

## Recombinant Human Malic Enzyme 2, His

### Information

<b>Gene ID</b>	4200
<b>Accession #</b>	P23368
<b>Alternate Names</b>	NAD-dependent Malic Enzyme, Mitochondrial, NAD-ME
<b>Source</b>	Escherichia coli.
<b>M.Wt</b>	Approximately 64.4 kDa, a single non-glycosylated polypeptide chain containing 573 amino acids with 6 × His at C-terminus.
<b>AA Sequence</b>	MLHIKEKGKP LMLNPRTNKG MAFTLQERQM LGLQGILLPPK IETQDIQALR FHRNLKKMTS PLEKYIYIMG IQERNEKLFY RILQDDIESL MPIVYTPTVG LACSQYGHIF RRPKGLFISI SDRGHVRSIV DNWPENHVKA VVVDGERIL GLGDLGVYGM GIPVGKLCY TACAGIRPDR CLPVCIDVGT DNIALLKDPF YMGLYQKRDR TQQYDDLIDE FMKAITDRYG RNTLIQFEDF GNHNAFRFLR KYREKYCTFN DDIQGTAAVA LAGLLAAQKV ISKPISEHKI LFLGAGEAAL GIANLIVMSM VENGLSEQEA QKKIWMFDKY GLLVKGRKAK IDSYQEPFTH SAPESIPDTF EDAVNILKPS TIIGVAGAGR LFTPDVIRAM ASINERPVIF ALSNPTAQAE CTAEAYTLT EGRCLFASGS PFGPVKLT DG RVFTPGQGNN VYIFPGVALA VILCNTRHIS DSVFLEAAGA LTSQLTDEEL AQGRLYPPLA NIQEVSNIA IKVTEYLYAN KMAFRYPEPE DKAKYVKERT WRSEYDSSLP DVEWPEPAS SPPVITEHHH HHH
<b>Appearance</b>	Sterile Filtered White lyophilized (freeze-dried) powder.
<b>Stability &amp; Storage</b>	Use a manual defrost freezer and avoid repeated freeze-thaw cycles - 12 months from date of receipt, -20 to -70 °C as supplied - 1 month, 2 to 8 °C under sterile conditions after reconstitution - 3 months, -20 to -70 °C under sterile conditions after reconstitution
<b>Formulation</b>	Lyophilized from a 0.2 μm filtered concentrated solution in PBS, pH 7.4.
<b>Reconstitution</b>	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at ≤ -20 °C. Further dilutions should be made in appropriate buffered solutions.
<b>Biological Activity</b>	Malic Enzyme activity was assayed spectrophotometrically at 340nm as described in Mandela and Sauer (1975). The standard reaction mixture contained 50 mM Tris-HCl, 3 mM MnCl <sub>2</sub> , 5 mM malate, 0.12 mM NADP <sup>+</sup> , 2.5 mM fumarate. Assay was performed in a Beckman spectrophotometer. The Km value is 1.5 ± 0.6 mM.
<b>Shipping Condition</b>	Gel pack.
<b>Handling</b>	Centrifuge the vial prior to opening.
<b>Usage</b>	For Research Use Only! Not to be used in humans.

### Components and Storage

Components	5µg	100µg	500µg
Recombinant Human Malic Enzyme 2, His	5µg	100µg	500µg

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- 12 months from date of receipt, -20 to -70 °C as supplied
- 1 month, 2 to 8 °C under sterile conditions after reconstitution
- 3 months, -20 to -70 °C under sterile conditions after reconstitution

## Quality Control

Purity	> 95 % by SDS-PAGE and HPLC analyses.
Endotoxin	Less than 1 EU/µg of rHuME2, His as determined by LAL method.

## Description

NAD-dependent malic enzyme (ME2), mitochondrial is a protein that in humans is encoded by the ME2 gene. This gene encodes a mitochondrial NAD-dependent malic enzyme, a homotetrameric protein, which catalyzes the oxidative decarboxylation of malate to pyruvate. Three different isoforms of ME are known to be in mammalian tissues: a strictly cytosolic NADP<sup>+</sup>-dependent enzyme, an NADP<sup>+</sup>-dependent mitochondrial isoform, and a mitochondrial isoenzyme that is able to use both NAD<sup>+</sup> and NADP<sup>+</sup> but is more effective with NAD<sup>+</sup>. The mammalian isoforms size is about 62-64 kDa. A native size of 240,000 Da proposes a tetrameric structure for the active enzyme.

## Reference

1. Cousins AB, Badger MR, von Caemmerer S. 2008. J Exp Bot, 59: 1695-703
2. Murmu JandRaghavendra AS. 2005. J Plant Physiol, 162: 1095-102
3. Murmu J, Chinthapalli B, Raghavendra AS. 2003. J Exp Bot, 54: 2661-8
4. Hill S, Winning B, Jenner H, et al. 1996. Biochem Soc Trans, 24: 743-6.

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**[www.apexbt.com](http://www.apexbt.com)**

7505 Fannin street, Suite 410, Houston, TX 77054.

Tel: +1-832-696-8203 | Fax: +1-832-641-3177 | Email: [info@apexbt.com](mailto:info@apexbt.com)