

SMIT (C-20): sc-23142

BACKGROUND

Myo-inositol is involved in many important aspects of cellular regulation including membrane structure, signal transduction and osmoregulation. It is taken up into cells by the sodium/myo-inositol cotransporter (SMIT). SMIT activity maintains intracellular concentrations of myo-inositol, and it is upregulated in response to hypertonic stress. The human SMIT protein is encoded by the SLC5A3 gene, which maps to chromosome 21q22.11. It is expressed in many human tissues, such as brain, kidney and placenta. Specifically, SMIT is abundantly expressed throughout the whole brain and spinal cord in fetal rat, but is down-regulated in adult rat brain with the exception of the choroid plexus, where SMIT expression remains high. In kidney, SMIT localizes to the basolateral membranes of the thick ascending limb of Henle (TAL) and the inner medullary collecting duct (IMCD). Impaired SMIT activity is implicated in the pathogenesis of diabetes and Down syndrome.

REFERENCES

- Berry, G.T., et al. 1995. The human osmoregulatory Na⁺/myo-inositol cotransporter gene (SLC5A3): molecular cloning and localization to chromosome 21. *Genomics* 25: 507-513.
- Wiese, T.J., et al. 1996. Localization and regulation of renal Na⁺/myo-inositol cotransporter in diabetic rats. *Kidney Int.* 50: 1202-1211.
- Mallee, J.J., et al. 1997. The structural organization of the human Na⁺/myo-inositol cotransporter (SLC5A3) gene and characterization of the promoter. *Genomics* 46: 459-465.
- Guo, W., et al. 1997. Developmental regulation of Na⁺/myo-inositol cotransporter gene expression. *Brain Res. Mol. Brain Res.* 51: 91-96.
- Porcellati, F., et al. 1998. Human Na⁺/myo-inositol cotransporter gene: alternate splicing generates diverse transcripts. *Am. J. Physiol.* 274: C1215-C1225.
- Yamauchi, A., et al. 1998. Expression of the Na⁺/myo-inositol cotransporter in the juxtaglomerular region. *Kidney Int. Suppl.* 67: S183-S185.

CHROMOSOMAL LOCATION

Genetic locus: SLC5A3 (human) mapping to 21q22.11; Slc5a3 (mouse) mapping to 16 C4.

SOURCE

SMIT (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of SMIT 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-23142 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

SMIT (C-20) is recommended for detection of SMIT of mouse, rat and 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), 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).

SMIT (C-20) is also recommended for detection of SMIT in additional species, including equine, canine, bovine and porcine.

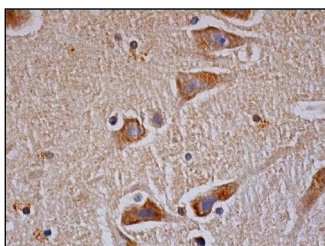
Suitable for use as control antibody for SMIT siRNA (h): sc-44516, SMIT siRNA (m): sc-44517, SMIT shRNA Plasmid (h): sc-44516-SH, SMIT shRNA Plasmid (m): sc-44517-SH, SMIT shRNA (h) Lentiviral Particles: sc-44516-V and SMIT shRNA (m) Lentiviral Particles: sc-44517-V.

Molecular Weight of SMIT: 90 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. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



SMIT (C-20): sc-23142. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic staining of neuronal cells, glial cells and endothelial cells.

SELECT PRODUCT CITATIONS

- Cotton, L.M., et al. 2010. Organic cation/carnitine transporter, OCTN2, transcriptional activity is regulated by osmotic stress in epididymal cells. *Mol. Reprod. Dev.* 77: 114-125.

STORAGE

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