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Especialidades para Laboratorios Clínicos

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Section 6 – Summary

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

"The assigned 510(k) number is: K023889 **"**

Introduction	According to the requirements of 21 CFR 866.3870, the following information provides sufficient details to understand the basis of a determination of substantial equivalence.
6-1 Submitter Name, Address, Contact	Wiener Laboratorios S.A.I.C. Riobamba 2944 2000 – Rosario - Argentina Contact person: Viviana Cétola Date Prepared: November 5, 2002
6-2 Device Name	Proprietary name: Chagatest ELISA recombinante v.3.0 Common name: *Trypanosoma cruzi* serological reagent. Classification name: Enzyme linked Immunosorbent assay *Trypanosoma cruzi* Device Class I

6-3 Predicate Device

We claim substantial equivalence to the currently marketed MERIDIAN Chagas' IgG ELISA and ABBOTT Chagas Antibody EIA test systems.

6-4 Device Description

In this qualitative technique for the detection of antibodies anti-*T. cruzi*, the sample is diluted in the wells in which recombinant antigens are immobilized. These antigens are obtained by DNA recombinant techniques starting from specific proteins from the epimastigote and trypomastigote stages of the *T. cruzi* corresponding to highly conserved zones among different strains. They are proteins with aminoacid sequences repeated in tandem. SAPA (shed acute phase antigen) antigen reacts with 93% of the patients' sera during the acute phase of the infection. It comes from the trypomastigote stage of parasite; #1, #2 and #30 antigens specially detect antibodies in chronic patients; #13 and #36 antigens detect antibodies in sera both from acute and chronic patients.

If the sample contains Chagas' antibodies, they bind to the antigens and remain bound to the support. The unbound fraction is eliminated by washing, after which anti-human immunoglobulin antibodies conjugated to peroxidase are added. If a reaction was produced in the first step of the process, the conjugate is bound. After a new washing step and the addition of a chromogenic substrate and stopping reagent, specimens containing antibodies to *T. cruzi* produce a color endpoint reaction which can be read with a standard ELISA plate reader.

6-5 Intended Use

The Wiener lab. Chagatest ELISA recombinante v.3.0 test system is an in vitro diagnostic system intended to be used in the qualitative detection of antibodies to *Trypanosoma cruzi*, the causative agent of Chagas' disease in human serum and plasma. When using according to instructions, the kit is useful in establishing prior exposure to *T. Cruzi* and as an aid in the diagnosis of Chagas' disease.

Chagas' disease, an acute form of trypanosomiasis in children, most seriously affects the central nervous system and heart muscle.

6-6 Equivalencies and differences

The WIENER LAB. Chagatest ELISA recombinante v.3.0 test system is substantially equivalent to other products in commercial distribution intended for similar use. Most notably it is substantially equivalent to the currently marketed MERIDIAN Premier™ Chagas'IgG ELISA and ABBOTT Chagas Antibody EIA test systems.

The following table illustrates the similarities and differences between the WIENER LAB. Chagatest ELISA recombinante v.3.0 test system and the currently marketed MERIDIAN Chagas' IgG ELISA test system.

	MERIDIAN Test System	**WIENER LAB. Test System**
Intended use	Qualitative detection of antibody to Trypanosoma cruzi, the causative agent for Chagas' disease in human serum.	Qualitative detection of antibody to Trypanosoma cruzi, the causative agent for Chagas' disease in human serum or plasma.
Test principle	ELISA test employing purified *T. cruzi* antigens bound to ELISA plate wells, ALP-labeled conjugate, pNPP as substrate and NaOH as stopping solution.	ELISA test employing recombinant *T. cruzi* antigens bound to ELISA plate wells, POD-labeled conjugate, TMB as substrate and sulfuric acid as stopping solution.
Essential Components	Purified *T. cruzi* antigens	Recombinant *T. cruzi* antigens
Sample	Human serum.	Human serum and plasma (heparinized, EDTA, citrated)
Wavelength of reading.	405 nm	450 nm

The following table illustrates the similarities and differences between the WIENER LAB. Chagatest ELISA recombinante v.3.0 test system and the currently marketed ABBOTT Chagas Antibody EIA test system.

