

# NEEP21 (364.1): sc-100329

## BACKGROUND

NEEP21 (neuron-enriched endosomal 21 kDa protein), also known as brain neuron cytoplasmic protein 1, NSG1 (neuron-specific proteins family member 1), P21 or D4S234E, is a single pass type II membrane protein belonging to the NSG family. It is highly expressed during neuronal maturation but its expression is downregulated in adult tissues. NEEP21 predominantly localizes to Rab 4-positive early endosomes in the somatodendritic neuronal compartment and is essential for proper receptor sorting and recycling in neurons. It associates with GRIP1 and GluR-2 and mediates the surface expression of GluR-2. When this interaction is interrupted, GluR-2 accumulates in early endosomes and leads to changes in evoked synaptic current properties. In addition, NEEP21 forms a complex with the SNARE protein, Syntaxin 13 (also known as Syntaxin 12), and participates in the recycling of transferrin receptors (TFRs) and NTR2 (neurotensin receptor 2).

## REFERENCES

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2. Steiner, P., et al. 2002. Modulation of receptor cycling by neuron-enriched endosomal protein of 21 kDa. *J. Cell Biol.* 157: 1197-1209.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607645. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Debaigt, C., et al. 2004. Crucial role of neuron-enriched endosomal protein of 21 kDa in sorting between degradation and recycling of internalized G protein-coupled receptors. *J. Biol. Chem.* 279: 35687-35691.
5. Steiner, P., et al. 2005. Interactions between NEEP21, GRIP1 and GluR2 regulate sorting and recycling of the glutamate receptor subunit GluR2. *EMBO J.* 24: 2873-2884.
6. Alberi, S., et al. 2005. The endosomal protein NEEP21 regulates AMPA receptor-mediated synaptic transmission and plasticity in the hippocampus. *Mol. Cell. Neurosci.* 29: 313-319.
7. Wang, Y. and Tang, B.L. 2006. SNAREs in neurons—beyond synaptic vesicle exocytosis. *Mol. Membr. Biol.* 23: 377-384.
8. Kulangara, K., et al. 2007. Phosphorylation of glutamate receptor interacting protein 1 regulates surface expression of glutamate receptors. *J. Biol. Chem.* 282: 2395-2404.

## CHROMOSOMAL LOCATION

Genetic locus: NSG1 (human) mapping to 4p16.3; Nsg1 (mouse) mapping to 5 B3.

## SOURCE

NEEP21 (364.1) is a mouse monoclonal antibody raised against recombinant NEEP21 of human origin.

## RESEARCH USE

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

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

NEEP21 (364.1) is recommended for detection of NEEP21 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 NEEP21 siRNA (h): sc-62671, NEEP21 siRNA (m): sc-62672, NEEP21 shRNA Plasmid (h): sc-62671-SH, NEEP21 shRNA Plasmid (m): sc-62672-SH, NEEP21 shRNA (h) Lentiviral Particles: sc-62671-V and NEEP21 shRNA (m) Lentiviral Particles: sc-62672-V.

Molecular Weight of NEEP21: 21 kDa.

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

## 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).

## 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](http://www.scbt.com) for detailed protocols and support products.