Aconitase 1/ACO1 Protein, Human (sf9, His)

Cat. No.:	HY-P75560
Synonyms:	Cytoplasmic aconitate hydratase; Aconitase; IRP1; IRE-BP 1; ACO1; IREB1
Species:	Human
Source:	Sf9 insect cells
Accession:	P21399 (M1-K889)
Gene ID:	48
Molecular Weight:	Approximately 90 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 50 mM Tris, 100 mM NaCl, pH 8.0, 10% Glycerol, 2 mM DTT. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The Aconitase 1/ACO1 protein serves as a bifunctional iron sensor, dynamically adapting its activities based on cellular iron availability. Under conditions of iron deprivation, it undergoes a shift to mRNA binding activity, regulating the expression of genes involved in iron uptake, sequestration, and utilization. ACO1 binds to iron-responsive elements (IRES) in the untranslated regions of target mRNAs, thereby modulating translation—for instance, inhibiting the translation of ferritin and aminolevulinic acid synthase while stabilizing the mRNA of the transferrin receptor. Conversely, when cellular iron levels are elevated, ACO1 forms a 4Fe-4S cluster that precludes RNA binding activity and facilitates its aconitase activity. In this mode, ACO1 catalyzes the isomerization of citrate to isocitrate via cis-aconitate. This dual functionality underscores ACO1's crucial role in the intricate regulatory network governing cellular responses to varying iron concentrations.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA