

**Overview****Useful For**

Aiding in the diagnosis of multiple sclerosis and other central nervous system inflammatory conditions using cerebrospinal fluid specimens

**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**

CSF

**Specimen Required**

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

**Specimen Type:** Spinal fluid

**Container/Tube:** Sterile vial

**Specimen Volume:** 1 mL

**Collection Instructions:** Label specimen as spinal fluid.

**Specimen Minimum Volume**

0.5 mL

**Reject Due To**

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
CSF	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 (MS), 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 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 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

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CSF index: 0.00-0.70

CSF IgG: 0.0-8.1 mg/dL

CSF albumin: 0.0-27.0 mg/dL

CSF IgG/albumin: 0.00-0.21

CSF IgG synthesis rate: 0-12 mg/24 hours

### 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 hours is elevated.

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

### Cautions

The cerebrospinal fluid IgG 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, et al: Diagnosis of multiple sclerosis: 2017 revisions of the McDonald criteria. *Lancet Neurol.* 2018 Feb;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 Jun 27;56(7):1071-1080. doi: 10.1515/cclm-2017-0901
6. Rifai N, Horvath AR, Wittwer CT, eds: *Tietz Textbook of Clinical Chemistry and Molecular Diagnostics.* 6th ed. Elsevier; 2018

## Performance

### Method Description

Cerebrospinal fluid (CSF) and serum IgG and CSF albumin are determined by immunonephelometry. The CSF IgG index and synthesis rate are calculated and reported. Albumin in serum is determined by turbidimetry (bromocresol green method). The serum IgG and albumin, CSF IgG and albumin, and serum and CSF IgG/albumin ratios are reported.(Instruction manual: Siemens Nephelometer II Operations. Siemens, Inc; Version 2.4, 07/2019)

### 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

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.

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- 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**

82042

82784

**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
SFINC	IgG Index, CSF	No LOINC Needed

Result ID	Test Result Name	Result LOINC® Value
INDEX	IgG Index, CSF	14117-6
IGG_C	IgG, CSF	2464-6
ALB_C	Albumin, CSF	1746-7
AIGAC	IgG/Albumin, CSF	2470-3
SRATE	Synthesis Rate, CSF	14116-8