



NaDC-1 (M-20): sc-17725

BACKGROUND

The sodium-dependent dicarboxylate transporter (NaDC-1), which belongs to the solute carrier family 13 (SLC13) gene family, couples the transport of sodium and Krebs cycle intermediates, including succinate and citrate, across the plasma membrane. NaDC-1 binds three sodium ions followed by a divalent anion substrate, which results in one positive charge across the membrane. NaDC-1 mediates the regulation of urinary citrate concentration, which if too low, has the potential to initiate the development of kidney stones. The gene encoding human NaDC-1 is localized to chromosome 17 and is expressed in kidney and small and large intestine. The NaDC-1 protein contains eleven transmembrane domains and two N-glycosylation sites and the carboxy-terminus of NaDC-1 contains the substrate recognition and cation affinity domain. Transmembrane domain (TMD) 9 is thought to form part of the translocation pathway through the transporter and mediate conformational changes between the cation and substrate binding sites, which may be facilitated by the presence of specific cysteine residues.

REFERENCES

1. Wright, S.H., Hirayama, B., Kaunitz, J.D., Kippen, I. and Wright, E.M. 1983. Kinetics of sodium succinate cotransport across renal brush-border membranes. *J. Biol. Chem.* 258: 5456-5462.
2. Pajor, A.M. 1996. Molecular cloning and functional expression of a sodium-dicarboxylate cotransporter from human kidney. *Am. J. Physiol.* 270: 642-648.
3. Pajor, A.M., Krajewski, S.J., Sun, N. and Gangula, R. 1999. Cysteine residues in the Na⁺/dicarboxylate co-transporter, NaDC-1. *Biochem. J.* 344: 205-209.
4. Yao, X. and Pajor, A.M. 2000. The transport properties of the human renal Na⁺-dicarboxylate cotransporter under voltage-clamp conditions. *Am. J. Physiol. Renal Physiol.* 279: 54-64.
5. Pajor, A.M. and Sun, N.N. 2000. Molecular cloning, chromosomal organization, and functional characterization of a sodium-dicarboxylate cotransporter from mouse kidney. *Am. J. Physiol. Renal Physiol.* 279: 482-490.
6. Pajor, A.M. 2001. Conformationally-sensitive residues in transmembrane domain 9 of the Na⁺/dicarboxylate cotransporter. *J. Biol. Chem.* 276: 29961-29968.
7. Zhang, F.F. and Pajor, A.M. 2001. Topology of the Na⁺/dicarboxylate cotransporter: the N-terminus and hydrophilic loop 4 are located intracellularly. *Biochim. Biophys. Acta* 1511: 80-89.

CHROMOSOMAL LOCATION

Genetic locus: Slc13a2 (mouse) mapping to 11 B5.

SOURCE

NaDC-1 (M-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of NaDC-1 of mouse origin.

RESEARCH USE

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

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-17725 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NaDC-1 (M-20) is recommended for detection of NaDC-1 of mouse and rat 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 NaDC-1 siRNA (m): sc-41344, NaDC-1 shRNA Plasmid (m): sc-41344-SH and NaDC-1 shRNA (m) Lentiviral Particles: sc-41344-V.

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.

STORAGE

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

PROTOCOLS

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