

Background

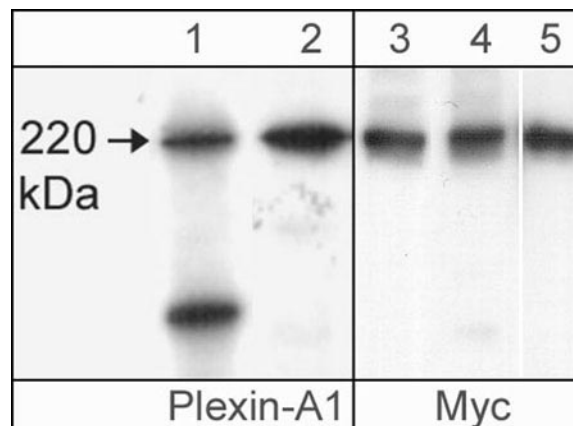
Plexins are a family of large integral membrane proteins that complex with neuropilins to form semaphorin co-receptors. The extracellular region of plexins contains a semaphorin domain, multiple glycine-rich motifs, and MET-related sequences. The cytoplasmic region contains a Sex/Plexin domain and putative tyrosine phosphorylation sites that mediate signal transduction after activation. This region in Plexin-A1 binds the RhoGTPases, Rnd1 and RhoD. Recruitment of Rnd1 has been implicated in the cytoskeletal collapse that occurs after semaphorin-mediated activation of Plexin-A1, while RhoD may block this collapsing activity through interaction with the cytoplasmic region of Plexin-A1. The expression of Plexin-A1, along with the co-receptor Neuropilin-1, is upregulated in neurons after central nervous system injury. The axons from these neurons cannot cross semaphorin 3A-containing regions at the site of injury. Thus, semaphorin 3A and its co-receptors, Plexin-A1 and Neuropilin-1, may have significant roles in axon regeneration after neuronal injury.

Background References

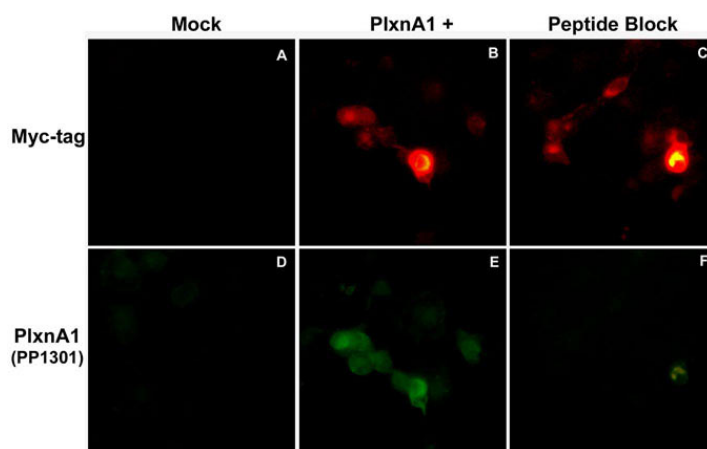
Kolodkin, A.L. et al. (1993) Cell 75:1389.
 Tamagnone, L. et al. (1999) Cell 99:71.
 Takahashi, T. & Strittmatter, S.M. (2001) Neuron 29:429.

Product Citations

Sumi, C. et al. (2018) Mediators Inflamm. Apr 8:5703651.
WB: mouse ATDC5 cells
 Cheadle, L. et al. (2014) J of Neuroscience 34(23): 7999.
WB: rat brain



Western blots showing Cos-7 cells transfected with mouse Myc-tagged Plexin-A1 (lanes 1 & 3), neonatal rat brain (lane 2), or Plexin-A1 immunoprecipitated from Myc-tagged Plexin-A1 transfected cells using anti-Myc (lane 4) or anti-Plexin-A1 (PP1301; lane 5). These blots were probed with either the affinity purified anti-Plexin-A1 (PP1301; lanes 1 & 2) or with mouse monoclonal anti-Myc (lanes 3-5).



Immunocytochemical double labeling using anti-Myc mouse monoclonal and anti-Plexin-A1 rabbit polyclonal (PP1301) antibodies in Cos-7 cells mock transfected (A,D) or transfected with Myc-tagged mouse Plexin-A1 construct (B,E). The specificity of the binding in E was demonstrated by using Plexin-A1 peptide (PX1305) in the presence of this anti-Plexin-A1 antibody (C,F).

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Immunogen **Uniprot ID: Q9UIW2**

Plexin-A1 synthetic peptide (coupled to carrier protein) corresponding to a region within the N-terminal half of the semaphorin domain in human Plexin-A1. This sequence is highly conserved in rat and mouse Plexin-A1, and has low homology to other Plexin family members.

Buffer and Storage

Rabbit polyclonal, affinity-purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

Applications

WB	1:1000
ELISA	1:2000
ICC	1:100
IP	1:50
IHC	1:100

Species Reactivity

Hu, Rt, Ms

End user should determine optimal dilution for their particular applications and experiments.

Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.

Abbreviations: E = ELISA, ICC = Immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

The antibody detects a 220 kDa* protein corresponding to the apparent molecular mass of Plexin-A1 on SDS-PAGE immunoblots of neonatal rat brain and Cos-7 cells transfected with mouse Plexin-A1. In immunocytochemistry, this antibody co-localizes with anti-Myc in Cos-7 cells transfected with Myc-tagged mouse Plexin-A1.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.

"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

SP1221 Semaphorin-3A (Central region) Rabbit Polyclonal

SP1241 Semaphorin-3A (C-terminal) Rabbit Polyclonal

SP1401 Semaphorin-3A (N-terminal) Rabbit Polyclonal

NP2111 Neuropilin-1 (α1 CUB Domain) Rabbit Polyclonal

PX1305 Plexin A1 (Sema Domain) Blocking Peptide

PP1841 Plexin B1 (C-terminal region) Rabbit Polyclonal

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