

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*

**21-958**

**CHEMISTRY REVIEW(S)**

**NDA 21-958**

**Lamisil<sup>®</sup> DermGel  
(Terbinafine Topical Gel)**

**Novartis Consumer Health, Inc**

**Jane L. Chang, Ph.D.**

**Chemistry Reviewer**

**Office of New Drug Quality Assessment  
Pre-Marketing Division II, Branch III  
for  
Division of Nonprescription Clinical Evaluation  
Office of Nonprescription Products  
(HFD-560)**



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# Chemistry Review Data Sheet

1. NDA 21-958
2. REVIEW #: 1
3. REVIEW DATE: 27-April-2006
4. REVIEWER: Jane L. Chang, Ph.D.
5. PREVIOUS DOCUMENTS:

<u>Previous Documents</u>	<u>Document Date</u>
NDA 20-846 Rx to OTC Meeting	11-Jul-2005

6. SUBMISSION(S) BEING REVIEWED:

<u>Submission(s) Reviewed</u>	<u>Document Date</u>
Original	29-Sep-2005
Amendment (BC)	09-Feb-2006
Amendment (BC)	28-Mar-2006

7. NAME & ADDRESS OF APPLICANT:

Name:	Novartis Consumer Health, Inc.
Address:	200 Kimball Drive Parsippany, NJ 07054-0622
Representative:	Rich Cuprys
Telephone:	973-503-8000



## CHEMISTRY REVIEW

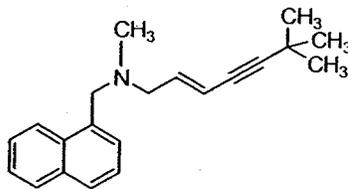


### Chemistry Review Data Sheet

8. DRUG PRODUCT NAME/CODE/TYPE:
- a) Proprietary Name: Lamisil DermGel
  - b) Non-Proprietary Name (USAN): terbinafine
  - c) Code Name/# (ONDC only): N/A
  - d) Chem. Type/Submission Priority (ONDC only):
    - Chem. Type: 8a
    - Submission Priority: S
9. LEGAL BASIS FOR SUBMISSION: 505 (b)(1)
10. PHARMACOL. CATEGORY: antifungal, treatment of interdigital tinea pedis, tinea cruris, and tinea corporis.
11. DOSAGE FORM: Gel
12. STRENGTH/POTENCY: 1%
13. ROUTE OF ADMINISTRATION: Topical
14. Rx/OTC DISPENSED:  Rx  OTC
15. SPOTS (SPECIAL PRODUCTS ON-LINE TRACKING SYSTEM):  
 SPOTS product – Form Completed  
 Not a SPOTS product

## Chemistry Review Data Sheet

## 16. CHEMICAL NAME, STRUCTURAL FORMULA, MOLECULAR FORMULA, MOLECULAR WEIGHT:



Terbinafine

(E)-N-(6,6-Dimethyl-2-hepten-4-ynyl)-N-methyl-1-naphthalenemethanamine

 $C_{21}H_{25}N$ 

MW = 291.43 g/mol

## 17. RELATED/SUPPORTING DOCUMENTS:

## A. DMFs:

There is no DMF referenced in this New Drug Application.

## B. Other Documents:

DOCUMENT	APPLICATION NUMBER	DESCRIPTION
NDA	20-846/000	Rx NDA, approved on 29-APR-1998, terbinafine base as the drug substance
NDA	20-846/S-002	Alternate manufacturing site for the drug product, approved 14-MAY-2004
NDA	20-539/S-009	Rx NDA, terbinafine hydrochloride tablet, approved on 30-APR-2001, manufacturing of terbinafine hydrochloride

**CHEMISTRY REVIEW**

## Chemistry Review Data Sheet

## 18. STATUS:

<b>CONSULTS/ CMC RELATED REVIEWS</b>	<b>RECOMMENDATION</b>	<b>DATE</b>	<b>REVIEWER</b>
Biometrics	N/A		
EES	Acceptable	12/15/2005	Shawnte L. Adams
Pharm/Tox	N/A		
Biopharm	N/A		
Methods Validation	N/A		
EA	N/A		
Microbiology	N/A		
DMETS	Pending		

**APPEARS THIS WAY  
ON ORIGINAL**





Executive Summary Section

- manufacturing changes with the use of \_\_\_\_\_ and \_\_\_\_\_ as well as additional in-process controls during the \_\_\_\_\_

Batch Analysis data for six batches of the drug substance were provided. Three of them were manufactured in the current approved manufacturing site, Novartis Pharma AG, Basel, Switzerland, according to the current process. The other three batches were manufactured at Novartis Pharma AG, Basel, Switzerland (up to terbinafine base \_\_\_\_\_ last \_\_\_\_\_ steps, i.e. \_\_\_\_\_ and \_\_\_\_\_ according to the proposed process. All three batches of the drug substance manufactured at the \_\_\_\_\_ site conform to the specification with similar quality attributes as those manufactured at the Basel site. The stability data for the drug substance manufactured at \_\_\_\_\_ are not yet available. The applicant is committed to place three batches of terbinafine manufactured at \_\_\_\_\_ on stability.

Additional primary stability data, which included -15 to -25 °C, 25 °C/60% RH, and 30 °C/70% RH for up to 60 months, were provided. All three batches conform to the drug substance stability specification. The data presented in this NDA support the \_\_\_\_\_ retest period and storage at controlled temperature below \_\_\_\_\_, protected from light.

**B. Description of How the Drug Product is Intended to be Used**

Lamisil® DermGel 1% is administered once daily for seven days for the treatment of interdigital tinea pedis (athlete's foot), tinea cruris (jock itch), and tinea corporis (ringworm) due to *Epidermophyton floccosum*, *Trichophyton mentagrophytes* and *Trichophyton rubrum*.

Lamisil® DermGel 1% should be stored at or below 30 °C. When stored under the specified conditions, Lamisil® DermGel 1% has an expiration dating period of three years.

**C. Basis for Approvability or Not-Approval Recommendation**

The chemistry, manufacturing, and controls information for Lamisil® DermGel 1% in this OTC new drug application was mostly referred to NDA 20-846 and its supplement SCM-002. Adequate data have been submitted for the proposed changes for the drug substance and the drug product to ensure the drug product's identity, strength, quality, purity, potency, and stability. Therefore, from a CMC standpoint, this new drug application may be approved.

**III. Administrative**

- A. Reviewer's Signature                      electronically signed in DFS
- B. Endorsement Block                        electronically signed in DFS
- C. CC Block                                        electronically signed in DFS

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/s/

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Jane Chang  
5/1/2006 11:26:21 AM  
CHEMIST

Moo-Jhong Rhee  
5/1/2006 02:38:38 PM  
CHEMIST  
Chief, Branch III

17 Page(s) Withheld

X § 552(b)(4) Trade Secret / Confidential

       § 552(b)(4) Draft Labeling

       § 552(b)(5) Deliberative Process