

## AKR1B1 Protein, Human (His)

Cat. No.:	HY-P75521
Synonyms:	Aldo-keto reductase family 1 member B1; AKR1B1; ALDR1; ALR2
Species:	Human
Source:	E. coli
Accession:	P15121 (M1-F316)
Gene ID:	231
Molecular Weight:	Approximately 36 kDa

### PROPERTIES

<b>AA Sequence</b>	<pre> MASRLLLNNG   AKMPIILGLGT   WKSPPGQVTE   AVKVAIDVGY RHIDCAHVYQ   NENEVGVAIQ   EKLREQVVKR   EELFIVSKLW CTYHEKGLVK   GACQKTLSDL   KLDYLDLYLI   HWPTGFKPGK EFFPLDESGN   VVPSDTNILD   TWAAMEELVD   EGLVKAIGIS NFNHLQVEMI   LNKPGLKYKP   AVNQIECHPY   LTQEKLIQYC QSKGIVVTAY   SPLGSPDRPW   AKPEDPSLLE   DPRIKAIAAK HNKTTAQVLI   RFPMQRNLLV   IPKSVTPERI   AENFKVDFE LSSQDMTLL   SYNRNWRVCA   LLSCTSHKDY   PFHEEF           </pre>
<b>Biological Activity</b>	Measured by its ability to catalyzes glucuronic acid decomposition in the presence of NADPH. The specific activity is 132.9 U/mg.
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution of PB, 150 mM NaCl, pH 7.4.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	AKR1B1, a versatile enzyme, catalyzes the NADPH-dependent reduction of a diverse array of carbonyl-containing
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compounds to their respective alcohols. It exhibits enzymatic activity towards endogenous metabolites, including aromatic and aliphatic aldehydes, ketones, monosaccharides, bile acids, and xenobiotics substrates. As a key enzyme in the polyol pathway, AKR1B1 plays a critical role in hyperglycemia by catalyzing the reduction of glucose to sorbitol. The enzyme also reduces steroids and their derivatives, prostaglandins, and displays low activity toward retinals. Additionally, AKR1B1 is involved in the detoxification of dietary and lipid-derived unsaturated carbonyls, such as crotonaldehyde, 4-hydroxynonenal, trans-2-hexenal, trans-2,4-hexadienal, and their glutathione-conjugate carbonyls (GS-carbonyls). Notably, it catalyzes the reduction of various phospholipid aldehydes generated from the oxidation of phosphatidylcholine and phosphatidylethanolamides, further emphasizing its broad substrate specificity and its integral role in cellular detoxification processes.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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