	ABBOTT Test System	**WIENER LAB. Test System**
Intended use	Qualitative detection of antibody to Trypanosoma cruzi, the causative agent for Chagas' disease in human serum or plasma.	Qualitative detection of antibody to Trypanosoma cruzi, the causative agent for Chagas' disease in human serum or plasma.
Test principle	ELISA test employing purified *T. cruzi* antigens bound to beads, POD-labeled conjugate, OPD as substrate and sulfuric acid as stopping solution.	ELISA test employing recombinant *T. cruzi* antigens bound to ELISA plate wells, POD-labeled conjugate, TMB as substrate and sulfuric acid as stopping solution.
Essential Components	Purified *T. cruzi* antigens	Recombinant *T. cruzi* antigens
Sample	Human serum and plasma (EDTA, potassium oxalate, heparin and citrate based anticoagulants).	Human serum and plasma (heparin, EDTA and citrate based anticoagulants)
Wavelength of reading.	492 nm	450 nm

Equivalence is demonstrated by the following comparative results:

PERFORMANCE CHARACTERISTICS

1. Studies and comparison

1.1 Comparison of WIENER LAB and MERIDIAN Chagas kits.
In a study, 300 serum and 200 plasma specimens from random U.S. low-risk individuals, from Iowa, were evaluated by Wiener lab Chagatest ELISA rec. v.3.0. and the Premier Chagas' IgG ELISA (Meridian Diag.). Any of these specimens (0%) was reactive for antibodies to *T. cruzi*.

Wiener lab Chagatest ELISA rec v.3.0	Premier Chagas' IgG ELISA (Meridian Diag.)		
	Reactive	Non-reactive	Discordant results
	0	500	0

1.2 Comparison of WIENER LAB and MERIDIAN Chagas kits.
A population of 83 specimens was tested from a Mexican Blood Bank (Guadalajara and Tepic, Mexico cities) by Wiener lab Chagatest ELISA rec. v.3.0 and Premier Chagas' IgG ELISA (Meridian Diag.).
Certain specimens were also tested by RIPA (Radio Immuno Precipitation Assay). The following results were obtained:

Wiener lab Chagatest ELISA rec v.3.0	Premier Chagas' IgG ELISA (Meridian Diag.)		
	Reactive	Non-reactive	Discordant results
	9	69	5 [a]

[a] Out of 5 specimens with discordant results, all 5 were reactive by Wiener lab ELISA and RIPA, but non-reactive by Meridian.

1.3 Comparison of WIENER LAB and ABBOTT Chagas kits.
A population of 790 specimens from Argentina (Rosario, SF, Argentina) was tested in parallel between Wiener lab Chagatest ELISA rec. v.3.0 and Abbott Chagas Antibody EIA. Some specimens were also tested by Wiener lab Indirect Hemagglutination Assay (IHA) and an in-house Immunofluorescence assay (IFA).

The following results were obtained:

Wiener lab Chagatest ELISA rec v.3.0	Abbott Chagas Antibody EIA		
	Reactive	Non-reactive	Discordant results
	226	552	12 [a]

[a] Of the 12 specimens with discordant results:
- 6 specimens were reactive by Wiener lab Chagatest ELISA rec.v.3.0 and non-reactive by Abbott Chagas Antibody EIA. Out of those 6 specimens, 3 were reactive by IFA.
- 6 specimens were non reactive by Wiener lab Chagatest ELISA rec.v.3.0 and reactive by Abbott Chagas Antibody EIA. Out of those 6 specimens, 1 was reactive by IFA and IHA.

