

**CENTER FOR DRUG EVALUATION AND RESEARCH**

**Approval Package for:**

***APPLICATION NUMBER:***

**19-898/S041**

***Trade Name:*** Pravachol Tablets

***Generic Name:*** pravastatin sodium

***Sponsor:*** Bristol Myers Squibb

***Approval Date:*** August 24, 2000

# CENTER FOR DRUG EVALUATION AND RESEARCH

*APPLICATION NUMBER:*

**19-898/S041**

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**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*  
**19-898/S041**

**APPROVAL LETTER**



Food and Drug Administration  
Rockville MD 20857

NDA 19-898/S-041

Bristol-Myers Squibb  
Attention: William J. Regan  
Director, CMC Marketed Products  
P.O. Box 4000  
Princeton, NJ 08543-4000

AUG 24 2000

Dear Mr. Regan:

Please refer to your supplemental new drug application dated February 29, 2000, received March 2, 2000, submitted under section 505(b) of the Federal Food, Drug, and Cosmetic Act for Pravachol (pravastatin sodium) Tablets.

We acknowledge receipt of your submissions dated March 28 and 30 and April 27, 2000.

This "Changes Being Effected in 30 days" supplemental new drug application provides for additional manufacture of 10 mg, 20 mg, and 40 mg tablets at the Mayaguez, Puerto Rico facility by ~~process and a change in the size~~ count bottle presentation.

We have completed the review of this supplemental application, and it is approved.

We remind you that you must comply with the requirements for an approved NDA set forth under 21 CFR 314.80 and 314.81.

If you have any questions, call Margaret Simoneau, R.Ph., Regulatory Project Manager, at (301) 827-6418.

Sincerely,

John Jenkins, M.D.

Acting Director

Division of Metabolic and Endocrine Drug Products

Office of Drug Evaluation II

Center for Drug Evaluation and Research

cc:

Archival NDA 19-898

HFD-510/Div. Files

HFD-510/MAS

HFD-510/JWei/HAhN/SKelly/SMoore

HFD-095/DDMS-IMT

HFD-093/DDMS-IST

HFD-820/DNDC Division Director

DISTRICT OFFICE

Drafted by: Mas/August 23, 2000

Initialed by: JWei8.23.00/HAhN8.23.00/SKelly8.23.00/SMoore8.23.00/EGalliers8.24.00

final: Mas8.24.00

filename: 19898.41

APPROVAL (AP)

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*

**19-898/S041**

**CHEMISTRY REVIEW(S)**



**ESTABLISHMENT EVALUATION REQUEST  
SUMMARY REPORT**

Application: **NDA 19898/041** Priority: **1S** Org Code: **510**  
Stamp: **02-MAR-2000** Regulatory Due: **02-SEP-2000** Action Goal: District Goal: **29-JUL-2000**  
Applicant: **BRISTOL MYERS SQUIBB** Brand Name: **PRAVACHOL TABLETS**  
**RT 206 PROVINCE LINE RD** Established Name:  
**PRINCETON, NJ 085434000** Generic Name: **PRAVASTATIN SODIUM**  
Dosage Form: **TAB (TABLET)**  
Strength: **10, 20, 40 MG**

FDA Contacts: **S. KELLY (HFD-510) 301-827-6394**, Review Chemist  
**S. MOORE (HFD-510) 301-827-6430**, Team Leader

---

**Overall Recommendation:****ACCEPTABLE on 30-MAR-2000 by J. D AMBROGIO (HFD-324) 301-827-0062**

---

Establishment: **2627673** DMF No:  
**BRISTOL LABORATORIES INC DIV** AADA No:  
**FOREIGN TRADE ZONE #7 RD #114**  
**MAYAGUEZ, PR 00680**

Profile: **TCM** OAI Status: **NONE** Responsibilities: **FINISHED DOSAGE**  
Last Milestone: **OC RECOMMENDATION** **MANUFACTURER**  
Milestone Date: **30-MAR-2000**  
Decision: **ACCEPTABLE**  
Reason: **DISTRICT RECOMMENDATION**

---

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*  
**19-898/S041**

**CLINICAL PHARMACOLOGY AND  
BIOPHARMACEUTICS REVIEW(S)**

Clinical Pharmacology and Biopharmaceutics Review	
NDA:	19-898
Generic	Pravastatin
(Brand <sup>®</sup> )	Pravachol <sup>®</sup>
Sponsor	Bristol-Myers Squibb
Submission Date:	02-29-2000
Type of Submission:	Supplement (SCF-041)
Reviewer:	Xiaoxiong (Jim) Wei, M.D., Ph.D.

