OriGene Technologies, Inc.
9620 Medical Center Drive, Ste 200
Rockville, MD 20850
UNITED STATES
Phone: +1-888-267-4436
Fax: +1-301-340-8606
techsupport@origene.com

OriGene Technologies GmbH
Schillerstr. 5
32052 Herford
GERMANY
Phone: +49-5221-34606-0
Fax: +49-5221-34606-11
info-de@origene.com

AR09195PU-N Recombinant Human AKR1B10 (aa 1-316) - Purified

Alternate names: AKR1B11, ARL-1, Aldo-keto reductase family 1 member B10, Aldose reductase-like, Aldose reductase-related protein, Small intestine reductase

Quantity: 0.1 mg

Concentration: 1 mg/ml (determined by Bradford assay)

Background: AKR1B10, also known as Aldo-keto reductase family 1, member B10, AKR1B10 is a monomeric protein that efficiently catalyzes the reduction of aromatic and aliphatic aldehydes and ketones. AKR1B10 is ubiquitously expressed in many human tissues but is highly expressed in small intestine, colon and adrenal gland. This protein is pathogenically involved in diabetic complications and has been reported that AKR1B10 is overexpressed in human tumors, such as liver, breast, and lung cancer, and may play a critical role in the development and progression of cancer.

Uniprot ID: O60218

NCBI: NP_064695

GeneID: 57016

Species: Human

Source: E. coli

Format:
State: Liquid purified protein
Purity: >95% pure by SDS-PAGE
Buffer System: 20mM Tris-HCl buffer (pH 8.0) containing 10% Glycerol

Description: Recombinant Human AKR1B10 protein was expressed in *E.coli* and purified by using conventional chromatography.

AA Sequence:
MATFVELSTK AKMPIVGLGT WKSPLGKVKE AVKVAIDAGY RHIDCAYVYQ NEHEVGEAIQ EKIQEKAVKR EDLFIVSKLW PTFFERPLVR KAFEKTLKDL KLSYLDVYLI HWPQGFKSGD DLFPKDDKGN AIGGKATFLD AWEAMEELVD EGLVKALGVS NFSHFQIEKL LNKPGLKYKP VTNQVECHPY LTQEKLIQYC HSKGITVTAY SPLGSPDRPW AKPEDPSLLE DPKIKEIAAK HKKTAAQVLI RFHIQRNVIV IPKSVTPARI VENIQVFDFK LSDEEMATIL SFNRNWRACN VLQSSHLEDY PFDAEY

Biological Activity: Approximately 0.32-0.4 units/mg protein.
Enzymatic activity was confirmed by measuring the amount of enzyme catalyzing the oxidation of 1 micromole NADPH per minute at 25°C.

Activity Assay
1. Prepare a 1.0 ml reaction mix into a suitable container: The final concentrations are 0.1M sodium phosphate (pH 7.0), 10mM DL-glyceraldehyde, 0.3mM NADPH.
2. Add 50 ul of recombinant AKR1B10 solution with various concentrations (2.5ug, 5ug, 10ug) in 750 ul reaction buffer.
3. Mix by inversion and incubate at 25°C for 2.5 minutes.
4. Add 200 ul of 50 mM DL-glyceraldehyde as a substrate and immediately mix by inversion.
5. Record the increase in A340nm for 3 minutes.

Molecular weight: kDa (316 aa), 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.

Product Citations:

Purchased from Acris:

1. Stefek M, Soltesova Prnova M, Majekova M, Rechlin C, Heine A, Klebe G. Identification of Novel Aldose Reductase Inhibitors Based on Carboxymethylated Mercaptotriazinoindole Scaffold. J Med Chem. 2015 Mar 4. PubMed PMID: 25695864.

General Readings:

1. Yabe D, Nakamura T, Kanazawa N, Tashiro K, Honjo T. Calumenin, a Ca2+-binding protein retained in the endoplasmic reticulum with a novel carboxyl-terminal sequence, HDEF. J Biol Chem. 1997 Jul 18;272(29):18232-9. PubMed PMID: 9218460.
2. Vorum H, Liu X, Madsen P, Rasmussen HH, Honoré B. Molecular cloning of a cDNA encoding human calumenin, expression in Escherichia coli and analysis of its Ca2+-binding activity. Biochim Biophys Acta. 1998 Jul 28;1386(1):121-31. PubMed PMID: 9675259.

Pictures:

AKR1B10, 1-316 aa human, recombinant:
15% SDS-PAGE (3 µg)