OGDC-E Protein, Mouse (His-SUMO)

Cat. No.:	HY-P71567
Synonyms:	Ogdh; Kiaa4192; 2-oxoglutarate dehydrogenase; mitochondrial; EC 1.2.4.2; 2-oxoglutarate dehydrogenase complex component E1; OGDC-E1; Alpha-ketoglutarate dehydrogenase
Species:	Mouse
Source:	E. coli
Accession:	Q60597 (695V-1023S)
Gene ID:	18293
Molecular Weight:	Approximately 54 kDa

PROPERTIES

AA Sequence	V D K R T C I P M N H L W P N Q A P Y T V C N S S L S E Y G V L G F E L G F A M A S P N A L V L W E A Q F G D F N N M A Q C I I D Q F I C P G Q A K W V R Q N G I V L L L P H G M E G M G P E H S S A R P E R F L Q M C N D D P D V L P D L Q E E N F D I N Q L Y D C N W I V V N C S T P G N F F H V L R R Q I L L P F R K P L I V F T P K S L L R H P E A R T S F D E M L P G T H F Q R V I P E N G P A A Q D P H K V K R L L F C T G K V Y Y D L T R E R K A R N M E E E V A I T R I E Q L S P F P F D L L L K E A Q K Y P N A E L A W C Q E E H K N Q G Y Y D Y V K P R L R T T I D R A K P V W Y A G R D P A A A P A T G N K K T H L T E L Q R F L D T A F D L D A F K K F S
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against solution in 10 mM Tris-HCl, 1 mM EDTA, 6% Trehalose, pH 8.0.
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 OGDC-E protein is a component of the 2-oxoglutarate dehydrogenase complex (OGDHC), specifically the E1o component. It plays a crucial role in the first and rate-limiting step of converting 2-oxoglutarate to succinyl-CoA and CO(2)

within the OGDHC. This conversion is catalyzed by the entire OGDHC. The OGDC-E protein facilitates the irreversible decarboxylation of 2-oxoglutarate (alpha-ketoglutarate) using the thiamine diphosphate (ThDP) cofactor. It then transfers the decarboxylated acyl intermediate to an oxidized dihydrolipoyl group that is covalently linked to the E2 enzyme (dihydrolipoyllysine-residue succinyltransferase or DLST). This process occurs in the mitochondrion and is a critical step in the Krebs (citric acid) cycle, which is a common pathway for oxidizing fuel molecules such as carbohydrates, fatty acids, and amino acids. While the OGDC-E protein can catalyze the decarboxylation of 2-oxoadipate in vitro, it does so at a much slower rate compared to 2-oxoglutarate. Additionally, a fraction of the 2-oxoglutarate dehydrogenase complex localizes in the nucleus and is involved in lysine succinylation of histones. It associates with KAT2A on chromatin and supplies succinyl-CoA to the histone succinyltransferase KAT2A.

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