

L-xylulose reductase (18-Q): sc-100552

BACKGROUND

L-xylulose reductase (XR), also called kidney dicarbonyl reductase (kiDCR) or sperm surface protein P34H, is a 244 amino acid member of the short-chain dehydrogenases/reductases family. This peripheral membrane protein catalyzes NADPH-dependent reduction of multiple sugars, including L-xylulose, to the osmolyte xylitol. Producing xylitol in the renal tubules can prevent osmotic stress. L-xylulose reductase functions as a homotetramer and is expressed highly in kidney, liver and epididymis. Essential pentosuria is the result of a partial deficiency of L-xylulose reductase. Red blood cells of normal individuals contain two L-xylulose reductases: a major and a minor isozyme. Red cells from patients with pentosuria contain only one isozyme. Due to its role in the uronate cycle of glucose metabolism, L-xylulose reductase has been implicated in the management of the long term complications of diabetes.

REFERENCES

1. Lane, A.B. 1985. On the nature of L-xylulose reductase deficiency in essential pentosuria. *Biochem. Genet.* 23: 61-72.
2. Ishikura, S., et al. 2003. Structural determinant for cold inactivation of rodent L-xylulose reductase. *Biochem. Biophys. Res. Commun.* 308: 68-72.
3. Ishikura, S., et al. 2003. Identification of amino acid residues involved in substrate recognition of L-xylulose reductase by site-directed mutagenesis. *Chem. Biol. Interact.* 143-144: 543-550.
4. Carbone, V., et al. 2004. Structure-based discovery of human L-xylulose reductase inhibitors from database screening and molecular docking. *Bioorg. Med. Chem.* 13: 301-312.
5. St-Cyr, A., et al. 2004. P26H and dicarbonyl/L-xylulose reductase are two distinct proteins present in the hamster epididymis. *Mol. Reprod. Dev.* 69: 137-145.
6. El-Kabbani, O., et al. 2004. Crystal structure of human L-xylulose reductase holoenzyme: probing the role of Asn107 with site-directed mutagenesis. *Proteins* 55: 724-732.
7. Martin, P., et al. 2004. Different clinical and morphological phenotypes in monozygotic twins with identical DCX mutation. *J. Neurol.* 251: 108-110.

CHROMOSOMAL LOCATION

Genetic locus: DCXR (human) mapping to 17q25.3.

SOURCE

L-xylulose reductase (18-Q) is a mouse monoclonal antibody raised against recombinant L-xylulose reductase of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

L-xylulose reductase (18-Q) is recommended for detection of L-xylulose reductase of human origin by Western Blotting (starting dilution 1:200, 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 L-xylulose reductase siRNA (h): sc-62536, L-xylulose reductase shRNA Plasmid (h): sc-62536-SH and L-xylulose reductase shRNA (h) Lentiviral Particles: sc-62536-V.

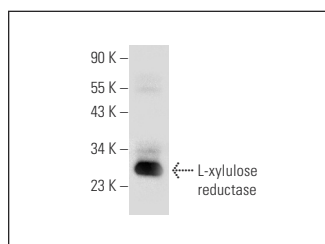
Molecular Weight of L-xylulose reductase: 34 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or A-431 whole cell lysate: sc-2201.

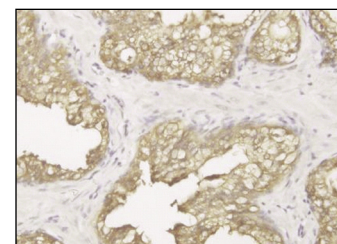
RECOMMENDED SUPPORT REAGENTS

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



L-xylulose reductase (18-Q): sc-100552. Western blot analysis of L-xylulose reductase expression in Hep G2 whole cell lysate.



L-xylulose reductase (18-Q): sc-100552. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human prostate tissue showing membrane localization.

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.