Test Definition: GFATS

Glial Fibrillary Acidic Protein Alpha Subunit Antibody, Immunofluorescence Titer Assay, Serum (Non-Orderable)

Overview

Useful For

Only orderable as a reflex. For more information see PNEFS / Neuroimmunology Antibody Follow-up, Serum.

Reporting an end titer result in serum specimens

Distinguishing autoimmune glial fibrillary acidic protein (GFAP) astrocytopathy from infectious meningoencephalitis and idiopathic inflammatory central nervous system disorders, such as multiple sclerosis, vasculitis and sarcoidosis, disorders commonly considered in the differential diagnosis

Alerting the clinician that the patient has an immune-mediated, steroid-responsive disorder and to search for a malignancy

Testing Algorithm

If immunofluorescence assay (IFA) pattern suggests glial fibrillary acidic protein (GFAP), then the GFAP IFA titer and GFAP cell-binding assay are performed at an additional charge.

Method Name

Only orderable as a reflex. For more information see PNEFS / Neuroimmunology Antibody Follow-up, Serum.

Indirect Immunofluorescence Assay (IFA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Necessary Information

Provide the following information:
-Relevant clinical information
-Ordering healthcare professional name, phone number, mailing address, and email address

Specimen Required

Only orderable as a reflex. For more information see PNEFS / Neuroimmunology Antibody Follow-up, Serum.

Test Definition: GFATS

Glial Fibrillary Acidic Protein Alpha Subunit Antibody, Immunofluorescence Titer Assay, Serum (Non-Orderable)

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube:
Preferred: Red top
Acceptable: Serum gel
Submission Container/Tube: Plastic vial
Specimen Volume: 4 mL Serum
Collection Instructions: Within 2 hours of collection, centrifuge and aliquot serum into a plastic vial.

Specimen Minimum Volume

Serum: 1 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

Glial fibrillary acidic protein (GFAP)-IgG is a biomarker of a subacute, progressive autoimmune meningitis, encephalitis, and myelitis. These disorders may mimic multiple sclerosis or other idiopathic inflammatory central nervous system disorders, such as sarcoidosis. Neurologic manifestations include headache, optic neuropathy, transverse myelitis, cognitive decline, and cerebellar ataxia. Cerebrospinal fluid findings are inflammatory. Cranial magnetic resonance imaging reveals linear perivascular enhancement oriented radially to the ventricles. A paraneoplastic neurologic association is common. Reported neoplasms accompanying neurologic symptoms include adenocarcinomas of the prostate and gastroesophageal tract, myeloma, melanoma, colonic carcinoid, parotid pleomorphic adenoma, and teratoma. If GFAP-IgG is detected by immunofluorescence assay, testing for the alpha isoform of GFAP (GFAPalpha-IgG) by cell-based assay is performed.

Reference Values

Only orderable as a reflex. For more information see PNEFS / Neuroimmunology Antibody Follow-up, Serum.

<1:240

Interpretation

Seropositivity for autoantibody (positive) is supportive of autoimmune glial fibrillary acidic protein (GFAP) astrocytopathy, a treatable form of meningoencephalomyelitis. A paraneoplastic basis should be considered, according to age, sex, and other risk factors.

Patients who are GFAP-IgG positive have increased risk of tumor. GFAP-IgG increases the likelihood of certain malignancies being found within 2 years of symptom onset (34%). The most common malignancy found is ovarian teratoma (22%).

Glial fibrillary acidic protein meningoencephalomyelitis is immunotherapy responsive. GFAP-IgG positive patients have better outcomes after treatment with corticosteroids.

The presence of GFAP-IgG alerts the clinician that the patient has an immune-mediated, steroid-responsive disorder and directs patient care accordingly. It also alerts the clinician to search for a malignancy.

Cautions

Negative results do not exclude the diagnosis of autoimmune meningoencephalomyelitis or cancer.

Clinical Reference

1. Fang B, McKeon A, Hinson SR, et al: Autoimmune glial fibrillary acidic protein astrocytopathy: a novel meningoencephalomyelitis. JAMA Neurol 2016;73(11):1297-1307
2. Flanagan EP, Hinson SR, Lennon VA, et al: Glial fibrillary acidic protein immunoglobulin G as biomarker of autoimmune astrocytopathy: Analysis of 102 patients. Ann Neurol 2017;81(2):298-309
3. Iorio R, Damato V, Evoli A, et al: Clinical and Immunological characteristics of the spectrum of GFAP autoimmunity: a case series of 22 patients. J Neurol Neurosurg Psychiatry 2018;89(2):138-146 doi:10.1136/jnnp-2017-316583

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. doi:10.1212/NXI.0000000000000385)

PDF Report

No

Day(s) Performed

Test Definition: GFATS

Glial Fibrillary Acidic Protein Alpha Subunit Antibody, Immunofluorescence Titer Assay, Serum (Non-Orderable)

Monday through Sunday

Report Available
10 days

Specimen Retention Time
2 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
GFATS	GFAP IFA Titer, S	93423-2

Result ID	Test Result Name	Result LOINC® Value
605133	GFAP IFA Titer, S	93423-2