1.4 Comparison of WIENER LAB and ABBOTT Chagas kits.
A population of 286 specimens was tested in Buenos Aires (Hospital de Clínicas, Buenos Aires, Argentina) by Wiener lab Chagatest ELISA rec. v.3.0, Polychaco Indirect Hemagglutination Assay(IHA) and Abbott Chagas Antibody EIA. The following results were obtained:

	Abbott Chagas Antibody EIA		
Wiener lab Chagatest ELISA rec v.3.0	Reactive	Non-reactive	Discordant results
	0	285	1[a]

[a] Reactive by Wiener lab Chagatest ELISA rec. v.3.0 and non-reactive by Abbott Chagas Antibody EIA and IHA.

1.5 Comparison of WIENER LAB, with ABBOTT and MERIDIAN Chagas kits.
A panel of 90 sera typified as reactive and non-reactive for the presence of Anti- *T.cruzi* antibodies by Wiener lab Indirect Hemagglutination Assay (IHA), an in-house Immunofluorescence assay (IFA) and/or RIPA, it was also tested by the following 3 ELISA methods: Wiener lab Chagatest ELISA rec. v.3.0, Premier Chagas' IgG ELISA (Meridian Diag.) and Abbott Chagas Antibody EIA.

The following results were obtained:
1.5a. Comparison Wiener lab vs Abbott ELISA kits

	Abbott Chagas Antibody EIA		
	Reactive	Non-reactive	Discordant results
Wiener lab Chagatest ELISA rec v.3.0	47	33	10[a]

[a] Out of 10 specimens with discordant results:
- 7 specimens were reactive by Wiener lab ELISA, reactive by IHA / IFA / RIPA and/or Meridian ELISA and non-reactive by Abbott ELISA
- 2 specimens were non-reactive by Wiener lab ELISA and Meridian ELISA, but reactive by IHA / IFA and/or RIPA and Abbott ELISA. These two specimens are equivocals for Wiener lab's ELISA kit.
- 1 specimen was non-reactive by Wiener lab ELISA, non-reactive by all other methods but reactive by Abbott ELISA.

1.5b. Comparison Wiener lab vs Meridian ELISA kits

	Premier Chagas' IgG ELISA (Meridian Diag.)		
	Reactive	Non-reactive	Discordant results
Wiener lab Chagatest ELISA rec v.3.0	41	36	13[b]

[b] Of the 13 specimens with discordant results, all were reactive by Wiener lab. ELISA, reactive by IHA / IFA / RIPA and/or Abbott ELISA, but non-reactive by Meridian ELISA.

Data summary
Relative sensitivity
Using the alternative methods, 330 specimens tested reactive for anti-*T. cruzi* antibodies. Of these specimens, 323 were reactive, 2 were equivocal and 7 were non-reactive using the Wiener lab Chagatest ELISA rec. v.3.0. The relative sensitivity was 97.9%.

Relative Specificity
Using the alternative methods, 1507 specimens tested non-reactive for anti-*T. cruzi* antibodies. Of these specimens, 32 were reactive, and 1475 were non-reactive using the Wiener lab Chagatest ELISA rec. v. 3.0. The relative specificity was 97.8%.

Relative agreement
Using the above results, the relative agreement was 97.9%

Note: samples giving equivocal results were not included in the calculation of relative sensitivity, relative specificity and relative agreement.

Relative Sensitivity, Specificity and Agreement before resolution of discordant samples.

Site	N	Relative Sensitivity (%)	Relative Specificity (%)	Relative Agreement (%)
1	500	N/A	100.0 (500/500)	100.0 (500/500)
2	83	100.0 (9/9)	93.2 (69/74)	94.9 (78/83)
3	790	97.4 (226/232)	98.9 (552/558)	98.5 (778/790)
4	286	N/A	99.7 (285/286)	99.7 (285/286)
5[a]	90	97.5 (47/48)	82.5 (33/40)	90.9 (80/88)
5b	90	100.0 (41/41)	73.5 (36/49)	85.5 (77/90)
Total	**1839**	**97.9 (323/330)**	**97.8 (1475/1707)**	**97.9 (1798/1837)**

Relative refers to a direct comparison of Wiener lab Chagatest ELISA rec. v. 3.0 results to that of a similar test. No attempt has been made to correlate with disease presence or absence, and no judgement can be made regarding the predicate assay's accuracy to predict Chagas' disease.

