

**510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
DECISION SUMMARY
DEVICE ONLY TEMPLATE**

A. 510(k) Number:

k032850

B. Analyte:

Anti-*Saccharomyces cerevisiae* antibody (ASCA) IgG

C. Type of Test:

Qualitative or semi-quantitative ELISA

D. Applicant:

IMMCO Diagnostics

E. Proprietary and Established Names:

ImmuLisa Anti-*Saccharomyces cerevisiae* Antibody (ASCA) IgG

F. Regulatory Information:

1. Regulation section:
21 CFR §866.5785 Anti-*Saccharomyces cerevisiae* Antibody (ASCA) Test System
2. Classification:
Class II
3. Product Code:
NBT Antibodies, *Saccharomyces cerevisiae* (*S. cerevisiae*)
4. Panel:
Immunology 82

G. Intended Use:

1. Intended use(s):
An enzyme linked immunoassay (ELISA) for the detection and semi-quantitation of anti-*Saccharomyces cerevisiae* antibodies (IgG) in human serum of patients with inflammatory bowel disorder (IBD) as an aid in the diagnosis of Crohn's disease (CD).
2. Indication(s) for use:
An enzyme linked immunoassay (ELISA) for the detection and semi-quantitation of anti-*Saccharomyces cerevisiae* IgG antibodies in human serum of patients with inflammatory bowel disorder (IBD) as an aid in the diagnosis of Crohn's disease (CD).
3. Special condition for use statement(s):
The device is for prescription use only.
4. Special instrument Requirements:
None given

H. Device Description:

The ImmuLISA IgG ASCA ELISA consists of a microplate coated with *S. cerevisiae* phosphopeptidomannan antigen, positive and negative control materials, 4 calibrators, goat anti-human IgG conjugate, serum diluent, enzyme substrate (pNPP), stop solution, wash buffer, a frame holder and protocol sheets.

I. Substantial Equivalence Information:

1. Predicate device name(s):
INOVA Diagnostics QUANTA Lite™ ASCA (*S. cerevisiae*) IgG ELISA
2. Predicate K number(s):
K000732
3. Comparison with predicate:

Similarities		
Item	Device	Predicate
Format	ELISA	ELISA
Intended Use	Aid in the diagnosis of Crohn's disease	Aid in the diagnosis of Crohn's disease
Quantitation	Semi-quantitative	Semi-quantitative
Positive control	One level	One level
Negative control	Included	Included
Interpretation	<20 EU/mL = negative 20-25 EU/mL = borderline > 25 EU/mL = positive	Same
Differences		
Item	Device	Predicate
Conjugate	Alkaline phosphatase	Horseradish peroxidase
Substrate	p-NPP	TMB
Calibrators	4 levels	One level
Wash buffer	Powder for reconstitution	Liquid concentrate

J. Standard/Guidance Document Referenced (if applicable):

Class II Special Control Guidance Document for Anti-*Saccharomyces cerevisiae* (*S. cerevisiae*) Antibody (ASCA) Premarket Notifications

K. Test Principle:

The ASCA test is a solid phase immunoassay (ELISA). Microwells are coated with *Saccharomyces cerevisiae* phosphopeptidomannan antigen followed by blocking the unreacted sites to reduce nonspecific binding. Controls, calibrators and patient serum samples are incubated in the antigen coated wells which allows ASCA present in the serum to bind. Unbound antibody and other serum proteins are removed by washing the microwells. Antibodies bound to the microwells are detected by adding enzyme labeled anti-human IgG conjugate to the wells. These enzyme conjugated antibodies bind specifically to the human immunoglobulin. Unbound enzyme conjugate is removed by washing. Specific enzyme substrate (pNPP) is then added to the wells and the presence of antibodies to *Saccharomyces cerevisiae* is detected by a color

change produced by the conversion of the pNPP substrate. The reaction is stopped and the intensity of color change, which is proportional to the concentration of antibody, is read by a spectrophotometer at 405 nm. Results are expressed in enzyme units per milliliter (EU/mL). Enzyme-linked immunosorbent assay (ELISA) technology is a well-established methodology.

L. Performance Characteristics (if/when applicable):

1. Analytical performance:

a. Precision/Reproducibility:

Seven samples with known concentrations of ASCA IgG were assayed in 10 replicates over a two week period. The sample values ranged from 12.8 to 160.3 EU/mL. Intra-assay %CVs ranged from 3.5 to 10.7% and inter-assay %CVs ranged from 4.6 to 11.5%.

b. Linearity/assay reportable range:

Samples with known ASCA IgG concentrations were mixed with appropriate dilutions of other positive samples with known amounts of ASCA. Levels of the mixed samples were determined and from the values obtained, the percent recovery was calculated. Results ranged from 98 to 107%.

c. Traceability (controls, calibrators, or method):

An international reference material for ASCA is not available. Results are reported in arbitrary ELISA units per milliliter (EU/mL)

d. Detection limit:

The limit of detection was established in a study of 2 normal sera run in 20 duplicates. The limit of detection is 3.8 EU/mL, well below the assay cut-off.

e. Analytical specificity:

Testing was performed on 8 hemolyzed, 1 icteric and 7 lipemic samples. All samples showed depressed recovery values for ASCA ranging from 71% to 90%. Samples containing anti-DNA antibodies, smooth muscle antibodies, immune complexes and RF were also tested. The percent negative results in these samples ranged from 88% to 98%.

f. Assay cut-off:

The normal range was established by testing 64 serum samples from apparently healthy donors. The mean plus 3 standard deviations of the mean of the normal value was used to determine the cut-off for normal versus abnormal. The value of the mean plus 3 standard deviations was assigned an arbitrary unit value of 20 EU/mL. At this cut-off 98.4% of the normal sera were negative. The assay includes an indeterminate range of 20-25 EU/mL with results of >25 EU/mL being interpreted as positive.

2. Comparison studies:

a. Method comparison with predicate device:

Comparison was shown with two different studies. In the first, a total of 66 samples were tested. The samples included 50 serum

samples from patients with a clinical diagnosis of Crohn's disease (CD) and ulcerative colitis (UC) and 16 samples from patients with inflammatory bowel syndrome, celiac disease, primary biliary cirrhosis, rheumatoid arthritis, patients with a positive ANA or normal specimens. The overall agreement between the assays was 92% with 3 borderline samples omitted from the calculation. The second study involved 66 samples (30 CD patients, 30 UC patients and 6 normal sera). The sensitivity of the new and the predicate device was 60% and 62% respectively. The specificity for the new device was 86% compared to 82% for the predicate device.

b. Matrix comparison:

Both assays use serum as the matrix.

3. Clinical studies:

a. Clinical sensitivity:

The study involved 66 samples, 30 CD, 30 UC and 6 normal human sera. The sensitivity of the new device was 60% (18/30 positive) in the target population.

b. Clinical specificity:

In the study referenced above, the specificity of the device was 86% (31/36 negative) in the non-target populations.

c. Other clinical supportive data (when a and b are not applicable):

4. Clinical cut-off:

See assay cut-off.

5. Expected values/Reference range:

The expected value in the normal population is negative. However, the sponsor cited literature where 0.6 to 10% of the normal population tested was positive for ASCA.

M. Conclusion:

The IMMCO Diagnostics ImmuLisa Anti-*Saccharomyces cerevisiae* Antibody (ASCA) IgG is substantially equivalent to other devices regulated under 21 CFR §866.5785, product code NBT, class II.