K033059

NOV 26 2003

Summary of Safety and Effectiveness Information
Herpes Group IgG ELISA Test Kit

I. Trinity Biotech
2823 Girts Road
Jamestown, NY 14701
Contact person: Bonnie B. DeJoy
Telephone: 716-483-3851
Date of preparation: Nov. 20, 2003

II. Description of Device

The Herpes Group IgG ELISA kit is an Enzyme-Linked Immunosorbent Assay (ELISA) for qualitative determination of IgG antibodies in human serum to *Herpes simplex* virus. The Herpes Group IgG ELISA kit may be used to evaluate paired sera for the presence of seroconversions of IgG as an aid in the diagnosis of *Herpes simplex* virus infection.

The Herpes Group IgG ELISA test is an enzyme linked immunosorbent assay to detect IgG antibodies to *Herpes simplex* virus. Purified Herpes Group antigen is attached to a solid phase microtiter well. Diluted test sera are added to each well. If the antibodies are present that recognize the antigen, they will bind to the antigen in the well. After incubation, the wells are washed to remove unbound antibody. An enzyme labeled anti-human IgG is added to each well. After incubation, the wells are washed to remove unbound conjugate. A substrate solution is added to each well. If enzyme is present, the substrate will undergo a color change. After an incubation period the reaction is stopped and the color intensity is measured photometrically, producing and indirect measurement of specific antibody in the patient specimen.

III. Predicate Device

The Herpes Group IgG ELISA test is substantially equivalent to Clark Laboratories, Inc. (Clark) HSV I and HSV II ELISA tests. Equivalence is demonstrated by the following comparative results:

Performance Characteristics

1. % Agreement Positive and % Agreement Negative. Four different sites compared the Trinity Biotech Herpes Group IgG ELISA test relative to Clark HSVI and HSVII ELISA assays. The first site was a R&D laboratory at a commercial company located in Maryland. The frozen sera were from normals with ages from 12-83, with various gender and geographical areas. The results of the study are compiled and summarized in Table 1.

Note: Please be advised the "% agreement positive" and "% agreement negative" refers to the comparison of this 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 assay's accuracy to predict disease.

Table 1
Comparison of Herpes Group IgG ELISA and Clark HSV 1 and HSV 2
Study 1

Trinity Biotech Herpes Group IgG ELISA

		+	eq	-	Total
Clark HSV 1 & HSV 2	+*	**104**	**1**	**1**	**106**
	eq*	**3**	**0**	**0**	**3**
	-***	**4**	**2**	**72**	**78**
	Total	**111**	**3**	**73**	**187**

% Agreement positive = 104/105 = 99.1% — 95% Confidence interval = 97.2% - 100%
% Agreement negative = 73/76 = 94.7% — 95% Confidence interval = 89.6% - 99.9%
% Agreement = 176/181 = 97.2% — 95% Confidence interval = 94.8% - 100%

Equivocals were not included in the above calculations.
The 95% confidence intervals were calculated using the normal method.

* Indicates positive on Clark HSV 1 and/or Clark HSV 2.
**Indicated equivocal on Clark HSV 1 and/or Clark HSV 2.
*** Indicates negative on both Clark HSV 1 and Clark HSV 2.

The second site was a R&D laboratory at a commercial company located in New York. The frozen sera were from normals with ages from 17-59, with various fender and geographical areas. The results of the study are compiled and summarized in Table 2.

Table 2
Comparison of Herpes Group IgG ELISA and Clark HSV 1 and Clark HSV 2
Study 2

		Trinity Biotech Herpes Group IgG ELISA			
		+	eq	-	Total
Clark HSV 1 and HSV 2	+*	92	6	2	100
	eq**	1	0	0	1
	-***	0	0	51	51
	Total	93	6	53	152

% Agreement positive = 92/94 = 97.9% — 95% Confidence interval = 94.9% - 100%
% Agreement negative = 51/51 = 100% — 95% Confidence interval = 94.2% - 100%
% Agreement = 143/145 = 98.6% — 95% Confidence interval = 96.7% - 100%

Equivocals were not included in the above calculations.
The 95% confidence intervals were calculated using the normal method.
The 95% confidence interval for % agreement positive was calculated assuming one false positive.