		Predicate Chagas' EIA kits			
		Reactive	Equivocal	Non-Reactive	Total
Wiener lab Chagatest ELISA rec. v. 3.0	Reactive	323	-	32	355
	Equivocal	2	-	-	2
	Non-Reactive	7	-	1475	1482
	Total	332 (330)	-	1507	1839 (1837)

Relative Sensitivity = 97.9% (323/330), 95% CI*(Confidence Interval)= 95.6 – 99.1%
Relative Specificity = 97.8% (1475/1507), 95% CI = 97.0 – 98.5%
Relative Agreement = 97.9% (1798/1837), 95% CI = 97.1 – 98.5%

*95% Confidence Intervals (CI) calculated by the Exact Method.

2. Specificity and Sensitivity

At present, there is no recognized standard method for establishing the presence of antibodies to *T. cruzi* in human blood. Relative specificity is based on testing serum and plasma specimens from low-risk populations of different geographical regions of the American continent.
Sensitivity for *T. cruzi* antibodies was calculated based on testing of xenodiagnosed Chagas positive specimens, Indirect Hemagglutination Assay (IHA), Indirect

Immunofluorescence Assay (IFA) and/or Enzyme-linked Immunosorbent Assay (ELISA) reactive specimens.

The performed studies show that:

2.1 Relative specificity based on an assumed zero prevalence of antibody to *T. cruzi* in random US low-risk specimens (Clinical Laboratories of the University of Iowa Hospitals, Iowa City, USA) is estimated to be 100% (500/500) with a 95.0% Confidence Interval (CI) of 99.2 – 100.0%.

2.2 Relative sensitivity of the Wiener lab. Chagatest ELISA rec.v.3.0 in a selected population of 118 Chagas reactive specimens (previously selected as reactive by IHA, IFA and/or ELISA and ranging in age from 1 month to 84 years old) from an endemic area (Centro de Enfermedad de Chagas y Patología Regional, Santiago del Estero, Argentina) is estimated to be 99.15% (117/118) with a 95.0% Confidence Interval of 95.3 – 99.98%.

Wiener lab Chagatest ELISA rec. v.3.0	**IHA / IFA / ELISA**		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	117	0	117
Non-Reactive	1	0	1
TOTAL	118	0	118

2.3 Relative sensitivity of the Wiener lab. Chagatest ELISA rec.v.3.0 in 2 selected populations of 51 Chagas reactive specimens from Chile (Instituto de Ciencias Biomédicas, Facultad de Medicina, Universidad de Chile, Santiago de Chile, Chile) is estimated to be 100% (51/51) with a 95.0% Confidence Interval of 93.0 – 100.0 %.

	Wiener lab Chagatest ELISA rec. v.3.0	
Group1: 25 sera from patients with confirmed Chagas' disease by xenodiagnosis, IHA and IFA.	Reactive Results 25	Sensitivity: 100%
Group 2: 26 sera from blood donors, with at least 2 reactive results of serological tests for Chagas' disease	Reactive Results 26	

2.4 In an evaluation performed by the ISP (Instituto de Salud Pública, Santiago de Chile, Chile), 150 specimens previously tested by IFA and ELISA, were assayed by Wiener lab Chagatest ELISA rec.v.3.0 obtaining a sensitivity of 100% (65/65) with a 95.0% Confidence Interval of 94.5 – 100.0% and a specificity of 98.8% (84/85) with a 95.0% Confidence Interval of 93.62 – 99.97%.

Wiener lab Chagatest ELISA rec. v.3.0	**IFA /ELISA**		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	65	1[a]	66
Non-Reactive	0	84	84
TOTAL	65	85	150

[a] Patient with an autoimmune disease.

