Human Neuropilin-1 / NRP1 / CD304 Protein (His & AVI Tag), Biotinylated

Catalog Number: 10011-H27H-B

General Information

Gene Name Synonym:

BDCA4; CD304; Neuropilin-1; NP1; NRP; VEGF165R

Protein Construction:

A DNA sequence encoding the human NRP1 (NP_001019799.1) (Met1-Lys644) was expressed with a c-terminal polyhistidine tagged AVI tag at the C-terminus. The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed.

Source: Human

Expression Host: Human Cells

QC Testing

Biotin/Protein Ratio:

0.7-1 as determined by the HABA assay.

Purity: > 95 % as determined by SDS-PAGE.

Bio-activity:

Measured by its binding ability in a functional ELISA. Immobilized VEGF165 (Cat:11066-HNAB) at 10 μg/mL (100 μL/well) can bind Human Neuropilin-1, Biotinylated (Cat:10011-H27H-B), the EC_{50} of Human Neuropilin-1, Biotinylated (Cat:10011-H27H-B) is 300-600 ng/mL.

Endotoxin:

<1.0 EU per μg protein as determined by the LAL method.

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

Predicted N terminal: Phe 22

Molecular Mass:

The recombinant human NRP1 consists of 649 amino acids and predicts a molecular mass of 73.1 kDa.

Formulation:

Lyophilized from sterile PBS, pH 7.4.

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

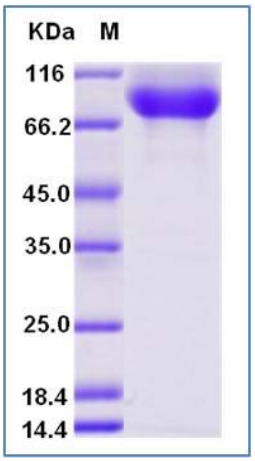
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Neuropilin is a type I transmembrane protein and the molecular mass is 12 kDa. Two homologues, Neuropilin-1 and Neuropilin-2, are identified. The primary structure of Neuropilin-1 and Neuropilin-2 is well conserved and is divided into four domains, CUB (a1/a2) domain, FV/FVIII (b1/b2) domain, MAM (c) domain, and (d) domain that contains a transmembrane and a short cytoplasmic region. Neuropilin-1 (NRP1) acts as a receptor for two different extracellular ligands, class 3 semaphorins and specific isoforms of vascular endothelial growth factor. The functions of NRP1 and NRP2 have been extensively studied in neurons where they act in axon guidance and in endothelial cells where they promote angiogenesis and cell migration. Neuropilin-1 is likely to mediate contacts between the dendritic cells and the T lymphocytes via homotypic interactions and is essential for the initiation of the primary immune response. NRP1 is a co-receptor for VEGF receptor-2 (VEGFR2) that enhances the binding of VEGF165 to VEGFR2 and VEGF165-mediated chemotaxis. NRP1 expression is regulated in EC by tumor necrosis factor-alpha, the transcription factors dHAND and Ets-1, and vascular injury. NRP1 upregulation is positively correlated with the progression of various tumors. Overexpression of NRPI in rat tumor cells results in enlarged tumors and substantially enhanced tumor angiogenesis. On the other hand, soluble NRP1 (sNRP1) is an antagonist of tumor angiogenesis.

References

1.Nakamura F, *et al.* (2002) Structural and functional relation of neuropilins. Adv Exp Med Biol. 515: 55-69. 2.Romeo PH, *et al.* (2002) Neuropilin-1 in the immune system. Adv Exp Med Biol. 515: 49-54. 3.Klagsbrun M, *et al.* (2002) The role of neuropilin in vascular and tumor biology. Adv Exp Med Biol. 515: 33-48.