

## Product datasheet for PH301857

### Aconitase 1 (ACO1) (NM\_002197) Human Mass Spec Standard

#### Product data:

|                                       |  |
|---------------------------------------|--|
| Product Type:                         | Mass Spec Standards  |
| Description:                          | ACO1 MS Standard C13 and N15-labeled recombinant protein (NP_002188) |
| Species:                              | Human  |
| Expression Host:                      | HEK293   |
| Expression cDNA Clone or AA Sequence: | RC201857   |
| Predicted MW:                         | 98.4 kDa   |
| Protein Sequence:                     | >RC201857 protein sequence<br>Red=Cloning site Green=Tags(s)         |

MSNPFAHLAEPLDPVQPGKFFNLNKLEDSRYGRLPFSIRVLLAAIRNCDEFLVKKQDIENILHWNVTQ  
HKNIEVPFKPARVILQDFGTGVPVVDFAAMRDAVKKLGDPKINPVCPADLVIDHSIQVDFNRRADSLQ  
KNQDLEFERNRERFEFLKWSQAFHNMRIIPPGSGIIHQVNLEYLARVVFQDGYYPDSLVTGDSHTTM  
IDGLGILGWVGGIEAEAVMLGQPI SMVLPQVIGYRLMGKPHPLVTSTDIVLTITKHLRQVGVVGGKFEF  
FGPGVAQLSIADRATIANMCPEYGATAAFFPVDEVSITYLVQVGRDEEKLYIKKYLQAVGMFRDFNDPS  
QDPDFTQVVELDLKTVVPCCSGPKRPQDKVAVSDMKKDFESCLGAKQGFQVVAPEHHNDHKTFIYDNT  
EFTLAHGSVVIAAITSCTNTSNPSVMLGAGLLAKKAVDAGLNVMPYIKTSLSPGSGVVTYLQESGVMPY  
LSQLGFDVVVGYGCMTCIGNSGPLPEPVVEAITQGDVAVGVLSGNRNFEGRVHPNTRANYLASPLVIAY  
AIAGTIRIDFEKEPLGVNAKQQVFLKDIWPTRDEIQAVRQYVIPGMFKEVYQKIETVNESWNALATPS  
DKLFFWNSKSTYIKSPPFFENLTDLQPPKSIVDAYVLLNLGDSVTTDHI SPAGNIARNSPAARYLTNRG  
LTPREFNSYGSRRGNDAVMARGTFANIRLLNRFLNKQAPQTIHLPSGEILDVFDAAERYQQAGLPLIVLA  
GKEYGAGSSRDWAAGPFLGKAVLAESYERIHRSNLVGMGVIPLEYLPGENADALGLTGQERYTIIIP  
ENLKPQMKVQVKLDTGKTFQAVMRFDTDVELTYFLNGGILNYMIRKMAK

TRTRPLEQKLI SEEDLAANDILDYKDDDDKV

|                  |  |
|------------------|--|
| Tag:             | C-Myc/DDK  |
| Purity:          | > 80% as determined by SDS-PAGE and Coomassie blue staining  |
| Concentration:   | >0.05 µg/µL as determined by microplate BCA method   |
| Labeling Method: | Labeled with [U- <sup>13</sup> C <sub>6</sub> , <sup>15</sup> N <sub>4</sub> ]-L-Arginine and [U- <sup>13</sup> C <sub>6</sub> , <sup>15</sup> N <sub>2</sub> ]-L-Lysine |
| Buffer:          | 25 mM Tris-HCl, 100 mM glycine, pH 7.3   |
| Storage:         | Store at -80°C. Avoid repeated freeze-thaw cycles.   |
| Stability:       | Stable for 3 months from receipt of products under proper storage and handling conditions.   |



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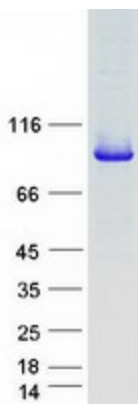
|               |   |
|---------------|---|
| RefSeq:       | <a href="#">NP_002188</a>                       |
| RefSeq Size:  | 3561  |
| RefSeq ORF:   | 2667  |
| Synonyms:     | ACONS; HEL60; IREB1; IREBP; IREBP1; IRP1        |
| Locus ID:     | 48  |
| UniProt ID:   | <a href="#">P21399</a> , <a href="#">V9HWB7</a> |
| Cytogenetics: | 9p21.1  |

**Summary:** The protein encoded by this gene is a bifunctional, cytosolic protein that functions as an essential enzyme in the TCA cycle and interacts with mRNA to control the levels of iron inside cells. When cellular iron levels are high, this protein binds to a 4Fe-4S cluster and functions as an aconitase. Aconitases are iron-sulfur proteins that function to catalyze the conversion of citrate to isocitrate. When cellular iron levels are low, the protein binds to iron-responsive elements (IREs), which are stem-loop structures found in the 5' UTR of ferritin mRNA, and in the 3' UTR of transferrin receptor mRNA. When the protein binds to IRE, it results in repression of translation of ferritin mRNA, and inhibition of degradation of the otherwise rapidly degraded transferrin receptor mRNA. The encoded protein has been identified as a moonlighting protein based on its ability to perform mechanistically distinct functions. Alternative splicing results in multiple transcript variants [provided by RefSeq, Jan 2014]

**Protein Families:** Druggable Genome

**Protein Pathways:** Citrate cycle (TCA cycle), Glyoxylate and dicarboxylate metabolism, Metabolic pathways

### Product images:



Coomassie blue staining of purified ACO1 protein (Cat# [TP301857]). The protein was produced from HEK293T cells transfected with ACO1 cDNA clone (Cat# [RC201857]) using MegaTran 2.0 (Cat# [TT210002]).