MAYO CLINIC LABORATORIES

Test Definition: ANCA

Cytoplasmic Neutrophil Antibodies, Serum

Overview

Useful For

Evaluating patients suspected of having antineutrophil cytoplasmic antibody-associated vasculitis (granulomatosis with polyangiitis and microscopic polyangiitis, and eosinophilic granulomatosis with polyangiitis)

Method Name

Indirect Immunofluorescence

NY State Available

Yes

Specimen

Specimen Type

Serum

Additional Testing Requirements

When used for diagnosis, it is recommended that specific tests for proteinase 3, antineutrophil cytoplasmic antibodies (ANCA), and myeloperoxidase ANCA be performed in addition to testing for cytoplasmic ANCA and perinuclear ANCA.(1) This panel of tests is available; order VASC / Antineutrophil Cytoplasmic Antibodies Vasculitis Panel, Serum.

Specimen Required

Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 0.8 mL
Collection Instructions: Centrifuge and aliquot serum into plastic vial.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
-General Request (T239)
-Renal Diagnostics Test Request (T830)

Specimen Minimum Volume

0.4 mL

Reject Due To

Gross hemolysis	Reject

Gross lipemia	Reject
Gross icterus	OK
Heat-treated specimen	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Antineutrophil cytoplasmic antibodies (ANCA) can occur in patients with small blood vessel vasculitis, including granulomatosis with polyangiitis (GPA), microscopic polyangiitis (MPA), or eosinophilic granulomatosis with polyangiitis (EGPA), collectively referred to as ANCA-associated vasculitis (AAV).(2) Detection of ANCA is a well-established diagnostic test for the evaluation of patients suspected of having AAV.(3) ANCA react with enzymes in the cytoplasmic granules of human neutrophils including proteinase 3 (PR3), myeloperoxidase (MPO), elastase, and cathepsin G amongst others. Of these, PR3-ANCA and MPO-ANCA are the best characterized in AAV. Antibodies to PR3-ANCA occur in patients with GPA and produce a characteristic pattern of granular cytoplasmic fluorescence on ethanol-fixed neutrophils called the cytoplasmic ANCA pattern. Antibodies to MPO-ANCA occur predominately in patients with MPA and produce a pattern of perinuclear cytoplasmic fluorescence on ethanol-fixed neutrophils called the perinuclear ANCA (pANCA) pattern.(4) EGPA may be pANCA positive with reactivity to MPO-ANCA or negative for ANCA. The pANCA pattern may also be observed in patients with inflammatory bowel disease, predominantly ulcerative colitis, usually in the absence of detectable MPO-ANCA reactivity.

Reference Values

Negative

If positive for antineutrophil cytoplasmic antibodies, results are titered.

Interpretation

Positive results for antineutrophil cytoplasmic antibodies (ANCA) demonstrate two main patterns namely, cytoplasmic and perinuclear in a compendium of small vessel vasculitis collectively referred to as ANCA-associated vasculitis (AAV) that includes granulomatosis with polyangiitis, microscopic polyangiitis, eosinophilic granulomatosis with polyangiitis.

Negative ANCA results do not rule out a diagnosis of AAV or irritable bowel disease.

Cautions

Current recommendations suggest that testing for antineutrophil cytoplasmic antibodies (ANCA) by indirect immunofluorescence assay should not be relied upon exclusively to establish the diagnosis of granulomatosis with polyangiitis (GPA), microscopic polyangiitis, or eosinophilic granulomatosis with polyangiitis (see Interpretation).

Due to their lack of diagnostic specificities, all positive ANCA results must be confirmed using solid-phase immunoassays

using proteinase 3-ANCA for cytoplasmic ANCA (cANCA) and myeloperoxidase-ANCA for perinuclear ANCA.

Changes in titer of cANCA should not be relied upon exclusively to either judge the disease activity of patients with GPA or determine the response to treatment. A decreasing titer of cANCA may lag behind the induction of clinical remission by several weeks in a patient with GPA, and a detectable titer of cANCA may persist indefinitely despite induction of a stable clinical remission of disease. Conversely, a slight increase in the titer of cANCA should not be interpreted to mean an exacerbation of disease without further clinical and laboratory evidence of disease progression.

Clinical Reference

1.Savige J, Gillis D, Benson E, et al: International consensus statement on testing and reporting of antineutrophil cytoplasmic antibodies (ANCA). Am J Clin Pathol. 1999 Apr:111(4);507-513
2. Kitching AR, Anders HJ, Basu N, et al: ANCA-associated vasculitis. Nat Rev Dis Primers. 2020 Aug;6(1);71
3. Ramponi G, Folci M, De Santis M, et al: The biology, pathogenetic role, clinical implications, and open issues of serum anti-neutrophil cytoplasmic antibodies. Autoimmun Rev. 2021 Mar;20(3):102759
4. Guchelaar NAD, Waling MM, Adhin AA, et al: The value of anti-neutrophil cytoplasmic antibodies (ANCA) testing for the diagnosis of ANCA-associated vasculitis, a systematic review and meta-analysis. Autoimmun Rev. 2021 Jan:20(1);102716

Performance

Method Description

Antibodies to cytoplasmic antigens in neutrophils are detected by an indirect immunofluorescent technique. Commercial and in-house slides prepared from human neutrophils are used as a substrate. IgG antibodies in serum specimens are detected after incubation of serum with the commercial and in-house slides by the addition of a fluorescein isothiocyante-labeled antihuman IgG reagent. All patient specimens are initially screened at 1:4 and 1:8 dilutions.(Package insert: NOVA Lite ANCA. Inova Diagnostics, Inc; 05/2018)

PDF Report

No

Day(s) Performed

Monday through Saturday

Report Available

3 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 was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

86036 x2
86037-Titer (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
ANCA	Cytoplasmic Neutrophilic Ab, S	87427-1

Result ID	Test Result Name	Result LOINC® Value
3114	c-ANCA	In Process
3119	p-ANCA	17357-5