K993914

Item II: 510(k) Summary

A. Contacts

Manufacturer: Meridian Diagnostics, Inc.
3471 River Hills Drive
Cincinnati, OH 45244
Phone: 513-271-3700
FAX: 513-271-0744

FDA Registration Number: 1524213

Site Contact Person: Allen Nickol, PhD
Senior Director Clinical & Regulatory Affairs & QA

Submission Contact Persons: David H. Willis, PhD
Clinical & Regulatory Affairs
Allen Nickol, PhD
Senior Director Clinical & Regulatory Affairs & QA

B. Date of Preparation

November 12, 1999

C. Name of Device and Classification

Name: Premier Toxins A&B
Classification: "Reagents, *Clostridium difficile* toxin," Class I, LLH.

D. Legally Marketed Device

The predicate (previously cleared) device is the Premier Cytoclone A&B EIA, 510(k) number K911958. Concurrence date was 7/30/91.

E. Device Description

Premier Toxins A&B is an enzyme immunoassay for the direct detection of *Clostridium difficile* toxin A and toxin B in stool samples. Breakaway microwells are coated with toxin specific monoclonal and polyclonal antibodies. Diluted patient specimens and HRP-conjugated anti-toxin A and B polyclonal antibodies are added to microwells. If either toxin is present in the diluted patient samples, HRP-conjugated toxin polyclonal antibodies (specific for both toxins) complexes are formed which remain in the microwells after washing. After a final washing step, a substrate / chromagen (urea peroxide and tetramethylbenzidine) is added to the wells. Any bound conjugate converts the substrate / chromagen to a blue color. Addition of acid (Stop Solution) converts the blue to a yellow color.

F. Intended Use Statement

Premier Toxins A&B is a qualitative enzyme immunoassay for the detection of *Clostridium difficile* toxin A and toxin B in stool from patients with antibiotic associated diarrhea. **Premier Toxins A&B** is intended for use as an aid in diagnosis of *C. difficile* associated disease.

G. Description of the Technology of the Modified Device Compared to Cleared Device

Both devices are microtiter well enzyme immunoassays that involve capture of *C. difficile* toxins A and B by antibody attached to microtiter wells. Detection is accomplished in both assays using HRP-conjugated antibody. In both assays color change is affected using urea peroxide and tetramethylbenzidine. The differences in protocol and materials do not reflect any fundamental change in technology.

The performance of Premier Toxins A&B was evaluated in a clinical study performed at two sites in the United States. The kit was compared to the cellular cytotoxicity assay .

Premier Toxins A&B Results	Cytotoxin Result: Site 1		Cytotoxin Result: Site 2		Cytotoxin Result: All Sites	
	Pos	Neg	Pos	Neg	Pos	Neg
Pos	55	7	35	6	90	13
Neg	3	257	2	208	5	465
Performance Statistic	Value	95% CI	Value	95% CI	Value	95% CI
Sensitivity	94.8%	85.6-98.9%	94.6%	81.8-99.3%	94.7%	88.1-98.3%
Specificity	97.3%	94.6-98.9%	97.2%	94.0-99.0%	97.3%	95.4-98.5%
Positive Predictive Value	88.7%	78.1-95.3%	85.4%	70.8-94.4%	87.4%	81.0-93.8%
Negative Predictive Value	98.8%	96.7-99.8%	99.0%	96.6-99.9%	98.9%	97.5-99.7%
Correlation	96.9%	94.4-98.5%	96.8%	93.8-98.6%	96.9%	95.1-98.1%

H. Reproducibility

Souce of Variance	Positive Control	Negative Control	High Positive	Medium Positive	Low Positive	Negative
Mean Absorbance	2.010	0.013	2.250	1.146	0.280	0.009
Within Run CV	4.1%	24.5%	7.3%	6.9%	15.9%	28.9%
Between Run CV	7.0%	16.2%	6.2%	13.9%	14.6%	31.7%

I. Cross-Reactivity

The Premier Toxins A&B test did not cross-react with other known pathogenic bacteria and viruses. Positive reactions were noted with two strains of *C. sordellii* known to produce the HT and LT homologues to toxins A and B, respectively.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

DEC 10 1999

David H. Willis, Ph.D.
Manager, Clinical and Regulatory Affairs
Meridian Diagnostics, Inc.
3471 River Hills Drive
Cincinnati, Ohio 45244

Re: K993914
Trade Name: Premier Toxins A&B
Regulatory Class: I
Product Code: LLH
Dated: November 16, 1999
Received: November 17, 1999

Dear Dr. Willis:

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.

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 at (301) 443-6597 or at its internet address "http://www.fda.gov/cdrh/dsmamain.html"

Sincerely yours,

Steven Gutman

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

Item III: Indications of Use Statement

510(k) Number (if known): K993914

Device Name: Premier Toxins A&B

Indications For Use:

Premier Toxins A&B is a qualitative enzyme immunoassay for the detection of *Clostridium difficile* toxin A and toxin B in stool from patients with antibiotic associated diarrhea. Premier Toxins A&B is intended for use as an aid in diagnosis of *C. difficile* associated disease.

PLEASE DO NOT WRITE BELOW THIS LINE - CONTINUE ON ANOTHER PAGE IF NEEDED

Concurrence of CDRH, Office of Device Evaluation (ODE)

Woody Dubois

(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K993914

Prescription Use X
(Per 21 CFR 801.109)

OR

Over-The-Counter Use ____
(Optional Format 1-2-96)