NOV 25 1998

K982350

510k Summary of Safety and Effectiveness

This summary of 510(k) safety and effectiveness information is being submitted in accordance with the requirements of SMDA 1990 and 21 CFR 807.92.

The assigned 510(k) number is:

Applicant Information:

Date Prepared:	March 23, 1998
Name:	Columbia Bioscience, Inc.
Address:	8775 M Centre Park Drive, #559 Columbia, MD 21045
Contact Person:	Norman Jenkins
PhoneNumber.	410-995-0450
Fax Number.	410-995-0448

Device Information:

Trade Name:	EA-D IgM ELISA Kit
Common Name.	EA-D IgM EIA Test
Classification Name;	Epstein-Barr Virus

Equivalent Device:
EBV Serology

Device Description: The EA-D IgM ELISA Kit is an enzyme-linked immunosorbent assay (ELISA) for the detection of IgM antibodies to Epstein-Barr Early antigen diffuse in human serum.

Intended Use: For the qualitative determination of IgM antibodies in human serum to Epstien Barr Virus (recombinant) Early antigen (EA-D) antigen. The EA-D IgG assay should be used in conjunction with other Epstein-Barr serologies (VCA IgM, VCA IgG, EBNA-1 IgG, EBNA-1 IgM and heterophile) as an aid in the diagnosis of infectious mononucleosis. The test can be performed either manually or in conjunction with the MAGO PLUS ™ Automated EIA Processor.

Principle of Procedure:

The EA-D IgG ELISA Kit is an enzyme-linked immunosorbent assay to detect IgG to EA-D in human serum. Recombinant EA-D antigen is attached to a solid phase (microtiter well). Diluted test sera are added to each well. If antibodies which recognize the, EA-D antigen are present in the patient sample they will bind to the antigen in the well. After incubation, the wells are washed to remove unbound antibody. An enzyme labeled anti-human immunoglobulin (conjugate) is added to each test well. If antibody is present the enzyme-linked antibody will bind to it. After incubation, the wells are washed to remove unbound conjugate. A substrate solution is then added to each well. If enzyme is present from prior step, the reaction is stopped and the, color intensity is measured photometrically producing an indirect detection of the specific antibody present in the patient sample.

Performance Characteristics

A. Clinical Sensitivity and Specificity Using Characterized Sera

Frozen retrospective sera from one hundred and seventy-six patients were characterized using commercially available kits for VCA IgM, VCA IgG, EBNA IgG and heterophile antibodies. Based on the results of this testing, the patient sera were characterized as follows:

* 102 sera were characterized as convalescent (past infection). These were positive for VCA IgG and/or EBNA IgG antibodies and negative for VCA IgM and heterophile antibody.

* 32 sera were characterized as seronegative. These were negative for VCA IgG, VCA IgM, EBNA IgG and heterophile antibody.

* 42 sera were characterized as having a current (recent) infection. These were positive for VCA IgM and/or heterophile antibody and were negative for EBNA IgG.

All 176 sera were then tested by an independent clinical commercial laboratory using the Is-EBV-EA-D IgM Test Kit. The results obtained are shown in Table 2:

TABLE 2

Is-EBV-EA-D-IgM	*EBV Serological Status*		
	Convalescent	***Current Infection***	***Seronegative***
POSITIVE	5	17	1
NEGATIVE	93	20	29
*EQUIVOCAL	4	5	2

			95% CI
Relative Specificity (Convalescent)	93/98	= 94.9%	88.5-98.3
Relative Sensitivity (Current Infection)	17/37	= 45.9%	29.5-63.1
Relative Specificity (Seronegative)	29/30	= 96.7%	82.8-99.9
Overall Agreement	139/165	= 84.2%	78.7-89.8

* Equivocal results were excluded from calculations

NOTE : Please be advised that 'relative' refers to the comparison of the assay's results to that of a similar assay. There was not an attempt to correlate the assay's results with disease presence or absence. No judgment can be made on the comparison's accuracy to predict disease. Since the above studies were performed on a pre-selected, retrospective population, no calculations for the assay's positive and negative predictive value may be done or inferred.

