Recombinant Mouse Semaphorin 4C Fc Chimera

Catalog Number: 8394-S4

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived

Mouse Semaphorin 4C (Ala21-Gly664) Accession # Q64151	IEGRMDP	Mouse IgG_{2a} (Glu98-Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Ala21
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	99 kDa

SPECIFICATIONS

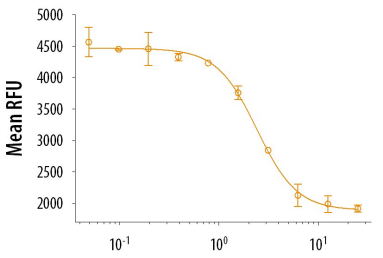
SDS-PAGE	105-125 kDa, reducing conditions
Activity	Measured by its ability to inhibit survival of SK-OV-3 human ovarian carcinoma cells. The ED_{50} for this effect is 1.5-7.5 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in Citric Acid and NaCl, pH 5.0 See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 µg/mL in PBS.
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

Bioactivity



Recombinant Mouse Semaphorin 4C (Catalog # 8394-S4) inhibits survival of SK-OV-3 human ovarian carcinoma cells. The ED_{50} for this effect is 1.5-7.5 µg/mL.

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BACKGROUND

Semaphorin 4C (Sema4C; also Sema I and MSemaF) is a member of the class IV semaphorin family of type 1 transmembrane glycoproteins (1). Semaphorin 4C signaling is involved in cell attraction and repulsion as well as neural tube closure, stem cell proliferation, and kidney development. Mature Semaphorin 4C consists of a 642 amino acid (aa) extracellular region, a 20 aa transmembrane domain, and a 148 aa PDZ-containing cytoplasmic tail (2-4). The extracellular domain of mature mouse Semaphorin 4C shares 85% and 94% aa sequence identity with human and rat Semaphorin 4C, respectively, and is characterized by a Sema domain, a cysteine rich PSI domain, and an Ig-like C2-type domain. Semaphorin 4C is widely expressed during embryogenesis with high expression within the neural tube (5-7). Comparison of Plexin B2$^{-/-}$ and Sema4C$^{-/-}$ mice revealed similar phenotypes, including neural tube closure defects and neonatal lethality. Viable Sema4C$^{-/-}$ neonates have an abnormally developed cerebellum and defects in ventral skin pigmentation (8). Semaphorin 4C has been shown to induce cerebellar granule cell precursor migration and neural stem cell proliferation in *in vitro* and *ex vivo* assays, respectively (9). Involvement of Semaphorin 4C in neural stem cell proliferation is further supported by the down-regulation of its expression in neuroblasts during differentiation and up-regulation in proliferating Nestin-postive cells following ischemia (2). Semaphorin 4C is a high affinity ligand for Plexin B2. Upon activation by Sema4C, Plexin B2 can phosphorylate Tyr 1248 on the receptor tyrosine kinase, ErbB2, which then activates RhoA to regulate cytoskeletal dynamics as well as neuronal migration and proliferation (9, 10). During embryogenesis, Semaphorin 4C-Plexin B2 signaling also stimulates branching of the ureteric epithelium in the kidney (11). In adult tissues, the expression pattern of Semaphorin 4C in non-neuronal tissues indicates that Semaphorin 4C-Plexin B2 signaling may additionally regulate vascular and endocrine function (12). Similar to Semaphorin 3A (13, 14), R&D Systems' in-house testing data indicate that Semaphorin 4C can inhibit cell survival.

References:

1. Tessier-Lavigne, M. and C.S. Goodman (1996) Science **274**:1123.
2. Wu, H. *et al.* (2009) J. Mol. Neurosci. **39**:27.
3. Wang, L. *et al.* (1999) J. Biol. Chem. **274**:14137.
4. Inagaki, S. *et al.* (1995) FEBS Lett. **370**:269.
5. Worzfeld, T. *et al.* (2004) Eur. J. Neurosci. **19**:2622.
6. Perala, N. *et al.* (2010) Dev. Dyn. **239**:2722.
7. Friedel, R.H. *et al.* (2007) J. Neurosci. **27**:3921.
8. Maier, V. *et al.* (2011) Mol. Cell. Neurosci. **46**:419.
9. Deng, S. *et al.* (2007) J. Neurosci. **27**:6333.
10. Swiercz, J.M. *et al.* (2004) J. Cell. Biol. **165**:869.
11. Perala, N. *et al.* (2011) Differentiation **81**:81.
12. Zielonka, M. *et al.* (2010) Exp. Cell Res. **316**:2477.
13. Shirvan, A. *et al.* (1999) J. Neurochem. **73**:961.
14. Guttman-Raviv, N. *et al.* (2007) J. Biol. Chem. **282**:26294.

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