### Synopsis

On February 29, 2000, Bristol-Myers Squibb (BMS) submitted this supplement to their approved NDA 19-898 for Pravachol<sup>®</sup> tablets for a change of manufacturing sites.

The sponsor is currently approved to manufacture, package, and control PRAVACHOL<sup>®</sup> reduced mass tablets made by \_\_\_\_\_ at Squibb Manufacturing, Inc., in Humacao, Puerto Rico. This supplement was submitted as *Changes Being Effected Supplement in 30 Days* to manufacture PRAVACHOL<sup>®</sup> reduced mass tablets made by \_\_\_\_\_ at Bristol-Myers Squibb Laboratories Company in Mayagüez, Puerto Rico.

In support of this application and based on SUPAC-IR guidance, section IV (C)(2), the sponsor provided the dissolution profiles comparing \_\_\_\_\_ of each potency of PRAVACHOL<sup>®</sup> tablets manufactured at the proposed and approved sites. The dissolution results show that PRAVACHOL<sup>®</sup> 10 mg and 40 mg reduced mass tablets manufactured by \_\_\_\_\_ in Mayagüez, Puerto Rico is comparable to the corresponding drug product manufactured at the Humacao, Puerto Rico facility, but not for 20 mg tablets because the SUPAC similarity factors ( $f_2$ ) are 50, 47, and 59 for the 10 mg, 20 mg and 40 mg strengths, respectively.

Are the dissolution profiles similar to each other (reference versus test manufacture sites)?
---

A \_\_\_\_\_ tablet dissolution profile for \_\_\_\_\_ of PRAVACHOL<sup>®</sup> 10 mg, 20 mg and 40 mg reduced mass tablets manufactured in Mayagüez, Puerto Rico (test batch) was compared with the dissolution profile for a corresponding \_\_\_\_\_ tablets manufactured in Humacao, Puerto Rico (reference batch). Both the reference and test batches were tested for dissolution profiles in water using USP apparatus 2 (paddles) at 50 rpm. Aliquots were removed at \_\_\_\_\_ and \_\_\_\_\_ minute intervals.

The sponsor provided  $f_2$  values of 52, 50 and 59 for 10-mg, 20-mg and 40-mg tablets, respectively. The reviewer re-calculated  $f_2$  values and they are different. The re-calculated  $f_2$  values for the 10 mg, 20 mg and 40 mg strengths are 50, 47 and 59, respectively.

The calculated  $f_2$  values by the reviewer indicate that the dissolution profiles for the 10 mg and 40 mg are similar between the two sites but not for the 20 mg tablets.

**COMMENT TO BE SENT TO THE SPONSOR:**

The calculated  $f_2$  values by the reviewer indicate that the dissolution profiles for the 10 mg and 40 mg are similar between the two sites but not for 20 mg tablets ( $f_2=47$ ). The difference between the reviewer and the sponsor is that the sponsor used ~~\_\_\_\_\_~~ dissolution of both products. Based on our guidance (*Dissolution Testing of Immediate Release Solid Oral Dosage Forms*), only one measurement should be considered after 85% dissolution of both products.

**RECOMMENDATIONS**

The Office of Clinical Pharmacology and Biopharmaceutics/Division of Pharmaceutical Evaluation II (OCPB/DPE-2) has reviewed a supplement to NDA 19-898 for Pravachol® submitted on 02-29-2000. The re-calculated  $f_2$  values indicate that the change of manufacture sites is acceptable for the 10 mg and 40 mg tablets, but not for 20 mg tablets. However, it may not be necessary that a bioequivalence study be conducted for the 20-mg tablets for the following reason:

A drug product can be considered rapid dissolving when not less than 85% of the label amount of the drug substance dissolves within 30 minutes in three different media and a bioequivalence study may be waived based on our draft guidance (*Waiver of In Vivo Bioavailability and Bioequivalence Studies for Immediate Release Solid Oral Dosage Forms Containing Certain Active Moieties/Active Ingredients Based on a Biopharmaceutics Classification System*).

