

Axon Guidance Molecules

During development of the nervous system, axons often navigate considerable distances before finally reaching their appropriate targets. The highly motile growth cone at the tip of an extending axon is exquisitely sensitive to attractive and repellent cues that act as molecular guideposts for the developing neuron. These cues might be substrate-associated or diffusible, working at short range or over long distances, respectively. These guidance factors include classical axon guidance cues such as members of the netrin, semaphorin, slit, and ephrin families and their receptors, as well as adhesion molecules. R&D Systems offers a wide variety of active proteins and antibodies for axon guidance research.

For our complete line of axon guidance-related products, please see our website at: www.RnDSystems.com/go/AxonGuidance

Axon Guidance Products		
MOLECULE	PROTEINS	ANTIBODIES
DCC	M	M
DSCAM, DSCAM-L1		H
Eph and Ephrin	Please see the website for our complete line of more than 70 products.	
Phospho-GAP-43 (S41)		H M R
Lingo-1, -2		H
MAG/Siglec 4a	R	R
NCAM-1/CD56	H	H
NCAM-L1	H	H
Neogenin	M	M
Netrin-1	M Ch	M Ch
Netrin-2	Ch	Ch
Netrin-4	H M	H M
Netrin-G1a	M	M
Netrin-G2a		M
Neurofascin	R	
Neuropilin-1	H R	R
Neuropilin-2	H R	H R
NgR2, NgR3		H
Nogo-A	H R	R

Neuropilin-1 Expression in Spinal Cord

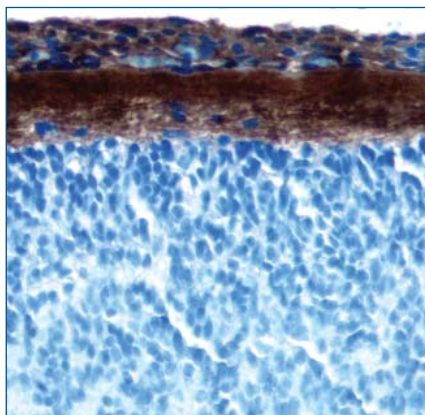


Figure 2. Detection of neuropilin-1 in a cryostat section (sagittal) of mouse embryo spinal cord (15 d.p.c.) using R&D Systems goat anti-rat affinity-purified polyclonal antibody (Catalog # AF566). Tissues were stained using R&D Systems anti-goat HRP-DAB Cell and Tissue Staining Kit (Catalog # CTS008; brown) and counterstained with hematoxylin (blue).

Semaphorin 6B-mediated Growth Cone Collapse

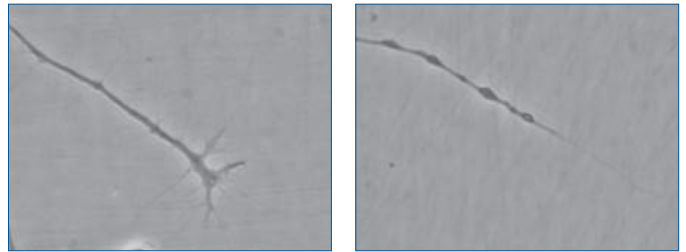


Figure 1. A: A fully extended DRG growth cone growing on a laminin-coated tissue culture plate in the presence of R&D Systems human β -NGF (Catalog # 256-GF). **B:** A collapsed DRG growth cone following treatment with R&D Systems recombinant human Semaphorin 6B/Fc (Catalog # 2094-S6).

Key: Ch Chicken H Human M Mouse R Rat

MOLECULE	PROTEINS	ANTIBODIES
Nogo Receptor	H M	H M
OMgp	H M	H M
RGM-A	H M	H M Ch
RGM-B, C	H M	H M
ROB01	R	R
ROB02	H	H
ROB03	H M	H
ROB04		H
Semaphorin 3A	H	H
Semaphorin 3C		M
Semaphorin 3E	H M	H
Semaphorin 3F	M	
Semaphorin 6A, 6B	H	H M
Semaphorin 6C, 7A		H M
Semaphorin 6D		H
Slit3	M	
F-Spondin	H	H
UNC5H1,2	R	R
UNC5H3,4	H	H

Neurofascin-induced Neurite Outgrowth

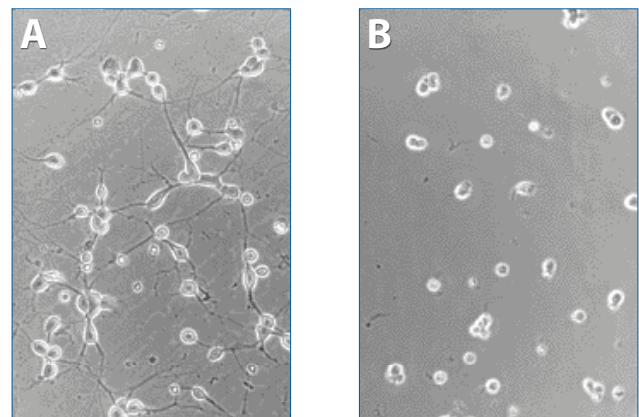


Figure 3. A: R&D Systems recombinant rat neurofascin (Catalog # 3235-NF) immobilized on a microplate promotes neurite outgrowth in rat cortical neurons. **B:** Cortical neurons cultured under the same conditions except without neurofascin exhibit little outgrowth.