B. Precision

To determine the precision of the Is-EBV-EA-D IgM Test Kit, four positive and two negative sera were assayed ten times each in three different runs at three different sites. The 3 sites include: the manufacturer, a research and development laboratory, and a clinical commercial laboratory. The intra- and interassay precision obtained at each site is shown in Tables 3, 4 and 5. The Inter-Site precision is shown in Table 6.

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY		
	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	
A (POS)	6.59	5.42	6.37	4.53	6.25	5.17	6.40	5.35	
B (POS)	1.86	12.60	1.79	10.84	1.95	6.18	1.87	10.46	
C (POS)	2.90	10.05	2.67	7.31	2.61	9.00	2.73	9.77	
D (POS)	1.37	8.92	1.38	12.45	1.41	12.81	1.39	11.20	
E (NEG)	0.14	44.84	0.15	39.58	0.16	46.08	0.15	42.74	
F (NEG)	0.44	15.23	0.45	39.42	0.32	35.23	0.40	34.16	
						CAL	0.97	10.49	n = 9
						PC	1.65	12.75	n = 3
						NC	0.29	38.40	n = 3

TABLE 4 : Site #2- Intra-Assay and Interassay Precision

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY		
	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	
A (POS)	6.328	6.78	5.514	4.34	6.055	3.85	5.966	7.68	
B (POS)	1.813	9.32	1.580	10.07	1.722	6.65	1.705	10.21	
C (POS)	2.465	5.70	2.376	17.21	2.521	6.15	2.454	10.72	
D (POS)	1.261	4.89	1.118	6.07	1.219	3.78	1.199	6.97	
E (NEG)	0.144	28.01	0.155	16.49	0.150	14.21	0.149	19.71	
F (NEG)	0.289	15.47	0.341	8.87	0.308	10.00	0.313	13.11	
						CAL	1.001	4.69	n = 18
						PC	1.564	12.03	n = 12
						NC	0.303	4.72	n = 12

TABLE 5 : Site #3 - Intra-assay and Interassay Precision

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY		
	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	
A (POS)	6.35	11.01	6.53	12.63	6.05	11.29	6.31	11.74	
B (POS)	1.98	9.08	1.90	10.74	1.91	11.87	1.93	10.36	
C (POS)	2.63	16.02	2.59	15.59	2.52	17.40	2.58	15.86	
D (POS)	1.55	20.22	1.49	26.10	1.42	14.80	1.49	20.67	
E (NEG)	0.13	15.27	0.12	19.99	0.13	23.17	0.13	19.85	
F (NEG)	0.29	15.16	0.24	15.18	0.36	10.88	0.29	21.96	
						CAL	1.00	11.59	n = 9
						PC	1.42	6.45	n = 3
						NC	0.30	5.77	n = 3

Table 6 : Inter-Site Precision

SERUM (n=90)	INTER-SITE	
	MEAN INDEX	CV%
A (POS)	6.23	9.10
B (POS)	1.83	11.51
C (POS)	2.58	12.97
D (POS)	1.36	17.32
E (NEG)	0.14	31.41
F (NEG)	0.34	30.28
CAL (n=36)	0.99	8.21
LPC (n=18)	1.55	11.87
NC (n=18)	0.30	13.42

