

AKR1A1 Protein, Human, Recombinant (His)

General Information

Synonyms:	DD3;ALDR1;HEL-S-6;aldo-keto reductase family 1, member A1 (aldehyde reductase);ALR;ARM
Protein Construction:	A DNA sequence encoding the human AKR1A1 (P14550) (Met 1-Tyr 325) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P14550
Molecular Weight:	39 kDa (predicted); 39 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Aldehyde reductase (AKR1A1) is a member of the aldo-keto reductase superfamily, which consists of more than 40 known enzymes and proteins that includes variety of monomeric NADPH-dependent oxidoreductases, such as aldehyde reductase. Aldehyde reductase has wide substrate specificities for carbonyl compounds. These enzymes are implicated in the development of diabetic complications by catalyzing the reduction of glucose to sorbitol.

A DRUG SCREENING EXPERT

Aldehyde reductase possess a structure with a beta-alpha-beta fold which contains a novel NADP-binding motif. The binding site is located in a large, deep, elliptical pocket in the C-terminal end of the beta sheet, the substrate being bound in an extended conformation. This binding is more similar to FAD- than to NAD(P)-binding oxidoreductases. AKR1A1 is involved in the reduction of biogenic and xenobiotic aldehydes and is present in virtually every tissue.

Reference

Bohren KM, et al. (1989) The aldo-keto reductase superfamily. cDNAs and deduced amino acid sequences of human aldehyde and aldose reductases. J Biol Chem. 264 (16): 9547-51.

Fujii J, et al. (1999) The structural organization of the human aldehyde reductase gene, AKR1A1, and mapping to chromosome. Cytogenetics and Cell Genetics . 84 (3-4): 33-2.

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