Therefore, an additional dissolution study for 20-mg tablets in three different media within 30 minutes is recommended (see our draft guidance on the internet for details). This recommendation and the comment above should be sent to the sponsor as appropriate.



Xiaoxiong (Jim) Wei, M.D., Ph.D.

Division of Pharmaceutical Evaluation II  
Office of Clinical Pharmacology and Biopharmaceutics

RD initiated by Hae-Young Ahn, Ph.D., Team Leader  
FT



CC: NDA 19-898 (orig., 1 copy), HFD-510(Simoneau), HFD-850(Lesko), HFD-870(Huang, Ahn, Wei), CDR.

Code: AE

Attachment: Study Summary of Dissolution Profiles

6 Page(s) Withheld

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

§ 552(b)(4) Draft Labeling

§ 552(b)(5) Deliberative Process

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**

*APPLICATION NUMBER:*

**19-898/S041**

**ADMINISTRATIVE and CORRESPONDENCE  
DOCUMENTS**



Food and Drug Administration  
Rockville MD 20857

MAR - 6 2000

NDA 19-898/S-041

Bristol-Myers Squibb  
P.O. Box 4000  
Princeton, NJ 08543-4000

Attention: William J. Regan, Director - CMC Marketed  
Products Regulatory Sciences and Outcome Research

Mr. Regan:

We acknowledge receipt of your supplemental application for the following:

Name of Drug: Pravachol® (pravastatin sodium) Tablets

NDA Number: 19-898

Supplement Number: S-041

Date of Supplement: February 29, 2000

Date of Receipt: March 2, 2000

Unless we find the application not acceptable for filing, this application will be filed under Section 505(b)(1) of the Act on May 1, 2000, in accordance with 21 CFR 314.101(a). All communications concerning this NDA should be addressed as follows:

Center for Drug Evaluation and Research  
Division of Metabolic and Endocrine Drug Products, HFD-510  
Office of Drug Evaluation II  
Attention: Document Control Room 14B-19  
5600 Fishers Lane  
Rockville, MD 20857

Sincerely,

Enid Galliers  
Chief, Project Management Staff  
Division of Metabolic and Endocrine  
Drug Products, HFD-510  
Office of Drug Evaluation II  
Center for Drug Evaluation and Research



cc:

NDA 19-898/S-041  
Page 2

Original NDA 19-898/S-041  
HFD-510/Div. Files  
HFD-510/CSO/Simoneau

filename: C:\WPWIN61\WPDOCS\19898.WPDC\DATA\WPFILES\19898.WPD

SUPPLEMENT ACKNOWLEDGEMENT

**Bristol-Myers Squibb  
Pharmaceutical Research Institute**

P.O. Box 5400 Princeton, NJ 08543-5400  
609 818-4732 Fax: 609 818-5832

ORIGINAL  
NDA SUPP AMEND  
S-04182



William J. Regan  
Director, CMC  
Regulatory Science and Outcomes Research

April 27, 2000

**Amendment to NDA 19-898/S-041  
PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets**

Dr. John Jenkins, M.D., Acting Director  
Division of Metabolism and Endocrine Drug Products (HFD-150)  
Center of Drug Evaluation and Research  
Food and Drug Administration  
Department of Health & Human Services  
5600 Fishers Lane  
Rockville, MD 20857

Attention: Document Control Room (14B-03)

Dear Dr. Jenkins:

Reference is made to our approved New Drug Application, NDA 19-898, for PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets and specifically to supplemental application S-041, which provides to manufacture the reduced mass formulation of the drug product via a \_\_\_\_\_ process at our Mayagüez, Puerto Rico facility.

