

**510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION  
DECISION SUMMARY**

**A. 510(k) Number:**

k051455

**B. Purpose for Submission:**

New Device

**C. Measurand:**

Anti- MPO antibodies

**D. Type of Test:**

Qualitative and Semi-quantitative ELISA

**E. Applicant:**

Eurodiagnostica

**F. Proprietary and Established Names:**

Wieslab™ Cap MPO ANCA

**G. Regulatory Information:**

1. Regulation section:  
21 CFR 866.5660, Multiple autoantibodies immunological test system
2. Classification:  
II
3. Product codes:  
MOB, Test system, antineutrophil cytoplasmic antibodies (ANCA)
4. Panel:  
Immunology 82

**H. Intended Use:**

1. Intended use(s):  
The Wieslab™ Cap MPO ANCA test kit is an enzyme-linked immunosorbent assay (ELISA) for detection and semi-quantitation of IgG antibodies to myeloperoxidase (MPO) in human serum. The assay is used to detect antibodies in a single serum specimen. The results of the assay are to be used as an aid to the diagnosis of Microscopic polyangiitis. The analysis should be performed by trained laboratory professionals.  
For In Vitro Diagnostic Use.
2. Indication(s) for use:  
The Wieslab™ Cap MPO ANCA test kit is an enzyme-linked immunosorbent assay (ELISA) for detection and semi-quantitation of IgG antibodies to myeloperoxidase (MPO) in human serum. The assay is used to detect antibodies in a single serum specimen. The results of the assay are to be used as an aid to the diagnosis of Microscopic polyangiitis. The assay is intended for use in patients with signs and symptoms consistent with MP. It is not intended for screening a healthy population. The analysis should be performed by trained laboratory professionals.
3. Special conditions for use statement(s):  
The device is for prescription use only.
4. Special instrument requirements:  
Microplate reader capable of measuring OD at 405 nm.

Microplate washer (300µL volume).

**I. Device Description:**

Each device contains the following: microplate strips (green colored) coated with monoclonal anti-myeloperoxidase/myeloperoxidase antigen; five levels calibrators (10, 40, 80, 160, 320 U/mL); positive and negative controls (human serum in diluent); wash solution concentrate; sample diluent; goat anti-human IgG alkaline phosphatase conjugate; *p*-Nitro phenyl Phosphate (*p*NPP) substrate.

**J. Substantial Equivalence Information:**

1. Predicate device name(s):  
Wieslisa® MPO ANCA Kit
2. Predicate 510(k) number(s):  
k974166
3. Comparison with predicate:

Similarities		
Item	New Device	Predicate Device
Intended use	To aid in the diagnosis of Microscopic polyangiitis (MP)	Same
Assay Format	Qualitative and semi-quantitative	Same
Enzyme-Conjugate	Alkaline Phosphatase	Same
Positive and Negative controls	Ready to use	Same
Calibrators: Five Levels	Ready to use	Same
Sample volume required	5 µL	Same
Sample type and dilution	Serum at 1:80	Same
Sample diluent	PBS	Same
Wash solution	30x Concentrate	Same
Substrate	<i>p</i> NPP	Same
Incubation times	30-30-60 minutes	Same
OD reading	405 nm	Same
Platform	96 well microtiter plates	Same

Differences		
Item	Device	Predicate
Technology	Capture ELISA	Direct ELISA
Antigen	Purified anti-MPO monoclonal antibody and MPO capture complex	Purified MPO
OD measurement	Within ± 5 minutes	None specified
Anti-MPO Antibody Results Interpretation	Negative: < 16 U/mL Equivocal: 16-20 U/mL Positive: > 20 U/mL	Negative: < 21 Units Equivocal: 21-25 Units Positive: > 25 Units

**K. Standard/Guidance Document Referenced (if applicable):**

None provided.

**L. Test Principle:**

The Wieslab™ Cap MPO ANCA test kit is an enzyme-linked immunosorbent assay (ELISA) for detection and semi-quantitation of IgG antibodies to myeloperoxidase (MPO) in human serum. The wells of the microtiter plate strips are coated with a capture complex of monoclonal antibody to myeloperoxidase and purified MPO antigen. Antibodies specific to MPO in diluted serum bind to the capture antigen during the first incubation. The wells are then washed to remove unbound antibodies. An enzyme labeled anti-human IgG conjugate is added to bind the capture antigen- antibody complex in the well during the second incubation step. After a further washing step, detection of the specific antibodies is obtained by incubation with substrate solution. The amount of bound antibodies correlated to the color intensity and is measured in terms of absorbance (optical density, OD). The absorbance is then calculated against the calibrator curve and the results are given in arbitrary Units/mL.

#### **M. Performance Characteristics (if/when applicable):**

##### 1. Analytical performance:

###### a. *Precision/Reproducibility:*

The intra-assay reproducibility was determined by testing one sample 36 times and six samples 24 times. Four samples with high anti-MPO concentrations (89-125 U/mL) had a CV of 2.6-8.0% and three samples close to the assay cut-off (29-44 U/mL) had a CV of 11-15%.

