

FEB 2 1999

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: K984228

Applicant Information:

Date Prepared: Nov 24, 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:  anti-TPO IgG ELISA Kit
Common Name: TPO IgG EIA Test
Classification Name: TPO Serological Reagent

Equivalent Device:

ELIAS TPO Kit

Device Description: The  TPO IgG ELISA Kit is an enzyme-linked immunosorbent assay (ELISA) for the detection of IgG to thyroid peroxidase in human serum.

Intended Use: The  TPO IgG kit is an Enzyme-Linked Immunosorbent Assay (ELISA) For the qualitative detection and quantitation of antibodies against the thyroid peroxidase antigen in serum as an aid in the diagnosis of thyroid autoimmune disease. The test can be performed either manually or in conjunction with the Mago Plus automated EIA processor.

Principle of Procedure:

TPO antigen is bound to microwells. Diluted patient sera, Calibrators and controls are placed in the microwells and incubated. Anti-TPO IgG antibodies, if present, will bind to the antigen forming antigen-antibody complexes. Residual sample is eliminated by aspirating and washing. Conjugate (horseradish peroxidase-labeled anti-human IgG) is added and will bind to these complexes. Unbound conjugate is removed by aspiration and washing. Substrate is then added and incubated. In the presence of bound enzyme the substrate is converted to an end product. The absorbance of this end product can be read spectrophotometrically at 450 nm (reference 600-630 nm) and is directly proportional to the concentration of IgG antibodies to TPO present in the sample.

Performance Characteristics

A. Relative Sensitivity and Specificity

Frozen retrospective sera from two hundred fifty-five patients were tested on the Is-anti-TPO IgG TestKit and a commercially available ELISA kit for TPO antibodies. Based on the results of this testing, the relative sensitivity and specificity was calculated. The results obtained are shown in Table 2:

TABLE 2
Is-anti-TPO IgG

		POSITIVE	* EQUIVOCAL	NEGATIVE
Other ELISA	POSITIVE	71	0	0
	EQUIVOCAL*	6	0	2
	NEGATIVE	5	4	167

			<u>95% CI</u>
Relative Sensitivity	71/71 = 100%		94.9-100
Relative Specificity	167/172 = 97.1%		93.3-99.1
Overall Agreement	238/243 = 97.9%		95.3-99.3

* 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.

B. Clinical Sensitivity and Specificity Using Characterized Sera

A total of 207 frozen retrospective, clinically characterized sera were assayed using the Is-anti-TPO IgG Test Kit. The results obtained are shown in Table 3.

TABLE 3

<u>Patient Group:</u>	<u>Positive</u>	<u>Equivocal*</u>	<u>Negative</u>	<u>Total</u>
Normals	15	1	160	176
Grave's Disease	9	1	5	15
Hashimoto's Disease	12	0	4	16

<u>Clinical Specificity:</u>		<u>95% CI</u>
Normals	= 160/175 = 91.4%	86.3-95.1

<u>Clinical Sensitivity:</u>		<u>95% CI</u>
Grave's Disease	= 9/14 = 64.3%	35.1-87.2
Hashimoto's Disease	= 12/16 = 75.0%	47.6-92.7

* Equivocal results were excluded from calculations

C. Precision

To determine the precision of the Is-anti-TPO IgG Test Kit, four positive and two negative sera were assayed ten times each in three different runs at two different sites. The intra- and interassay precision obtained at each site is shown in Tables 4 and 5.

TABLE 4: Site #1- Intra-Assay and Interassay Precision

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY	
	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%
A (POS)	49.2	12.19	46.8	8.76	46.6	8.80	47.5	10.10
B (POS)	99.8	14.37	91.5	7.28	91.5	7.57	94.2	11.04
C (POS)	209.5	11.70	205.4	4.98	205.3	4.96	206.7	7.73
D (POS)	257.5	5.16	246.5	5.97	246.2	5.93	250.1	5.89
E (NEG)	0.6	316.23	0.2	133.13	0.1	135.53	0.1	161.76
F (NEG)	2.4	36.15	2.6	46.33	2.6	46.08	2.5	41.92

