



## RayBiotech, Inc.

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# Certificate of Analysis and Data Sheet Recombinant Human Aldose Reductase

**Catalog No.**  
228-10039

**Source**  
*Escherichia Coli*

## Synonyms

Aldehyde Reductase, EC 1.1.1.21, ALR2, ALDR1, MGC1804, Aldo-keto reductase family1 member B1, Aldose Reductase, AKR1B1, AR, ADR.

## Introduction

AKR1B1 is part of the aldo/keto reductase superfamily, which consists of more than 40 known enzymes and proteins. AKR1B1 catalyzes the reduction several aldehydes, including the aldehyde form of glucose, and thus involved in the development of diabetic complications by catalyzing the reduction of glucose to sorbitol. AKR1B1 catalyzes the NADPH-dependent reduction of a wide variety of carbonyl-containing compounds to their corresponding alcohols. Transgenic mice over expressing human aldose reductase show that AKR1B1 is a key player in ischemic injury and impairment of functional and metabolic recovery after ischemia. Aldose Reductase is an obligatory mediator of TNF-alpha signaling leading to an increase in the expression of adhesion molecules and increased binding of monocytes to the endothelium. AKR1B1 is a critical regulator of TNF-alpha-induced apoptotic signaling in endothelial cells.

## Description

AKR1B1 Human Recombinant amino produced in E.Coli is a single, non-glycosylated polypeptide chain containing 316 amino acids having a molecular mass of 35.8 kDa. The AKR1B1 is purified by proprietary chromatographic techniques.

## Physical Appearance

Sterile filtered colorless solution.

## Formulation

The 1mg/ml protein solution contains 20mM Tris-HCl buffer pH 8, 10% glycerol, and 1mM DTT.

## Purity

Greater than 95.0% as determined by SDS-PAGE.

**The products are furnished for LABORATORY RESEARCH USE ONLY.  
Not for diagnostic or therapeutic use.**



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### **Stability**

Store at 4°C if entire vial will be used within 2-4 weeks.

Store, frozen at -20°C for longer periods of time.

For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

**Avoid multiple freeze-thaw cycles.**

### **Biological Activity**

Specific activity : approximately 0.5 - 0.6 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.

### **Amino acid sequence**

MASRLLLNNG AKMPILGLGT WKSPPGQVTE AVKVAIDVGY RHIDCAHVYQ  
NENEVGVAIQ EKLREQVVKR EELFIVSKLW CTYHEKGLVK GACQKTLSDL  
KLDYLDLYLI HWPTGFKPGK EFFPLDESGN VVPSDTNILD TWAAMEELVD  
EGLVKAIGIS NFNHLQVEMI LNKPGLKYKP AVNQIECHPY LTQEKLIQYC  
QSKGIVVTAY SPLGSPDRPW AKPEDPSLLE DPRIKAIAAK HNKTQAQVLI  
RFPMQRNLVV IPKSVTPERI AENFKVFD FE LSSQDMTTLL SYNRNWRVCA  
LLSCTSHKDY PFHEEF .

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