Test Definition: APHTS

Amphiphysin Antibody Titer Assay, Serum

Overview

Useful For

Evaluating patients with recent onset of a subacute neurological disorder for which a paraneoplastic basis might be suspected, particularly if the patient has a previous history, risk factors, or family history of cancer, especially lung or breast cancer

Reporting an end titer result from serum specimens

Testing Algorithm

If the indirect immunofluorescence pattern suggests amphiphysin antibody, then this test will be performed at an additional charge.

Method Name

Only orderable as a reflex. For more information see:
-PAVAL / Paraneoplastic, Autoantibody Evaluation, Serum
-DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum
-ENS2 / Encephalopathy, Autoimmune/Paraneoplastic Evaluation, Serum
-EPS2 / Epilepsy, Autoimmune/Paraneoplastic Evaluation, Serum
-MDS2 / Movement Disorder, Autoimmune/Paraneoplastic Evaluation, Serum
-MAS1 / Myelopathy, Autoimmune/Paraneoplastic Evaluation, Serum
-SPPS / Stiff-Person Spectrum Disorders Evaluation, including Progressive Encephalomyelitis with Rigidity and Myoclonus, Serum
-AIAES / Axonal Neuropathy, Autoimmune/Paraneoplastic Evaluation, Serum

Indirect Immunofluorescence Assay (IFA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

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Specimen Minimum Volume
0.6 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Ambient	72 hours	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information
Antineuronal autoantibodies specific for amphiphysin (a 128-kDa synaptic vesicle-associated protein) are found in a paraneoplastic context. These IgG antibodies were initially described as a serological marker of paraneoplastic stiff-man syndrome associated with breast carcinoma. They are now more aptly recognized as a marker of autoimmune encephalomyeloneuritis, sensory neuronopathy, and assorted neuromyopathic disorders associated with small-cell lung carcinoma or breast carcinoma. Amphiphysin antibody is sometimes detected in patients with lung or breast carcinoma without evidence of neurological disease.

Only 1 of 30 patients identified as seropositive for amphiphysin antibodies in the Mayo Clinic Neuroimmunology Laboratory exhibited any stiff-person phenomena (n=63: 39% women, 12% men). Only 10% of women (some with lung carcinoma) and 4% of men fulfilled diagnostic criteria for stiff-man syndrome. Overall, cancer was detected in 79.4% of seropositive patients (at last follow-up). Lung carcinoma (small cell) accounted for 61% of cancers and 35% had breast carcinoma (42% for women).

Amphiphysin seropositivity implicates antineuronal autoimmunity as the basis for a variety of neurological presentations and focuses the patient's subsequent investigation to a search for breast carcinoma or small-cell lung carcinoma.

Reference Values
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-DMS2 / Dementia, Autoimmune/Paraneoplastic Evaluation, Serum
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<1:240
Neuron-restricted patterns of IgG staining that do not fulfill criteria for amphiphysin antibody may be reported as "unclassified antineuronal IgG." Complex patterns that include nonneuronal elements may be reported as "uninterpretable."

Interpretation
Positive results are consistent with neurologic autoimmunity, usually related to breast carcinoma or small-cell lung carcinoma.

Cautions
Nonorgan-specific autoantibodies in high titer preclude identification of amphiphysin IgG by indirect immunofluorescence; Western blot assay should be done in those cases.

Clinical Reference
1. Folli F, Solimena M, Cofiell R, et al: Autoantibodies to a 128-kd synaptic protein in three women with the stiff-man syndrome and breast cancer. N Engl J Med. 1993 Feb 25;328(8):546-551
2. Pittock SJ, Lucchinetti CF, Parisi JE, et al: Amphiphysin autoimmunity: paraneoplastic accompaniments. Ann Neurol. 2005 Jul;58(1):96-107
3. McKeon A, Pittock SJ: Paraneoplastic encephalomyelopathies: pathology and mechanisms. Acta Neuropathol. 2011 Oct;122(4):381-400
4. Horta ES, Lennon VA, Lachance DH, et al: Neural autoantibody clusters aid diagnosis of cancer. Clin Cancer Res. 2014 Jul 15;20(14):3862-3869

Performance

Method Description
The patient's specimen is tested by a standardized immunofluorescence assay that uses a composite frozen section of mouse cerebellum, kidney, and gut tissues. After incubation with the specimen and washing, fluorescein-conjugated goat-antihuman IgG is applied. Neuron-specific autoantibodies are identified by their characteristic fluorescence staining patterns. Specimens that are scored positive for any neuronal nuclear or cytoplasmic autoantibody are titrated. Interference by coexisting non-neuron-specific autoantibodies can usually be eliminated by serologic absorption.(Honorat JA, Komorowski L, Josephs KA, et al. IgLON5 antibody: Neurological accompaniments and outcomes in 20 patients. Neurol Neuroimmunol Neuroinflamm. 2017;4[5]:e385. Published 2017 Jul 18. doi:10.1212/NXI.0000000000000385)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
6 to 8 days

Specimen Retention Time
28 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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
86256

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
APHTS	Amphiphysin Ab Titer, S	94340-7

Result ID	Test Result Name	Result LOINC® Value
618165	Amphiphysin Ab Titer, S	94340-7