

JUN 10 1999

**Special 510(k): Device Modification Summary**

**Submitter:** Bio-Rad Laboratories, Inc.  
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**Contact Person:** Juliet Carrara  
Regulatory Affairs/Quality Assurance Manager

**Date of Summary Preparation:** March 29, 1999

**Device Name:** VARIANT™ II  $\beta$ -thalassemia

**Classification Name:** Class II, 81JPD Hemoglobin A<sub>2</sub> Quantitation

**Unmodified Device:** VARIANT™  $\beta$ -thalassemia  
K924122  
Bio-Rad Laboratories  
Hercules, CA 94547

**Statement of Intended Use:** The VARIANT™ II  $\beta$ -thalassemia Program is intended for the separation and area percent determinations of hemoglobins A<sub>2</sub> and F and as an aid in the identification of abnormal hemoglobins in whole blood using ion-exchange high performance liquid chromatography (HPLC).

The VARIANT™ II  $\beta$ -thalassemia Program is intended for use only with the Bio-Rad VARIANT™ II Hemoglobin Testing System

For in vitro diagnostic use only.

## Description of Device

The VARIANT™ II is a fully automated HPLC system which can be used to separate and determine area percentages for hemoglobins A<sub>2</sub> and F and to provide qualitative determinations of abnormal hemoglobins.

The VARIANT™ II β-thalassemia Short Program utilizes principles of ion exchange high performance liquid chromatography(HPLC). The samples are automatically mixed and diluted on the VARIANT™ II Sampling Station(VSS) and injected into the analytical cartridge. This is a change from the unmodified program(VARIANT) where samples had to be mixed and diluted manually before being placed on the instrument. The VARIANT™ II chromatographic station(VCS) dual pumps deliver a programmed buffer gradient of increasing ionic strength to the cartridge, where the HbA<sub>2</sub>/F are separated based on their ionic interactions with the cartridge material. The separated HbA<sub>2</sub>/F then pass through the flow cell of the filter photometer, where changes in the absorbance at 415 nm are measured. An additional filter at 690 nm corrects the background absorbance. The VARIANT™ II Clinical Data Management(CDM) software performs reduction of raw data collected from each analysis. One level calibration is used for the adjustment of the calculated HbA<sub>2</sub>/F values. A patient sample report and a chromatogram are generated by CDM for each sample. Minor differences in the separation efficiency of individual analytical cartridges are corrected by the use of the Hemoglobin A<sub>2</sub>/F Calibrator.

## Technical Characteristics Compared to Unmodified Device

The main difference between the VARIANT™ and VARIANT™ II involves the patient sample preparation. In VARIANT™ II the preparation is automated, in VARIANT™ the preparation is manual.

Technical Characteristic	VARIANT	VARIANT II
Sample Preparation: Calibrator and controls	Manual Preparation.	Manual Preparation
Sample Preparation: Patient Samples	Manual Preparation.	Automatic Preparation
Run SET UP	Run sequence is programmed manually.	Run sequence read from bar codes.

Technical Characteristic	VARIANT I	VARIANT II
STAT Samples	Available.	Not Available.
Analyte Identification	Analyte peaks are labelled.	Analyte peaks are labelled.
Calibration	Calibration response factors are used to adjust observed values.	Calibration response factors are used to adjust observed values.
Data Retrieval	Chromatograms are not stored in the database.	Chromatograms are stored in the database.
Reanalysis	Not available	Available
Sample Identification	Manual identification	Barcode identification
Summary Report	Not available	Available

### **Performance Characteristics**

Testing described in Section F of this submission focuses on performance characteristics of VARIANT™ II  $\beta$ -Thal Short. Testing met all acceptance criteria.

When considering the similarities of the intended use, characteristics of the two VARIANT  $\beta$ -thalassemia programs, the use of the same technology, and the excellent concordance between the two methods, it can be concluded that the VARIANT and the VARIANT II  $\beta$ -thalassemia programs are substantially equivalent. Based on the establishment of substantial equivalence, the safety and effectiveness of the VARIANT II  $\beta$ -thalassemia program is confirmed.



DEPARTMENT OF HEALTH & HUMAN SERVICES

JUN 10 1999

Food and Drug Administration  
2098 Gaither Road  
Rockville MD 20850

Ms. Juliet Carrara  
Regulatory Affairs and  
Quality Assurance Manager  
Bio-Rad Laboratories, Inc.  
4000 Alfred Nobel Drive  
Hercules, California 94547

Re: K991127  
Trade Name: VARIANT™ II  $\beta$ -thalassemia Short Program  
Regulatory Class: II  
Product Code: JPD  
Dated: May 28, 1999  
Received: June 3, 1999

Dear Ms. Carrara:

We have reviewed your Section 510(k) notification of intent to market the device referenced above and we have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (Premarket Approval), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. A substantially equivalent determination assumes compliance with the Current Good Manufacturing Practice requirements, as set forth in the Quality System Regulation (QS) for Medical Devices: General regulation (21 CFR Part 820) and that, through periodic QS inspections, the Food and Drug Administration (FDA) will verify such assumptions. Failure to comply with the GMP regulation may result in regulatory action. In addition, FDA may publish further announcements concerning your device in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under sections 531 through 542 of the Act for devices under the Electronic Product Radiation Control provisions, or other Federal laws or regulations.

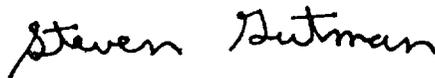
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Under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88), this device may require a CLIA complexity categorization. To determine if it does, you should contact the Centers for Disease Control and Prevention (CDC) at (770) 488-7655.

This letter will allow you to begin marketing your device as described in your 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801 and additionally 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4588. Additionally, for questions on the promotion and advertising of your device, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification"(21 CFR 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers Assistance at its toll-free number (800) 638-2041 or (301) 443-6597, or at its internet address "<http://www.fda.gov/cdrh/dsma/dsmamain.html>".

Sincerely yours,

A handwritten signature in black ink that reads "Steven Gutman". The signature is written in a cursive style with a large initial 'S'.

Steven I. Gutman, M.D, M.B.A.  
Director  
Division of Clinical  
Laboratory Devices  
Office of Device Evaluation  
Center for Devices and  
Radiological Health

Enclosure

