

## DESCRIPTION

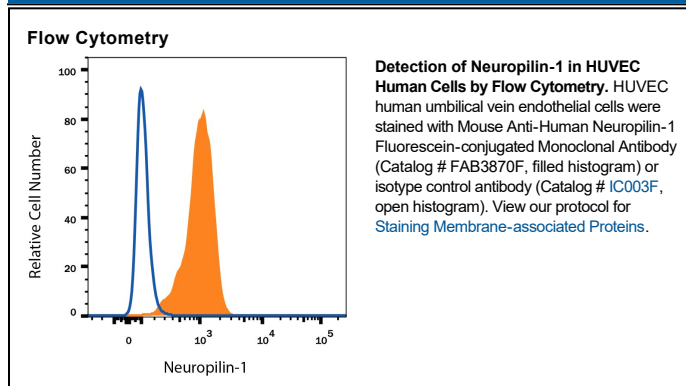
<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Neuropilin-1 in direct ELISAs.
<b>Source</b>	Monoclonal Mouse IgG <sub>2A</sub> Clone # 446921
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human Neuropilin-1 Phe22-Lys644 Accession # NP_001019799
<b>Conjugate</b>	Fluorescein Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm (FITC)
<b>Formulation</b>	Supplied in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

## 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.

	Recommended Concentration	Sample
<b>Flow Cytometry</b>	10 $\mu$ L/10 <sup>6</sup> cells	See Below

## DATA



## PREPARATION AND STORAGE

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</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 full-length 923 amino acid (aa) human Npn-1 contains a 623 aa extracellular domain (ECD) that shows 92-95% aa identity with mouse, rat, bovine and canine Npn-1 (3, 4). The ECD contains two N-terminal CUB domains (termed a1a2), two domains with homology to coagulation factors V and VIII (b1b2) and a MAM (meprin) domain (c). C-terminally divergent splice variants with 704, 644, 609, and 551 aa lack the MAM and TM domains and are demonstrated or presumed to be soluble antagonists (1, 5-7). A 906 aa form lacks a TM segment, but secretion has not been found (8). The sema domains of Class III secreted semaphorins such as Sema3A bind Npn-1 a1a2 (9). Heparin, the heparin-binding forms of VEGF (VEGF<sub>165</sub>, VEGF-B and VEGF-E), PlGF (PlGF2), and the C-terminus of Sema3 bind the b1b2 region (9, 10). 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 (11). 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 (12). Npn-1 is preferentially expressed in arteries during development or those undergoing remodeling (1, 2). Npn-1 is also expressed on dendritic cells and mediates DC-induced T cell proliferation (13).

## References:

1. Bielenberg, D.R. *et al.* (2006) *Exp. Cell Res.* **312**:584.
2. Gu, C. *et al.* (2003) *Dev. Cell* **5**:45.
3. He, Z. and M. Tessier-Lavigne (1997) *Cell* **90**:739.
4. Soker, S. *et al.* (1998) *Cell* **92**:735.
5. Gagnon, M.L. *et al.* (2000) *Proc. Natl. Acad. Sci. USA* **97**:2573.
6. Cackowski, F.C. *et al.* (2004) *Genomics* **84**:82.
7. Rossignol, M. *et al.* (2000) *Genomics* **70**:211.
8. Tao, Q. *et al.* (2003) *Angiogenesis* **6**:39.
9. Gu, C. *et al.* (2002) *J. Biol. Chem.* **277**:18069.
10. Mamluk, R. *et al.* (2002) *J. Biol. Chem.* **277**:24818.
11. Yaron, A. *et al.* (2005) *Neuron* **45**:513.
12. Narazaki, M. and G. Tosato (2006) *Blood* **107**:3892.
13. Tordjman, R. *et al.* (2002) *Nat. Immunol.* **3**:477.