



DIVISION OF  
CORPORATION FINANCE

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

July 2, 2012

Via E-mail

Oded Biran, Adv.  
General Counsel  
Rosetta Genomics Ltd.  
10 Plaut Street, Science Park  
Rehovot 76706 Israel

**Re: Rosetta Genomics Ltd.  
Registration Statement on Form F-1  
Filed June 25, 2012  
File No. 333-182329**

Dear Mr. Biran:

We have limited our review of your registration statement to the issue we have addressed in our comment below.

Your Form 20-F for the fiscal year ended December 31, 2011 is currently under review by the Staff. All forthcoming comments will need to be fully resolved before we act on a request for acceleration of the effectiveness of the registration statement.

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 Act of 1933 and all applicable Securities 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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

Oded Biran, Adv.  
Rosetta Genomics Ltd.  
July 2, 2012  
Page 2

- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as 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. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Karen Ubell at (202) 551-3873 or me at (202) 551-3715 with any questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey Riedler  
Assistant Director