2.5 In a population of high prevalence of Chagas' disease (San Carlos, Provincia de Salta, Argentina), 58 blood bank specimens were studied, analyzed in parallel between Wiener lab Chagatest ELISA rec. v.3.0 and an in-house Indirect Hemagglutination Assay(IHA). It is obtained a sensitivity of 100% (8/8) and a specificity of 98% (49/50) with a 95.0% Confidence Interval of 89.35 – 99.95%. The individual -reactive with Wiener lab Chagatest ELISA rec.v.3.0 and non-reactive for IHA - presented an inoculation's bite (Chagoma in spanish), characteristic sign of acute phase from Chagas' disease. Three weeks later, when a new specimen was drawn, the sample showed reactivity for IgM -IFA and for IHA tests. When this individual is removed from the calculation, relative specificity is 100% (49/49) with a 95.0% Confidence Interval of 92.75 – 100.0%. (Prevalence (9/58): 15.5%).

		IHA		
		REACTIVE	Non-Reactive	TOTAL
Wiener lab Chagatest ELISA rec. v.3.0	REACTIVE	8	1[a]	9
	Non-Reactive	0	49	49
	TOTAL	8	50	58

[a] Acute case

From the same geographic region (Salta, Argentina) 52 specimens previously reactive by an in-house Indirect Hemagglutination Assay (IHA) were studied, obtaining a relative sensitivity of 100% (52/52) with a 95.0% Confidence Interval of 93.15 – 100.0%.

		IHA		
		REACTIVE	Non-Reactive	TOTAL
Wiener lab Chagatest ELISA rec. v.3.0	REACTIVE	52	0	52
	Non-Reactive	0	0	0
	TOTAL	52	0	52

2.6 The relative specificity was studied in a panel of 286 specimens from a population of moderate risk (Hospital de Clínicas, Buenos Aires, Argentina). These specimens were non-reactive by Polychaco Indirect Hemagglutination Assay(IHA) and Abbott Chagas Antibody EIA. A relative specificity of 99.65% is obtained. (285/286) with a 95.0% Confidence Interval of 98.1 – 99.99%.

		IHA / ELISA		
		REACTIVE	Non-Reactive	TOTAL
Wiener lab Chagatest ELISA rec. v.3.0	REACTIVE	0	1	1
	Non-Reactive	0	285	285
	TOTAL	0	286	286

2.7 In a population of moderate risk (Hemocentro de Sao Paulo, Sao Paulo, Brasil), 1236 specimens of blood donors from the city were tested, together with the IHA, IFA and ELISA. A sensitivity of 100% (4/4) is obtained with a prevalence of 0.32% and a relative specificity of 99.92% (1231/1232) with a 95.0% Confidence Interval of 99.55 – 100.0%.

Wiener lab Chagatest ELISA rec. v.3.0	IHA / IFA / ELISA		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	4	1	5
Non-Reactive	0	1231	1231
TOTAL	4	1232	1236

The relative specificity and sensitivity were also studied in the same site, using sera panels selected by their reactivity with IHA, IFA and ELISA tests. For the panel of reactive specimens a sensitivity of 100% (100/100) is obtained, with a 95.0% Confidence Interval of 96.38 - 100%. For the panel of non-reactive specimens a specificity of 99.5% (199/200) is obtained, with a 95.0% Confidence Interval of 97.25 – 99.99%.

Wiener lab Chagatest ELISA rec. v.3.0	Sera panel		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	100	1	101
Non-Reactive	0	199	199
TOTAL	100	200	300

2.8 A sensitivity panel from a Brazilian population was studied (Centro de Imunologia e Imunogenetica, Sao Paulo, Brasil), obtaining a relative sensitivity of 100% (188/188) with a 95.0% Confidence Interval of 98.1 – 100.0%, when 188 reactive specimens for anti-*T.cruzi* antibodies previously tested by IHA, IFA, ELISA and an in-house RIPA were assayed.

Wiener lab Chagatest ELISA rec. v.3.0	IHA / IFA / ELISA / RIPA		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	188	0	188
Non-Reactive	0	0	0
TOTAL	188	0	188

2.9 In a population of 400 specimens from blood donors of Brazil (Centro de Imunologia e Imunogenetica, Sao Paulo, Brasil) simultaneously tested with IHA, IFA and ELISA, a sensitivity of 100% (2/2) is obtained with a prevalence of 0.5% and a relative specificity of 98.74% (393/398) with a 95.0% Confidence Interval of 97.1 – 99.6%.