* Indicates positive on Clark HSV 1 and/or Clark HSV 2.
** Indicated equivocal on Clark HSV 1and/or Clark HSV 2.
*** Indicates negative on both Clark HSV 1 Clark HSV 2.

The third site was a clinical laboratory located in Pennsylvania. The sera were prospective samples sent in to the lab for Herpes antibody testing. The results of the studies are compiled and summarized in Table 3.

Table 3
Comparison of Herpes Group IgG ELISA and Clark HSV 1 and Clark HSV 2
Study 3

		Trinity Biotech Herpes Group IgG ELISA			
		+	eq	-	Total
Clark HSV 1 and HSV 2	+*	112	0	1	113
	eq**	1	0	1	2
	-***	3	4	54	61
	Total	116	4	56	176

% Agreement positive = 112/113 = 99.1% 95% Confidence interval = 97.4% - 100%
% Agreement negative = 54/57 = 94.7% 95% Confidence interval = 88.8% - 100%
% Agreement = 166/170 = 97.7% 95% Confidence interval = 95.3% - 100%

Equivocals were not included in the above calculations.
The 95% confidence intervals were calculated using the normal method.

* Indicates positive on Clark HSV 1 and/or Clark HSV 2.
** Indicated equivocal on Clark HSV 1and/or Clark HSV 2.
*** Indicates negative on both Clark HSV 1 Clark HSV 2.

The fourth site was a clinical laboratory located in Wisconsin. The frozen sera were random normal samples. The results of the studies are compiled and summarized in Table 4.

Table 4
Comparison of Herpes Group IgG ELISA and Clark HSV 1 and Clark HSV 2
Study 4

		Trinity Biotech Herpes Group IgG ELISA			
		+	**eq**	**-**	**Total**
Clark HSV 1 and HSV 2	**+***	**62**	**0**	**0**	**62**
	eq**	**0**	**0**	**0**	**0**
	-***	**1**	**0**	**25**	**26**
	Total	**63**	**0**	**25**	**88**

% Agreement positive = 62/62 = 100% 95% Confidence interval = 95.3% - 100%
% Agreement negative = 25/26 = 96.2% 95% Confidence interval = 96.2% - 100%
% Agreement = 87/88 = 98.9% 95% Confidence interval = 98.9% - 100%

Equivocals were not included in the above calculations.
The 95% confidence intervals were calculated using the normal method.
The 95% confidence interval for % agreement positive was calculated assuming on false positive.

* Indicates positive on Clark HSV 1 and/or Clark HSV 2.
** Indicated equivocal on Clark HSV 1and/or Clark HSV 2.
*** Indicates negative on both Clark HSV 1 Clark HSV 2.

The results of the four studies are compiled and summarized in Table 5.

Table 5
Comparison of Herpes Group IgG ELISA and Clark HSV 1 and Clark HSV 2

		Trinity Biotech Herpes Group IgG ELISA			
		+	eq	-	Total
Clark HSV 1 and HSV 2	+*	370	7	4	381
	eq**	5	0	1	6
	-***	7	6	203	216
	Total	382	13	208	603

% Agreement positive = 370/374 = 98.9% — 95% Confidence interval = 97.9% - 100%
% Agreement negative = 203/210 = 96.7% — 95% Confidence interval = 94.2% - 99.1%
% Agreement = 573/584 = 98.1% — 95% Confidence interval = 97.0% - 99.2%

Equivocals were not included in the above calculations.
The 95% confidence intervals were calculated using the normal method.

* Indicates positive on Clark HSV 1 and/or Clark HSV 2.
** Indicated equivocal on Clark HSV 1and/or Clark HSV 2.
*** Indicates negative on both Clark HSV 1 Clark HSV 2.

2. Precision. Seven sera were assayed ten times each on three different assays at three different sites. The intersite precision is shown in Table 6. With appropriate technique the user should obtain precision of <15% CV.

