SANTA CRUZ BIOTECHNOLOGY, INC.

NRAMP 2 (N-20): sc-16887

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The Power to Question

BACKGROUND

Natural resistance associated macrophage proteins (NRAMPs) belong to a superfamily of highly conserved integral membrane proteins. NRAMP 1 is an intracellular macrophage protein located at the phagosomal membrane, where it functions as a divalent cation transporter for Fe^{2+}, Zn^{2+} and Mn^{2+}. NRAMP 1 is a pH-dependent antiporter that transports metal ions either into or out of the phagosome against a proton gradient. In humans, polymorphisms in the NRAMP 1 gene are linked to susceptibility to *M. tuberculosis* and leprosy. NRAMP 2 is another divalent cation transporter ubiquitously expressed as two splice variants, which are distinguished by the presence (isoform 1) or absence (isoform 2) of an iron response element. In the duodenum of the small intestine, dietary iron regulates NRAMP 2 expression at the brush border. Mutations in the gene for NRAMP 2 in mice and rats result in severe anemia.

REFERENCES

1. Cellier, M., et al. 1994. Human natural resistance-associated macrophage protein: cDNA cloning, chromosomal mapping, genomic organization, and tissue-specific expression. J. Exp. Med. 180: 1741-1752.
2. Vidal, S., et al. 1995. Cloning and characterization of a second human NRAMP gene on chromosome 12q13. Mamm. Genome 6: 224-230.
3. Abel, L., et al. 1998. Susceptiblity to leprosy is linked to the human NRAMP 1 gene. J. Infect. Dis. 177: 133-145.
4. Lee, P.L., et al. 1998. The human NRAMP 2 gene: characterization of the gene structure, alternative splicing, promoter region and polymorphisms. Blood Cells Mol. Dis. 24: 199-215.
5. Bellamy, R., et al. 1998. Variations in the NRAMP 1 gene and susceptibility to tuberculosis in West Africans. N. Eng. J. Med. 338: 640-644.
6. Canonne-Hergaux, F., et al. 1999. Cellular and subcellular localization of the NRAMP 2 iron transporter in the intestinal brush border and regulation by dietary iron. Blood 93: 4406-4417.
7. Cervino, A.C., et al. 2000. Allelic association between the NRAMP 1 gene and susceptibility to tuberculosis in Guinea-Conakry. Ann. Hum. Genet. 64: 507-512.

CHROMOSOMAL LOCATION

Genetic locus: SLC11A2 (human) mapping to 12q13.12; Slc11a2 (mouse) mapping to 15 F1.

SOURCE

NRAMP 2 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NRAMP 2 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-16887 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NRAMP 2 (N-20) is recommended for detection of NRAMP 2 of human and, to a lesser extent, 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 NRAMP 2 siRNA (h): sc-40776, NRAMP 2 siRNA (m): sc-40777, NRAMP 2 shRNA Plasmid (h): sc-40776-SH, NRAMP 2 shRNA Plasmid (m): sc-40777-SH, NRAMP 2 shRNA (h) Lentiviral Particles: sc-40776-V and NRAMP 2 shRNA (m) Lentiviral Particles: sc-40777-V.

Molecular Weight of NRAMP 2: 64 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409.

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. Xu, H., et al. 2004. A spontaneous, recurrent mutation in divalent metal transporter-1 exposes a calcium entry pathway. PLoS Biol. 2: E50.
2. Priwitzerova, M., et al. 2004. Severe hypochromic microcytic anemia caused by a congenital defect of the iron transport pathway in erythroid cells. Blood 103: 3991-3992.
3. Priwitzerova, M., et al. 2005. Functional consequences of the human DMT1 (SLC11A2) mutation on protein expression and iron uptake. Blood 106: 3985-3987.
4. Balusikova, K., et al. 2009. Differing expression of genes involved in non-transferrin iron transport across plasma membrane in various cell types under iron deficiency and excess. Mol. Cell. Biochem. 321: 123-133.
5. Urso, E., et al. 2012. Role of the cellular prion protein in the neuron adaptation strategy to copper deficiency. Cell. Mol. Neurobiol. 32: 989-1001.

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.