

## DESCRIPTION

<b>Species Reactivity</b>	Human/Mouse
<b>Specificity</b>	Detects mouse Plexin A1 in direct ELISAs and Western blots. In direct ELISAs, less than 1% cross-reactivity with recombinant mouse (rm) Plexin A2 and rmPlexin A3 is observed.
<b>Source</b>	Polyclonal Goat IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant mouse Plexin A1 Ser28-Pro1242 Accession # P70206
<b>Formulation</b>	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

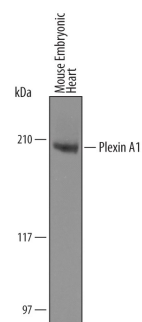
## APPLICATIONS

**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
<b>Western Blot</b>	1 µg/mL	See Below
<b>Immunocytochemistry</b>	5-15 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

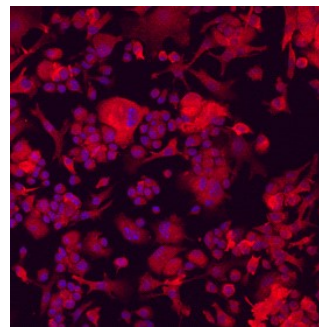
## DATA

### Western Blot



**Detection of Mouse Plexin A1 by Western Blot.** Western blot shows lysates of mouse embryonic heart tissue. PVDF Membrane was probed with 1 µg/mL of Mouse Plexin A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4309) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF019). A specific band was detected for Plexin A1 at approximately 200 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 8.

### Immunocytochemistry



#### Plexin A1 in Human Dendritic Cells.

Plexin A1 was detected in immersion fixed immature human dendritic cells using Goat Anti-Mouse Plexin A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4309) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to cell surfaces and cytoplasm. View our protocol for [Fluorescent ICC Staining of Non-adherent Cells](#).

### Immunohistochemistry



**Plexin A1 in Mouse Spinal Cord.** Plexin A1 was detected in immersion fixed frozen sections of embryonic mouse spinal cord using Mouse Plexin A1 Affinity-purified Polyclonal Antibody (Catalog # AF4309) at 15 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Goat HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS008) and counterstained with hematoxylin (blue). View our protocol for [Chromogenic IHC Staining of Frozen Tissue Sections](#).

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 mg/mL.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Plexin A1 (formerly Plexin 1) is a 200 kDa type I transmembrane protein that is a member of the Plexin family of Semaphorin signal transducers (1). Plexin signaling induces cytoskeletal remodeling, which mediates cell migration and axon repulsion (2). The mouse Plexin A1 cDNA encodes 1894 amino acids (aa) including a 27 aa signal sequence, a 1215 aa extracellular domain (ECD) with one Sema domain, a spacer, and four tandem IPT/TIG domains, a 21 aa transmembrane segment, and a 631 aa cytoplasmic domain (1). Within the ECD, human Plexin A1 shares 95%, 95%, 92%, 80% and 79% aa sequence identity with mouse, rat, bovine, chicken and *Xenopus* Plexin A1, respectively. The four mouse Plexin A molecules share 59-67% aa identity with each other. Plexin A1 binds Class 3 (secreted) Semaphorins indirectly via Neuropilin (Npn)-1 and Npn-2, and binds transmembrane Semaphorin 6D directly (3-5). Sema3A engagement of Plexin A1 and Npn-1 guides proprioceptive and sensory neurons during development, while Sema3B engagement guides floorplate neurons (5-8). In contrast, T cell Sema6D engagement of dendritic cell Plexin A1 controls actin polymeration, which supports formation of immunological synapses and enhances the function of the dendritic cells (3, 4, 9). Complex formation with DAP12 allows Plexin A1 signaling through TREM family proteins (10, 11). However, the most striking effect of Plexin A1 deletion is on bone homeostasis, where Plexin A1-deficient mice show increased trabecular bone mass due to downregulated osteoclast differentiation (10). Plexin A1 and Sema6D are frequently expressed in malignant pleural mesothelioma, where they promote anchorage-independent growth through complexing with and activating VEGF R2 (12).

**References:**

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