

## ANTI - GAD ANTIBODIES TEST

### Introduction:

Glutamic acid decarboxylase (GAD) is an enzyme produced by the islet beta cells of pancreas. GAD is present in the pancreas and the nervous system, and its roles include relaxing the muscles and helping the pancreas function. It is an important autoantigen in the development of type I diabetes. The enzyme is also responsible for the formation of a neurotransmitter GABA, that inhibits or reduces the body's ability to send and receive signals in the brain and spinal cord.

### Anti-GAD Antibodies and Diabetes:

Type 1 diabetes is the result of an immune system malfunction. It starts when the immune system attacks and destroys beta cells in pancreas. These are the cells that produce insulin, a hormone necessary to regulate blood glucose levels. GAD antibodies belong to a group of diabetes-associated antibodies that instruct the immune system to destroy the insulin-producing pancreatic cells. When insulin production stops, diabetes develops.

### Anti-GAD Antibody Test:

- Type 1 diabetes that develops later in life is called Latent autoimmune diabetes in adults (LADA). In this type of diabetes will show the presence of GAD antibodies.



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- This test allows for the detection of the presence of antibodies to glutamic acid decarboxylase (GAD), which provides early evidence of autoimmune disease activity such as type 1 diabetes and LADA.
- Anti-GAD antibody measurement has been shown to be useful in assisting the physician in the prediction, diagnosis, and management of patients with diabetes.
- Anti-GAD is also used in conjunction with a C-peptide test to measure how much insulin the body produces.

## When To Take & Who Takes the Anti-GAD Test?

The Anti-GAD test is requested for patients with diabetes, and it is performed when there are doubts about the type of diabetes they have.

Type of Specimen:

- Serum Sample
- Fasting is not required
- The test should be done before insulin therapy is started.

## Anti-GAD Test Results:

- Normal Range: 0.0 -10.0IU/mL\*
- A value greater than 10.0 IU/mL is considered positive for glutamic acid decarboxylase antibody (GAD Ab).
- The presence of Anti- GAD antibodies indicates the likeliness of type 1 diabetes or Latent autoimmune diabetes in adults (LADA).

*\*Different testing laboratories may have different normal ranges*





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## What causes high GAD antibody levels?

Type 1 diabetes isn't the only reason someone might have GAD autoantibodies. These antibodies are also linked to other conditions, which include:

- *Cerebellar ataxia*. This brain disorder causes sudden uncoordinated muscle movement.
- *Stiff person syndrome*. This neurological condition causes stiff muscles and muscle spasms.

### References:

- <https://www.labcorp.com/tests/143008/glutamic-acid-decarboxylase-gad-autoantibody>
- <https://www.diabetes.co.uk/gad-antibody-test>
- <https://www.healthline.com/health/diabetes/gad-antibodies>
- *Glutamic Acid Decarboxylase Autoantibody ELISA [package insert]. Star, Idaho: Kronus; 2009. P/N 174g 09/09.*

