Data Sheet (Cat.No.TMPY-02599)

TargetMol

MDH1 Protein, Rat, Recombinant (His)

General Information

Synonyms:	malate dehydrogenase 1, NAD (soluble)
Protein Construction:	A DNA sequence encoding the rat MDH1 (O88989) (Met 4-Ala 334) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Met 1
Species:	Rat
Expression Host:	E. coli
Accession:	O88989
Molecular Weight:	38 kDa (predicted); 39 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 10% glycerol, pH 8.0.Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Malate dehydrogenases 1(MDH1 / MDHA) is a soluble form of malate dehydrogenases. Malate dehydrogenases (MDH) is a group of multimeric enzymes consisting of identical subunits usually organized as either dimer or tetramers with subunit molecular weights of 30-35 kDa. MDH has been isolated from different sources including archaea, eubacteria, fungi, plants, and mammals. MDH catalyzes the NAD/NADH-dependent interconversion of the substrates malate and oxaloacetate. This reaction plays a key part in the malate/aspartate shuttle across the

mitochondrial membrane, and in the tricarboxylic acid cycle within the mitochondrial matrix. The enzymes share a common catalytic mechanism and their kinetic properties are similar, which demonstrates a high degree of structural similarity. The three-dimensional structures and elements essential for catalysis are conserved between mitochondrial and cytoplasmic forms of MDH in eukaryotic cells even though these isoenzymes are only marginally related at the level of the primary structure.

Reference

Minarik P,et al. (2002) Malate dehydrogenases--structure and function. Gen Physiol Biophys. 21 (3): 257-65.
Musrati RA,et al. (1998) Malate dehydrogenase: distribution, function and properties. Gen Physiol Biophys. 17 (3): 193-210.
Hall MD,et al. (1992) Crystal structure of Escherichia coli malate dehydrogenase. A complex of the apoenzyme and citrate at 1.87 A resolution. J Mol Biol. 226 (3): 867-82.

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