Frataxin/FXN Protein, Human (His, Myc)

Cat. No.:	HY-P72266
Synonyms:	CyaY; FRDA; X25
Species:	Human
Source:	E. coli
Accession:	Q16595 (M1-A210)
Gene ID:	2395
Molecular Weight:	Approximately 33 kDa

PROPERTIES

AA Sequence	MWTLGRRAVA GLLASPSPAQ AQTLTRVPRP AELAPLCGRR GLRTDIDATC TPRRASSNQR GLNQIWNVKK QSVYLMNLRK SGTLGHPGSL DETTYERLAE ETLDSLAEFF EDLADKPYTF EDYDVSFGSG VLTVKLGGDL GTYVINKQTP NKQIWLSSPS SGPKRYDWTG KNWVYSHDGV SLHELLAAEL TKALKTKLDL SSLAYSGKDA
Appearance	Lyophilized powder.
Formulation	Lyophilized from 0.22 μm filtered solution in PBS, 6% Trehalose, pH 7.4.
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	Frataxin/FXN protein serves as an activator within the core iron-sulfur cluster (ISC) assembly complex, facilitating persulfide transfer to the scaffolding protein ISCU and participating in [2Fe-2S] cluster assembly. It expedites sulfur transfer from the NFS1 persulfide intermediate to ISCU and small thiols like L-cysteine and glutathione, leading to persulfuration and sulfide release. Frataxin/FXN is integral to the de novo synthesis of a [2Fe-2S] cluster, initiated by the cysteine desulfurase complex (NFS1:LYRM4:NDUFAB1) producing persulfide, which is delivered to ISCU in a FXN-dependent manner. This complex is stabilized by FDX2, providing reducing equivalents for [2Fe-2S] cluster assembly. The cluster is subsequently transferred from ISCU to chaperone proteins, including HSCB, HSPA9, and GLRX5. Frataxin/FXN may play a role in protecting against

iron-catalyzed oxidative stress through its ferroxidase activity, particularly in its oligomeric form. It might also function as an iron chaperone, safeguarding the aconitase [4Fe-4S]2+ cluster and promoting enzyme reactivation. Additionally, Frataxin/FXN may act as a high-affinity iron binding partner for FECH, contributing to mitochondrial heme biosynthesis, modulating the RNA-binding activity of ACO1, and potentially influencing cytoplasmic iron-sulfur protein biogenesis, overall impacting oxidative stress resistance and cell survival.

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