

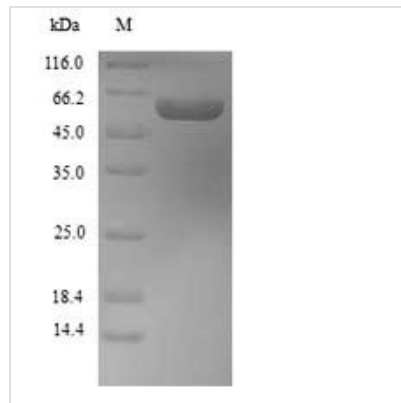


Recombinant Mouse Aldehyde dehydrogenase 1A1 (Aldh1a1)

Product Code	CSB-YP001565MO
Relevance	In addition to the activity on acetaldehyde and related substrates, is also involved in the oxidation of aldehydes derived from biogenic amines such as epinephrine and norepinephrine, as well as the aldehydes generated via lipid peroxidation. Binds free retinal and cellular retinol-binding protein-bound retinal. Can convert/oxidize retinaldehyde to retinoic acid
Abbreviation	Recombinant Mouse Aldh1a1 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.	P24549
Product Type	Recombinant Proteins
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	SSPAQPAVPAPLADLKIQHTKIFINNEWHNSVSGKKFPVLNPATEEVICHVEEG DKADVDKAVKAAARQAFQIGSPWRTMDASERGRLLNKLADLMERDRLLLATME ALNGGKVFANAYLSDLGGCIKALKYCAGWADKIHGQTIPSDGDIFTYTRREPIG VCGQIIPWNFPMLMFIWKIGPALSCGNTVVVKPAEQTPLTALHLASLIKEAGFPP GVVNIVPGYGPTAGAAISSHMDVDKVAFTGSTQVGKLIKEAAGKSNLKRVTLEL GGKSPCIVFADADLDIAVEFAHHGVFYHQGCCVAASRIFVEESVYDEFVKRS VERAKKYVLGNPLTPGINQGPQIDKEQHDKILDIESGKKEGAKLECGGGRWG NKGFFVQPTVFSNVTDEMRIAKEEIFGPVQQIMKFKSVDDVIKRANNTTYGLAA GLFTKDLDKAITVSSALQAGVWVNCYMMLSAQCPFGGFKMSGNGRELGEH GLYEYTELKTVMKISQKNS
Research Area	Cancer
Source	Yeast
Target Names	Aldh1a1
Protein Names	Recommended name: Retinal dehydrogenase 1 Short name= RALDH 1 Short name= RalDH1 EC= 1.2.1.36Alternative name(s): ALDH-E1 ALHDII Aldehyde dehydrogenase family 1 member A1 Aldehyde dehydrogenase, cytosolic
Expression Region	2-501aa
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	56.3kDa


Protein Length

Full Length of Mature Protein

Image


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

Description

Generating the recombinant mouse Aldehyde dehydrogenase 1A1 (ALDH1A1) with an N-terminal 6xHis-tag involves cloning the target gene, fused with the 6xHis-tag sequence, into a plasmid vector and transforming the yeast cells. The target gene encodes the 2-501aa of the mouse Aldh1a1. The cells are cultured and induced for protein expression, followed by cell lysis. Nickel affinity chromatography is used for protein purification, capitalizing on the His-tag's affinity for nickel. The protein's purity is evaluated using SDS-PAGE, exceeding 90%.

ALDH1A1 is a vital enzyme responsible for oxidizing aldehydes to their corresponding acids [1]. This property can deactivate essential chemotherapeutic agents [2]. ALDH1A1 is involved in various biological processes such as UV-radiation resistance, melanogenesis, and stem cell maintenance [3]. ALDH1A1 has been associated with tumor growth and drug resistance in lung adenocarcinoma and triple-negative breast carcinoma [2][4]. It is linked to poor differentiation, 'right-sidedness,' and reduced survival in colorectal cancer [5]. ALDH1A1 is a marker for malignant prostate stem cells and has predictive value for prostate cancer patient outcomes [9].

Furthermore, ALDH1A1 is implicated in retinoic acid synthesis, particularly in the developing retina, where it regulates gene expression involved in tumor-initiating stem-like cells [6][4]. In the nigrostriatal dopamine system, ALDH1A1 is selectively expressed by dopaminergic neurons and mitigates dyskinesia through transsynaptic retinoic acid signaling [7][8].

References:

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Shelf Life

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