
 - Address your competitive position in the marketplace;
 - Address the appropriate mix of compensation elements;
 - Address the extent to which your executives will be paid for performance; and
 - Address the degree to which non-traditional compensation programs will be utilized.

Please address the consultant’s and Committee’s thoughts and conclusions as to each of the above-mentioned areas for consideration as part of your CD&A. The discussion should also address how the Compensation Committee used the consultant’s analysis of “peer” group data in making its determination with respect to executive compensation for 2010. In addition, please explain where you positioned your compensation levels relative to the compensation levels of the “peer” group and identify the “peer” group members.

4. The CD&A should disclose factors considered in determining each NEO’s bonus payment. As individual and/or corporate goals and performance objectives were used in part to determine bonuses, you should also discuss and quantify these goals and objectives to the extent practicable and compare targeted levels of performance to the actual levels achieved.
5. You should also provide disclosure similar to that requested in the previous comment with respect to the option awards for 2010.

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 the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules 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 responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments 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.

Please contact James Peklenk, Staff Accountant, at (202) 551-3661 or Mary Mast, Senior Accountant, at (202) 551-3613 if you have any questions regarding the processing of your response as well as any questions regarding comments on the financial statements and related matters. You may contact John Krug, Senior Attorney, at (202) 551-3862 or Jeff Riedler, Assistant Director, at (202) 551-3715 with questions on any of the other comments. In this regard, do not hesitate to contact me at (202) 551-3679.

Sincerely,

/s/ Jim B. Rosenberg

Jim B. Rosenberg
Senior Assistant Chief Accountant