SANTA CRUZ BIOTECHNOLOGY, INC.

Aldose Reductase (E-12): sc-373953

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Aldose Reductase (designated ALR2) is member of the monomeric NADPH-dependent aldoketoreductase family. ALR2 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., Bullock, B., Wermuth, B. and Gabbay, K.H. 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.
3. Nishimura, C., Matsuura, Y., Kokai, Y., Akera, T., Carper, D., Morjana, N., Lyons, C. and Flynn, T.G. 1990. Cloning and expression of human Aldose Reductase. J. Biol. Chem. 265: 9788-9792.
4. Graham, A., Heath, P., Morten, J.E. and Markham, A.F. 1991. The human Aldose Reductase gene maps to chromosome region 7q35. Hum. Genet. 86: 509-514.
5. LocusLink Report (LocusID: 231). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: AKR1B1 (human) mapping to 7q33.

SOURCE

Aldose Reductase (E-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 132-159 within an internal region of Aldose Reductase of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-373953 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.

RESEARCH USE

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

APPLICATIONS

Aldose Reductase (E-12) is recommended for detection of Aldose Reductase of 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), immunohistochemistry (including paraffin-embedded sections) (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 shRNA Plasmid (h): sc-37119-SH and Aldose Reductase shRNA (h) Lentiviral Particles: sc-37119-V.

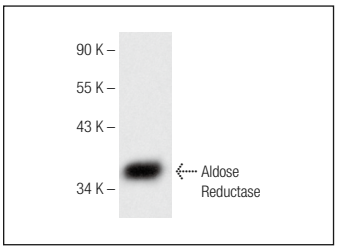
Molecular Weight of Aldose Reductase: 37 kDa.

Positive Controls: JAR cell lysate: sc-2276, Caki-1 cell lysate: sc-2224 or HeLa whole cell lysate: sc-2200.

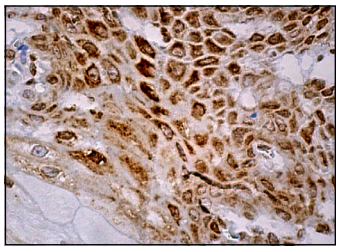
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Aldose Reductase (E-12): sc-373953. Western blot analysis of Aldose Reductase expression in Caki-1 whole cell lysate.



Aldose Reductase: sc-373953. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing cytoplasmic and nuclear staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

1. Xing, J., Ying, Y., Mao, C., Liu, Y., Wang, T., Zhao, Q., Zhang, X., Yan, F. and Zhang, H. 2018. Hypoxia induces senescence of bone marrow mesenchymal stem cells via altered gut microbiota. Nat. Commun. 9: 2020.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.