LOXL2 Protein, Human (CHO, His)

Cat. No.:	HY-P74771
Synonyms:	Lysyl oxidase homolog 2; Lysyl oxidase-related protein WS9-14; LOXL2
Species:	Human
Source:	CHO
Accession:	Q9Y4K0 (M1-Q774)
Gene ID:	4017
Molecular Weight:	Approximately 85.5 kDa

PROPERTIES

Biological Activity	Measured by its ability to produce hydrogen peroxide during the oxidation of benzylamine and the specific activity is >2 pmol/min/μg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM MES, 50 mM NaCl. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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 LOXL2 protein functions as a mediator in the post-translational oxidative deamination of lysine residues on target proteins, leading to the formation of deaminated lysine (allysine). Acting as a transcription corepressor, LOXL2 specifically mediates deamination of trimethylated 'Lys-4' of histone H3 (H3K4me3), a specific tag for epigenetic transcriptional activation. Notably, LOXL2 does not exhibit activity against histone H3 when it is trimethylated on 'Lys-9' (H3K9me3) or 'Lys-27' (H3K27me3) or when 'Lys-4' is monomethylated (H3K4me1) or dimethylated (H3K4me2). Additionally, LOXL2 mediates deamination of methylated TAF10, a member of the transcription factor IID (TFIID) complex, inducing the release of TAF10 from promoters and leading to the inhibition of TFIID-dependent transcription. This repression results in the downregulation of genes essential for embryonic stem cell pluripotency, including POU5F1/OCT4, NANOG, KLF4, and SOX2. LOXL2 is involved in epithelial to mesenchymal transition (EMT), participating in the repression of E-cadherin (CDH1) through the deamination of histone H3. It interacts with the endoplasmic reticulum protein HSPA5, activating the IRE1-XBP1 pathway of the unfolded protein response, and is implicated in E-cadherin repression following hypoxia, potentially contributing to tumor progression. Furthermore, when secreted into the extracellular matrix, LOXL2 promotes the cross-

	linking of extracellular matrix proteins by mediating oxidative deamination of peptidyl lysine residues in precursors to fibrous collagen and elastin. It also acts as a regulator of sprouting angiogenesis and chondrocyte differentiation.

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