SANTA CRUZ BIOTECHNOLOGY, INC.

SGLT-1 (H-85): sc-98974

BACKGROUND

Glucose is the main source of energy for mammalian cells and its entry is mediated by various transporters. Seven facilitative (Glut1 to 7) and two concentrative glucose transporters (SGLT-1 and -2) are identified. The Na^+/glucose cotransporter gene SGLT-1 encodes the primary carrier protein responsible for the uptake of the dietary sugars glucose and galactose from the intestinal lumen. The glycoprotein is localized in the brush border of the intestinal epithelium and contains 12 membrane spans. SGLT-1 uses the electrochemical gradient of two sodium ions to transport one glucose molecule. Both the sodium glucose cotransporters SGLT-1 and -2 are also expressed in kidneys. The mRNA of SGLTs increases steadily from the fetal period to maturity along with the increase in their functional acitivity, i.e. glucose uptake. The interaction between a nucleocytoplasmic protein and a regulatory uridine-rich sequence in the 3'-UTR is important for cAMP-mediated SGLT-1 message stabilization. Defects in SGLT-1 cause glucose-galactose malabsorption (GGM), resulting in neonatal onset of diarrhea, which results in death unless sugars are removed from the diet.

REFERENCES

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3. Yang, Q., Tian, Y., Wada, J., Kashihara, N., Wallner, E., Peterson, D. and Kanwar, Y.S. 2000. Expression characteristics and relevance of sodium glucose cotransporter-1 in mammalian renal tubulogenesis. Am. J. Physiol. Renal Physiol. 279: 765-777.
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5. Wallner, E.I., Wada, J., Tramonti, G., Lin, S. and Kanwar, Y.S. 2001. Status of glucose transporters in the mammalian kidney and renal development. Ren. Fail. 23: 301-310.
6. Stumpel, F., Burcelin, R., Jungermann, K. and Thorens, B. 2001. Normal kinetics of intestinal glucose absorption in the absence of Glut2: evidence for a transport pathway requiring glucose phosphorylation and transfer into the endoplasmic reticulum. Proc. Natl. Acad. Sci. USA 98: 11330-11335.

CHROMOSOMAL LOCATION

Genetic locus: SLC5A1 (human) mapping to 22q12.3, SLC5A9 (human) mapping to 1p33; Slc5a1 (mouse) mapping to 5 B1, Slc5a9 (mouse) mapping to 4 D1.

SOURCE

SGLT-1 (H-85) is a rabbit polyclonal antibody raised against amino acids 580-657 mapping at the C-terminus of SGLT-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SGLT-1 (H-85) is recommended for detection of SGLT-1 and, to a lesser extent, SGLT-4 of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of SGLT-1: 75 kDa.

Positive Controls: mouse kidney extract: sc-2255.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

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