MAYO CLINIC LABORATORIES

Test Definition: GFATS

Glial Fibrillary Acidic Protein Alpha Subunit Antibody, Immunofluorescence Titer Assay, Serum

Overview

Useful For

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 (CNS) 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 GFAP, then GFAP IFA titer and GFAP cell-binding assay (CBA) are performed at an additional charge.

Method Name

Only orderable as a reflex. For more information see:
ENS2 / Encephalopathy, Autoimmune Evaluation Serum
DMS2 / Dementia, Autoimmune Evaluation, Serum
EPS2 / Epilepsy, Autoimmune Evaluation, Serum
MAS1 / Autoimmune Myelopathy Evaluation, Serum

Indirect Immunofluorescence Assay (IFA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Necessary Information

Provide the following information:
-Relevant clinical information
-Ordering provider name, phone number, mailing address, and e-mail address

Specimen Required

Only orderable as a reflex. For more information see:
ENS2 / Encephalopathy, Autoimmune Evaluation Serum
DMS2 / Dementia, Autoimmune Evaluation, Serum
EPS2 / Epilepsy, Autoimmune Evaluation, Serum
MAS1 / Autoimmune Myelopathy Evaluation, Serum

Specimen Minimum Volume

1 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Antibody targeting glial fibrillary acidic protein (GFAP)-IgG is a biomarker of a subacute and progressive autoimmune meningitis, encephalitis, and myelitis that can mimic multiple sclerosis (MS) or other idiopathic inflammatory central nervous system (CNS) disorders such as sarcoidosis. Neurological manifestations include headache, optic neuropathy, transverse myelitis, cognitive decline, and cerebellar ataxia. Cerebrospinal fluid (CSF) is inflammatory. Cranial magnetic resonance (MR) imaging reveals linear perivascular enhancement oriented radially to ventricles. A paraneoplastic neurological context is common. Reported neoplasms accompanying neurological symptoms include adenocarcinomas (prostate and gastroesophageal), myeloma, melanoma, colonic carcinoid, parotid pleomorphic adenoma, and teratoma. If GFAP-IgG is detected by immunofluorescence assay (IFA), it is reflexed to a test for the alpha isoform of GFAP (GFAPalpha-IgG) by cell based assay.

Reference Values

Only orderable as a reflex. For more information see:
ENS2 / Encephalopathy, Autoimmune Evaluation Serum
DMS2 / Dementia, Autoimmune Evaluation, Serum
EPS2 / Epilepsy, Autoimmune Evaluation, Serum
MAS1 / Autoimmune Myelopathy Evaluation, 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%).

GFAP 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;73:1297-1307
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;81:298-309
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 Feb;89(2):138-146 doi:10.1136/jnnp-2017-316583

Performance

Method Description

The patient's sample is tested by a standardized indirect immunofluorescence assay (IFA) that uses a composite frozen section of mouse cerebellum, kidney, and gut tissues. After incubation with sample and washing, fluorescein-conjugated goat antihuman IgG is applied. Neuron-specific autoantibodies are identified by their characteristic fluorescence staining patterns. Samples that are scored positive for any neuronal nuclear or cytoplasmic autoantibody are titrated to an endpoint. Interference by coexisting non-neuron-specific autoantibodies can usually be eliminated by serologic absorption.(Yu Z, Kryzer TJ, Griesmann GE, et al: CRMP-5 neuronal autoantibody: marker of lung cancer and thymoma-related autoimmunity. Ann Neurol 2001;49:146-154)

PDF Report

No

Day(s) Performed
Monday through Sunday

Report Available
10 days

Specimen Retention Time
28 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
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