

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived		
	Human Semaphorin 3D (Thr37-His736 (Arg571Ala) & (Arg572Ala)) Accession # O95025	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus

N-terminal Sequence Analysis	Thr37
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	107 kDa

SPECIFICATIONS

SDS-PAGE	98-113 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human Semaphorin 3D Fc Chimera is coated at 1 µg/mL, 100 µL/well, Recombinant Rat Neuropilin-1 Fc Chimera (Catalog # 566-N1) binds with an ED ₅₀ of 0.5-2.5 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 Tris and NaCl with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 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. <ul style="list-style-type: none"> ● 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 3D (Sema3D) is a member of the semaphorin family that plays a role in neuronal and vascular development (1, 2). Class 3 semaphorins are secreted molecules, and contain a common domain structure. The human Sema3D domains consist of a 488 amino acid (aa) Sema domain, a 53 aa plexin-semaphorin-integrin (PSI) domain, an 89 aa Ig-like C2-type domain, and a 35 aa basic domain which is proteolytically processed (3, 4). Within these domains, human Sema3D shares 94% aa sequence identity with mouse and rat Sema3D. Sema3D induces the collapse and paralysis of neuronal growth cones and promotes fasciculation of axons (5, 6). Sema3D also inhibits endothelial cell motility and tubulogenesis through cytoskeletal reorganization (2). Binding to Neuropilin-1 is required for Sema3D signaling (7). ErbB2 was shown to be a potential Sema3D co-receptor, which is phosphorylated in response to Sema3D in HUVEC cells (7). Sema3D inhibition of vascular development facilitates inhibition of glioblastoma growth in the cortex of the brain (1).

References:

1. Sabag, A. *et al.* (2012) PLoS One. 7:e42912.
2. Aghajanian, H. *et al.* (2014) J. Biol. Chem. **289**:17971.
3. Takahashi, K. *et al.* (2009) Biochimica et Biophysica Acta. **1790**:395.
4. Gu, C. and E. Giraudo. (2013) Exp. Cell Res. **319**:1306.
5. Kuhn, T.B. *et al.* (2000) J. Neurobiology. **44**:126.
6. Wolman, M.A. *et al.* (2007) J. Neurobiology. **27**:9653.
7. Aghajanian, H. *et al.* (2015) Nature Commun. **7**:12038.