CPAL
Central **P**ennsylvania **A**lliance **L**aboratory

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ANCA: GBM Ab, PR3 AB, MPO Ab
- New Assays -

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Ordering Information:

Mnemonics:	**Glomerular Basement Membrane Antibody**	**Myeloperoxidase Antibody**	**Proteinase 3 Antibody**	**ANCA Panel 1**
Test Name:	GBM IgG Ab	MPO IgG Ab	PR3 IgG Ab	ANCA Panel 1
Test Number:	1758050	1758052	1758054	1758050
Includes:				MPO- 1758052 PR3- 1758054
Specimen:	Serum or Plasma (heparin, EDTA, citrate) Refrigerate within 8 hours and freeze within 48 hours			

Effective Date: Testing offered beginning on Monday, December 14, 2015.

Performed: Monday, Wednesday, and Friday

Reference Range:

Test	**Negative**	**Equivocal**	**Positive**
EliA GBM	<7	7-10	>10
EliA MPO	<3.5	3.5 - 5.0	>5.0
EliA PR3	<2.0	2.0 - 3.0	>3.0

Background:

GBM: GBM antibodies occur in patients suffering from Goodpasture syndrome, anti-GBM-disease, and ANCA associated vasculitis. Goodpasture syndrome is defined by the combined occurrence of progressive glomerulonephritis, lung hemorrhage, and antibodies to the glomerular basement membrane (GBM). A more limited form only involving the kidney or the lung is referred to as anti-GBM disease. For the diagnosis of both, Goodpasture syndrome and anti-GBM-disease, the presence of GBM antibodies is required. Furthermore up to 10 % of ANCA positive patients show GBM antibodies, which indicate a more severe course of renal damage.

MPO: First described in patients with necrotizing crescentic glomerulonephritis (NCGN) without immune deposits (pauci-immune), the clinical spectrum associated with anti-MPO includes also NCGN associated with systemic vasculitis, either Granulomatosis with Polyangiitis (GPA, formerly called Wegener's Granulomatosis) or a microscopic polyangiitis (MPA). Indeed, anti-MPO are detectable in 65% of patients with idiopathic NCGN, 45% of patients with MPA, and 20% to 30% of patients with GPA. Additionally, anti-MPO are present in some 60% of patients with the Eosinophilic Granulomatosis with Polyangiitis (EGPA, formerly called Churg-Strauss syndrome).

PR3: Antibodies to PR3 are highly sensitive (81%) and specific (97%) for Granulomatosis with Polyangiitis. The sensitivity is dependent on the phase and on the activity of the disease. Despite the strong association between PR3 antibodies and GPA, there is a small percentage of patients with microscopic polyangiitis and about 30% of Eosinophilic Granulomatosis with Polyangiitis (EGPA, formerly called Churg-Strauss Syndrome) patients who are PR3 antibodies positive. PR3 antibodies may also occur in 20% to 30% of patients with necrotizing glomerulonephritis with no obvious extrarenal manifestations of small vessel vasculitis.

Principle of Test:
The EliA GBM, PR3^{s}, and MPO^{s} assays are performed on the Phadia 250 immunoassay system. The assays utilize human or human recombinant protein and enzyme-labeled antibodies against human IgG antibodies. Results are directly related to the signal produced.

Validation Data:
Precision:
For within run precision, two levels of control were run ten times each, within the same run. For between run precision, two levels of control were run five times each on two different days. The %CVs fall within the Manufacturer's claim of <10.0%. **(**Tables 1 and 2)

Note: A different lot of ANCA Positive control was used for each Phadia 250. The expected range for each lot differed significantly.

Table 1: Within Run Precision

Test	Phadia N1778				Phadia N01926				Accept?
	Mean (Neg)	CV	Mean (Pos)	CV	Mean (Neg)	CV	Mean (Pos)	CV	
GBM	1.90	0.0%	60.9	3.9%	1.90	0.0%	36.8	2.1%	Yes
MPO^{S}	0.30	0.0%	47.1	8.2%	0.30	0.0%	26.3	4.4%	Yes
PR3^{S}	0.70	0.0%	16.4	5.1%	0.70	0.0%	19.3	8.5%	Yes

Table 2: Between Run Precision

Test	Within Run Precision (N1778)				Positive QC				Accept?
	Mean (Neg)	CV	Mean (Pos)	CV	Mean (Neg)	CV	Mean (Pos)	CV	
GBM	1.90	0.0%	62.1	4.6%	1.90	0.0%	38.7	8.0%	Yes
MPO^{S}	0.30	0.0%	46.1	7.7%	0.30	0.0%	26.2	3.9%	Yes
PR3^{S}	0.70	0.0%	16.5	4.5%	0.70	0.0%	18.7	9.2%	Yes

Method Correlation validation:
Specimens were split and processed utilizing Phadia 250 EliA assays versus results from Quest Diagnostics. The specimens were run on both Phadia 250 instruments.

Table 3: Method Comparison:

Assay	**Phadia 250 N1778**		Phadia 250 N1926		
	Agreement vs Quest	N	Agreement vs Quest	N	Acceptable?
GBM	96.3%	27	96.3%	27	Yes
MPO^{S}	92.5%	40	92.5%	40	Yes
PR3^{S}	95.0%	40	95.0%	40	Yes

Limitations:

1. A definitive clinical diagnosis should not be based on the results of a single diagnostic method, but should only be made by the physician after all clinical and laboratory findings have been evaluated.
2. Undiluted samples were analyzed for interference. No interference could be observed for the following substances at the levels indicated: Bilirubin C/F 216/191 mg/dL, Lipmeic factor (ClinOleic) 1%, Hemoglobin 5190 mg/dL, and Rheumatoid factor 500 IU/mL.
3. In rare cases, interference due to extremely high titers of antibodies to streptavidin can occur in the MPO and PR3 assays.

Suggested Codes:

Test	Glomerular Basement Membrane	Myeloperoxidase Ab	Proteinase 3 Ab	ANCA Panel 1
LOINC Codes	30343-8	46266-3	46267-1	
CPT Codes	83520	86021	86021	86021 x2

References:

1. EliA GBM package insert, November 2014.
2. EliA MPO^{S} package insert, November 2014.
3. EliA PR3^{S} package insert, November 2014.