# Recombinant Rat Neuropilin-1 Fc Chimera

Catalog Number: 566-N1

## DESCRIPTION

**Source** *Spodoptera frugiperda*, *Sf* 21 (baculovirus)-derived

| | | | |
|---|---|---|---|
| Rat Neuropilin-1<br>Phe22 - Asp854 (Lys811Arg and Pro812 - Gly828 del)<br>Accession # Q9QWJ9 | IEGRDMD | Human $IgG_1$<br>(Pro100 - Lys330) | 6-His tag |

N-terminus C-terminus

| | |
|---|---|
| **N-terminal Sequence Analysis** | Phe22 |
| **Structure / Form** | Disulfide-linked homodimer |
| **Predicted Molecular Mass** | 119 kDa (monomer) |

## SPECIFICATIONS

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| **SDS-PAGE** | 130-150 kDa, reducing conditions |
| **Activity** | Measured by its binding ability in a functional ELISA.<br>Immobilized rrNeuropilin-1/Fc Chimera can bind rhVEGF$_{165}$ with an apparent $K_D$ < 1 nM. |
| **Endotoxin Level** | <0.10 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >90%, by SDS-PAGE under reducing conditions and visualized by silver stain. |
| **Formulation** | Lyophilized from a 0.2 µm filtered solution in Citrate Phosphate and NaCl. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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| **Reconstitution** | Reconstitute at 200 µg/mL in sterile PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

## 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 (meprin) 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$_{165}$, VEGF-B and VEGF-E), P/GF (P/GF2), 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$_{165}$ binding (1). Sema3A signaling can be blocked by VEGF$_{165}$, 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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## PRODUCT SPECIFIC NOTICES

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U.S. Patent # 6,054,293, 6,623,738, and other U.S. and international patents pending.



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