

## 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          | Solution                                                                                                                                                                             |
| Formulation         | Supplied as a 0.2 µm filtered solution of 20 mM Tris, 300 mM NaCl, pH 8.0, 10% Glycerol.                                                                                             |
| Endotoxin Level     | <1 EU/µg, determined by LAL method.                                                                                                                                                  |
| Reconstitution      | N/A.                                                                                                                                                                                 |
| Storage & Stability | Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles. |
| Shipping            | Shipping with dry ice                                                                                                                                                                |

### DESCRIPTION

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| 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. |
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**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