



LD Biopharma, Inc.
7384 Trade Street, Suite B
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human CD304 Protein
Catalog Number: hRP-2378
Manufacturer: LD Biopharma, Inc.

Introduction

Human neuropilin-1 (NRP1, also named as CD304) gene encodes one of two neuropilins, which contain specific protein domains which allow them to participate in several different types of signaling pathways that control cell migration. Neuropilins contain a large N-terminal extracellular domain, made up of complement-binding, coagulation factor V/VIII, and meprin domains. These proteins also contain a short membrane-spanning domain and a small cytoplasmic domain. Neuropilins bind many ligands and various types of co-receptors; they affect cell survival, migration, and attraction. Some of the ligands and co-receptors bound by neuropilins are vascular endothelial growth factor (VEGF) and semaphorin family members. Several alternatively spliced transcript variants that encode different protein isoforms have been described for this gene. The membrane-bound isoform-I is a receptor involved in the development of the cardiovascular system, in angiogenesis, in the formation of certain neuronal circuits and in organogenesis outside the nervous system. It mediates the chemorepulsant activity of semaphorins. It binds to semaphorin 3A, The PLGF-2 isoform of PGF, The VEGF-165 isoform of VEGF and VEGF-B. Co-expression with KDR results in increased VEGF-165 binding to KDR as well as increased chemotaxis. It may regulate VEGF-induced angiogenesis. The soluble isoform-II binds VEGF-165 and appears to inhibit its binding to cells. It may also induce apoptosis by sequestering VEGF-165. It may bind as well various members of the semaphorin family. Its expression has an adverse effect on blood vessel number and integrity.

Full-length extracellular domain of human CD304 cDNA (22 – 856aa, Isoform-II, derived from BC007533) was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at its N-terminal. This protein was expressed in E. coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: CD304 (NRP1, BDCA4; NP1; VEGF165R)
Accession Number: NP_001019799



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Species:	Human
Size:	20 µg / Vial
Composition:	0.20 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Bartlett CS, et al., *Glomerular mesangial cell recruitment and function require the co-receptor neuropilin-1*. Am. J. Physiol. Renal Physiol. 313 (6), F1232-F1242 (2017)

Kwiatkowski SC, et al., *Neuropilin-1 modulates TGFbeta signaling to drive glioblastoma growth and recurrence after anti-angiogenic therapy* PLoS ONE 12 (9), e0185065 (2017)

Kerros C, et al., *Neuropilin-1 mediates neutrophil elastase uptake and cross-presentation in breast cancer cells*. J. Biol. Chem. 292 (24), 10295-10305 (2017)

Overacre-Delgoffe AE, et al., *Interferon-gamma Drives Treg Fragility to Promote Anti-tumor Immunity*. Cell 169 (6), 1130-1141 (2017)

Applications

1. May be used for in vitro CD304 mediated immune-modulator activities regulation study for various cells with this protein either as soluble factor or as coating matrix protein.
2. May be used for protein-protein interaction assay.
3. Potential therapeutic/diagnostic protein, which may be used as anti-angiogenesis drug (recombinant CD304 or anti-CD304 antibody) for various diseases.
4. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence



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MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ
SSGCLLENQLPAFLLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT
SCEAYEEDRETFMNFYIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT
KELRESSGGSHHHHHHGSENLYFQGFRNDKCGDTIKIESPGYLTSPGYPHSYHPSEKCEWLIQA
PDPYQRIMINFNPHFDLED RDCKYDYVEVFDGENENGFHFRGKFCGKIAPPPVVSSGPFLFIK FV
SDYETHGAGFSIRYEIFKRGPECSQNYTTPSGVIKSPGFPEKYPNSLECTYIVFAPKMSEIILE
FESFDLEPDSNPPGGMFCRYDRLEIWDGFPDVGPHIGRYCGQKTPGRIRSSSGILSMVFYTD SA
IAKEGFSANYSVLQSSVSEDFKCM EALGMESGEIHS DQITASSQYSTNWSAERSRLNYPENGT
PGEDSYREWIQVDLGLLRFVTA VGTQGAISKETKKKYVVKTYKIDVSSNGEDWITIK EGNKPVL
FQNTNPTD VVVAVFPKPLITRFVRIK PATWETGISMRFEVYGCKITDYPCSGMLGMV SGLISD
SQITSSNQGDRN WMPENIRLVTSRSGWALPPAPHSYIN EWLQIDLGEEKIVRGI I IQGGKHREN
KVFMRKFKIGYSNNGSDWK MIMDDSKRKAKSFEGNNNYDTP ELRTFPALSTRFIRIYPERATHG
GLGLRMEL LGCEVEAPTAGPTTPNGNLVDECD DDQANCHSGTGDDFQLTG GTTVLATEKPTVID
STIQS