SANTA CRUZ BIOTECHNOLOGY, INC.

# Aldose Reductase (H-6): sc-166918

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Aldose Reductase (also designated ALR2) is member of the monomeric NADPH-dependent aldoketoreductase family. Aldose Reductase catalyzes the reduction of various aldehydes and has been implicated in the development of diabetic complications by catalyzing the reduction of the aldehyde form of glucose, to the corresponding sugar alcohol, sorbitol. This pathway plays a minor role in glucose metabolism in most tissues, however in diabetic hyperglycemia, cells undergoing Insulin-independent uptake of glucose accumulate significant quantities of sorbitol. The resulting hyperosmotic stress to cells may be a cause of diabetic complications such as neuropathy, retinopathy, and cataracts. Aldose Reductase is very similar to human aldehyde reductase (designated ALR1), bovine prostaglandin F synthase and to the European common frog protein, ρ-crystallin.

## REFERENCES


1. Bohren, K.M., et al. 1989. The aldo-keto reductase superfamily. CDNAs and deduced amino acid sequences of human aldehyde and Aldose Reductases. J. Biol. Chem. 264: 9547-9551.
2. Chung, S. and LaMendola, J. 1989. Cloning and sequence determination of human placental Aldose Reductase gene. J. Biol. Chem. 264: 14775-14777.


## CHROMOSOMAL LOCATION

Genetic locus: AKR1B1 (human) mapping to 7q33; Akr1b3 (mouse) mapping to 6 B1.

## SOURCE

Aldose Reductase (H-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 115-140 within an internal region of Aldose Reductase of mouse origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2b}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Aldose Reductase (H-6) is available conjugated to agarose (sc-166918 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166918 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166918 PE), fluorescein (sc-166918 FITC), Alexa Fluor® 488 (sc-166918 AF488), Alexa Fluor® 546 (sc-166918 AF546), Alexa Fluor® 594 (sc-166918 AF594) or Alexa Fluor® 647 (sc-166918 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166918 AF680) or Alexa Fluor® 790 (sc-166918 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166918 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).



## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

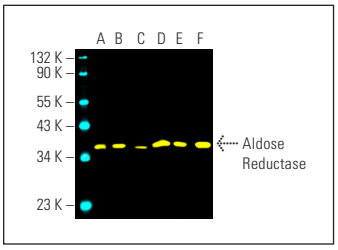
Aldose Reductase (H-6) is recommended for detection of Aldose Reductase of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Aldose Reductase siRNA (h): sc-37119, Aldose Reductase siRNA (m): sc-29670, Aldose Reductase shRNA Plasmid (h): sc-37119-SH, Aldose Reductase shRNA Plasmid (m): sc-29670-SH, Aldose Reductase shRNA (h) Lentiviral Particles: sc-37119-V and Aldose Reductase shRNA (m) Lentiviral Particles: sc-29670-V.

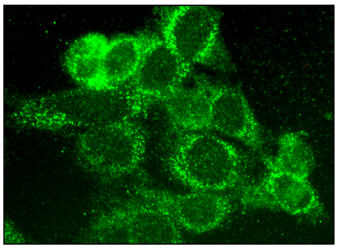
Molecular Weight of Aldose Reductase: 37 kDa.

Positive Controls: A-10 cell lysate: sc-3806, C2C12 whole cell lysate: sc-364188 or L6 whole cell lysate: sc-364196.

## DATA




Aldose Reductase (H-6) Alexa Fluor® 488: sc-166918 AF488. Direct fluorescent western blot analysis of Aldose Reductase expression in Sol8 (**A**), A-10 (**B**), HEK293 (**C**), C2C12 (**D**), $BC_3H1$ (**E**) and L6 (**F**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.



Aldose Reductase (H-6): sc-166918. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS


1. Schartner, E., et al. 2018. High glucose concentration suppresses a SIRT2 regulated pathway that enhances neurite outgrowth in cultured adult sensory neurons. Exp. Neurol. 309: 134-147.
2. Liu, L., et al. 2020. Triose kinase controls the lipogenic potential of fructose and dietary tolerance. Cell Metab. 32: 605-618.e7.
3. Zhao, Y., et al. 2021. Dietary quercetin reduces plasma and tissue methylglyoxal and advanced glycation end products in healthy mice treated with methylglyoxal. J. Nutr. 151: 2601-2609.
4. Zhu, C., et al. 2022. Metabolomics of oxidative stress: Nrf2 independent depletion of NAD or increases of sugar alcohols. Toxicol. Appl. Pharmacol. 442: 115949.


## RESEARCH USE

For research use only, not for use in diagnostic procedures.