

**Overview****Useful For**

Possible use in evaluating patients with autoimmune encephalitis, stiff-person syndrome, autoimmune ataxia, autoimmune epilepsy, and other acquired central nervous system disorders affecting gabaminergic neurotransmission

**Method Name**

Radioimmunoassay (RIA)

**NY State Available**

Yes

**Specimen****Specimen Type**

CSF

**Ordering Guidance**

This test should not be requested in patients who have recently received radioisotopes, therapeutically or diagnostically, because of potential assay interference. The specific waiting period before specimen collection will depend on the isotope administered, the dose given and the clearance rate in the individual patient. Specimens will be screened for radioactivity prior to analysis. Radioactive specimens received in the laboratory will be held one week and assayed if sufficiently decayed or canceled if radioactivity remains.

**Specimen Required**

**Container/Tube:** Sterile vial

**Specimen Volume:** 1.5 mL

**Forms**

If not ordering electronically, complete, print, and send a [Neurology Specialty Testing Client Test Request](#) (T732) with the specimen.

**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
CSF	Refrigerated (preferred)	28 days	

Specimen Type	Temperature	Time	Special Container
	Frozen	28 days	
	Ambient	72 hours	

## Clinical and Interpretive

### Clinical Information

Glutamic acid decarboxylase (GAD) is a neuronal enzyme involved in the synthesis of the neurotransmitter gamma-aminobutyric acid (GABA). Serum antibodies directed against the 65-kD isoform of GAD (GAD65) are detected in heightened frequency in a variety of autoimmune neurologic disorders, autoimmune encephalitis, including stiff-person (Moersch-Woltman) syndrome, autoimmune ataxia, and autoimmune epilepsy.

### Reference Values

< or =0.02 nmol/L

Reference values apply to all ages.

### Interpretation

Intrathecal synthesis of glutamic acid decarboxylase 65 (GAD65) antibody has been demonstrated in patients with stiff-man syndrome, but cerebrospinal fluid (CSF) values are log orders lower than serum. We have not determined the frequency of GAD65 antibodies in spinal fluid of patients with various diagnoses.

### Cautions

Clinical utility of this test remains to be determined.

### Clinical Reference

1. McKeon A, Tracy JA: GAD65 neurological autoimmunity. *Muscle Nerve*. 2017 Jul;56(1):15-27. doi: 10.1002/mus.25565
2. Pittock SJ, Yoshikawa H, Ahlskog JE, et al: Glutamic acid decarboxylase autoimmunity with brainstem, extrapyramidal and spinal cord dysfunction. *Mayo Clin Proc*. 2006;81:1207-1214
3. McKeon A, Robinson MT, McEvoy KM, Matsumoto JY, Lennon VA, Ahlskog JE, Pittock SJ: Stiff-man syndrome and variants: clinical course, treatments, and outcomes. *Arch Neurol*. 2012 Feb;69(2):230-238
4. Steriade C, Britton J, Dale RC, et al: Acute symptomatic seizures secondary to autoimmune encephalitis and autoimmune-associated epilepsy: Conceptual definitions. *Epilepsia*. 2020 Jul;61(7):1341-1351
5. Bingley PJ: Clinical applications of diabetes antibody testing. *J Clin Endocrinol Metab*. 2010 Jan;95(1):25-33

## Performance

### Method Description

(125)I-labeled recombinant human glutamic acid decarboxylase 65 (GAD65) and nonimmune human serum are incubated with the patient's diluted spinal fluid. Antihuman IgG is then added to form an immunoprecipitate. After washing the precipitated immune complexes, specific antibodies are detected by counting gamma-emission from the pellet's bound (125)I-GAD65. (Walikonis JE, Lennon VA: Radioimmunoassay for glutamic acid decarboxylase

[GAD65] autoantibodies as a diagnostic aid for stiff-man syndrome and a correlate of susceptibility to type 1 diabetes mellitus. Mayo Clin Proc. 1998 December;73[12]:1161-1166; Horta ES, Lennon VA, Lachance DH, et al: Neural autoantibody clusters aid diagnosis of cancer. Clin Cancer Res. 2014;20:3862-9386)

**PDF Report**

No

**Day(s) Performed**

Monday through Sunday

**Report Available**

3 to 6 days

**Specimen Retention Time**

28 days

**Performing Laboratory Location**

Rochester

**Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the US Food and Drug Administration.

**CPT Code Information**

86341

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
GD65C	GAD65 Ab Assay, CSF	94359-7

Result ID	Test Result Name	Result LOINC Value
21702	GAD65 Ab Assay, CSF	94359-7