

## Overview

### Useful For

Detection of muscle disease

### Method Name

Photometric

### NY State Available

Yes

## Specimen

### Specimen Type

Serum Red

### Specimen Required

**Collection Container/Tube:** Red top

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 1 mL

### Collection Instructions:

1. Centrifuge within 1 hour of collection and aliquot serum into plastic vial.
2. Send refrigerated.

### Forms

If not ordering electronically, complete, print, and send a [General Request](#) (T239) with the specimen.

### Reject Due To

Gross hemolysis    Reject

Gross lipemia      Reject

Gross icterus      Reject

### Specimen Minimum Volume

0.5 mL

### Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum Red	Refrigerated (preferred)	7 days	
	Frozen	60 days	

## Clinical & Interpretive

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**Clinical Information**

Aldolase is necessary for glycolysis in muscle as a "rapid response" pathway for production of adenosine triphosphate, independent of tissue oxygen.

Aldolase catalyzes the conversion of fructose 1,6-diphosphate into dihydroxyacetone phosphate and glyceraldehyde 3-phosphate, an important reaction in the glycolytic breakdown of glucose to lactate in muscle.

Aldolase is a tetramer whose primary structure depends upon the tissue from which it was synthesized (highest expression in liver, muscle, brain).

Elevated values are found in muscle diseases, such as Duchenne muscular dystrophy, dermatomyositis, polymyositis, and limb-girdle dystrophy. While elevated creatinine kinase (CK) levels are more sensitive and specific for muscle disease, occasionally elevated aldolase is observed in some patients with myositis that have normal CK values.

**Reference Values**

<18 years: <14.5 U/L

> or =18 years: <7.7 U/L

**Interpretation**

Measuring serum muscle enzymes is common in the evaluation of patients with muscle weakness or muscle myalgia. When elevated, serum muscle enzymes can help differentiate muscle disease derived muscle weakness from a neurogenic cause. The highest levels of aldolase are found in progressive (Duchenne) muscular dystrophy. Lesser elevations are found in dermatomyositis, polymyositis, and limb-girdle dystrophy. In dystrophic conditions causing hyperaldolasemia, the increase in aldolase becomes less dramatic as muscle mass decreases.

**Cautions**

No significant cautionary statements

**Clinical Reference**

1. Bohlmeyer TJ, Wu AH, Perryman MB: Evaluation of laboratory tests as a guide to diagnosis and therapy of myositis. *Rheum Dis Clin of North Am.* 1994 Nov;20(4):845-856
2. Bohan A, Peter JB, Bowman RL, Pearson CM: Computer-assisted analysis of 153 patients with polymyositis and dermatomyositis. *Medicine (Baltimore).* 1977 Jul;56(4):255-286. doi: 10.1097/00005792-197707000-00001
3. Thompson RA, Vignos PJ Jr: Serum aldolase in muscle disease. *AMA Arch Intern Med.* 1959 Apr;103(4):551-564. doi: 10.1001/archinte.1959.00270040037004
4. Ganguly A: Management of muscular dystrophy during osteoarthritis disorder: A topical phytotherapeutic treatment protocol. *Caspian J Intern Med.* 2019;10(2):183-196. doi:10.22088/cjim.10.2.183

**Performance****Method Description**

The aldolase activity is determined from the rate at which NADH is oxidized to NAD and is measured photometrically by a decrease in absorbance. For each mole of substrate hydrolyzed, 2 moles of coenzyme (NADH) are oxidized. This 1:2 ratio is applied in the calculation of aldolase activity. Lactate dehydrogenase (LDH) is present in the reagent for the purpose of eliminating interference from endogenous pyruvate in the specimen. (Package insert: Roche Aldolase Reagent. Roche Diagnostics; V 4.0, 05/2017)

**PDF Report**

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No

**Specimen Retention Time**

7 days

**Performing Laboratory Location**

Rochester

**Fees & Codes****Test Classification**

This test has been modified from the manufacturer's instructions. Its performance characteristics were 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**

82085