# Recombinant Human F-Spondin/SPON1

Catalog Number: 3135-SP/CF

## DESCRIPTION

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| **Source** | Mouse myeloma cell line, NS0-derived<br>Phe29-Cys807, with a C-terminal 6-His tag<br>Accession # Q9HCB6 |
| **N-terminal Sequence Analysis** | Phe29 |
| **Predicted Molecular Mass** | 88.9 kDa |

## SPECIFICATIONS

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| **SDS-PAGE** | 110-115 kDa, reducing conditions |
| **Activity** | Measured by its ability to enhance neurite outgrowth of dissociated E13 chick embryonic dorsal root ganglia (DRG) neurons.<br>Able to significantly enhance neurite outgrowth when immobilized as a 3 µL droplet containing 100 ng on a nitrocellulose-coated microplate. |
| **Endotoxin Level** | <1.0 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

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| **Reconstitution** | Reconstitute at 100 µg/mL in sterile 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.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

## BACKGROUND

F-Spondin (floor plate and thrombospondin homology), also called Spondin-1, SPON1 or VSGP (vascular smooth muscle growth-promoting factor), is an approximately 110 kDa secreted glycoprotein that is a member of a subgroup of TSR (thrombospondin) molecules that are either membrane-bound or associated with the extracellular matrix (ECM) (1-3). Human F-Spondin is synthesized as an 807 amino acid (aa) precursor with a 779 aa mature region that includes an N-terminal reelin-like domain, an F-spondin (FS) domain, and six C-terminal thrombospondin (TSP) type I repeats (1-3). Mature human F-Spondin shares 97%, 97%, 98% and 99% aa sequence identity with mouse, rat, bovine and canine F-Spondin, respectively. TSP 5 and 6 bind ECM, while TSP 1-4 plus the FS domain may mediate repulsive activity on motor neurons and outgrowth promoting activity on sensory neurons during development or after injury (2-5). Crystal structure indicates that the reelin-like domain binds heparin and may mediate weak dimerization (6). Plasmin cleavage generates a diffusible 95 kDa, 656 aa F-spondin that lacks TSP 5 and 6, while non-plasmin cleavage between the FS segment and the first TSP repeat generates 60 kDa and 50 kDa fragments (3, 4, 7). F-Spondin shows unusual C-mannosylation and O-fucosylation within the TSP repeats (3). Mammalian cells expressing F-spondin include floor plate epithelium, ventral motor neurons, Schwann cells, fibroblasts, hippocampal pyramidal cells, endothelial cells, vascular smooth muscle cells and some tumor cells (2-5, 8). F-Spondin can either tether cells to the ECM or interfere with integrin adhesion, thus either blocking or allowing nerve or vascular endothelial cell migration (3, 9). It binds β-amyloid fibrils and inhibits β-secretase cleavage, thus reducing Aβ plaque deposition associated with Alzheimer's disease (10, 11). F-Spondin is also reported to inhibit differentiation or migration during angiogenesis (affecting endothelial cells) and bone development (affecting osteoclast and chondrocyte precursors) (3, 9, 12, 13).

**References:**


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