FXN Protein, Mouse (P.pastoris, His)

Cat. No.:	HY-P71735
Synonyms:	Fxn; FrdaFrataxin; mitochondrial; Fxn
Species:	Mouse
Source:	P. pastoris
Accession:	O35943 (78L-207T)
Gene ID:	14297
Molecular Weight:	Approximately 16.4 kDa

PROPERTIES

AA Sequence	L G T L D N P S S L D E T A Y E R L A E E T L D S L A E F F E D L A D K P Y T L E D Y D V S F G D G V L T I K L G G D L G T Y V I N K Q T P N K Q I W L S S P S S G P K R Y D W T G K N W V Y S H D G V S L H E L L A R E L T K A L N T K L D L S S L A Y S G K G T
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 Tris-based buffer, 50% glycerol.
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 FXN protein operates as a pivotal activator within the core iron-sulfur cluster (ISC) assembly complex, orchestrating persulfide transfer to the scaffolding protein ISCU and participating in [2Fe-2S] cluster assembly. FXN accelerates sulfur transfer from the NFS1 persulfide intermediate to ISCU and small thiols like L-cysteine and glutathione, leading to persulfuration and eventual sulfide release. It binds ferrous ion and is released from FXN upon the addition of both L-cysteine and reduced FDX2 during [2Fe-2S] cluster assembly. This ISC assembly complex is integral to de novo synthesis of a [2Fe-2S] cluster, the initial step in mitochondrial iron-sulfur protein biogenesis. The process involves the cysteine desulfurase complex (NFS1:LYRM4:NDUFAB1), initiating persulfide production, and FXN-dependent delivery to ISCU. FDX2

stabilizes this complex, providing reducing equivalents for [2Fe-2S] cluster assembly. The cluster is subsequently transferred from ISCU to chaperone proteins, including HSCB, HSPA9, and GLRX5. FXN may play a role in protecting against iron-catalyzed oxidative stress by catalyzing the oxidation of Fe(2+) to Fe(3+), exhibiting ferroxidase activity in its oligomeric form. It potentially acts as an iron chaperone, safeguarding the aconitase [4Fe-4S]2+ cluster, promoting enzyme reactivation, and serving as a high-affinity iron binding partner for FECH, contributing to mitochondrial heme biosynthesis. FXN also modulates the RNA-binding activity of ACO1, may participate in cytoplasmic iron-sulfur protein biogenesis, and could contribute to oxidative stress resistance and overall cell survival.

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