Additional reference is made to the Agency's fax (attached) of March 30, 2000 requesting the \_\_\_\_\_ presentation in the \_\_\_\_\_ placed on stability. Bristol-Myers Squibb commits to the FDA's comments as noted in the referenced fax.

Bristol-Myers Squibb Company certifies that a field copy of this correspondence has been provided to the North Brunswick office (120 North Center Drive, North Brunswick, NJ 08902) of the Food and Drug Administration. We further certify that the field copy is a true copy of this letter.

Should you have any questions concerning this amendment, please contact me at (609) 818-4732.

REVIEWS COMPLETED	
CSO ACTION:	
<input type="checkbox"/> LETTER	<input type="checkbox"/> N.A.I. <input type="checkbox"/> MEMO
CSO INITIALS	DATE

Sincerely,  
*Richard J. Maruani*  
William J. Regan  
Director  
CMC - Marketed Products  
Regulatory Sciences and Outcomes Research

**ORIGINAL** Bristol-Myers Squibb  
Pharmaceutical Research Institute

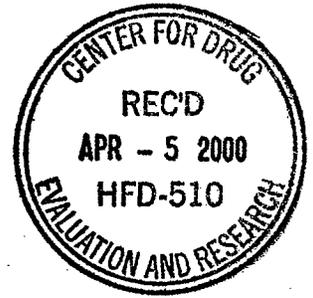
P.O. Box 5400 Princeton, NJ 08543-5400  
609 818-4732 Fax: 609 818-5832

NDA SUPP AMEND  
SCF-041-BC

William J. Regan  
Director, CMC

Regulatory Science and Outcomes Research

ORIGINAL



March 30, 2000

**Amendment to NDA 19-898/S-041  
PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets**

Dr. John Jenkins, M.D., Acting Director  
Division of Metabolism and Endocrine Drug Products (HFD-150)  
Center of Drug Evaluation and Research  
Food and Drug Administration  
Department of Health & Human Services  
5600 Fishers Lane  
Rockville, MD 20857

Attention: Document Control Room (14B-03)

Dear Dr. Jenkins:

Reference is made to our approved New Drug Application, NDA 19-898, for PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets and specifically to supplemental application S-041, which provides to manufacture the reduced mass formulation of the drug product via a ~~process~~ process at our Mayagüez, Puerto Rico facility.

Additional reference is made to our correspondence of March 28, 2000 where we officially requested to FDA an extension of the implementation date of S-041 to April 10, 2000 in order to have time to provide the requested additional dissolution data for the 20-mg strength. We are now providing dissolution results for the 20-mg strength showing that not less than 85% of the label amount of pravastatin sodium dissolves within 30 minutes in the following media: ~~\_\_\_\_\_~~



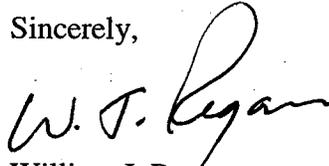
A Bristol-Myers Squibb Company

John Jenkins, M.D.  
March 30, 2000  
Page 2

Bristol-Myers Squibb Company certifies that a field copy of this correspondence has been provided to the North Brunswick office (120 North Center Drive, North Brunswick, NJ 08902) of the Food and Drug Administration. We further certify that the field copy is a true copy of this letter.

Should you have any questions concerning this supplement, please contact me at (609) 818-4732.

Sincerely,



William J. Regan  
Director  
CMC - Marketed Products  
Regulatory Sciences and Outcomes Research

REVIEWS COMPLETED	
<i>APL 8-24-00</i>	
CSO ACTION:	
<input checked="" type="checkbox"/> LETTER	<input type="checkbox"/> N.A.I. <input type="checkbox"/> MEMO
<i>MR 8/25/00</i>	
CSO INITIALS	DATE
<i>fr</i>	<i>to sponsor</i>

**Bristol-Myers Squibb  
Pharmaceutical Research Institute**

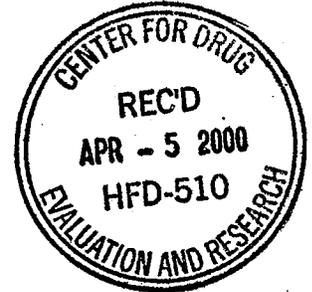
P.O. Box 5400 Princeton, NJ 08543-5400  
609 818-4732 Fax: 609 818-5832

