SANTA CRUZ BIOTECHNOLOGY, INC.

SMIT (3A6): sc-293330

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; 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 downregulated in adult rat brain with the exception of the choroid plexus, where SMIT expression remains high. In kidney, SMIT localizes to the baso-lateral 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

1. Berry, G.T., Mallee, J.J., Kwon, H.M., Rim, J.S., Mulla, W.R., Muenke, M. and Spinner, N.B. 1995. The human osmoregulatory Na^+/myo-inositol cotransporter gene (SLC5A3): molecular cloning and localization to chromosome 21. Genomics 25: 507-513.
2. Wiese, T.J., Matsushita, K., Lowe, W.L., Jr., Stokes, J.B. and Yorek, M.A. 1996. Localization and regulation of renal Na^+/myo-inositol cotransporter in diabetic rats. Kidney Int. 50: 1202-1211.
3. Mallee, J.J., Atta, M.G., Lorica, V., Rim, J.S., Kwon, H.M., Lucente, A.D., Wang, Y. and Berry, G.T. 1997. The structural organization of the human Na^+/myo-inositol cotransporter (SLC5A3) gene and characterization of the promoter. Genomics 46: 459-465.
4. Guo, W., Shimada, S., Tajiri, H., Yamauchi, A., Yamashita, T., Okada, S. and Tohyama, M. 1997. Developmental regulation of Na^+/myo-inositol cotransporter gene expression. Brain Res. Mol. Brain Res. 51: 91-96.
5. Porcellati, F., Hlaing, T., Togawa, M., Stevens, M.J., Larkin, D.D., Hosaka, Y., Glover, T.W., Henry, D.N., Greene, D.A. and Killen, P.D. 1998. Human Na^+/myo-inositol cotransporter gene: alternate splicing generates diverse transcripts. Am. J. Physiol. 274: C1215-C1225.
6. Yamauchi, A., Sugiura, T., Kitamura, H., Matsuoka, Y., Imai, E. and Hori, M. 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 (3A6) is a mouse monoclonal antibody raised against amino acids 533-641 of SMIT of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SMIT (3A6) 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), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

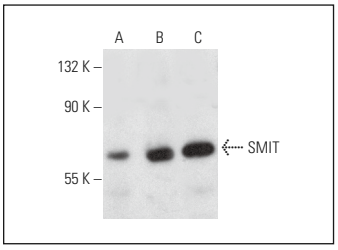
Molecular Weight of SMIT: 90 kDa.

Positive Controls: human cerebral cortex tissue extract, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

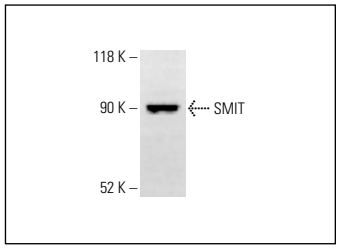
RECOMMENDED SUPPORT REAGENTS

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).

DATA



SMIT (3A6): sc-293330. Western blot analysis of SMIT expression in human cerebral cortex (**A**), mouse brain (**B**) and rat brain (**C**) tissue extracts.



SMIT (3A6): sc-293330. Western blot analysis of SMIT expression in HCT-116 whole cell lysate. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

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 for detailed protocols and support products.