

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human Semaphorin 4F protein		
	Human Semaphorin 4F (Arg35-Val659) Accession # O95754-1	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus

N-terminal Sequence Arg35

Analysis

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 95 kDa

SPECIFICATIONS

SDS-PAGE 96-111 kDa, under reducing conditions

Activity Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons. Recombinant Human Semaphorin 4F Fc Chimera (Catalog # 10113-S4), immobilized at 2.5 µg/mL on a 96 well plate, is able to significantly enhance neurite outgrowth

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >85%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in Citric Acid and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 250 µg/mL in Water.

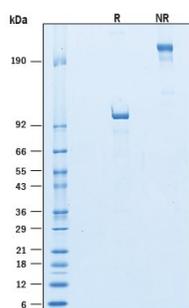
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

SDS-PAGE



2 µg/lane of Recombinant Human Semaphorin 4F Fc Chimera (Catalog # 10113-S4) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® blue staining, showing bands at 96-111 kDa and 190-220 kDa, respectively.

BACKGROUND

Semaphorin 4F (Sema4F; previously called Sema W) is a 100-150 kDa member of the class 4 family of type I transmembrane semaphorins (1-3). It is expressed in Schwann cells, oligodendrocyte (highest in precursors), retinal ganglion cells, and neurons, especially along migratory pathways (2-4). It is found within post-synaptic densities at glutamatergic synapses, where it binds and probably recruits the cytoplasmic scaffolding protein PSD-95 (3, 5). There are two isoforms of human Sema4F. The short isoform is missing aa 120-274. The canonical long isoform is synthesized as a 770 aa protein that includes a 34 aa signal peptide, a 625 aa extracellular domain (ECD), a 21 aa transmembrane segment, and a 90 aa cytoplasmic tail. The ECD contains a Sema domain, a PSI region, and a C2-type Ig-like domain. Within the ECD, human Sema4F shares 92% aa sequence identity with the mouse and rat Sema4F. Sema4F is expressed at the highest levels postnatally suggesting an important role in nerve system maintenance and repair (2). In Schwann cells, Sema4F acts as an adhesive protein and a mediator of contact inhibition, and thus an inhibitor of Schwann cell proliferation (6). In neurofibromatosis type 1 (NF1), loss of the NF1 protein results in loss of Schwann cell Sema4F expression via perturbation of ERK signals (6). Loss of Sema4F in turn disrupts adhesive interaction and alignment of Schwann cells with neurons (6). For oligodendroglial precursors in culture, immobilized Sema4F inhibits migration and enhances survival, differentiation and adhesion (3). Sema4F is involved in cancer-induced neurogenesis and may serve as a critical regulator of neuro-epithelial interactions and a biomarker of aggressive prostate cancer (7).

References:

1. Kruger, R.P. *et al.* (2005) *Nat. Rev. Mol. Cell Biol.* **6**:789.
2. Encinas, J.A. *et al.* (1999) *Proc. Natl. Acad. Sci. USA* **96**:2491.
3. Armendariz, B.G. *et al.* (2012) *Mol. Cell. Neurosci.* **49**:54.
4. Cohen, R.I. *et al.* (2003) *J. Neurochem.* **85**:1262.
5. Schultze, W. *et al.* (2001) *J. Neurochem.* **78**:482.
6. Parrinello, S. *et al.* (2008) *Genes Dev.* **22**:3335.
7. Ding, Y. *et al.* (2013) *Clin. Cancer Res.* **19**:6101.