

SGLT-1 (M-19): sc-20582

BACKGROUND

Glucose is the main source of energy for mammalian cells and its entry is mediated by various transporters. Seven facilitative (Glut1-7) 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., et al. 1993. Assignment of the human Na⁺/glucose co-transporter gene SGLT1 to chromosome 22q13.1. *Genomics* 17: 752-754.
2. Martin, M.G., et al. 1996. Defects in Na⁺/glucose co-transporter (9SGLT1) trafficking and function cause glucose-galactose malabsorption. *Nat. Genet.* 12: 216-220.
3. Lee, W.Y., et al. 2000. Cyclic nucleotide regulation of Na⁺/glucose co-transporter (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., et al. 2000. Expression characteristics and relevance of sodium glucose co-transporter-1 in mammalian renal tubulogenesis. *Am. J. Physiol. Renal Physiol.* 279: 765-777.
5. Wallner, E.I., et al. 2001. Status of glucose transporters in the mammalian kidney and renal development. *Ren. Fail.* 23: 301-310.

CHROMOSOMAL LOCATION

Genetic locus: Slc5a1 (mouse) mapping to 5 B1.

SOURCE

SGLT-1 (M-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SGLT-1 of mouse 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-20582 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

SGLT-1 (M-19) is recommended for detection of SGLT-1 of mouse and, to a lesser extent, rat 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).

Suitable for use as control antibody for SGLT-1 siRNA (m): sc-41297, SGLT-1 shRNA Plasmid (m): sc-41297-SH and SGLT-1 shRNA (m) Lentiviral Particles: sc-41297-V.

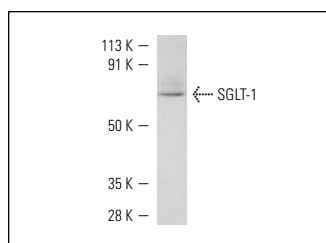
Molecular Weight of SGLT-1: 75 kDa.

Positive Controls: mouse heart extract: sc-2254 or mouse kidney extract: sc-2255.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



SGLT-1 (M-19): sc-20582. Western blot analysis of SGLT-1 expression in mouse kidney tissue extract.

SELECT PRODUCT CITATIONS

1. Banerjee, S.K., et al. 2009. SGLT1 is a novel cardiac glucose transporter that is perturbed in disease states. *Cardiovasc. Res.* 84: 111-118.
2. Yoshikawa, T., et al. 2011. Comparative expression of hexose transporters (SGLT1, GLUT1, GLUT2 and GLUT5) throughout the mouse gastrointestinal tract. *Histochem. Cell Biol.* 135: 183-194.

STORAGE

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