

SGLT-1 (C-12): sc-47397

BACKGROUND

Glucose is the main source of energy for mammalian cells and its entry is mediated by various transporters. Seven facilitative (GLUT-1 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 co-transporters 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 activity, 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

1. Turk, E., Klisak, I., Bacallao, R., Sparkes, R.S. and Wright, E.M. 1993. Assignment of the human Na⁺/glucose cotransporter gene SGLT1 to chromosome 22q13.1. *Genomics* 17: 752-754.
2. Martin, M.G., Turk, E., Lostao, M.P., Kerner, C. and Wright, E.M. 1996. Defects in Na⁺/glucose cotransporter (9SGLT1) trafficking and function cause glucose-galactose malabsorption. *Nat. Genet.* 12: 216-220.
3. Lee, W.Y., Loflin, P., Clancey, C.J., Peng, H. and Lever, J.E. 2000. Cyclic nucleotide regulation of Na⁺/glucose cotransporter (SGLT1) mRNA stability. Interaction of a nucleocytoplasmic protein with a regulatory domain in the 3'-untranslated region critical for stabilization. *J. Biol. Chem.* 275: 33998-34008.
4. Yang, Q., Tian, Y., Wada, J., Kashiwara, 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.
5. 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.
6. 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.

CHROMOSOMAL LOCATION

Genetic locus: SLC5A1 (human) mapping to 22q12.3.

SOURCE

SGLT-1 (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a C-terminal cytoplasmic domain 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.

Blocking peptide available for competition studies, sc-47397 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SGLT-1 (C-12) is recommended for detection of SGLT-1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 SGLT-1 siRNA (h): sc-61538, SGLT-1 shRNA Plasmid (h): sc-61538-SH and SGLT-1 shRNA (h) Lentiviral Particles: sc-61538-V.

Molecular Weight of SGLT-1: 75 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Laforenza, U., Miceli, E., Gastaldi, G., Scaffino, M.F., Ventura, U., Fontana, J.M., Orsenigo, M.N. and Corazza, G.R. 2010. Solute transporters and aquaporins are impaired in celiac disease. *Biol. Cell* 102: 457-467.

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.