



Qty: 100 µg/400 µl

Rabbit anti-

Neuropilin-1(Soluble)

For Research Use Only

Catalog No. 36-1400

Lot No. See product label

Rabbit anti-Neuropilin-1 (Soluble)

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. The antibody is epitope-affinity-purified from rabbit antiserum.

PAD: ZMD.272

IMMUNOGEN

Synthetic peptide derived from the N-terminal region of the human neuropilin-1 (Npn-1, NRP-1) protein.

SPECIFICITY

This antibody is specific for the soluble and membrane-bound forms of human neuropilin-1. On Western blots, it identifies two bands, one at ~130-135 kDa representing the membrane-bound form, and another at ~90 kDa for the soluble form.

REACTIVITY

Reactivity has been confirmed with human PC-3 prostate adenocarcinoma cell lysates. Based on amino acid sequence homology, cross-reactivity with chicken and frog Npn-1 is expected, and mouse and rat cross-reactivity is possible.

Sample	Western Blotting	ELISA
Human	+++	ND
Mouse	ND	ND
Immunogen	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.

ELISA: 0.1 - 1.0 µg/ml
Western Blotting: 1-3 µg/ml

STORAGE

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

(cont'd)

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PI361400

(Rev 10/08) DCC-08-1089

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BACKGROUND

Neuropilin-1 (NRP-1 or Npn-1) is a ~130-140 kDa cell surface, transmembrane protein that was originally identified in the developing *Xenopus* nervous system,¹ where it acts as a receptor for semaphorins III, IV, and E, mediators of axon guidance and growth.² In addition to its role in the developing nervous system, neuropilin-1 demonstrates significant involvement in angiogenesis, particularly through its interaction with specific isoforms of vascular endothelial growth factor (VEGF): VEGF₁₆₅, VEGF-E, VEGF-B, and PlGF₁₅₂.³ As a co-receptor for VEGF₁₆₅ along with VEGFR-2, NRP-1 has been shown to enhance VEGF₁₆₅ bioactivity and binding to VEGFR-2.^{3,4}

Structurally, neuropilin-1 consists of a short C-terminal cytoplasmic domain, a transmembrane segment, and an N-terminal extracellular domain containing two Ig-like CUB domains, two domains with homology to the coagulation factors V and VIII, and a MAM (meprin, A5, Mu) domain.² A 90 kDa soluble form of neuropilin (sNRP-1) has also been described in PC3 prostate carcinoma cells, heart, and placenta. sNRP-1 contains the N-terminal CUB and coagulation factor homology domains, but lacks the MAM homology, transmembrane, and cytoplasmic domains of full-length NRP-1.⁵ sNRP-1 selectively binds to VEGF₁₆₅ over VEGF₁₂₁ and acts as a VEGF₁₆₅ antagonist; overexpression of sNRP-1 in tumor cells may therefore inhibit VEGF₁₆₅-induced tumor angiogenesis.⁵

Neuropilin-1 mRNA expression in the nervous system has been reported in axons of sensory and motor neurons and the dorsal root ganglia.⁵ Outside the nervous system, NRP-1 mRNA has been detected at high levels in heart and placenta, and at moderate levels in lung, liver, skeletal muscle, kidney, and pancreas.⁶ Studies of NRP-1 expression in the rat uterus also point to a potential role for NRP-1 in progesterone-regulated changes during the female reproductive cycle.⁷ In cultured nonneuronal cell lines, highest neuropilin-1 expression levels were observed in human 231 breast carcinoma and PC3 prostate adenocarcinoma cells.⁶

REFERENCES

1. Takagi S, et al. *Dev Biol* 122(1):90-100, 1987.
2. He Z, Tessier-Lavigne M. *Cell* 90:739-751, 1997.
3. Whitaker GB, et al. *J Biol Chem* 276(27):25520-25531, 2001.
4. Robinson CJ, Stringer SE. *J Cell Sci* 114:853-865, 2001.
5. Gagnon ML, et al. *PNAS* 97(6):2573-2578, 2000.
6. Soker S, et al. *Cell* 92:735-745, 1998.
7. Pavelock K, et al. *Endocrinology* 142(2):613-622, 2001.

RELATED PRODUCTS

Product	Clone/PAD*	Cat. No.
Rabbit anti-Neuropilin-1	ZMD.223	34-7300
Rabbit anti-Neuropilin-2	ZMD.273	36-1500
Rabbit anti-VEGF	Z-CVF3	18-0254
Mouse anti-VEGF	VG1	18-7358
Rabbit anti-VEGF Receptor-2	ZMD.262	36-0900
Rabbit anti-VEGF Receptor-1	ZMD.263	36-1100
Rabbit anti-VEGF Receptor-3 (Mid)	ZMD.250	36-0100
Rabbit anti-VEGF Receptor-3 (C-term)	ZMD.251	36-0200

Protein A	Sepharose® 4B	10-1041
rec-Protein G	Sepharose® 4B	10-1241

*PAD: Polyclonal Antibody Designation

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

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