MAYO CLINIC LABORATORIES

Test Definition: SFIGS

IgG, Serum

Overview

Useful For

Aiding in the diagnosis of multiple sclerosis and other CNS inflammatory conditions

Method Name

Only orderable as part of a profile. For more information see SFIG / Cerebrospinal Fluid (CSF) IgG Index Profile, Serum and Spinal Fluid.

Nephelometry

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Only orderable as part of a profile. For more information see SFIG / Cerebrospinal Fluid (CSF) IgG Index Profile, Serum and Spinal Fluid.

Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL
Collection Instructions: Centrifuge and aliquot serum into a plastic vial within 2 hours of collection.

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	Reject
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	28 days	
	Frozen	28 days	
	Ambient	14 days	

Clinical & Interpretive

Clinical Information

Elevation of IgG in the cerebrospinal fluid (CSF) of patients with inflammatory diseases of the central nervous system (CNS) such as multiple sclerosis (MS), neurosyphilis, acute inflammatory polyradiculoneuropathy, subacute sclerosing panencephalitis may be due to local (intrathecal) synthesis of IgG. Elevations of CSF IgG or the CSF/serum IgG ratio may also occur as a result of permeability of the blood brain barrier, and hence, a correction using albumin measurements in CSF and serum is appropriate.

The CSF index is the CSF IgG to CSF albumin ratio compared to the serum IgG to serum albumin ratio. The CSF index is, therefore, an indicator of the relative amount of CSF IgG compared to serum. Any increase in the index is a reflection of IgG production in the CNS. The IgG synthesis rate is a mathematical manipulation of the CSF index data and can also be used as a marker for CNS inflammatory diseases. The test is commonly ordered with oligoclonal banding or immunoglobulin kappa free light chains in CSF to aid in the diagnosis of demyelinating conditions.

Reference Values

Only orderable as part of a profile. For more information see SFIG / Cerebrospinal Fluid (CSF) IgG Index Profile, Serum and Spinal Fluid.

0-4 months: 100-334 mg/dL
5-8 months: 164-588 mg/dL
9-14 months: 246-904 mg/dL
15-23 months: 313-1,170 mg/dL
2-3 years: 295-1,156 mg/dL
4-6 years: 386-1,470 mg/dL
7-9 years: 462-1,682 mg/dL
10-12 years: 503-1,719 mg/dL
13-15 years: 509-1,580 mg/dL
16-17 years: 487-1,327 mg/dL
> or =18 years: 767-1,590 mg/dL

Interpretation

Cerebrospinal fluid (CSF) IgG synthesis rate indicates the rate of increase in the daily CSF production of IgG in milligrams per day. A result greater than 12 mg/24h is elevated.

A CSF index greater than 0.85 is elevated and indicative of increased synthesis of IgG.

Cautions

The cerebrospinal fluid index can be elevated in other inflammatory demyelinating diseases such as neurosyphilis, acute

inflammatory polyradiculoneuropathy, and subacute sclerosing panencephalitis.

Clinical Reference

1. Tourtellotte WW, Walsh MJ, Baumhefner RW, et al: The current status of multiple sclerosis intra-blood-brain-barrier IgG synthesis. Ann NY Acad Sci. 1984;436:52-67
2. Bloomer LC, Bray PF: Relative value of three laboratory methods in the diagnosis of multiple sclerosis. Clin Chem. 1981;27:2011-2013
3. Hische EA, van der Helm HJ: Rate of synthesis of IgG within the blood-brain barrier and the IgG index compared in the diagnosis of multiple sclerosis. Clin Chem. 1987;33:113-114
4. Thompson AJ, Banwell BL, Barkhof F, Carroll WM, Coetzee T, Comi G, et al. Diagnosis of multiple sclerosis: 2017 revisions of the McDonald criteria. Lancet Neurol. 2018;17(2):162-73. doi: 10.1016/S1474-4422(17)30470-2
5. Gurtner KM, Shosha E, Bryant SC, et al. CSF free light chain identification of demyelinating disease: comparison with oligoclonal banding and other CSF indexes. Clin Chem Lab Med. 2018;56(7):1071-80. doi: 10.1515/cclm-2017-0901
6. Rifai N, Horvath RA, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018

Performance

Method Description

The test is performed by nephelometry. The light scattered onto the antigen-antibody complexes is measured. The intensity of the measured scattered light is proportional to the amount of antigen-antibody complexes in the sample under certain conditions. If the antibody volume is kept constant, the signal behaves proportionally to the antigen volume.

A reference curve is generated by a standard with a known antigen content on which the scattered light signals of the samples can be evaluated and calculated as an antigen concentration. Antigen-antibody complexes are formed when a sample containing antigen and the corresponding antiserum are put into a cuvette. A light beam is generated with a light emitting diode (LED), which is transmitted through the cuvette. The light is scattered onto the immuno-complexes that are present. Antigen and antibody are mixed in the initial measurement, but no complex is formed yet. An antigen-antibody complex is formed in the final measurement.

The result is calculated by subtracting value of the final measurement from the initial measurement. The distribution of intensity of the scattered light depends on the ratio of the particle size of the antigen-antibody complexes to the radiated wavelength.(Instruction manual: Siemens Nephelometer II Operations. Siemens, Inc; V 2.3, 2008; Addendum to the Instruction Manual 2.3, 08/2017)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

Same day/1 to 2 days

Specimen Retention Time

2 weeks

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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

82784

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SFIGS	IgG, S	2465-3

Result ID	Test Result Name	Result LOINC® Value
IGG_S	IgG, S	2465-3
AIGAS	IgG/Albumin, S	6782-7