



DIVISION OF
CORPORATION FINANCE

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

November 19, 2010

Dr. Mark Varney
President and Chief Executive Officer
Cortex Pharmaceuticals, Inc.
15241 Barranca Parkway
Irvine, CA 92618

**Re: Cortex Pharmaceuticals, Inc.
Form 10-K for the Year Ended December 31, 2009
File No. 001-16467**

Dear Dr. Varney:

We have reviewed your filings and have the following comments. In our comments, we ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information or by advising us when you will provide the requested response. If you do not believe a comment applies to your facts and circumstances, 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 comments.

After reviewing the information provided, we may have additional comments and/or request that you amend your filing.

Form 10-K for the Fiscal Year Ended December 31, 2009

Business

Patents and Proprietary Rights, page 12

1. We note that you disclose on page 13 that your large number of issued composition of matter patents have longer lives and are more critical to protecting your product pipeline than the method of use patents you discuss in greater detail in the same section. Please provide draft disclosure for your next 10-K identifying each material composition of matter patent, what product they relate to (i.e. CX 1739, CX 717 or another product), the jurisdictions in which they were granted and their expiration dates.

Management's Discussion and Analysis of financial Condition and Results of Operations
Results of Operations, page 25

2. Please separately quantify the research and development expenses you incurred for each product during each of the periods presented and the total to date. If you do not maintain any research and development costs by product, disclose that fact and explain why

management does not maintain and evaluate research and development costs by project. Provide other quantitative or qualitative disclosure that indicates the amount of the company's resources being used on the project.

Note 3 – Stockholders' Equity
Common Stock and Common Stock Purchase Warrants, page F-13

3. Please revise your disclosure to state whether you are legally permitted to settle the warrants that were issued in conjunction with registered offerings in unregistered shares. If you may be required to settle the warrants in registered shares, please explain to us why you have not accounted for these warrants as derivative liabilities. In your response, please explain to us how you overcome the presumption of net cash settlement in ASC 815-40-25-14.

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 Kei Nakada, Staff Accountant, at (202) 551-3659 or Gus Rodriguez, Accounting Branch Chief, at (202) 551-3752 if you have questions regarding the processing of your response as well as any questions regarding comments on the financial statements and related matters. You may contact Michael Rosenthal, Staff Attorney, at (202) 551-3674 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,

Jim B. Rosenberg
Senior Assistant Chief Accountant