The inter-assay reproducibility was determined by testing seven samples in duplicate for four times. Four samples with high anti-MPO concentrations (51-89 U/mL) had a CV of 4-15%. Three samples close to the assay cut-off (18-35 U/mL) had a CV of 5-15%.

###### b. *Linearity/assay reportable range:*

Three positive sera were diluted serially from neat, 1:2, 1:4, 1:8, 1:16 and 1:32 dilutions. The values were compared to log 2 of dilution by standard regression. The values indicate that the assay has a linear relationship with serum dilutions.

The assay reportable range is from 10-320 U/mL.

###### c. *Traceability, Stability, Expected values (controls, calibrators, or methods):*

There is no reference standard for anti-MPO. The calibrators and controls (positive and negative) are prepared in-house and arbitrary units are assigned during the development process.

###### d. *Detection limit:*

Not applicable.

###### e. *Analytical specificity:*

Interference by endogenous substances: No data provided. The package insert states to avoid sera which are icteric, lipemic, and hemolyzed; and heat-inactivated sera should not be used.

Crossreactivity with heterophile antibodies: Since one of the capture antigen component is a monoclonal antibody, some in-house interference studies (~12000 samples) were performed. The effect was determined to be very low (0.025%). The package insert states that ‘individuals receiving mouse anti-human antibodies for treatment or diagnosis, or those patients who have otherwise exposed to mouse immunoglobulin, may produce Human Anti-Mouse Antibodies (HAMA). These antibodies can interfere with assays using mouse monoclonal antibodies and may cause falsely elevated levels’.

f. *Assay cut-off:*

The cut-off value of >20 U/mL was based on testing 120 normal blood donor sera, and 61 non-vasculitis disease samples (17 rheumatoid arthritis (RA) samples; 29 systemic lupus erythematosus (SLE); 8 Ulcerative colitis; 3 Celiac disease; and 4 Crohn’s disease). All of the normal donors and non-vasculitis disease samples were negative.

2. Comparison studies:

a. *Method comparison with predicate device:*

Testing was performed on 102 samples. The positive percent agreement was 97.0% (32/33); the negative percent agreement was 97.0% (64/66) and the Overall Agreement was 97.0% (96/99).

		Wieslisa MPO-ANCA ELISA Kit			
		Positive	Equivocal*	Negative	Total
WiesLab™ Cap MPO- ANCA	Positive	32	0	2	34
	Equivocal	0	0	(3)*	(3)*
	Negative	1	0	64	65
	Total	33	0	66	99

\*Equivocal results were excluded in the calculation.

b. *Matrix comparison:*

Not applicable.

3. Clinical studies:

a. *Clinical sensitivity and specificity:*

The clinical sensitivity and specificity study were evaluated on 337 clinically characterized sera from patients with the following diagnosis: 53 Microscopic polyangiitis (MP); 52 WG (Wegener’s granulomatosis); 29 SLE; 17 RA; 51 Glomerular basement membrane (GBM); 8 Ulcerative colitis; 3 Celiac disease; 4 Crohn’s disease; and 120 healthy blood donors. Sensitivity for MP was 98.1%, which was higher than the predicate device sensitivity of 66.6%. The overall specificity of the new device (healthy and disease controls) was 91.8%.

N= 337 Patient Group	n=	ELISA		
		positive	Equivocal*	negative
MP	53	52	0	1
WG	52	2	0	50
Healthy controls	120	0	0	120
Disease controls				
SLE	29	0	0	29
RA	17	0	0	17
GBM	51	7	12	32
Ulcerative colitis	8	0	0	8
Celiac disease	3	0	0	3
Crohn’s disease	4	0	0	4

\*Equivocal results were excluded from the calculation.

Sensitivity:

MP:	98.1% (52/53)	95% CI: 89.9% to 100%
WG:	3.9% (2/52)	95% CI: 0.47% to 13.2%

Specificity:

Healthy controls:	100% (120/120)	(95% CI: 95.5% to 100%)
SLE:	100% (29/29)	(95% CI: 88.1% to 100%)
RA:	100% (17/17)	(95% CI: 80.5% to 100%)
GBM:	82.1% (32/39)	(95% CI: 66.5% to 92.5%)
Ulcerative colitis	100% (8/8)	(95% CI: 63.1% to 100%)
Celiac disease	100% (3/3)	(95% CI: 29.2% to 100%)
Crohn's disease	100% (4/4)	(95% CI: 39.8 % to 100%)

*b. Other clinical supportive data (when a. is not applicable):*

Not Applicable.

4. Clinical cut-off:

Same as assay cut-off.

5. Expected values/Reference range:

Expected values in the normal population should be negative.

**N. Proposed Labeling:**

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10.

**O. Conclusion:**

The submitted information in this premarket notification is complete and supports a substantial equivalence decision.