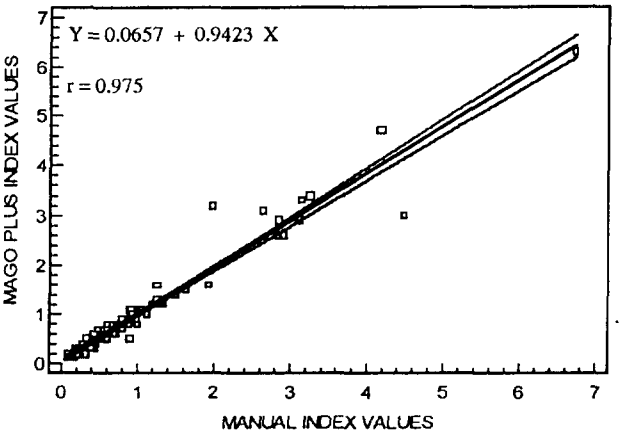
C. Specificity with Potentially Cross-Reactive Sera

Thirteen sera, non-reactive (negative) for IgM antibodies to EA-D in the Is-EBV-EA-D IgM Test Kit, were tested by EIA for IgM antibody to varicella zoster, cytomegalovirus and herpes simplex virus. 4/4 anti-VZV IgM positive sera were non-reactive for anti-EA-D IgM; 3/5 anti-CMV IgG positive sera were non-reactive for anti-EA-D IgM and 4/4 anti-HSV positive sera were non-reactive for anti-EA-G IgM. This suggests that some cross-reactivity should be expected with the Is-EA-D IgM Test Kit from these analytes.

D. Correlation of Manual and MAGO Plus Results

The Is-EBV-EA-D IgM Test Kit has been developed for automated as well as manual use. To demonstrate the equivalence of the manual and MAGO Plus procedures, the results of 128 serum samples tested by both methods were plotted. A scattergram and regression line of the results obtained with 95% confidence intervals is shown in Figure 3. The data indicate good correlation with a Pearson Correlation Coefficient of 0.975.

FIGURE 3 : Manual and MAGO Plus Result Correlation



E. MAGO Plus Precision

The precision of the assay when performed on the MAGO Plus Automated EIA Processor was determined by assaying six sera ten times each in three different runs. Table 7 shows the intra-and interassay precision obtained using the MAGO Plus.

TABLE 7 : Site #2- Intra-Assay and Interassay Precision - MAGO Plus

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY		
	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	MEAN INDEX	CV%	
A (POS)	6.1	3.76	5.8	4.29	5.8	3.98	5.9	4.35	
B (POS)	1.8	6.38	1.7	7.27	1.8	8.12	1.8	7.44	
C (POS)	2.7	5.51	2.5	7.23	2.6	7.49	2.6	6.97	
D (POS)	1.4	16.10	1.3	7.77	1.3	8.34	1.3	11.76	
E (NEG)	0.1	37.16	0.1	28.75	0.1	0.00	0.1	30.51	
F (NEG)	0.3	23.80	0.3	20.45	0.3	15.06	0.3	20.86	
							CAL 1.0	2.80	n = 12
							PC 1.7	3.50	n = 4
							NC 0.4	0.00	n = 4

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

NOV 25 1998

Norman Jenkins
President
Columbia Bioscience, Inc.
8775 M Centre Park Drive, #559
Columbia, Maryland 21045

Re: K982350
Device: EA-D IgM ELISA Test System
Dated: September 22, 1998
Received: September 28, 1998

Dear Mr. Jenkins:

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

510(k) Number: Not Known

Device Name: EA-D IgM ELISA

Indications For Use: For the qualitative determination of IgM antibodies in human serum to Epstein Barr (recombinant) early antigen diffuse (EA-D) antigen. The EA-D IgM assay should be used in conjunction with other Epstein-Barr serologies (VCA IgM, VCA IgG, EBNA-1 IgG, EBNA-1 IgM, EA-D IgG and heterophile) as an aid in the diagnosis of infectious mononucleosis. The test can be performed either manually or in conjunction with the MAGO PLUS ™ Automated EIA Processor.

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

Concurrence of CDRH, Office of Device Evaluation (ODE)

Prescription Use X (Per 21 CFR 801.109) OR Over-The Counter Use____ (Optional Format 1-2-96)

Woody Dubois

(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K982350