Recombinant Mouse Semaphorin 5B Fc Chimera

Catalog Number: 6766-S5

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived

N-terminal Sequence Analysis	No results obtained, sequencing might be blocked: Gln27 is predicted
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	113.3 kDa (monomer)

SPECIFICATIONS

SDS-PAGE	130-150 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of human pancreatic cancer cells. When 5 x 10^4 cells/well are added to Recombinant Mouse Semaphorin 5B Fc Chimera coated plates, cell adhesion is enhanced in a dose dependent manner after 1 hour at 37 °C. The ED_{50} for this effect is 1.0-4.0 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 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.

BACKGROUND

Semaphorin 5B (Sema5B, previously called SemaG or SemG) is a ~150 kDa protein of the semaphorin family of axon guidance molecules (1, 2). Sema5B is a Class 5 semaphorin and this makes it a single-pass transmembrane glycoprotein with an N-terminal Sema domain and multiple juxtamembrane type 1 thrombospondin (TSP) repeats within its extracellular region (1, 2). Sema5B is expressed developmentally in the neuroepithelium along the anterior-posterior axis in a complimentary pattern with Sema5A (2, 3). It has been identified in oligodendrocytes and their precursors, neurons, dental mesenchyme and pre-osteoblasts (1 - 6). Sema5B expression may be up-regulated in cancer cells such as human renal carcinoma clear cells, where blocking Sema5B expression attenuates viability (7). The mouse Sema5B cDNA encodes a 1093 amino acid (aa) type I transmembrane protein with a 19 aa signal sequence, a 959 aa extracellular domain (ECD), a 21 aa transmembrane sequence and a 94 aa cytoplasmic portion (8). The ECD contains one Sema domain (aa 45 - 495) followed by seven consecutive TSP type 1 domains (aa 551 - 952). There is a potential for at least two alternative splice forms. One shows a 32 aa substitution for aa 1041 - 1093, while a second (GenBank Accession # AAH52397) contains a 29 aa insert after Val702 of the third TSP domain. Over aa 20 - 776 of the SwissProt sequence that includes the Sema domain plus the first four TSP type 1 domains, mouse Sema5B shares 98% aa identity with rat, and 93 - 94% aa identity with human, equine and bovine Sema5B. In the hippocampus, either full-length or proteolytically processed and secreted Sema5B mediates neuronal synapse elimination (6). In the cortex, Sema5B appears to be inhibitory to cortical axons, but not to dorsal thalamic axons, indicating a role in corticothalamic axon guidance during development (3). Sema5B promotes the influx of extracellular calcium, which is necessary to induce neuronal growth cone collapse (9). Semaphorins typically transduce signals through transmembrane plexins. However, additional molecules such as heparin sulfate or chondroitin sulfate proteoglycans which bind TSP repeats on the class 5 family member Sema5A, can also transduce semaphorin signals (10).

References:

1. Yazdani, U. and J.R. Terman (2006) Genome Biol. **7**:211.
2. Adams, R.H. *et al.* (1996) Mech. Dev. **57**:33.
3. Lett, R.L.M. *et al.* (2009) Cerebral Cortex **19**:1408.
4. Goldberg, J.L. *et al.* (2004) J. Neurosci. **24**:4989.
5. Cohen, R.I. *et al.* (2003) J. Neurochem. **85**:1262.
6. O'Connor, T.P. *et al.* (2009) Neural Dev. **4**:18.
7. Hirota, E. *et al.* (2006) Int. J. Oncol. **29**:799.
8. SwissProt Accession # Q60519.
9. To, K.C.W. *et al.* (2007) Mol. Cell. Neurosci. **36**:425.
10. Kantor, D.B. *et al.* (2004) Neuron **44**:961.

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