Anti-human Neuropilin-1

20141001BB

FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no.:	**102-PA23AG**
Size:	50 µg
Lot. No.:	According to product label
Country of origin:	Germany

Preparation: Produced from sera of rabbits immunized with highly pure recombinant human soluble NRP-1.

Target Background

Synonyms:	Vascular endothelial growth factor 165 receptor, CD304, VEGF165R, NRP

Neuropilin-1 (NRP-1, CD304) 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 (VEGF165, 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 3F. Both are co-receptors with VEGFR-2 (KDR7Flk1) for VEGF165 binding. Sema 3A signaling can be blocked by VEGF165, 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.

References

1. Miao HQ and Klagsbrun M, Cancer Metastasis Rev. 2000, 19:29-37
2. Neufeld G et al, Trends Cardiovasc Med 2002, 12:13-9
3. Romeo PH et al, Adv Exp Med Biol 2002, 515:49-54
4. Neufeld G et al, Adv Exp Med Biol 2002, 515:81-90
5 Chen C et al, World J Surg 2005, 29:271-5
6. Staton CA et al, J Pathol 2007, 212:237-48
7. Bagri A et al, Clin Cancer Res 2009, 15:1860-4
8. Zachary IC, Biochem Soc Trans 2011, 39:1583-91
9. Nakayama M et al, Exp Cell Res 2013; 319:1340-7

Database References Antigen

Protein RefSeq:	NP_003864.4
Uniprot ID:	O14786
mRNA RefSeq:	NM_003873.5

Product Specifications

Species reactivity	human
Clone/Ab feature	Rabbit IgG
Cross reactivity	ND
Host	rabbit
Clonality	polyclonal
Purification	Antigen affinity purified
Immunogen	Recombinant human soluble NRP-1 (RT #S01-019)
Formulation	lyophilized
Buffer	PBS

Stability: The lyophilized antibody is stable at room temperature for up to 1 month. The reconstituted antibody is stable for at least two weeks at 2-8°C. Frozen aliquots are stable for at least 6 months when stored at -20°C.

Reconstitution: Centrifuge vial prior to opening. Reconstitute in sterile water to a concentration of 0.1-1.0 mg/ml.

AVOID REPEATED FREEZE AND THAW CYCLES!

Applications

Western Blot:	Use at 1-5 µg/ml
ELISA:	Use at 1-5 µg/ml
FACS	Use at 1-5 µg/ml
IF/IHC	IF: Use at 2-10µg/ml.

NOTE: OPTIMAL DILUTIONS SHOULD BE DETERMINED BY EACH LABORATORY FOR EACH APPLICATION!

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Handling/Applications

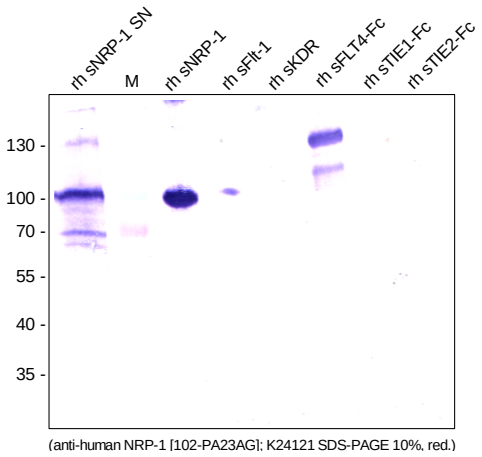

Figure 1: Western Analysis of anti-human NRP-1. Samples were loaded in 10% SDS-polyacrylamide gel under reducing conditions. Lane 1: sNRP-1 conditioned supernatant from Sf9 cells. There is a strong cross reactivity with recombinant human sFLT4-Fc chimera but not with the other tested soluble receptors.

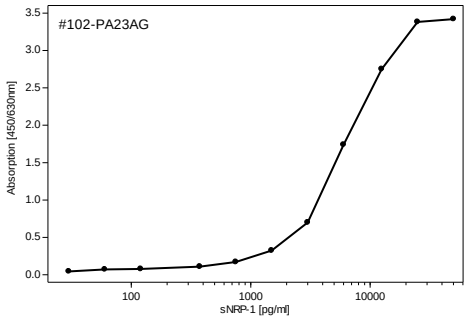

Figure 2: Functional ELISA with anti-human NRP-1. Recombinant human soluble NRP-1 was coated with increasing amounts on a 96 well microtiter plate.

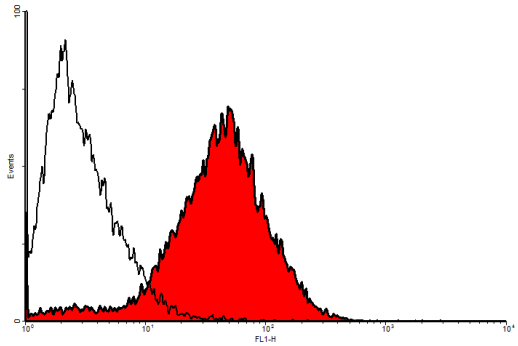

Figure 3. FACS analysis with primary human umbilical vein endothelial cells (HUVEC).

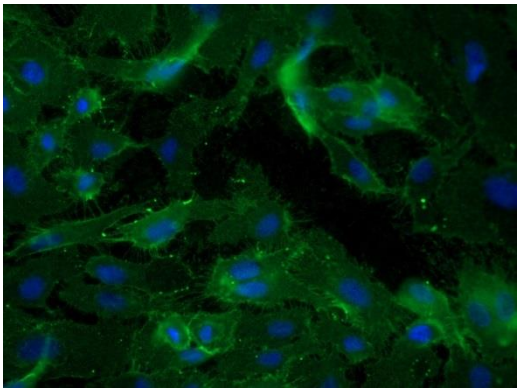

Figure 4: Immunofluorescence staining (green) of Neuropilin-1 (NRP-1) in primary human umbilical vein endothelial cells (HUVEC) with anti-human NRP-1 (5µg/ml) [**Cat# 102-PA23AG**] and counter staining of nuclei with Dapi. As secondary antibody goat anti-rabbit ALEXA Flour 488 (Dianova) was used 1:600.

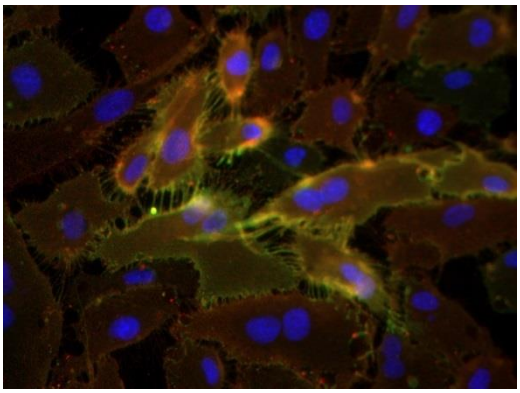

Figure 5: Immunofluorescence staining of NRP-1 (red) and CD31 (green) in human umbilical vein endothelial cells (HUVEC) with polyclonal rabbit anti-human NRP-1 [**Cat# 102-PA23AG**] and mouse anti-human CD31 #WM-59 [**Cat# 101-M92**]. As secondary antibodies goat anti-rabbit Cy3 / goat anti-mouse ALEXA Flour 488 [Dianova] were used. [5/2µg/ml; 400X]