Wiener lab Chagatest ELISA rec. v.3.0	IHA / IFA / ELISA		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	2	5	7
Non-Reactive	0	393	393
TOTAL	2	398	400

2.10 In a study carried out in Brazil (Fundação Oswaldo Cruz, Rio de Janeiro, Brasil), reactive and non-reactive specimens for Chagas' disease were tested with Wiener lab Chagatest ELISA rec. v.3.0. The following results were obtained: from 118 reactive specimens by IHA, IFA, ELISA and RIPA, the relative sensitivity is estimated to be 100% (118/118) with a 95.0% Confidence Interval of 96.92 – 100.0%, while from 796 non-reactive specimens tested by the same systems, the relative specificity is estimated to be 99.6% (793/796) with a 95.0% Confidence Interval of 98.9 – 99.92%.

Wiener lab Chagatest ELISA rec. v.3.0	IHA / IFA / ELISA / RIPA			
		REACTIVE	Non-Reactive	TOTAL
	REACTIVE	118	3	121
	Non-Reactive	0	793	793
	TOTAL	118	796	914

2.11 In a selected population of 70 xenodiagnosed Chagas positive specimens, all 70 (100%) specimens were repeatedly reactive for antibodies to *T. cruzi* by Wiener lab Chagatest ELISA rec. v.3.0.

Note: *Relative* refers to a direct comparison of Chagatest ELISA rec. v.3.0 to that similar assays. No attemp has been made to correlate with disease presence or absence, and no judgment can be made regarding the predicates assay's accuracy to predict Chagas' disease.

3 Analytical Reactivity

Two reactive specimens were serially diluted in *T. cruzi* antibody non-reactive serum and tested by three methods (Wiener lab Chagatest ELISA rec. v. 3.0, Premier Chagas'IgG ELISA (Meridian Diag.) and Wiener lab IHA (commercial South American Indirect Hemagglutination Assay kit). One specimen exhibited detectable reactivity in the Wiener lab Chagatest ELISA rec v.3.0 at the sixth dilution; the other one exhibited detectable reactivity at the fourth dilution. The results are shown in the following table:

Wiener lab Chagatest ELISA rec.v.3.0: PERFORMANCE ON SERIAL DILUTIONS OF REACTIVE SPECIMENS. COMPARISON WITH Premier Chagas' IgG ELISA (MERIDIAN DIAGNOSTICS) AND WIENER LAB INDIRECT HEMAGGLUTINATION (IHA).

Specimen Nr.1 (706007)

DILUTION	Wiener lab Chagatest ELISA rec v.3.0		Premier Chagas'IgG ELISA (Meridian Diag.)		Wiener lab IHA
	Absorbance 450/650 nm	s/c ratio	Absorbance 405 nm	s/c ratio	Result
Neat[a]	>3.000	>9.87	1.414	2.45	+
1:2	>3.000	>9.87	1.283	2.22	+
1:4	>3.000	>9.87	1.133	1.96	+
1:8	>3.000	>9.87	0.974	1.69	+
1:16	2.341	7.70	0.735	1.27	+
1:32	1.278	4.20	**0.593**[b]	**1.03**	+
1:64	**0.469**[b]	**1.54**	0.313	0.54	+
1:128	0.089	0.29	0.214	0.37	+
1:256	0.005	0.02	0.121	0.21	±[b]
1:512	0.004	0.01	0.088	0.15	-
cutoff	0.304		0.577		

[a] Serial dilutions in normal human serum, seronegative for *T. cruzi*

[b] Highest dilution considered reactive.

s/c ratio, signal/cut-off ratio

Specimen Nr. 2 (907012)

