

---

## Overview

### Useful For

Clinical distinction of type 1 from type 2 diabetes mellitus

Identification of individuals at risk of type 1 diabetes (including high-risk relatives of patients with diabetes)

Prediction of future need for insulin treatment in adult-onset diabetic patients

### Method Name

Radioimmunoassay (RIA)

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Ordering Guidance

[Islet cell antigen 2 \(IA2\) testing is available individually \(this test\) and with glutamic acid decarboxylase 65-kilodalton isoform \(GAD65\), insulin, and zinc transporter 8 \(ZnT8\) antibodies as a part of DBS1 / Diabetes Mellitus Type 1 Evaluation, Serum. The evaluation is most appropriate to order in the following clinical contexts:](#)

- Distinguishing type 1 (autoimmune) diabetes mellitus from type 2 diabetes mellitus
- Identifying individuals at risk of type 1 diabetes (including high-risk relatives of patients with diabetes)
- Predicting future insulin requirement treatment in patients with adult-onset diabetes

Individual antibody testing would be more appropriate if 1, 2, or 3 of the analytes (GAD65, IA-2, insulin, ZnT8 antibodies) have already been tested and reported negative, and the provider wishes to test for the balance of remaining untested analytes only.

### Specimen Required

**Container/Tube:**

**Preferred:** Red top

**Acceptable:** Serum gel

**Specimen Volume:** 1.5 mL

**Reject Due To**

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

**Specimen Minimum Volume**

1 mL

**Specimen Stability Information**

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

**Clinical & Interpretive**
**Clinical Information**

Islet cell autoantibodies have been known to be associated with type 1 diabetes mellitus for many years. In recent years, several autoantigens against which islet antibodies are directed have been identified. These include the tyrosine phosphatase-related islet antigen 2 (IA-2), glutamic acid decarboxylase 65, zinc transporter 8, and insulin. One or more of these autoantibodies are detected in 96% of patients with type 1 diabetes and are detectable before clinical onset, as well as in symptomatic individuals. A serological study of 50 individuals with type 1 diabetes and 50 control subjects conducted simultaneously across 43 laboratories in 16 countries demonstrated a median sensitivity of 57% and a median specificity of 99% for IA-2 antibody in type 1 diabetes. Prospective studies in relatives of patients with type 1 diabetes have shown that development of 1 or more islet autoantibodies (including IA-2 antibody) provides an early marker of progression to type 1 diabetes. Autoantibody profiles identifying patients destined to develop type 1 diabetes are usually detectable before age 3. In one study of relatives seropositive for IA-2 antibody, the risk of developing type 1 diabetes within 5 years was 65.3%. Some patients with type 1 diabetes are initially diagnosed as having type 2 diabetes because of symptom onset in adulthood, societal obesity, and initial insulin-independence. These patients with "latent autoimmune diabetes in adulthood" may be distinguished from those patients with type 2 diabetes by detection of 1 or more islet autoantibodies (including IA-2).

**Reference Values**

---

< or =0.02 nmol/L

Reference values apply to all ages.

**Interpretation**

Seropositivity for islet antigen 2 autoantibody (> 0.02 nmol/L) is supportive of:

- A diagnosis of type 1 diabetes
- A high risk for future development of diabetes
- A current or future need for insulin therapy in patients with diabetes

**Cautions**

Negative results do not exclude the diagnosis of or future risk for type 1 diabetes mellitus. The risk of developing type 1 diabetes may be stratified further by testing for antibodies targeting insulin, glutamic acid decarboxylase, and zinc transporter 8 (ZnT8) and human leukocyte antigen genetic markers. Careful monitoring of hyperglycemia is the mainstay of determining the requirement for insulin therapy.

**Clinical Reference**

1. Shields BM, Shepherd M, Hudson M, et al; UNITED study team: Population-based assessment of a biomarker-based screening pathway to aid diagnosis of monogenic diabetes in young-onset patients. et al: *Diabetes Care*. 2017 Aug;40(8):1017-1025. doi: 10.2337/dc17-0224
2. Bingley PJ: Clinical applications of diabetes antibody testing. *J Clin Endocrinol Metab*. 2010 Jan;95(1):25-33
3. Bingley PJ, Bonifacio E, Mueller PW: Diabetes Antibody Standardization Program: first assay proficiency evaluation. *Diabetes* 2003 May;52(5):1128-1136
4. Christie MR, Roll U, Payton MA, et al: Validity of screening for individuals at risk for type I diabetes by combined analysis of antibodies to recombinant proteins. *Diabetes Care*. 1997 Jun;20(6):965-970
5. Lampasona V, Petrone A, Tiberti C, et al: Zinc transporter 8 antibodies complement GAD and IA-2 antibodies in the identification and characterization of adult-onset autoimmune diabetes: Non Insulin Requiring Autoimmune Diabetes (NIRAD) 4. *Diabetes Care*. 2010 Jan;33(1):104-108

**Performance****Method Description**

Iodine-125 ([<sup>125</sup>I])-labeled recombinant human islet cell antigen (IA-2) is added to the test serum; if antibody is present, it forms a soluble complex with the (<sup>125</sup>I)-labeled IA-2. Subsequent addition of goat antihuman IgG precipitates the

---

complex. The amount of radioactivity in the precipitate is proportional to the level of antibody in the serum. (Unpublished Mayo method)

**PDF Report**

No

**Specimen Retention Time**

28 days

**Performing Laboratory Location**

Rochester

**Fees & Codes****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
IA2	IA-2 Ab, S	81155-4

Result ID	Reporting Name	LOINC®
89588	IA-2 Ab, S	81155-4