



Qty: 100µg/400 µL

## Rabbit anti-Nogo A

For Research Use Only

Catalog No. 36-6600

Lot No.

## Rabbit Anti-Nogo-A

### FORM

This polyclonal antibody is supplied as a 400 µL aliquot at a concentration of 0.25 mg/mL in phosphate buffered saline (pH 7.4) containing 0.1% sodium azide. This antibody is epitope-affinity purified from rabbit antiserum.

PAD: ZMD.313

### IMMUNOGEN

Synthetic peptide derived from the internal region of rat Nogo-A (Reticulon 4-A, Foccen, Glut4 Vesicle 20kDa Protein), which differs from the human sequence by only one amino acid.

### SPECIFICITY

This antibody is specific for rat Nogo-A. On Western blots for rat brain homogenates, it identifies a band at ~190 kDa. The faint bands at lower molecular weights may represent the deglycosylated form(s) or degradation product(s) of rat Nogo-A.

### REACTIVITY

Reactivity has been confirmed with rat brain homogenates. Based on amino acid sequence homolog, cross-reactivity with human is expected.

Sample	Western Blotting	ELISA	Immunoprecipitation
Rat	+++	N/A	+++
Immunogen	N/A	N/A	N/A

(Excellent +++ , Good++ , Poor + , No reactivity 0 , Not applicable N/A , Not Determined ND)

### USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

**Western Blotting:** 0.5-2 µg/mL

**Immunoprecipitation:** 7 µg/Reaction

### STORAGE

Store at 2-8°C for up to one month. Store at -20°C for long-term storage. Avoid repeated freezing and thawing.

### BACKGROUND

The capacity of the adult mammalian central nervous system (CNS) to repair lesions by axonal regeneration is very limited<sup>1</sup>. However, CNS axons can extend for long distances in peripheral nerve grafts<sup>3</sup>. CNS white matter selectively inhibits axonal outgrowth<sup>4</sup>. Several components of CNS white matter, NI35, NI250 (Nogo) and MAG, that inhibit axon extension have been described<sup>5, 6, 7, 8</sup>. Neurite outgrowth inhibitor Nogo, also known as ASY and RTN-X, is a member of the reticulon (Rtn) family<sup>9</sup>. Research on Nogo may be important in finding ways to promote nerve regeneration after stroke or spinal cord injury<sup>10</sup>. Nogo induces apoptosis in various cancer cells when overexpressed so it may act to suppress tumor development<sup>11</sup>.

The *nogo* gene encodes at least three major protein products (Nogo-A, -B and -C)<sup>12</sup>. Nogo-A is the full-length protein (1192 aa). Nogo-B is the intermediate isoform that lacks amino acids 186-1004 within the extracellular domain (373 aa). Nogo-C, the shortest splice variant, also lacks amino acids 186-1004 but contains a smaller alternative N-terminal domain than Nogo-B.

(cont'd)

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Nogo-A is also known as Reticulon 4-A, is expressed by oligodendrocytes but not by Schwann cells and associates with the endoplasmic reticulum<sup>9</sup>. Other names for rat Nogo-A include Foccen and Glut4 vesicle 20 kDa protein. Nogo-A is a potent inhibitor of neurite growth<sup>13</sup> and contributes to the failure of axonal regeneration in the adult CNS<sup>9</sup>. The cloning of the human Nogo-A sequence shows that it may be a membrane-associated protein that consists of a putative large extracellular domain of 1024 amino acids with seven predicted N-linked glycosylation sites, two or three transmembrane domains and a short carboxy-terminal region<sup>14</sup>. The Nogo-A protein contains at least two active domains, NiG and Nogo-66 that mediate their effects via an antagonistic regulation of the small GTPases RhoA and Rac1, resulting in activation of RhoA and suppression of Rac1<sup>15</sup>. The calculated molecular weight of rat Nogo-A is ~ 126 kDa, while the apparent molecular weight of the fully glycosylated form is ~ 180-190 kDa.

## REFERENCES

- Schwab ME & Bartholdi D. *Physiol Rev* 76(2):319-370, 1996.
- Tessier-Lavigne M & Goodman CS. *Science* 287(5454):813-814, 2000.
- Benfey M & Aguayo AJ. *Nature* 296(5853):150-152, 1982.
- Schwab ME & Thoenen H. *J Neurosci* 5(9):2415-2423, 1985.
- Bregman BS *et al.* *Nature* 378(6556):498-501, 1995.
- Spillmann AA *et al.* *J Biol Chem* 273(30):19283-19293, 1998.
- McKerracher L *et al.* *Neuron* 13(4):805-811, 1994.
- Mukhopadhyay G *et al.* *Neuron* 13(3):757-67, 1994.
- GrandPre T *et al.* *Nature* 403(6768):439-444, 2000.
- Goldberg JL & Barres BA *Nature* 403(6768):369-370, 2000.
- Watarai A & Yutsudo M. *Apoptosis* 8(1):5-9, 2003.
- Oertle T & Schwab ME. *Trends Cell Biol* 13(4):187-194, 2003.
- Chen MS *et al.* *Nature* 403(6768):434-439, 2000.
- Prinjha R *et al.* *Nature* 403(6768):383-384, 2000.
- Niederost B *et al.* *J Neurosci* 22(23):10368-10376, 2002.

## RELATED PRODUCTS

<b>Product</b>	<b>Clone/PAD*</b>	<b>Cat. No.</b>
Rabbit anti-Nogo-66 Receptor	ZMD.186	52-6527
Mouse anti-GAP-43	7B10	33-5000
Mouse anti-N-Cadherin	3B9	33-3900
rat anti-N-Cadherin	NCD-2	13-2100
Rabbit anti-L-MAG	ZMD.210	34-6100
Rabbit anti-S/L-MAG	ZMD.211	34-6200
Rabbit anti-PTEN	EC8	51-7800
Mouse anti-PSA	Z009	18-0044
Protein A	Sepharose <sup>®</sup> 4B	10-1041
rec-Protein G	Sepharose <sup>®</sup> 4B	10-1241

\*PAD: Polyclonal Antibody Designation

<b>Conjugate</b>	<b>ZyMAX<sup>™</sup> Goat x Rabbit IgG (H+L)</b>	<b>ZyMAX<sup>™</sup> Goat x Mouse IgG (H+L)</b>
Purified	81-6100	81-6500
FITC	81-6111	81-6511
TRITC	81-6114	81-6514
Cy <sup>™</sup> 3	81-6115	81-6515
Cy <sup>™</sup> 5	81-6116	81-6516
HRP	81-6120	81-6520
AP	81-6122	81-6522
Biotin	81-6140	81-6540

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