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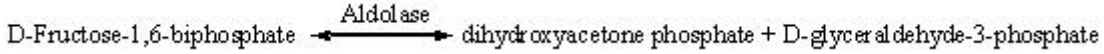
TECHNICAL INFORMATION

Catalog Number: 100168, 159859, 194121
Aldolase

Molecular Weight: 161,000 ± 3,000 with subunits having a molecular weight of 40,000.[14,15]
CAS #: 9024-52-6
Synonym: D-Fructose-1,6-bisphosphate-D-glyceraldehyde-3-phosphate lyase
E.C. 4.1.2.13
Source: *Rabbit muscle*
Unit Definition: One unit is the change in absorbancy of 1.00 per minute at 25°C, pH 7.5
Optimum pH: 7.0
Isoelectric Point: pH 6.1 (0.1 M Phosphate buffer)
Inhibitors: Aldolase in inhibited by Cu^{2+}, Ag^{+}, Zn^{2+} and o-phenanthroline.[8] It is inactivated by N-bromoacetylethanolamine phosphate[5] and pyridoxal phosphate.[4]
Stability: Aldolase is irreversibly denatured at pH values less than 4.5.[13]
Description: Aldolase is a tetrameric protein. It catalyzes a key reaction in glycolysis and energy production:



Aldolase is present in all animal tissue and in most microorganisms. There are two classes of aldolases. Class I aldolase is found in animal and higher plant tissue. Class II aldolase is found in primitrive cells such as yeasts and bacteria.
Class I aldolase is characterized by not requiring a bivalent metal cofactor and the formation of a ketimine Schiff base intermediate with the substrate dihydroxyacetone phosphate.
Class II aldolase requires a metal cofactor and is inhibited by EDTA.
Three types of aldolase exist in animal tissue. The major form, type A is found in muscle; type B is found in liver tissue and type C (plus some type A) is found in brain tissue. Aldolase forms five isozymes which may to various degrees be organ specific.
Typical Assay:
Based on Boyer's modification of the hydrazine assay[7] in which 3-phosphoglyceraldehyde reacts with hydrazine to form a hydrazone which absorbs at 240 nm.
Reagents:
A.0.0001 M EDTA, pH 7.5, containing 0.0035 M hydrazine sulfate.
B.Substrate: 0.012 M Fructose-1,6-bisphosphate, pH 7.5
Enzyme:
Immediately before use, dilute in water to a concentration of 0.5-2.0 units per ml.

$mg/ml = A_{280} \times 1.1$

Procedure:
Set spectrophotometer at 240 nm and 25°C.
Pipette into cuvettes as follows:

	Blank	Test
Reagent B	--	1.0 ml
Reagent A	2.0 ml	2.0 ml
Distilled water	1.0 ml	--

Record DA_{240} for 10 minutes.
Add:

Enzyme Solution	--	0.1 ml

Subtract DA_{240}/min of the blank from DA_{240}/min of the test.
Calculation:

$$\text{Unit/mg} = \frac{\Delta A_{240}/\text{min}}{\text{mg enzyme/ml reaction mixture}}$$

Availability:

Catalog Number	Description	Size
100168	Aldolase, crystalline suspension in an ammonium sulfate solution; activity approximately 15-20 units/mg protein	10 mg 20 mg 100 mg 500 mg 1 g
194121	Aldolase, 2X crystallized, supplied as a suspension in an ammonium sulfate solution; Activity not less than 10 units/mg protein	5 mg 25 mg 100 mg
159859	Aldolase, lyophilized powder; activity not less than 10 units/mg protein	25 mg 100 mg

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