DILUTION	Wiener lab Chagatest ELISA rec v.3.0		Premier Chagas'IgG ELISA (Meridian Diag.)		Wiener lab IHA
	Absorbance 450/650 nm	s/c ratio	Absorbance 405 nm	s/c ratio	Result
Neat[a]	>3.000	>9.87	1.090	1.89	+
1:2	>3.000	>9.87	0.834	1.44	+
1:4	2.964	9.75	**0.704**[b]	**1.22**	+
1:8	1.751	5.76	0.530[c]	0.92	+[b]
1:16	**0.777**[b]	**2.55**	0.381	0.66	-
1:32	0.308[c]	1.01	0.287	0.50	-
1:64	0.006	0.02	0.215	0.37	-
1:128	0.004	0.01	0.109	0.19	-
1:256	0.004	0.01	0.081	0.14	-
1:512	0.004	0.01	0.039	0.07	-
cutoff	0.304		0.577		

[a] Serial dilutions in normal human serum, seronegative for *T. cruzi*

[b] Highest dilution considered reactive.

[c] Equivocal

s/c ratio, signal/cut-off ratio

4 Precision study

4.1 Intra-assay precision study was determined by assaying three specimens 20 times in one run. Reproducibility was determined using both manual (microplate reader from Molecular Devices*) and automated (Labotech**) assay methods. The intra-assay Standard Deviation (SD) and Percent coefficient of Variation (%CV) were calculated.

Manual Intra-assay Precision study

Sample Nr.	n	Mean	SD (O.D.)	%CV
1	20	2.118	± 0.1760	± 8.3%
2	20	2.775	± 0.1330	± 4.8%
3	20	0.004	± 0.0008	± 19.7%

Automated Intra-assay Precision study

Sample Nr.	n	Mean	SD (O.D.)	%CV
1	20	1.798	± 0.2380	± 13.2%
2	20	2.220	± 0.1710	± 7.7%
3	20	0.005	± 0.0007	± 14.0%

4.2 Inter-assay precision study was determined by assaying three specimens 20 times in three consecutive runs. Reproducibility was determined using both manual (microplate reader from Molecular Devices*) and automated (Labotech**) assay methods. The inter-assay Standard Deviation (SD) and Percent Coefficient of Variation (%CV) were calculated.

Manual Inter-assay Precision study

Sample Nr.	n	Mean	SD (O.D.)	%CV
1	60	2.178	± 0.3439	± 15.7%
2	60	2.785	± 0.2060	± 7.4%
3	60	0.0034	± 0.0009	± 26.4%

Automated Inter-assay Precision study

Sample Nr.	n	Mean	SD (O.D.)	%CV
1	60	1.893	± 0.3021	± 15.9%
2	60	2.375	± 0.3730	± 15.7%
3	60	0.0048	± 0.0014	± 29.2%

* ™ Molecular Devices Corp.
** ™ Biochem Immunosystems, Inc

5 Reactivity in patient populations

The reactivity of the Wiener lab Chagatest ELISA rec v.3.0 was determined by testing specimens from patients in two groups of patients initially determined to be positive by different techniques, in a group of xenodiagnosed positive specimens and in a group of pregnant women from an endemic area of Argentina.

A population of 52 specimens (from Salta, Argentina) from patients with Chagas' disease previously reactive by an in-house Indirect Hemagglutination Assay (IHA) was studied. When using Wiener lab Chagatest ELISA rec v.3.0 a relative sensitivity of 100% (52/52) with a 95.0% Confidence Interval of 93.15 – 100.0% was obtained.

Wiener lab Chagatest ELISA rec. v.3.0	IHA			
		REACTIVE	Non-Reactive	TOTAL
	REACTIVE	52	0	52
	Non-Reactive	0	0	0
	TOTAL	52	0	52

Relative sensitivity of the Wiener lab Chagatest ELISA rec v.3.0 in a selected patient population of 118 specimens (previously selected as reactive by IHA, IFA and/or ELISA and ranging in age from 1 month to 84 years old) from an endemic area (Centro de Enfermedad de Chagas y Patología Regional, Santiago del Estero, Argentina) was estimated to be 99.15% (117/118) with a 95.0% Confidence Interval of 95.3 – 99.98%.

