Human Neuropilin-2
Alexa Fluor® 405-conjugated Antibody

Monoclonal Mouse IgG_{2A} Clone # 257103

Catalog Number: FAB22151V

100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Neuropilin-2 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant rat (rr) Neuropilin-1 or rrNeuropilin-2 is observed.
Source	Monoclonal Mouse IgG_{2A} Clone # 257103
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Neuropilin-2 Gln23-Tyr855 Accession # NP_003863
Conjugate	Alexa Fluor 405 Excitation Wavelength: 405 nm Emission Wavelength: 421 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10^6 cells	HUVEC human umbilical vein endothelial cells

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Protect from light. Do not freeze.** ● 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

Neuropilin-2 (Npn-2) is a 120 kDa, type I transmembrane (TM) glycoprotein that is related to the semaphorin receptor Neuropilin-1 (1). Npn-2 is a complex molecule with multiple splice forms. Five transmembrane forms are known, and one 62 kDa soluble form has been identified (2). Based on the originally reported precursor size of 909 amino acids (aa), the “standard” precursor in human will have a 20 aa signal sequence, an 842 aa extracellular region, a 25 aa TM segment, and a 42 aa cytoplasmic tail (1). The extracellular region contains two N-terminal CUB (C1r/Ugef/BMP-1) domains, two jellyroll-shaped coagulation factor V type C domains, and a juxtamembrane MAM (meprin/A-5 protein/tyrosine phosphatase µ) domain (1, 3). The CUB and factor V domain are involved in VEGF and semaphorin binding. The MAM domain appears necessary for signaling through plexin-1 (4). The five transmembrane isoforms all share the same CUB, factor V and MAM domains. Splicing begins at aa 809, seven amino acids after the end of the MAM domain, and it involves the end of the extracellular region, the TM segment, and the cytoplasmic domain (a total of 101 aa). Two of the four variants show a complete replacement of these 101 aa with a totally unrelated stretch of approximately 90 aa. This creates a new TM and cytoplasmic tail. These forms are called “Npn-2b” forms. Two other isoforms (plus the standard 909 aa form) retain the 101 aa stretch, and add either 17 or 22 aa to the end of the extracellular region. These forms are called “Npn-2a” forms. The isoform offered by R&D Systems is the “a” form with the 17 aa addition. This isoform shows 94% aa identity to the equivalent regions in mouse and rat Npn-2. The soluble form of Npn-2 is 555 aa in precursor length, and contains the two CUB domains plus the first 1½ factor V type C domains (1). Npn-2 binds Sema3B through F, and VEGF isoforms 165, 145, P/GF-2 and VEGF-C (5). It is known to form homodimers and heterodimers with Npn-1, and it forms receptor complexes with plexin-1 and VEGFR1 (4, 5). Npn-2 is found on a variety of cell types including neurons (motor, autonomic, sensory), vascular endothelial cells, Schwann cells and pancreatic acinar cells.

References:

1. Chen, H. *et al.* (1997) Neuron **19**:547.
2. Rossignol, M. *et al.* (2000) Genomics **70**:211.
3. He, Z. and M. Tessier-lavigne (1997) Cell **90**:739.
4. Nakamura, F. and Y. Goshima (2002) Adv. Exp. Med. Biol. **515**:55.
5. Neufeld, G. *et al.* (2002) Adv. Exp. Med. Biol. **515**:81.

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