

Recombinant Human AKR1C1, His-tagged

Cat. No. AKR1C1-2028H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human AKR1C1 protein with his tag was expressed in <i>E. coli</i> and purified by using conventional chromatography techniques, 38.9 kDa (343aa).
Species	Human
Source	E.coli
Description	AKR1C1 is a member of the aldo/keto reductase superfamily, which consists of more than 40 known enzymes and proteins. These enzymes catalyze the conversion of aldehydes and ketones to their corresponding alcohols by utilizing NADH and/or NADPH as cofactors. The enzymes display overlapping but distinct substrate specificity. This enzyme catalyzes the reduction of progesterone to the inactive form 20-alpha-hydroxy-progesterone.
Form	Liquid. In 20mM Tris-HCl buffer (pH 8.0) containing 1mM DTT 20% glycerol.
Purity	> 90% by SDS - PAGE.
Concentration	0.5 mg/ml (determined by Bradford assay).
Sequences Of Amino Acids	MGSSHHHHHH SSGLVPRGSH MDSKYQCVKL NDGHFMPVLG FGTYAPAEVP KSKALEATKL AIEAGFRHID SAHLYNNEEQ VGLAIRSKIA DGSVKREDIF YTSKLWCNSH RPELVRPALE RSLKNLQLDY VDLYLIHFPV SVKPGEEVIP KDENGKILFD TVDLCATWEA VEKCKDAGLA KSIGVSNFNR RQLEMILNKP GLKYKPVCNQ VECHPYFNQR KLLDFCKSKD IVLVAYSALG SHREEPWVDP

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NSPVLLDPV LCALAKKHKR TPALIALRYQ LQRGVVVLAK SYNEQRIRQN
VQVFEFQLTS EEMKAIDGLN RNVRYLTLDI FAGPPNYPFS DEY.

Biological activity

Specific activity: approximately 0.15 - 0.2 units/mg. Enzymatic activity was confirmed by measuring the amount of enzyme catalyzing the oxidation of 1 micromole NADPH per minute at 25°C. Specific activity was expressed as units/mg protein.

Activity Assay

1. Prepare a 1.mll reaction mix into a suitable container: the final concentrations are 0.1M sodium phosphate (pH7.0), 10mM DL-glyceraldehyde, 0.3mM NADPH. 2. Add 50ul of recombinant AKR1C1 solution with various concentrations (2.5ug, 5ug, 10ug) in 750ul reaction buffer. 3. Mix by inversion and Incubate at 25°C for 2.5 minutes. 4. Add 200ul of 50 mM DL-glyceraldehyde as a substrate and immediately mix by inversion. 5. Record the increase in A340nm for 3 minutes.

Storage

can be stored at +4°C short term (1-2 weeks). For long term storage, aliquot and store at -20°C or -70°C. Avoid repeated freezing and thawing cycles.

Pathways

Metabolism of xenobiotics by cytochrome P450; Steroid hormone biosynthesis

GENE INFORMATION

Gene Name

[AKR1C1](#) [aldo-keto reductase family 1, member C1 \(dihydrodiol dehydrogenase 1; 20-alpha \(3-alpha\)-hydroxysteroid dehydrogenase\)](#) [[Homo sapiens](#)]

Synonyms

aldo-keto reductase family 1, member C1 (dihydrodiol dehydrogenase 1; 20-alpha (3-alpha)-hydroxysteroid dehydrogenase); C9; DD1; DDH; DDH1; H-37; MBAB; HAKRC; MGC8954; 2-ALPHA-HSD; 20-ALPHA-HSD; AKR1C1; aldo-keto reductase family 1 member C1; HBAB; DD1/DD2; aldo-keto reductase C; indanol dehydrogenase; dihydrodiol dehydrogenase 1; dihydrodiol dehydrogenase 1/2; hepatic dihydrodiol dehydrogenase; chlordecone reductase homolog HAKRC; 20 alpha-hydroxysteroid

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dehydrogenase; 20-alpha-hydroxysteroid dehydrogenase; dihydrodiol dehydrogenase isoform DD1; type II 3-alpha-hydroxysteroid dehydrogenase; high-affinity hepatic bile acid-binding protein; trans-1,2-dihydrobenzene-1,2-diol dehydrogenase; Trans-1,2-dihydrobenzene-1,2-diol dehydrogenase; Dihydrodiol dehydrogenase 1/2; High-affinity hepatic bile acid-binding protein; Chlordecone reductase homolog HAKRC; EC 1.1.1.-,EC 1.1.1.149,EC 1.3.1.20,EC 1.1.1.112

Gene ID 1645

mRNA Refseq NM_001353

Protein Refseq NP_001344

MIM 600449

UniProt ID Q04828

Chromosome Location 10p15-p14

Function trans-1,2-dihydrobenzene-1,2-diol dehydrogenase activity; 20-alpha-hydroxysteroid dehydrogenase activity; 3-alpha-hydroxysteroid dehydrogenase (B-specific) activity; aldo-keto reductase activity; bile acid binding; carboxylic acid binding; indanol dehydrogenase activity; oxidoreductase activity

PDB rendering based on 1ihi.