

AR09142PU-L**Recombinant Human ALDH2 (aa 18-517) - Purified****Alternate names:**

ALDH class 2, ALDH-E2, ALDH1, ALDM, Aldehyde dehydrogenase mitochondrial

Quantity:

0.5 mg

Concentration:

1.0 mg/ml (determined by Bradford assay)

Background:

ALDH2 (Aldehyde dehydrogenase 2 family) belongs to the aldehyde dehydrogenase family which catalyze the chemical transformation from acetaldehyde to acetic acid and is the second enzyme of the major oxidative pathway of alcohol metabolism. There are two major liver isoforms of this enzyme, cytosolic and mitochondrial, and they can be also distinguished by their electrophoretic mobilities, kinetic properties, and subcellular localizations. Recombinant human ALDH2 protein was expressed in *E.coli* and purified by using conventional chromatography techniques.

Uniprot ID:[P05091](#)**NCBI:**[NP_000681](#)**GeneID:**[217](#)**Species:**

Human

Source:*E. coli***Format:****State:** Liquid purified protein**Purity:** >90% by SDS - PAGE**Buffer System:** 20 mM Tris-HCl buffer (pH 7.5) containing 1 mM DTT, 1 mM EDTA, 10% Glycerol**Endotoxin Level:** < 1.0 EU per 1 µg of protein (determined by LAL method)**Description:**

Recombinant Human ALDH2 protein was expressed in *E.coli* and purified by using conventional chromatography techniques.

AA Sequence:

```
MSAAATQAVP APNQOPEVFC NQIFINNEWH DAVSRKTFPT VNPSTGEVIC QVAEGDKEDV
DKAVKAARAA FQLGSPWRRM DASHRGRLLN RLADLIERDR TYLAALETLD NGKPYVISYL
VDLDMVLKCL RYYAGWADKY HGKTIPIDGD FFSYTRHEPV GVCQGIIIPWN FPLLMQAWKL
G PALATGNVV VMKVAEQTPL TALYVANLIK EAGFPPGVVN IVPFGFPTAG AAIASHEDVD
KVAFTGSTEI GRVIQVAAGS SNLKRVTLEL GGKSPNIIMS DADMDWAVEQ AHFALFFNQG
QCCCAGSRTF VQEDIYDEFV ERSVARAKSR VVGNPFDSKT EQGPQVDETQ FKKILGYINT
GKQEGAKLLC GGGIAADRGY FIQPTVFGDV QDGMTIAKEE IFGPVMQILK FKTIEEVVGR
ANNSTYGLAA AVFTKDLDKA NYLSQALQAG TVWVNCYDVF GAQSPFGGYK MSGSGRELGE
YGLQAYTEVK TTVTKVPQKN S
```

Specific Activity: Specific activity is > 250 pmol/min/ug, and was obtained by measuring the increase of NADH in absorbance at 340 nm resulting from the reduction of NAD at pH 8.0 at 25°C.

Molecular weight: 54.5 kDa (501aa), confirmed by MALDI-TOF

Storage:

Store undiluted at 2-8°C for up to two weeks or (in aliquots) at -20°C or -70°C for longer.

Avoid repeated freezing and thawing.

Shelf life: one year from despatch.

General Readings:

1. Crabb DW, Edenberg HJ, Bosron WF, Li TK. Genotypes for aldehyde dehydrogenase deficiency and alcohol sensitivity. The inactive ALDH2(2) allele is dominant. J Clin Invest. 1989 Jan;83(1):314-6. PubMed PMID: 2562960.
2. Liu F, Schnable PS. Functional specialization of maize mitochondrial aldehyde dehydrogenases. Plant Physiol. 2002 Dec;130(4):1657-74. PubMed PMID: 12481049.
3. Bostian KA, Betts GF. Rapid purification and properties of potassium-activated aldehyde dehydrogenase from *Saccharomyces cerevisiae*. Biochem J. 1978 Sep 1;173(3):773-86. PubMed PMID: 213051.

Protocols:**Activity Assay:**

1. Prepare a 180 μ l assay buffer into a suitable container: The concentrations are 100 mM Tris-HCl (pH 8.0), 2 mM beta-NAD, 100 mM potassium chloride, 10 mM 2-mercaptoethanol, 2 mM acetaldehyde
2. Equilibrate to 25°C and monitor the A340nm until value is constant using a spectrophotometer.
3. Add 20 μ l of recombinant ALDH2 protein 400 μ g/ml in assay buffer.
4. Record the increase in A340nm for 5 minutes.

Pictures:

Recombinant human ALDH2, 18-517 aa:
15% SDS-PAGE (3 μ g)