Table 6 Herpes Group IgG ELISA inter Site Precision Study

(n = 90)

Sera #	X	SD	CV
1.	3.81	0.351	9.21%
2.	2.03	0.255	12.6%
3.	3.16	0.287	9.08%
4.	2.01	0.272	13.5%
5.	1.31	0.198	15.1%
6.	0.09	0.109	121%
7.	0.03	0.045	150%

Paired Serum Study
Twenty serum pairs tested by CF from patients suspected of having acute *Herpes simplex* infection were assayed on the Trinity Biotech Herpes Group IgG ELISA assay. Each serum pair was evaluated to determine a seroconversion. Six serum pairs could not be evaluated due to the acute being positive. Three serum pairs could not be evaluated due to the convalescent being negative. The remaining eleven pairs all demonstrated a seroconversion thus giving a 100% agreement positive versus CF for showing a seroconversion in antibody for serum meeting the paired sera criteria.

Cross-Reactivity
Serum containing IgG antibody detectable by ELISA to Epstein Barr virus, Cytomegalovirus, and Varicella-zoster virus were assayed. The data summarized in Table 8 indicate that antibodies to these Herpes Viruses do not cross-react with the Trinity Biotech Herpes Group IgG ELISA kit.

Table 7

Cross-Reactivity

SERUM	Trinity Herpes Group IgG	EBV VCA	CMV	VZV
1	0.17	2.6	Negative	2.7
2	0.05	2.3	Negative	1.6
3	0.00	Negative	Negative	2.2
4	0.00	1.8	Negative	2.0
5	0.14	6.3	1.2	2.1
6	0.08	2.4	Negative	3.3
7	0.09	1.1	Negative	2.1
8	0.12	7.2	1.1	3.2
9	0.18	Negative	2.9	3.0

Sera $\geq$ 1.10 were considered positive.
Sera $\leq$ 0.90 were considered negative.

The following information is from a serum panel obtained from the Centers for Disease Control (CDC) and tested by the Trinity Biotech Herpes Group IgG ELISA. The results are presented as a means to convey further information on the performance of this assay with a masked, characterized serum panel. This does not imply an endorsement of the assay by the CDC.

The panel consists of 72% positive and 28% negative samples. Excluding two equivocals, the Trinity Biotech Herpes Group IgG ELISA demonstrated 96.9% total agreement with the CDC results. Of the results obtained by the Trinity Biotech Herpes Group IgG ELISA, there was 95.7% aggreement with the positive specimens, and 100% agreement with the negative specimens.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

NOV 26 2003

Ms. Bonnie B. DeJoy
Director, Quality Systems
Trinity Biotech USA
P.O. Box 1059
Jamestown, NY 14702-1059

Re: k033059
Trade/Device Name: Captia Herpes Group IgG ELISA
Regulation Number: 21 CFR 866.3305
Regulation Name: Herpes Simplex Virus Serological Reagents
Regulatory Class: Class III
Product Code: LGC
Dated: September 17, 2003
Received: September 29, 2003

Dear Ms. DeJoy:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and 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) that do not require approval of a premarket approval application (PMA). 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 (PMA), it may be subject to such additional controls. Existing major regulations affecting your device can be found in Title 21, Code of Federal Regulations (CFR), Parts 800 to 895. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); and good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820).

This letter will allow you to begin marketing your device as described in your Section 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 information about the application of labeling requirements to your device, or questions on the promotion and advertising of your device, please contact the Office of In Vitro Diagnostic Device Evaluation and Safety at (301) 594-3084. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers, International and Consumer 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 Gutman

Steven I. Gutman, M.D., M.B.A.
Director
Office of *In Vitro* Diagnostic Device
Evaluation and Safety
Center for Devices and
Radiological Health

Enclosure

510(k) Number: K033059

Device Name: Trinity Biotech Captia™ Herpes Group IgG ELISA

Indications For Use: The Trinity Biotech Captia™ Herpes Group IgG ELISA kit is an Enzyme-Linked Immunosorbent Assay (ELISA) for qualitative determination of IgG antibodies in human serum to *Herpes simplex* virus. The Herpes Group IgG ELISA kit may be used to determine serologic status in females of child bearing age, and to evaluate paired sera for the presence of a seroconversion of IgG as an aid in the diagnosis of *Herpes simplex* virus infection. It is not intended for determining the type of *Herpes simplex* virus.

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 XFR 801.109) (Optional Format 1-2-96)

Division Sign-Off

Office of In Vitro Diagnostic Device Evaluation and Safety

510(k) K033059