NDA SUPP AMEND  
S-041-BM  
BC

**William J. Regan**  
Director, CMC  
Regulatory Science and Outcomes Research

**ORIGINAL**

REVIEWS COMPLETED	
CSO ACTION:	
<input type="checkbox"/> LETTER	<input type="checkbox"/> N.A.I. <input type="checkbox"/> MEMO
CSO INITIALS	DATE



March 28, 2000

**NDA 19-898/S-041  
PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets**

Dr. John Jenkins, M.D., Acting Director  
Division of Metabolism and Endocrine Drug Products (HFD-150)  
Center of Drug Evaluation and Research  
Food and Drug Administration  
Department of Health & Human Services  
5600 Fishers Lane  
Rockville, MD 20857

Attention: Document Control Room (14B-03)

Dear Dr. Jenkins:

Reference is made to our approved New Drug Application, NDA 19-898, for PRAVACHOL<sup>®</sup> (pravastatin sodium) Tablets, 10 mg, 20 mg, and 40 mg, and specifically to supplemental application S-041 which provides for manufacture of the reduced mass formulation via ~~\_\_\_\_\_~~ at our Mayaguez, PR facility.

Additional reference is made to the Agency's March 27, 2000 fax (attached), and to the March 28, 2000 phone conversation between Margaret Simoneau (FDA), Stephen Moore (FDA), et al (FDA), and William Regan (Bristol-Myers Squibb) in which it was agreed to extend the effective date of S-041 in order to provide the Agency with the requested additional dissolution data. Our expectation is to have the requested data shortly. At this time we are extending the implementation date to April 10, 2000. Further, as requested we are committing to place into our routine marketed life stability program the ~~\_\_\_\_\_~~ count presentation in the new container.

We also confirm that both ~~\_\_\_\_\_~~ manufacturing processes will continued to be used in NDA 19-898.

*SK  
4/10/00  
Noted*

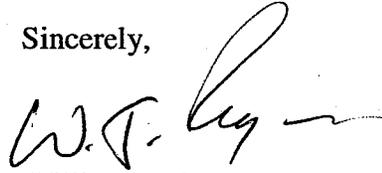


A Bristol-Myers Squibb Company

Bristol-Myers Squibb Company certifies that a field copy of this correspondence has been provided to the North Brunswick office (120 North Center Drive, North Brunswick, NJ 08902) of the Food and Drug Administration. We further certify that the field copy is a true copy of this letter.

Should you have any questions concerning this supplement, please contact me at (609) 818-4732.

Sincerely,

A handwritten signature in black ink, appearing to read "W.J. Regan", with a long horizontal flourish extending to the right.

William J. Regan

Director

CMC - Marketed Products

Regulatory Sciences and Outcomes Research



Further, we are providing for a change in the ~~\_\_\_\_\_~~ container used for the count presentation. Although reportable in the annual report, we are including it in this submission as a less burdensome notification of the change as allowed in 21 CFR 314.70.

As recommended by the FDA Guidance for Industry titled, Changes to an Approved NDA or ANDA dated November 1999, we are submitting this as a *Changes Being Effected Supplement in 30 Days*. The effective date being 30 days after the date of this letter.

Bristol-Myers Squibb Company certifies that a field copy of this supplemental application has been provided to the North Brunswick office (120 North Center Drive, North Brunswick, NJ 08902) of the Food and Drug Administration. We further certify that the field copy is a true copy of this supplemental application.

A detailed summary of this supplement may be found in the Introduction and Summary Section. In addition, a Table of Contents describing the components of this submission follows this letter.

Should you have any questions concerning this supplement, please contact me at (609) 818-4732.

