Test Definition: SFIGS

IgG, Serum

Overview

Useful For

Aiding in the diagnosis of multiple sclerosis and other central nervous system inflammatory conditions as a part of a profile

Method Name

Only orderable as part of a profile. For more information see SFIG / Cerebrospinal Fluid 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 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: Within 2 hours of collection, centrifuge and aliquot serum into a plastic vial.

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	
	Ambient	14 days	
	Frozen	28 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, neurosyphilis, acute inflammatory polyradiculoneuropathy, and 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 because 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 reflects 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 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/24 h is elevated.

A CSF IgG index greater than 0.70 is elevated and indicative of increased synthesis of IgG.

Cautions

The cerebrospinal fluid (CSF) IgG index can be elevated in other inflammatory demyelinating diseases, such as neurosyphilis, acute inflammatory polyradiculoneuropathy, and subacute sclerosing panencephalitis.

To increase sensitivity of the test for detection of demyelinating conditions, a study using approximately 1300 patient samples was performed, resulting in a change to the medical decision point for the CSF IgG index from 0.85 to 0.70.

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, Chiu, RWK, Burnham, CD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023
7. Saadeh RS, Ramos PA, Algeciras-Schimnich A, Flanagan EP, Pittock SJ, Willrich MA. An update on laboratory-based diagnostic biomarkers for multiple sclerosis and beyond. Clin Chem. 2022;68(9):1134-1150

Performance

Method Description

Serum IgG:
The serum IgG is determined by immunonephelometry.(Instruction manual: Siemens BN II Nephelometer Operations. Siemens, Inc.; V 2.3, 2008; Addendum to the Instruction Manual 2.4 07/2019)

Serum albumin:
Serum albumin is measured by colorimetry. The dye, bromocresol green (BCG), is added to serum in an acid buffer. The color intensity of the blue-green albumin-BCG complex is directly proportional to the albumin concentration and is determined photometrically.(Package insert: ALB2. Roche Diagnostics; V 8.0, 06/2024)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

Same day/1 to 2 days

Specimen Retention Time

2 weeks

Test Definition: SFIGS

IgG, Serum

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Superior Drive

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
ALBQ	Albumin Quotient, CSF/Serum	1756-6