



NDA 21-991

Merck & Co., Inc.  
Attention: Randi Albin, Ph.D.  
Director, Regulatory Affairs  
P.O. Box 2000  
RY32-605  
Rahway, NJ 07065

Dear Dr. Albin:

Please refer to your new drug application (NDA) dated April 5, 2006, received April 7, 2006, submitted under section 505(b) of the Federal Food, Drug, and Cosmetic Act for Zolinza (vorinostat) Capsules, 100 mg.

We acknowledge receipt of your submissions dated December 6, 2005; February 22, 2006; April 5, 2006; June 19, 28, and 30, 2006; July 14, 21, and 28, 2006; August 4, 8, and 28, 2006; September 6, 8, 13, 18, 22, 25, 26 and 29, 2006; and October 2, and 4, 2006.

This new drug application provides for the use of Zolinza (vorinostat) Capsules for the treatment of cutaneous manifestations in patients with cutaneous T-cell lymphoma (CTCL) who have progressive, persistent or recurrent disease on or following two systemic therapies.

An expiration dating period of 24 months is granted for this product.

We completed our review of this application, as amended. It is approved, effective on the date of this letter, for use as recommended in the agreed-upon labeling text.

The final printed labeling (FPL) must be identical to the enclosed labeling (text for the package insert, text for the patient package insert, and, immediate container labels). Marketing the product with FPL that is not identical to the approved labeling text may render the product misbranded and an unapproved new drug.

Submit content of labeling [21 CFR 601.14(b)] in structured product labeling (SPL) format, as described at <http://www.fda.gov/oc/datacouncil/spl.html>, that is identical in content to the enclosed labeling text. Upon receipt and verification, we will transmit that version to the National Library of Medicine for posting on the DailyMed website.

Please submit an electronic version of the FPL according to the guidance for industry titled *Providing Regulatory Submissions in Electronic Format - NDA*. Alternatively, you may submit 20 paper copies of the FPL as soon as it is available but no more than 30 days after it is printed. Individually mount 15 of the copies on heavy-weight paper or similar material. For administrative purposes, designate this

submission “**FPL for approved NDA 21-991.**” Approval of this submission by FDA is not required before the labeling is used.

All applications for new active ingredients, new dosage forms, new indications, new routes of administration, and new dosing regimens are required to contain an assessment of the safety and effectiveness of the product in pediatric patients unless this requirement is waived or deferred. We are waiving the pediatric study requirement for this application.

We remind you of your postmarketing study commitments in your submission dated October 4, 2006. These commitments are listed below.

**Commitment 1:**

Merck commits to provide updates of the exposure and safety data (adverse experiences leading to dose interruption, dose modification, or dose discontinuation) collected for CTCL patients who initially received vorinostat on Protocol 001 and continued to receive vorinostat on Protocol 007. A report will be provided annually starting in October 2007 and will continue until the final CTCL patient discontinues from Protocol 007 or for a maximum of 3 years.

**First Report Submission:** October 2007

**Final Report Submission:** October 2009

**Commitment 2:**

Merck agrees to conduct a pharmacokinetic study in cancer patients with hepatic impairment. Merck will submit the protocol to the agency prior to conduct of the study for agreement with the study design. Merck will conduct this pharmacokinetic study in the advanced cancer patient population with mild to moderate hepatic insufficiency, according to the Child-Pugh classification or the NCI criteria. Pharmacokinetic sample collection will occur after single-dose administration. The minimum target sample size will be approximately 4. If the study cannot be fully enrolled, the study will be closed after completion of the moderate impairment cohort.

**Protocol Submission Date:** April 1, 2007

**Study Start (study enrollment open):** October 1, 2007

**Final Report Submission:** October 2012

**Commitment 3:**

Merck agrees to study the effect of vorinostat on the ECG QT interval in the advanced cancer patient population. Intensive ECG monitoring, as well as pharmacokinetic sampling, will occur at baseline and after single-dose administration. The target sample size will be approximately 18.

**Protocol Submission Date:** January 1, 2007

**Study Start (study enrollment open):** April 1, 2007

**Final Report Submission:** April 2009

**Commitment 4:**

Merck commits to assess safety and laboratory monitoring data from ongoing Merck studies in patients treated concomitantly with vorinostat and warfarin. A report will be submitted annually starting October 2007 and will continue until data has been analyzed for 40 patients or for a maximum of three years.

**First Report Submission Date:** October 2007

**Final Report Submission:** October 2009

Commitment 5:

Merck commits to submit all adverse experiences reported as vorinostat-drug interactions in the post-marketing environment as expedited (15-day) reports. Each adverse experience from Merck clinical trials which meets the criteria of serious according to the regulatory definition and is considered to be a result of a vorinostat-drug interaction will be submitted as an expedited (15-day) report. A summary of these adverse experiences will be submitted annually starting in October 2007 and will continue for three years.

**First Report Submission Date:** October 2007

**Final Report Submission:** October 2009

Commitment 6:

Merck commits to conduct two in vitro efflux studies; one to determine whether vorinostat is a substrate of P-glycoprotein and one to determine whether vorinostat is an inhibitor of P-glycoprotein.

**Studies Start:** December 2006

**Final Reports Submission:** March 2007

Submit clinical protocols to your IND for this product. Submit nonclinical and chemistry, manufacturing, and controls protocols and all study final reports to this NDA. In addition, under 21 CFR 314.81(b)(2)(vii) and 314.81(b)(2)(viii), you should include a status summary of each commitment in your annual report to this NDA. The status summary should include expected summary completion and final report submission dates, any changes in plans since the last annual report, and, for clinical studies, number of patients entered into each study. All submissions, including supplements, relating to these postmarketing study commitments must be prominently labeled “**Postmarketing Study Commitment Protocol**”, “**Postmarketing Study Commitment Final Report**”, or “**Postmarketing Study Commitment Correspondence.**”

In addition, submit three copies of the introductory promotional materials that you propose to use for this product. Submit all proposed materials in draft or mock-up form, not final print.

Food and Drug Administration  
Center for Drug Evaluation and Research  
Division of Drug Marketing, Advertising, and Communications  
5901-B Ammendale Road  
Beltsville, MD 20705-1266

We remind you that you must comply with reporting requirements for an approved NDA (21 CFR 314.80 and 314.81).

The MedWatch-to-Manufacturer Program provides manufacturers with copies of serious adverse event reports that are received directly by the FDA. New molecular entities and important new biologics qualify for inclusion for three years after approval. Your firm is eligible to receive copies of reports for this product. To participate in the program, please see the enrollment instructions and program description details at [www.fda.gov/medwatch/report/mmp.htm](http://www.fda.gov/medwatch/report/mmp.htm).

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If you have any questions, call Paul Zimmerman, Regulatory Project Manager, at (301) 796-1489.

Sincerely,

*{See appended electronic signature page}*

Richard Pazdur, M.D.  
Director  
Office of Oncology Drug Products  
Center for Drug Evaluation and Research

Enclosure

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**This is a representation of an electronic record that was signed electronically and  
this page is the manifestation of the electronic signature.**  
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/s/

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Richard Pazdur  
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