Sincerely,

*for* 

William J. Regan  
Director

CMC - Marketed Products  
Regulatory Sciences and Outcomes Research

# USER FEE COVER SHEET

**See Instructions on Reverse Side Before Completing This Form**

**1. APPLICANT'S NAME AND ADDRESS**

Randall D. Curtiss  
Bristol-Myers Squibb Company  
P.O. Box 5400  
Princeton, NJ 08543

**3. PRODUCT NAME**

PRAVACHOL® (pravastatin sodium) Tablets

**4. DOES THIS APPLICATION REQUIRE CLINICAL DATA FOR APPROVAL?  
IF YOUR RESPONSE IS "NO" AND THIS IS FOR A SUPPLEMENT, STOP HERE  
AND SIGN THIS FORM.**

IF RESPONSE IS 'YES', CHECK THE APPROPRIATE RESPONSE BELOW:

- THE REQUIRED CLINICAL DATA ARE CONTAINED IN THE APPLICATION.
- THE REQUIRED CLINICAL DATA ARE SUBMITTED BY REFERENCE TO (APPLICATION NO. CONTAINING THE DATA).

**2. TELEPHONE NUMBER (Include Area Code)**

(609) 818-5220

**5. USER FEE I.D. NUMBER**

**6. LICENSE NUMBER / NDA NUMBER**  
NDA 19-898

**7. IS THIS APPLICATION COVERED BY ANY OF THE FOLLOWING USER FEE EXCLUSIONS? IF SO, CHECK THE APPLICABLE EXCLUSION.**

- A LARGE VOLUME PARENTERAL DRUG PRODUCT APPROVED UNDER SECTION 505 OF THE FEDERAL FOOD, DRUG, AND COSMETIC ACT BEFORE 9/1/92 (Self Explanatory)
- THE APPLICATION QUALIFIES FOR THE ORPHAN EXCEPTION UNDER SECTION 736(a)(1)(E) of the Federal Food, Drug, and Cosmetics Act (See Item 7, reverse side before checking box.)
- A 505(b)(2) APPLICATION THAT DOES NOT REQUIRE A FEE (See Item 7, reverse side before checking box.)
- THE APPLICATION IS A PEDIATRIC SUPPLEMENT THAT QUALIFIES FOR THE EXCEPTION UNDER SECTION 736(a)(1)(F) of the Federal Food, Drug, and Cosmetic Act (See Item 7, reverse side before checking box.)
- THE APPLICATION IS SUBMITTED BY A STATE OR FEDERAL GOVERNMENT ENTITY FOR A DRUG THAT IS NOT DISTRIBUTED COMMERCIALY (Self Explanatory)

**FOR BIOLOGICAL PRODUCTS ONLY**

- WHOLE BLOOD OR BLOOD COMPONENT FOR TRANSFUSION
- AN APPLICATION FOR A BIOLOGICAL PRODUCT FOR FURTHER MANUFACTURING USE ONLY
- A CRUDE ALLERGENIC EXTRACT PRODUCT
- AN "IN VITRO" DIAGNOSTIC BIOLOGICAL PRODUCT LICENSED UNDER SECTION 351 OF THE PHS ACT
- BOVINE BLOOD PRODUCT FOR TOPICAL APPLICATION LICENSED BEFORE 9/1/92

**8. HAS A WAIVER OF AN APPLICATION FEE BEEN GRANTED FOR THIS APPLICATION?**

- YES  NO  
(See reverse side if answered YES)

**A completed form must be signed and accompany each new drug or biologic product application and each new supplement. If payment is sent by U.S. mail or courier, please include a copy of this completed form with payment.**

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to:

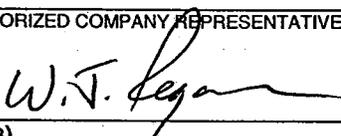
DHHS, Reports Clearance Officer  
Paperwork Reduction Project (0910-0297)  
Hubert H. Humphrey Building, Room 531-H  
200 Independence Avenue, S.W.  
Washington, DC 20201

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

Please **DO NOT RETURN** this form to this address.

SIGNATURE OF AUTHORIZED COMPANY REPRESENTATIVE

William J. Regan



TITLE

Director -- CMC Marketed Products  
Regulatory Sciences and Outcomes Research

DATE

February 29, 2000