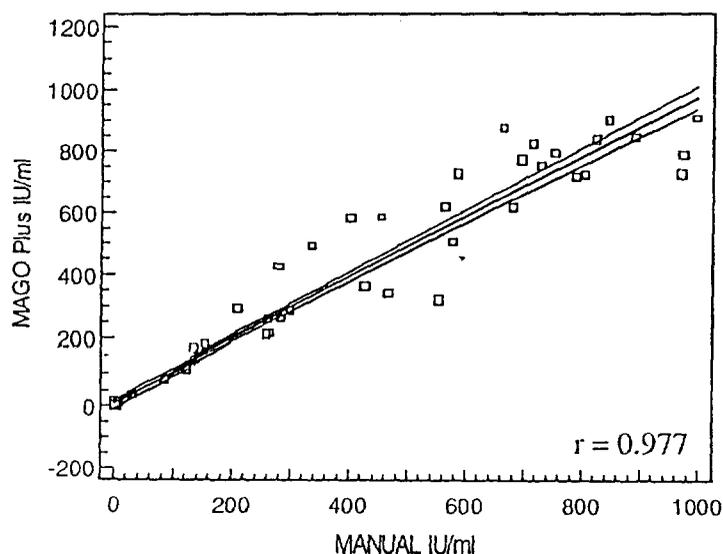
TABLE 5 : Site #2- Intra-Assay and Interassay Precision

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY	
	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%
A (POS)	53.5	12.64	52.3	9.65	46.0	9.93	50.6	21.47
B (POS)	105.6	19.84	93.2	9.49	87.3	6.31	95.4	15.91
C (POS)	233.9	7.09	210.0	14.91	229.3	10.99	224.4	11.78
D (POS)	123.1	7.10	246.6	7.51	244.2	9.30	240.6	8.29
E (NEG)	8.8	6.35	7.8	11.40	1.5	12.17	6.0	55.73
F (NEG)	13.1	11.21	11.7	10.67	4.0	15.90	9.6	43.97

D. Correlation of Manual and MAGO Plus Results

The Is-anti-TPO IgG 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 104 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 0.977.

FIGURE 3 : Correlation of Manual vs MAGO Plus Results



E. MAGO Plus Precision

The precision of the Is-anti-TPO IgG Test Kit when performed on the MAGO Plus Automated EIA Processor was determined by assaying six sera ten times each in three different runs. Table 6 shows the intra- and interassay precision obtained using the MAGO Plus.

TABLE 6 : Site #2- Intra-Assay and Interassay Precision - MAGO Plus

SERUM	INTRA-ASSAY RUN 1		INTRA-ASSAY RUN 2		INTRA-ASSAY RUN 3		INTERASSAY	
	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%	MEAN IU/ml	CV%
A (POS)	76.4	14.13	71.0	11.92	75.7	13.26	74.3	13.15
B (POS)	147.1	13.08	124.7	8.42	156.6	12.01	142.8	14.75
C (POS)	284.6	10.39	251.8	9.95	266.7	11.35	267.7	11.43
D (POS)	321.0	16.29	320.7	17.74	351.4	20.61	331.1	16.90
E (NEG)	1.1	36.81	2.3	16.64	1.1	49.66	1.5	48.32
F (NEG)	7.7	33.81	6.1	20.62	6.0	19.59	6.6	29.15



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

FEB 2 1999

Norman Jenkins
COLUMBIA BIOSCIENCE, INC.
8775 M Centre Park Drive, #559
Columbia, MD 21045

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

Re: K984228
Trade Name: Is-anti-TPO IgG ELISA Test System
Regulatory Class: II
Product Code: JZO
Dated: November 24, 1998
Received: November 25, 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.

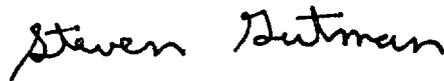
Page 2

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,



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: K984228
~~Not Known~~

Device Name: TPO IgG ELISA

Indications For Use: The TPO IgG kit is an Enzyme-Linked Immunosorbent Assay (ELISA) for the qualitative detection and quantitation of antibodies against the Thyroid Peroxidase (TPO) antigen in serum as an aid in the diagnosis of thyroid autoimmune disease. The test can be performed either manually or in conjunction with the Mago Plus automated EIA processor.



(Division) _____
Div of _____
510(k) Number K984228

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

Concurrence of CDRH, Office of Device Evaluation (ODE)

Prescription Use ✓
(Per 21 CFR 801.109)

OR

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