

# NRAMP 1 (H-100): sc-20113

## BACKGROUND

Natural resistance associated macrophage proteins (NRAMPs) belong to a super-family 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. Susceptibility 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.

## CHROMOSOMAL LOCATION

Genetic locus: SLC11A1 (human) mapping to 2q35; Slc11a1 (mouse) mapping to 1 C3.

## SOURCE

NRAMP 1 (H-100) is a rabbit polyclonal antibody raised against amino acids 451-550 of NRAMP 1 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

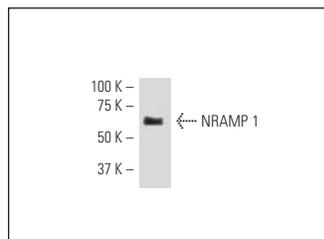
NRAMP 1 (H-100) is recommended for detection of NRAMP 1 of human and, to a lesser extent, mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (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).

Suitable for use as control antibody for NRAMP 1 siRNA (h): sc-36099, NRAMP 1 siRNA (m): sc-36100, NRAMP 1 shRNA Plasmid (h): sc-36099-SH, NRAMP 1 shRNA Plasmid (m): sc-36100-SH, NRAMP 1 shRNA (h) Lentiviral Particles: sc-36099-V and NRAMP 1 shRNA (m) Lentiviral Particles: sc-36100-V.

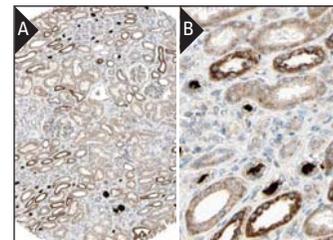
Molecular Weight of NRAMP 1: 65 kDa.

Positive Controls: human kidney tissue, NAMALWA cell lysate: sc-2234 or U-937 cell lysate: sc-2239.

## DATA



NRAMP 1 (H-100): sc-20113. Western blot analysis of NRAMP 1 expression in J774A.1 whole cell lysate.



NRAMP 1 (H-100): sc-20113. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and tubuli (low and high magnification). Kindly provided by The Swedish Human Protein Atlas (HPA) program.

## SELECT PRODUCT CITATIONS

1. Delgado, F., et al. 2009. Expression of NRAMP 1 and iNOS in *Mycobacterium avium* subsp. paratuberculosis naturally infected cattle. *Comp. Immunol. Microbiol. Infect. Dis.* E-published.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.