

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human Semaphorin 3G protein		
	Human Semaphorin 3G (Gly23-Thr782)(R557S, R558S, R560S, R561S, R774S, R777S) Accession # Q9NS98.1	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Gly23		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	111 kDa		

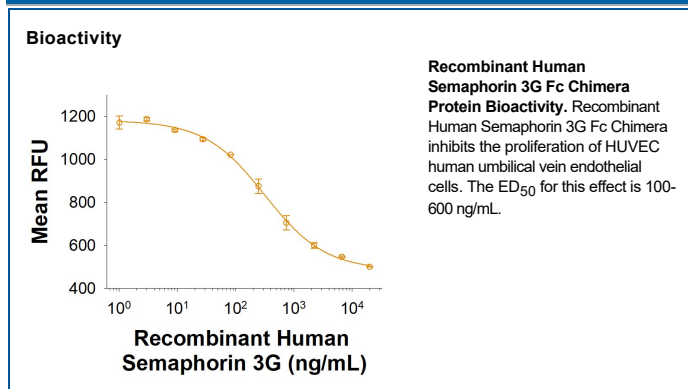
SPECIFICATIONS

SDS-PAGE	105-125 kDa, under reducing conditions
Activity	Measured by the ability to inhibit the proliferation of HUVECumbilical vein endothelial cells. The ED ₅₀ for this effect is 100-600 ng/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 PBS 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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <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.

DATA



BACKGROUND

Semaphorin 3G (Sema3G), also known as Semaphorin sem2, is a class 3 member of the semaphorin family initially identified as regulators of neuron-axonal guidance (1, 2). More than 30 semaphorins have been discovered and are divided into eight classes: classes 1 and 4–7 are membrane-associated, while classes 2, 3, and 8 are in a secreted form (1, 2). Mature human Sema3G consists of an N-terminal sema domain, a plexin-semaphorin-integrin (PSI) domain, an Ig-like C2-type domain and a C-terminal basic domain (3). Within the extracellular domain, human Sema3G shares 87% amino acid sequence identity with mouse and rat Sema3G. *In vitro* analysis shows Sema 3G binds to Neuropilin-2, which forms a receptor complex with Plexin-D1. Via this pathways Sema 3G controls lymphatic vascular patterning by the means of cellular collapse (4). It shows protective effects in ischemic retinopathies by coordinating interactions of β -catenin and VE-Cadherin in endothelium (5). Sema 3G has been shown to be involved in adipocyte differentiation. Knockdown of Sema3G inhibited weight gain through PI3K/Akt/GSK3 β signaling in the adipose tissue and the AMPK/SREBP-1c pathway in the liver. Thus, Sema 3G is an adipokine essential for adipogenesis, lipogenesis, and insulin resistance and is associated with obesity (6).

References:

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2. Jackson, R.E. and Eickholt, B.J. (2009) *Curr. Biol.* **19**:R504.
3. Toledano S. *et al.* (2019) *J. Mol. Sci.* **20**:556.
4. Liu, X. *et al.* (2016) *Cell Rep.* **17**:2299.
5. Chen, D. *et al.* (2021) *J. Clin. Invest.* **131**:e135296.
6. Liu, M. *et al.* (2020) *J. Endocrinol.* **244**:223.