

Overview**Useful For**

Antibody titer testing as a part of evaluating patients with chronic liver disease in whom the diagnosis of chronic active autoimmune hepatitis is suspected

Testing Algorithm

If the smooth muscle antibody (SMA) screen is equivocal or positive, then the SMA titer will be performed at an additional charge.

Method Name

Only orderable as part of a reflex. For more information see SMAS / Smooth Muscle Antibody Screen, Serum.

Indirect Immunofluorescence

NY State Available

Yes

Specimen**Specimen Type**

Serum

Specimen Required

Only orderable as part of a reflex. For more information see SMAS / Smooth Muscle Antibody Screen, Serum.

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.8 mL

Specimen Minimum Volume

0.4 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) | 14 days | |

| Specimen Type | Temperature | Time | Special Container |
|---------------|-------------|---------|-------------------|
| | Frozen | 14 days | |

Clinical and Interpretive

Clinical Information

Autoimmune hepatitis (AIH) is caused by chronic inflammation within the liver, resulting in damage to the hepatocytes.(1) Initially, patients with AIH may be clinically asymptomatic, usually identified only through an incidental finding of abnormal liver function tests. At a more advanced stage, patients may manifest with symptoms such as jaundice, pruritus, or ascites, which are secondary to the more extensive liver damage. As implied by the name, AIH has many characteristics of an autoimmune disease, including female predominance, hypergammaglobulinemia, association with specific *HLA* alleles, responsiveness to immunosuppression, and the presence of autoantibodies. There are several autoantibodies associated with AIH, although the most common are smooth muscle antibodies (SMA). SMA are generally identified by indirect immunofluorescence using a smooth muscle substrate. The antigen specificity of SMA in the context of AIH has been identified as filamentous-actin (F-actin).(2) Because the clinical symptoms of AIH are nonspecific, being found in a variety of liver diseases (drug/alcohol-associated hepatitis, viral hepatitis, primary sclerosing cholangitis, etc), the diagnosis can be challenging. A set of diagnostic criteria for AIH has been published and includes the presence of various autoantibodies, elevated total IgG, evidence of hepatitis on liver histology, and absence of viral markers.(3) The combination of autoantibody serology, specifically SMA and anti-F-actin antibodies with liver histology and thorough clinical evaluation are useful in the evaluation of patients with suspected autoimmune hepatitis.

Reference Values

Only orderable as part of a reflex. For more information see SMAS / Smooth Muscle Antibody Screen, Serum.

Negative

Reference values apply to all ages.

Interpretation

Seropositivity for smooth muscle antibodies (SMA) is consistent with a diagnosis of autoimmune hepatitis (AIH).

A negative result for SMA does not exclude a diagnosis of AIH.

Cautions

Serologic tests for autoantibodies, including smooth muscle antibodies (SMA), should not be relied upon exclusively to determine the etiology or prognosis of patients with liver disease.

A positive result for SMA may occur in patients who do not have autoimmune hepatitis. A negative result does not exclude a diagnosis of autoimmune hepatitis.

Clinical Reference

1. Mieli-Vergani G, Vergani D, Czaja AJ, et al: Autoimmune hepatitis. *Nat Rev Dis Primers*. 2018;4:18017
2. Terziroli Beretta-Piccoli B, Mieli-Vergani G, Vergani D: Serology in autoimmune hepatitis: A clinical-practice approach. *Eur J Intern Med*. 2018;48:35-43
3. Hennes EM, Zeniya M, Czaja AJ, et al: Simplified criteria for the diagnosis of autoimmune hepatitis. *Hepatology*. 2008;48:169-176

Performance

Method Description

The patient's serum, in serial dilution, is added to fresh tissue from mouse stomach/kidney and incubated; fluorescein-conjugated antiglobulin is then added. The slides are read with a fluorescence microscope. (Package insert: Kallestad Mouse Stomach/Kidney. Bio-Rad Laboratories, Inc; 01/2018)

PDF Report

No

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

86256

LOINC® Information

| Test ID | Test Order Name | Order LOINC Value |
|---------|---------------------------|-------------------|
| SMAT | Smooth Muscle Ab Titer, S | 5358-7 |

| Result ID | Test Result Name | Result LOINC Value |
|-----------|---------------------------|--------------------|
| 608956 | Smooth Muscle Ab Titer, S | 5358-7 |