Recombinant Mouse Semaphorin 6A Fc Chimera

Catalog Number: 9017-S6

DESCRIPTION

Source

Spodoptera frugiperda, *Sf* 21 (stably transfected)-derived

N-terminal Sequence Analysis	Gly19
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	97 kDa

SPECIFICATIONS

SDS-PAGE	94-120 kDa, reducing conditions
Activity	Measured by its ability to inhibit the proliferation of HUVEC human umbilical vein endothelial cells. Moriya, J. *et al.* (2010) Circ. Res. **106**:391. The ED_{50} for this effect is 0.2-1.2 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in MES and NaCl with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 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 6A (Sema6A) is an approximately 120 kDa member of the class 6 subfamily of semaphorins, a large, highly conserved family of signaling molecules that affect multiple processes including axon guidance, cell migration, synaptogenesis, dendritic spine formation, and angiogenesis (1). The class 6 semaphorins are type I transmembrane glycoproteins that contain a characteristic extracellular β propeller N-terminal semaphorin (sema) domain and also an extracellular plexin-semaphorin-integrin (PSI) domain (1, 2). Within the ECD, mouse Sema6A shares 94% and 98% aa sequence identity with human and rat Sema6A, respectively. Alternative splicing generates additional isoforms with a 26 aa deletion within the sema domain or a 55 aa deletion between the sema domain and transmembrane segment. Sema6A interacts with Plexin A4 (3-7) to induce growth cone collapse and regulate the axon pathfinding of sympathetic neurons (3, 7, 8), cerebellar cortex granule cells (9), hippocampus CA3 region mossy fibers (6), corticospinal tract axons (5, 10), and retinal neurons (4). Plexin A2 can compete with Plexin A4 for Sema6A binding and thereby limit axon repulsion (6). In addition, Sema6A and Plexin A4 are co-expressed on dorsal root ganglion sensory neurons and associate *in cis*; this prevents *in trans* interactions and subsequent axon repulsion (7). Sema6A is additionally expressed on vascular endothelial cells where it regulates VEGF R2 responsiveness during angiogenesis (11). In contrast, exogenous Sema6A can inhibit the survival of the HUVEC cell line in a Plexin A4 independent manner (11, 12). Sema6A is also expressed on myelinating oligodendrocytes, Langerhans cells, and some dendritic cells (13, 14).

References:

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