MAYO CLINIC LABORATORIES

Test Definition: MPO

Myeloperoxidase Antibodies, IgG, Serum

Overview

Useful For

Evaluating patients suspected of having immune-mediated vasculitis, especially microscopic polyangiitis (MPA), when used in conjunction with other autoantibody tests (see Cautions)

May be useful to follow treatment response or to monitor disease activity in patients with MPA

Method Name

Multiplex Flow Immunoassay

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 0.5 mL

Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Forms

If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Specimen Minimum Volume

0.35 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	21 days	
	Frozen	21 days	

Clinical & Interpretive

Clinical Information

Myeloperoxidase (MPO) enzyme is found in neutrophil primary granules and monocyte lysosomes. MPO catalyzes the conversion of hydrogen peroxide to hypochlorite and hypochlorous acid. MPO is encoded by a single gene that undergoes posttranslational modification to produce the active enzyme found in leukocytes.

Autoantibodies to MPO (MPO antineutrophil cytoplasmic antibodies: ANCA) occur in several diseases and may be involved in the pathogenesis of vascular inflammation in patients with microscopic polyangiitis (MPA).(1,2) Patients with MPA often develop MPO ANCA and may present with azotemia secondary to glomerulonephritis (pauci-immune necrotizing glomerulonephritis). MPO ANCA are not specific for MPA, and also may be detected in patients with systemic lupus erythematosus with or without lupus nephritis, Goodpasture syndrome and Churg-Strauss syndrome. Lupus nephritis and Goodpasture syndrome, as well as Wegener granulomatosis may present with azotemia and progressive renal failure. It is not possible to distinguish among these diseases on the basis of clinical signs and symptoms; autoantibody testing may be helpful.

Reference Values

<0.4 U (negative)
0.4-0.9 U (equivocal)
> or =1.0 U (positive)
Reference values apply to all ages.

Interpretation

A positive result has a high predictive value for microscopic polyangiitis (MPA) in patients with negative test results for systemic lupus erythematosus (antinuclear antibodies) and Goodpasture syndrome (glomerular basement membrane antibody). A negative result significantly diminishes the likelihood that a patient has MPA.(3)

While myeloperoxidase levels often decline following successful treatment of MPA, specific guidelines for this clinical purpose are not available.

Cautions

Since it is not possible to distinguish between microscopic polyangiitis (MPA) and other causes of progressive renal failure or systemic illness (eg, Wegener granulomatosis, lupus nephritis, Goodpasture syndrome), this test should be employed in conjunction with other diagnostic tests in the initial evaluation of such patients. The recommended test in this setting is VASC / Antineutrophil Cytoplasmic Antibodies Vasculitis Panel, Serum, which includes myeloperoxidase (MPO) antibodies, proteinase 3 (PR3) antibodies and, if indicated, antineutrophil cytoplasmic antibodies (ANCA). The test for ANCA identifies 2 types of antibodies-cytoplasmic (cANCA), which are specific for PR3 and perinuclear (pANCA), which are specific for MPO.

The presence of MPO is quite specific for MPA (diagnostic specificity approaches 95%); but, it is recommended that

positive results obtained by EIA be confirmed by another testing method. This is best accomplished by testing for pANCA, which confirms the positive MPO result and increases the diagnostic specificity for MPA to 97%.(3) Nevertheless, positive results for MPO have been reported in patients with systemic lupus erythematosus, Goodpasture syndrome, and Churg-Strauss syndrome. Therefore, clinicians must rule out these diagnoses to maximize the specificity and positive predictive value of the MPO test result.

While sequential measurements of MPO may be used to follow treatment response or to monitor disease activity in patients with MPA, results should not be exclusively relied upon to assess response to treatment or disease activity.

Clinical Reference

1. Falk RJ, Jennette JC: Anti-neutrophil cytoplasmic autoantibodies with specificity for myeloperoxidase in patients with systemic vasculitis and idiopathic necrotizing and crescentic glomerulonephritis. N Engl J Med 1988 Jun 23;318(25):1651-1657
2. Stone JH, Hellman DB: Small and medium-vessel vasculitis. In Clinical Immunology Principles and Practice. Third edition. Edited by RR Rich, TA Fleisher, WT Shearer, et al. Mosby/Elsevier, 2007, pp 859-884
3. Russell KA, Wiegert E, Schroeder DR, et al: Detection of antineutrophil cytoplasmic antibodies under actual clinical testing conditions. Clin Immunol 2002 May;103(2):196-203

Performance

Method Description

Myeloperoxidase (MPO) antigen is covalently coupled to polystyrene microspheres that are impregnated with fluorescent dyes to create a unique fluorescent signature. MPO antibodies, if present in diluted serum, bind to the MPO antigen on the microspheres. The microspheres are washed to remove extraneous serum proteins. Phycoerythrin (PE)-conjugated antihuman IgG antibody is then added to detect IgG anti-MPO bound to the microspheres. The microspheres are washed to remove unbound conjugate, and bound conjugate is detected by laser photometry. A primary laser reveals the fluorescent signature of each microsphere to distinguish it from microspheres that are labeled with other antigens. A secondary laser reveals the level of PE fluorescence associated with each microsphere. Results are calculated by comparing the median fluorescence response for MPO microspheres to a 4-point calibration curve.(Package insert: Bio-Plex 2200 Vasculitis. Bio-Rad Laboratories, Hercules, CA 2012)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

1 to 4 days

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

83516

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
MPO	Myeloperoxidase Ab, S	48404-8

Result ID	Test Result Name	Result LOINC® Value
MPO	Myeloperoxidase Ab, S	48404-8