

# NRAMP 1 (N-20): sc-16884

## 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. The gene encoding human NRAMP 1 maps to chromosome 2q35. 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. The gene encoding human NRAMP 2 maps to chromosome 12q13. Mutations in the gene for NRAMP 2 in mice and rats result in severe anemia.

## REFERENCES

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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 NRAMP2 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 NRAMP1 gene and susceptibility to tuberculosis in Guinea-Conakry. *Ann. Hum. Genet.* 64: 507-512.
8. Goswami, T., et al. 2001. Natural-resistance-associated macrophage protein 1 is an  $H^+$ /bivalent cation antiporter. *Biochem. J.* 354: 511-519.

## CHROMOSOMAL LOCATION

Genetic locus: SLC11A1 (human) mapping to 2q35, SLC11A2 (human) mapping to 12q13; Slc11a1 (mouse) mapping to 1 C4, Slc11a2 (mouse) mapping to 15 F1.

## SOURCE

NRAMP 1 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NRAMP 1 of human origin.

## RESEARCH USE

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

## PRODUCT

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

Blocking peptide available for competition studies, sc-16884 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NRAMP 1 (N-20) is recommended for detection of NRAMP 1 and NRAMP 2 of mouse, rat and human 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

NRAMP 1 (N-20) is also recommended for detection of NRAMP 1 and NRAMP 2 in additional species, including equine, canine, bovine, porcine and avian.

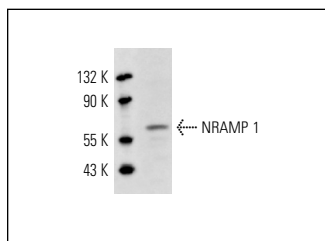
Molecular Weight of NRAMP 1: 65 kDa.

Positive Controls: NAMALWA cell lysate: sc-2234 or U-937 cell lysate: sc-2239.

## 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



NRAMP 1 (N-20): sc-16884. Western blot analysis of NRAMP 1 expression in U-937 whole cell lysate.

## STORAGE

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