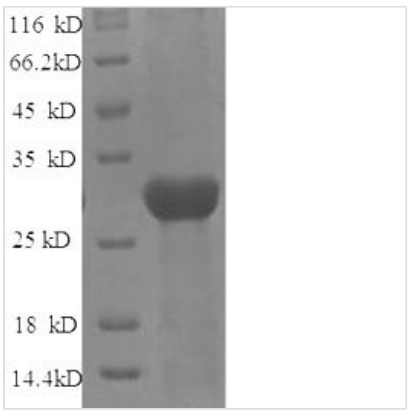
Recombinant Rat Protein-lysine 6-oxidase (Lox)

Product Code	CSB-EP013038RA
Relevance	Responsible for the post-translational oxidative deamination of peptidyl lysine residues in precursors to fibrous collagen and elastin.
Abbreviation	Recombinant Rat Lox protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P16636
Alias	Lysyl oxidase
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	DDPYNPYKYSDDNPYYNYYDTYERPRSGSRHRPGYGTGYFQYGLPDLVPDP YYIQASTYVQKMSMYNLRCAAEENCLASSAYRADVRDYDHRVLLRFPQRVKN QGTSDFLPSRPRYSWEWHSCHQHYHSMDEFSHYDLLDASTQRRVAEGHKAS FCLEDTSCDYGYHRRFACTAHTQGLSPGCYDTYAADIDCQWIDITDVQPGNYI LKVSVNPSYLVPESDYSNNVVRCEIRYTGHHAYASGCTISPY
Research Area	Others
Source	E.coli
Target Names	Lox
Expression Region	163-411aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	33.0kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Rat Protein-lysine 6-oxidase (Lox) is produced in E. coli and spans the full length of the mature protein from amino acids 163 to 411. This high-purity preparation exceeds 90% purity as confirmed by SDS-PAGE and includes an N-terminal 6xHis-tag for easier purification and detection. The recombinant protein is designed strictly for research applications and appears suitable for various experimental approaches.

Protein-lysine 6-oxidase (Lox) serves as a key enzyme for cross-linking collagen and elastin, which means it plays a significant role in maintaining structural integrity of the extracellular matrix. The enzyme's activity seems essential during connective tissue remodeling and has become a central focus in studies examining tissue development and repair. Many researchers explore Lox within the context of fibrosis and cancer metastasis, given its apparent involvement in these critical biological pathways.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Protein-Protein Interaction Studies Using Pull-Down Assays

The N-terminal 6xHis-tagged recombinant rat Lox protein can be immobilized on nickel-affinity resins to identify potential binding partners from rat tissue lysates or cell extracts. This strategy may help clarify the molecular interactions of Lox in extracellular matrix formation and collagen processing pathways. With its high purity (>90%), there should be minimal background binding from contaminating proteins during pull-down experiments. Mass spectrometry analysis of co-precipitated proteins could potentially reveal novel Lox-interacting proteins in rat models.

2. Antibody Development and Validation

This recombinant rat Lox protein appears to be an ideal antigen for generating specific antibodies against the mature form of the enzyme. The defined expression region (163-411aa) represents the full-length mature protein, which suggests that resulting antibodies will likely recognize the biologically relevant form of Lox. Both the high purity and His-tag allow for straightforward purification and quantification needed for immunization protocols. Generated antibodies can then be validated using ELISA, Western blot, and immunoprecipitation assays with this same recombinant protein serving as a positive control.

3. Biochemical Characterization and Enzyme Kinetics Studies

The recombinant protein may prove useful for investigating the biochemical properties of rat Lox, including optimal pH, temperature stability, and cofactor

requirements. Researchers can perform substrate specificity studies using various lysine and hydroxylysine-containing peptides or proteins to better understand the enzyme's catalytic preferences. The purified protein allows for controlled in vitro experiments to determine kinetic parameters and inhibitor sensitivity profiles. Such studies would likely provide fundamental biochemical data for rat Lox that can be compared across different species.

4. Structural Biology Applications

The high-purity recombinant rat Lox protein can be applied to structural studies including X-ray crystallography, NMR spectroscopy, or cryo-electron microscopy. The His-tag makes possible additional purification steps that may be necessary for structural biology work. Comparative structural analysis with Lox from other species could reveal evolutionary conservation and species-specific differences in active site architecture. These structural insights would likely enhance our understanding of the catalytic mechanism and substrate recognition patterns of mammalian lysyl oxidases.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.