Human Neuropilin-1 /NRP1 (glycosylated, InCs)

Synonyms: Neuropilin receptor-1, Vascular endothelial growth factor 165 receptor, CD304, VEGF165R, NRP.

PLEASE NOTE: ALWAYS CENTRIFUGE VIAL BEFORE OPENING

Size	Order#	Lot#	Expiry Date
5 µg	1770.952.005		
25 µg	1770.952.025		
100 µg	1770.952.100		
1 mg	1770.952.199		

Please enquire for bulk quantities and other vial sizes.

Description

Recombinant human Neuropilin-1 (NRP-1, CD304) produced in insect cells is a glycosylated 82.6 kDa protein with 631aa. It is a 130-140 kDa type I transmembrane glycoprotein that regulates axon guidance and angiogenesis. The human NRP-1 contains a 623 aa extracellular domain (ECD) that shows 92-95 % aa identity with mouse, rat, bovine and canine NRP-1. 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-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. Heparin, the heparin-binding forms of VEGF ($VEGF_{165}$, VEGF-B; VEGF-E), PlGF-2, and the C-terminus of Sema3 bind the b1b2 region. NRP-1 and NRP-2 share 48 % aa identity within the ECD and can form homo and hetero-oligomers via interaction of their MAM domains. Neuropilins show partially overlapping expression in neuronal and endothelial cells during development. Both neuropilins act as coreceptors with Plexins, mainly Plexin A3 and A4, to bind class III Semaphorins that mediate axon repulsion. However, only NRP-1 binds Sema3A, and only NRP-2 binds Sema 3 F. Both are co-receptors with VEGFR-2 (KDR7Flk1) for $VEGF_{165}$ binding. Sema 3 A signaling can be blocked by $VEGF_{165}$, which has higher affinity for NRP-1. NRP-1 is preferentially expressed in arteries during development or those undergoing remodeling. NRP-1 is also expressed on dendritic cells and mediates DC-induced T-cell proliferation. Recently Neuropilin-1 has been identified as a factor that can facilitate SARS-COV-2 entry into the cells' interior.

- **Biological Activity** Fully active in functional assay.
- **Source** Insect cells
- **Purity** ≥ 98 % (SDS-PAGE, silver stained)
- **Endotoxin Level** ≤ 0.1 ng/µg (≤ 1 EU/µg)
- **Buffer** PBS*
- **Physical State** Sterile filtered, lyophilized

Biological Activity

The biological activity was measured by its binding ability in a functional ELISA. Immobilized soluble Neuropilin-1 binds all VEGF-A isoforms except for $VEGF_{121}$ (Fig 2, see below).

Reconstitution

We recommend a quick spin followed by reconstitution in sterile-filtered water or PBS to a concentration of at least 100 µg/ml. Do not vortex.

Stability

The lyophilized protein is stable for greater than six months at -20° C to -70° C. After the first thawing we recommend to aliquot the material, because repeated freeze-thaw cycles will decrease the activity. The reconstituted protein should not be stored at 4°C for longer than 2 days. Please avoid repeated freeze-thaw cycles.

*The Buffer may vary depending on the Lot #. Please contact our technical support if you have specific requirements.

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Amino Acid Sequence

FRNDKCGDTI KIESPGYLTS PGYPHSYHPS EKCEWLIQAP DPYQRIMINF NPHFDLEDRD CKYDYVEVFD
GENENGHFRG KFCGKIAPPP VVSSGPFLFI KFVSDYETHG AGFSIRYEIF KRGPECSQNY TTPSGVIKSP
GFPEKYPNSL ECTYIVFAPK MSEIILEFES FDLEPDSNPP GGMFCRYDRL EIWDGFPDVG PHIGRYCGQK
TPGRIRSSSG ILSMVFYTDS AIAKEGFSAN YSVLQSSVSE DFKCMEALGM ESGEIHSDQI TASSQYSTNW
SAERSRLNYP ENGWTPGEDS YREWIQVDLG LLRFVTAVGT QGAISKETKK KYYVKTYKID VSSNGEDWIT
IKEGNKPVLF QGNTNPTDVV VAVFPKPLIT RFVRIKPATW ETGISMRFEV YGCKITDYPC SGMLGMVSGL
ISDSQITSSN QGDRNWMPEN IRLVTSRSGW ALPPAPHSYI NEWLQIDLGE EKIVRGIIIQ GGKHRENKVF
MRKFKIGYSN NGSDWKMIMD DSKRKAKSFE GNNNYDTPEL RTFPALSTRF IRIYPERATH GGLGLRMELL
GCEVEAPTAG PTTPNGNLVD ECDDDQANCH SGTGDDFQLT GGTTVLATEK PTVIDSTIQS GIKLEHHHHH
H

Usage: For research use only. Not for use in diagnostic or therapeutic procedures. Not for human use.

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