

**DESCRIPTION**

<b>Species Reactivity</b>	Rat
<b>Specificity</b>	Detects rat Neuropilin-1 in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant rat Neuropilin-2 is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 130604
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant rat Neuropilin-1 Met1-Asp854 (Lys811Arg, Pro812-Gly828 del), predicted Accession # Q9QWJ9
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

**APPLICATIONS**

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Western Blot</b>	1 µg/mL	Recombinant Rat Neuropilin-1/BDCA4 Fc Chimera (Catalog # 566-N1)
<b>Immunohistochemistry</b>	8-25 µg/mL	Immersion fixed paraffin-embedded sections of rat embryo (E15)

**PREPARATION AND STORAGE**

<b>Reconstitution</b>	Reconstitute at 0.5 mg/mL in sterile PBS.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Neuropilin-1 (Npn-1, previously neuropilin; also CD304) is a 130-140 kDa type I transmembrane (TM) glycoprotein that regulates axon guidance and angiogenesis (1-4). The mature 901 amino acid (aa) rat Npn-1 contains a 623 aa extracellular domain (ECD) that shares 98% aa identity with mouse and 93% aa identity with human, equine, bovine and canine Npn-1 (3, 4). The ECD contains two N-terminal CUB domains, two F5/8 type C domains with homology to coagulation factors V and VIII and a MAM (mepirin) domain. In mouse and human, splice variants that lack the TM domain have been described and are either proven or presumed to be soluble antagonists (1, 5-7). The sema domains of Class III secreted semaphorins such as Sema3A bind Npn-1 CUB domains (8). The heparin-binding forms of VEGF (VEGF<sub>165</sub>, VEGF-B and VEGF-E), PIGF (PIGF2), and the C-terminus of Sema3 bind the F5/8 type C domains (8, 9). Npn-1 and Npn-2 share 48% aa identity within the ECD and can form homo- and hetero-oligomers via interaction of their MAM domains (1). Neuropilins show partially overlapping expression in neuronal and endothelial cells during development (1, 2). Both neuropilins act as co-receptors with plexins, mainly plexin A3 and A4, to bind class III semaphorins that mediate axon repulsion (10). However, only Npn-1 binds Sema3A, and only Npn-2 binds Sema3F (1). Both are co-receptors with VEGF R2 (also called KDR or Flk-1) for VEGF<sub>165</sub> binding (1). Sema3A signaling can be blocked by VEGF<sub>165</sub>, which has higher affinity for Npn-1 (11). Npn-1 is preferentially expressed in developing or remodeling arteries (1, 2). Npn-1 is also expressed on dendritic cells and mediates DC-induced T cell proliferation (12).

**References:**

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