MAR 18 1998

K980173

APPENDIX 4

Summary of Safety and Effectiveness Information January 19, 1997

1. **General Information**

Device Generic Name:	Enzyme Immunoassay, hCG	
Device Trade Name:	ACCESS® Total βhCG assay	
Applicant's Name and Address:	Beckman Instruments, Inc. 1000 Lake Hazeltine Drive Chaska, MN 55318	Contact: Robert McCormack, Ph.D. 612-368-1384

2. **Predicate Device**
ACS:180 Total hCG B+

3. **Device Description**
The ACCESS® Total βhCG reagents and the ACCESS® Immunoassay Analyzer comprise the ACCESS® Immunoassay System for the quantitative determination of total βhCG levels in human serum.

4. **Indications for Use**
The ACCESS® Total βhCG assay is a paramagnetic particle chemiluminescent immunoassay for the quantitative determination of total βhCG levels in human serum using the ACCESS® Immunoassay System.

5. **Comparison of Technological Characteristics**
The ACCESS® Total βhCG assay and the ACS:180 Total hCG +B assay are for the measurement of total βhCG in human serum. Both tests are two-site immunoassays and utilize monoclonal antibodies for capture and polycloncal antibodies as the second antibody. The ACCESS® Total βhCG assay uses a dioxetane based chemiluminescent substrate while the ACS:180 Total hCG +B Kit uses an acridinium ester as the chemiluminescent substrate. Both assays are standardized to the WHO 3rd IS 75/537 standard and have available on-line dilution protocols. The ACCESS® Total βhCG assay range is 0.5 mIU/ml - 1000 mIU/ml while the ACS:180 Total hCG +B assay range is 2 mIU/ml - 1000 mIU/ml. The ACCESS® Total βhCG assay utilizes multi-level calibrators to establish a calibration curve and the ACS:180 Total hCG +B assay utilizes a set of two calibrators to reestablish calibration curves which have been set by the manufacturer and stored on the ACS:180. The ACCESS® Total βhCG assay has no discernible hook effect at 1,000,000 mIU/ml. In the ACS:180 Total hCG +B assay patient samples as high as 400,000 mIU/ml will assay greater than 1000 mIU/ml.

6. **Summary of Studies**
Precision studies: Within run precision ranges from 1.34% CV to 2.15% CV. Total imprecision ranges from 2.41% CV to 3.38% CV.
Accuracy: Dilution recovery studies performed by diluting 2 human serum samples from 1:1.2 to 1:32 with ACCESS® Total βhCG Calibrator S0 results in mean recoveries of 97% and 98%.
Correlation: A comparison of hCG values from 119 human serum samples run in both the ACCESS® Total βhCG assay and the ACS:180 Total hCG +B assay gives the following statistical data: slope = 0.914 and r= 0.98.
Analytical Sensitivity: The data supports the lowest detectable level of βhCG distinguishable from zero (ACCESS® Total βhCG Calibrator S0) is equal to 0.5 mIU/ml.
Analytical Specificity: No significant cross reactivity is observed with hLH, hFSH, or hTSH. The molar percent specificity of free βhCG subunit (WHO 75/551) is approximately 200%.

7. **Conclusion**
The ACCESS® Total βhCG reagents when used with the ACCESS® Immunoassay Analyzer are substantially equivalent to another test in commercial distribution for the measurement of total βhCG in human serum.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

MAR 18 1998

Sandy Frank Schwartz, Ph.D.
Senior Clinical and Regulatory Specialist
Beckman Instruments, Inc.
1000 Lake Hazeltine Drive
Chaska, Minnesota 55318-1084

Re: K980173
ACCESS® Total BhCG Assay
Regulatory Class: II
Product Code: JHI
Dated: January 19, 1998
Received: January 20, 1998

Dear Dr. Schwartz:

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 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 (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

INDICATIONS FOR USE STATEMENT

510(k) Number (if known):_____

Device Name: ACCESS® Total βhCG reagents on the ACCESS® Immunoassay Analyzer

Indications For Use:
The ACCESS® Total βhCG assay is a paramagnetic-particle, chemiluminescent immunoassay for the quantitative determination of total βhCG in human serum, using the the ACCESS® Immunoassay System.

SUMMARY AND EXPLANATION
Human chorionic gonadotropin (hCG) is a glycoprotein hormone, produced by the placenta, with structural similarity to the pituitary hormones FSH, TSH, and LH. The alpha subunit (MW 15,000–20,000 daltons) is common to all of these hormones but the beta subunits differ, and confer immunological and biological specificity. Beta hCG (MW 25,000–30,000 daltons) shares several peptide sequences with beta LH, but has a unique carboxyl terminal region (1-3).

Shortly after implantation of a fertilized ovum into the uterine wall, the trophoblast begins to produce hCG. The hormone maintains steroid secretions of the corpus luteum until the placenta can do so (4). During a normal pregnancy, serum hCG is approximately 50 mIU/ml (IU/l) in the week after conception, and doubles every 1.5–3 days for the first six weeks (5). Levels continue to rise until the end of the first trimester, then gradually fall to a lower level for the remainder of the pregnancy. After delivery, hCG returns to < 5 mIU/ml (IU/l) and is usually undetectable several days postpartum.

The hormone is an excellent marker for pregnancy. Healthy, non-pregnant individuals have low [< 5 mIU/ml (IU/l)] to undetectable hCG in serum. During pregnancy, hCG concentrations increase as noted above and then show a gradual decrease after the first trimester. Unusually low or rapidly declining levels may indicate an abnormal condition such as an ectopic pregnancy or impending spontaneous abortion (6).

Originally bioassay systems measured hCG by measuring gonadal tissue response in various animals. These methods exhibited insufficient sensitivity, were difficult to perform, and required large volumes of sample. Tests to measure urine hCG traditionally employed latex agglutination or agglutination inhibition methods. With the development of radioimmunoassay techniques for the measurement of hCG by Vaitukaitis et al. In 1972, more sensitive and rapid assays for hCG became available (7). Subsequent development of two-site immuno-radiometric assays (IRMA) provided assays with increased sensitivity, specificity, and precision (8).

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

Concurrence of CDRH, Office of Device Evaluation (ODE)

Prescription Use ✓ OR Over-The-Counter Use___
(Per 21 CFR 801.109)

(Optional Format 1-2-96)

(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number k980973