Wiener lab Chagatest ELISA rec. v.3.0	IHA / IFA / ELISA			
		REACTIVE	Non-Reactive	TOTAL
	REACTIVE	117	0	117
	Non-Reactive	1	0	1
	TOTAL	118	0	118

Specimens from 70 xenodiagnosed positive individuals, all 70 (100%) specimens were repeatedly reactive for antibodies to *T. cruzi* by Wiener lab Chagatest ELISA rec. v.3.0. A sensitivity of 100% with a 95.0% Confidence Interval of 94.87 – 100.0% was obtained.

Wiener lab Chagatest ELISA rec. v.3.0	Xenodiagnosis		
	REACTIVE	Non-Reactive	TOTAL
REACTIVE	70	0	70
Non-Reactive	0	0	0
TOTAL	70	0	70

Specimens from 368 pregnant women from an endemic area (Santiago del Estero, Argentina), were assayed by Wiener lab Chagatest ELISA rec v.3.0 and Premier Chagas' IgG ELISA and the results were confirmed by RIPA. The following results were obtained:

Wiener lab Chagatest ELISA rec v.3.0	Premier Chagas' IgG ELISA (Meridian Diag.)		
	Reactive	Non-reactive	Discordant results
	20[a]	334	14[b]

[a] All 20 specimens were reactive by Wiener lab ELISA, Meridian ELISA and RIPA.

[b] These 14 specimens with discordant results were reactive by RIPA, however:

- 4 specimens were reactive by Wiener lab Chagatest ELISA rec.v.3.0 and equivocal by Meridian ELISA.
- 8 specimens were reactive by Wiener lab Chagatest ELISA rec.v.3.0 and non-reactive by Meridian ELISA.
- 1 specimen was equivocal by Wiener lab Chagatest ELISA rec.v.3.0 and reactive by Meridian ELISA.
- 1 specimen was non-reactive by Wiener lab Chagatest ELISA rec.v.3.0 and equivocal by Meridian ELISA.

6-7 Conclusion Based on the data above mentioned, we believe that the extended claims continue to support substantial equivalence to other products in commercial distribution intended for similar use

DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

Dr. Viviana Cetola
QC/QA Manager
Wiener Laboratorios S.A.I.C
2944 Riobamba
2000 Rosario (Santa Fe)
Argentina

FEB 1 1 2004

Re: k023889
Trade/Device Name: Chagatest ELISA rec. v.3.0
Regulation Number: 21 CFR § 866.3870
Regulation Name: Trypanosoma spp. Serological reagents
Regulatory Class: I
Product Code: MIU
Dated: November 11, 2003
Received: November 13, 2003

Dear Dr. Cetola:

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.

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). You may obtain other general information on your responsibilities under the Act 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,

Sally A. Hojvat, M.Sc., Ph.D.
Director
Division of Microbiology Devices
Office of In Vitro Diagnostic Device
Evaluation and Safety
Center for Devices and
Radiological Health

Enclosure

Indications for Use

510(k) Number (if known):K023889

Device Name:_Chagatest ELISA rec. v.3.0

Indications For Use:

The Wiener Laboratory enzyme-linked Immunosorbent assay (ELISA) recombinante V. 3.0 test system is a manual and automated (using the Biochem Immunosystems, Inc Labotech™ instrument) assay for the qualitative detection of total antibodies (IgG and IgM) to *Trypanosoma cruzi* in human serum and plasma (EDTA, heparin, or Citrate) using recombinant antigens of *T. cruzi.* Reactive assay results are presumptive evidence of present or past infection with *Trypanosoma cruzi.*

Prescription Use ✓ AND/OR Over-The-Counter Use _____
(Part 21 CFR 801 Subpart D) (21 CFR 807 Subpart C)

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

Concurrence of ~~CDRH~~, Office of In Vitro Diagnostic Devices (OIVD)
Division Sign-Off

Office of In Vitro Diagnostic
Device Evaluation and Safety

510(k) K023889