



Sorbitol Dehydrogenase (m2): 293T Lysate: sc-127569

BACKGROUND

Sorbitol Dehydrogenase, also known as L-iditol 2-dehydrogenase, SORD or SORD1, is a 357 amino acid member of the zinc-containing alcohol dehydrogenase family. Widely expressed with highest expression in kidney and in the lens of the eye, Sorbitol Dehydrogenase enzymatically catalyzes the zinc-dependent interconversion of polyols, such as sorbitol and xylitol, to their respective ketoses. These reactions require NAD⁺ as an oxidizing agent and, together with Aldose Reductase, they comprise the sorbitol pathway that is involved in sugar production. Sorbitol Dehydrogenase deficiency leads to defects in this pathway and a subsequent accumulation of sorbitol within the cell; a condition that may be associated with diabetic complications such as cataracts and microvascular problems.

REFERENCES

- Iwata, T., Popescu, N.C., Zimonjic, D.B., Karlsson, C., Höög, J.O., Vaca, G., Rodriguez, I.R. and Carper, D. 1995. Structural organization of the human sorbitol dehydrogenase gene (SORD). *Genomics* 26: 55-62.
- Carr, I.M., Whitehouse, A., Coletta, P.L. and Markham, A.F. 1998. Structural and evolutionary characterization of the human sorbitol dehydrogenase gene duplication. *Mamm. Genome* 9: 1042-1048.
- Pauly, T.A., Ekstrom, J.L., Beebe, D.A., Chrnyk, B., Cunningham, D., Griffor, M., Kamath, A., Lee, S.E., Madura, R., McGuire, D., Subashi, T., Wasilko, D., Watts, P., et al. 2003. X-ray crystallographic and kinetic studies of human sorbitol dehydrogenase. *Structure* 11: 1071-1085.
- Li, S., Ohta, M., Kudo, E., Yamaoka, T., Tachikawa, T., Moritani, M., Itakura, M. and Yoshimoto, K. 2004. Redox state-dependent and sorbitol accumulation-independent diabetic albuminuria in mice with transgene-derived human aldose reductase and sorbitol dehydrogenase deficiency. *Diabetologia* 47: 541-548.
- El-Kabbani, O., Darmanin, C. and Chung, R.P. 2004. Sorbitol dehydrogenase: structure, function and ligand design. *Curr. Med. Chem.* 11: 465-476.
- Schmidt, R.E., Dorsey, D.A., Beaudet, L.N., Parvin, C.A., Yarasheski, K.E., Smith, S.R., Williamson, J.R., et al. 2005. A potent sorbitol dehydrogenase inhibitor exacerbates sympathetic autonomic neuropathy in rats with streptozotocin-induced diabetes. *Exp. Neurol.* 192: 407-419.
- Darmanin, C., Iwata, T., Carper, D.A. and El-Kabbani, O. 2006. Discovery of potential sorbitol dehydrogenase inhibitors from virtual screening. *Med. Chem.* 2: 239-242.
- Hellgren, M., Kaiser, C., de Haij, S., Norberg, A. and Höög, J.O. 2007. A hydrogen-bonding network in mammalian sorbitol dehydrogenase stabilizes the tetrameric state and is essential for the catalytic power. *Cell. Mol. Life Sci.* 64: 3129-3138.
- Szaflik, J.P., Majsterek, I., Kowalski, M., Rusin, P., Sobczuk, A., Borucka, A.I., Szaflik, J. and Blasiak, J. 2008. Association between sorbitol dehydrogenase gene polymorphisms and type 2 diabetic retinopathy. *Exp. Eye Res.* 86: 647-652.

CHROMOSOMAL LOCATION

Genetic locus: Sord (mouse) mapping to 2 E5.

PRODUCT

Sorbitol Dehydrogenase (m2): 293T Lysate represents a lysate of mouse Sorbitol Dehydrogenase transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Sorbitol Dehydrogenase (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive Sorbitol Dehydrogenase antibodies. Recommended use: 10-20 µl per lane.

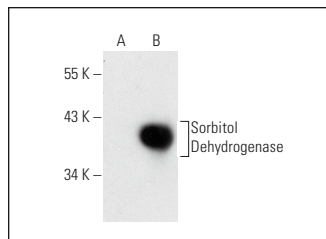
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Sorbitol Dehydrogenase (E-11): sc-365760 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse Sorbitol Dehydrogenase expression in Sorbitol Dehydrogenase transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

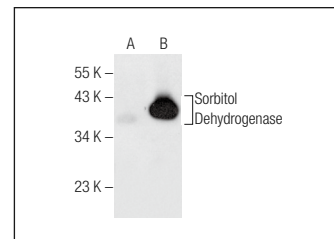
RECOMMENDED SUPPORT REAGENTS

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.

DATA



Sorbitol Dehydrogenase (E-11): sc-365760. Western blot analysis of Sorbitol Dehydrogenase expression in non-transfected: sc-117752 (A) and mouse Sorbitol Dehydrogenase transfected: sc-127569 (B) 293T whole cell lysates.



Sorbitol Dehydrogenase (E-8): sc-377200. Western blot analysis of Sorbitol Dehydrogenase expression in non-transfected: sc-117752 (A) and mouse Sorbitol Dehydrogenase transfected: sc-127569 (B) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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