

4/9/99

K990827

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 10, 1999

Device Name: Microplate Neonatal GALT

Classification Name: Class II, Galactose-1-phosphate uridyl transferase test system; 21 CFR 862.1315, 75KQP

Unmodified Device: RADIAS GALT Assay
K961432
Bio-Rad Laboratories
Hercules, CA 94547

Statement of Intended Use: This assay is for the qualitative determination of galactose-1-phosphate uridyl transferase (GALT) activity in dried blood spot samples. Measurements of GALT are used in the diagnosis and treatment of the hereditary disease galactosemia (disorder of galactose metabolism) in infants. For in vitro diagnostic use only.

Description of Device

The Microplate Neonatal GALT assay utilizes dried blood spot samples (DBS) eluted in a medium containing β -nicotinamide adenine dinucleotide phosphate (NADP), galactose-1-phosphate, uridine-5'-diphosphoglucose (UDPG), and a tetrazolium salt. During elution, GALT present in the specimen converts galactose-1-phosphate to glucose-1-phosphate, with the eventual reduction of NADP to NADPH.

After elution, an aliquot of the eluate is transferred to a microwell. The optical density (OD) is read, then Enzyme Reagent is added. During the incubation that follows, the Enzyme Reagent converts NADPH generated by GALT and endogenous red cell enzymes to NADP, and the tetrazolium salt to a colored formazan dye which is detected at 550 or 570 nm. The OD is read again and the difference between the two OD readings is determined. GALT activity, in units/g hemoglobin or units/liter blood, is calculated from the difference in signal between the two absorbance readings. A unit is defined as the quantity of GALT that catalyzes the formation of 1 micromole of UDP galactose per gram of hemoglobin or per Liter blood per hour at 37°C. An external calibrator is not necessary because enzyme activity is measured directly with substrates in excess.

Technical Characteristics Compared to Unmodified Device

The technical characteristics are summarized in the flow chart below:

Microplate

Manual Steps:

Punch 1/8 inch DBS into microtiter well



Add 200 ul Substrate/Color Reagent



Incubate 3 Hrs at 37 C



Mix and transfer 120 ul into clean wells



Read at 570 nm



Add 50 ul Enzyme Reagent



Incubate 37 C, 10 min.



Read at 570 nm

RADIAS

Manual steps:

Punch 3/16 inch DBS into 12 X 75 tubes



Add 350 ul Substrate/Color Reagent



Incubate 3 Hrs at 37 C



RADIAS steps:

Transfer 120 ul into clean wells



Read at 550 nm



Add 60 ul Enzyme Reagent



Incubate 37 C, 20 min.



Read at 550 nm

The main differences between the protocols are where the Microplate Neonatal GALT format uses 1/8 inch DBS in 200 ul Elution reagent rather than a 3/16 inch DBS in 350 ul elution reagent (RADIAS format). After 3 hours of elution the Microplate format continues processing the test in a manual mode whereas the RADIAS format completes the test by automation. No significant changes were made in the assay reagents or procedure.

Performance Characteristics

| Performance Tests | Acceptance Criteria | Microplate Assay | RADIAS Assay |
|---|---------------------|------------------|------------------|
| Concordance | 100% | 100%(to RADIAS) | 100%(To Beutler) |
| Analytical Sensitivity | < 0.80 U/g Hb | 0.64 U/g Hb | 0.51 U/g Hb |
| Within-run Precision | < 12 % | 4.3% - 10.6% | 4.5% - 14.5% |
| Total Precision | < 15 % | 7.0% - 11.8% | 8.5% - 22.5% |
| Interference of bilirubin, triglycerides, and protein | No Interference | No Interference | No Interference |

When considering the similarities of the intended use, general characteristics of the two assays, the use of the same technology and the excellent concordance between the two methods, it can be concluded that the RADIAS GALT Test and the Microplate Neonatal GALT Assay are substantially equivalent. Based on the establishment of substantial equivalence, the safety and effectiveness of the Microplate Neonatal GALT Assay is confirmed.



APR 9 1999

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

Ms. Juliet Carrara
Regulatory Affairs/Quality Assurance Manager
Bio-Rad Laboratories, Inc.
Diagnostics Group
4000 Alfred Nobel Drive
Hercules, California 94547-1803

Re: K990827
Trade Name: Microplate Neonatal GALT Assay
Regulatory Class: II
Product Code: KQP
Dated: March 10, 1999
Received: March 12, 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.

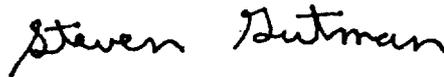
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Under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88), this device may require a CLIA complexity categorization. To determine if it does, you should contact the Centers for Disease Control and Prevention (CDC) at (770) 488-7655.

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, prominent "S" and "G".

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

Statement of Indications for Use

510(k) Number: K 990827

Device Name: Bio-Rad Microplate Neonatal GALT Test

Indications for Use: This assay is for the qualitative determination of galactose-1-phosphate uridyl transferase (GALT) activity in dried blood spot samples. Measurements of GALT are used in the diagnosis and treatment of the hereditary disease galactosemia (disorder of galactose metabolism) in infants.

For in vitro diagnostic use only.

Jean Cooper
(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K 990827

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED
Concurrence of CDRH, Office of Device Evaluation (ODE)

Prescriptive Use OR over-the-counter Use
(Per 21 CFR 801.109)