

DESCRIPTION

Source *E. coli*-derived human Flt-3 Ligand/FLT3L protein
Thr27-Ala181
Accession # P49771.1

N-terminal Sequence Analysis Met and Thr27

Predicted Molecular Mass 18 kDa

SPECIFICATIONS

SDS-PAGE 15-17 kDa, under reducing conditions

Activity Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with mouse Flt-3.
The ED₅₀ for this effect is 0.2-1 ng/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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100-500 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.

DATA

BACKGROUND

Flt-3 Ligand, also known as FLT3L, is an alpha-helical cytokine that promotes the differentiation of multiple hematopoietic cell lineages (1-3). Mature human Flt-3 Ligand consists of a 158 amino acid (aa) extracellular domain (ECD) with a cytokine-like domain and a juxtamembrane tether region, a 21 aa transmembrane segment, and a 30 aa cytoplasmic tail (4-7). Within the ECD, human Flt-3 Ligand shares 71% and 65% aa sequence identity with mouse and rat Flt-3 Ligand, respectively (4-6). The human and mouse Flt-3 Ligand proteins show cross-species activity. Flt-3 Ligand is also structurally related to M-CSF and SCF. Flt-3 Ligand is widely expressed in various human and mouse tissues. It is expressed as a noncovalently-linked dimer by T cells and bone marrow and thymic fibroblasts (1, 8). Each 36 kDa chain of the Flt-3 Ligand dimer carries approximately 12 kDa of N- and O-linked carbohydrates (8). Alternate splicing and proteolytic cleavage of the transmembrane form of the Flt-3 Ligand protein can generate a soluble 30 kDa fragment that includes the cytokine-like domain (4, 8). Alternate splicing of human Flt-3 Ligand also generates membrane-associated isoforms that contain either a truncated cytoplasmic tail or an 85 aa substitution following the cytokine-like domain in the ECD of the Flt-3 Ligand protein (4, 5, 8). Both transmembrane and soluble forms of Flt-3 Ligand signal through the tyrosine kinase receptor Flt-3/Flk-2 (3, 4, 6, 7). Flt-3 Ligand induces the expansion of monocytes and immature dendritic cells as well as early B cell lineage differentiation (2, 9). Additionally, Flt-3 Ligand synergizes with IL-3, GM-CSF, and SCF to promote the mobilization and myeloid differentiation of hematopoietic stem cells (4-6). Flt-3 Ligand also cooperates with IL-2, IL-6, IL-7, and IL-15 to induce NK cell development and with IL-3, IL-7, and IL-11 to induce terminal B cell maturation (1, 10). Animal studies show that Flt-3 Ligand reduces the severity of experimentally induced allergic inflammation (11).

References:

1. Wodnar-Filipowicz, A. (2003) *News Physiol. Sci.* **18**:247.
2. Dong, J. *et al.* (2002) *Cancer Biol. Ther.* **1**:486.
3. Gilliland, D.G. and J.D. Griffin (2002) *Blood* **100**:1532.
4. Hannum, C. *et al.* (1994) *Nature* **368**:643.
5. Lyman, S.D. *et al.* (1994) *Blood* **83**:2795.
6. Lyman, S.D. *et al.* (1993) *Cell* **75**:1157.
7. Savvides, S.N. *et al.* (2000) *Nat. Struct. Biol.* **7**:486.
8. McClanahan, T. *et al.* (1996) *Blood* **88**:3371.
9. Diener, K.R. *et al.* (2008) *Exp. Hematol.* **36**:51.
10. Farag, S.S. and M.A. Caligiuri (2006) *Blood Rev.* **20**:123.
11. Edwan, J.H. *et al.* (2004) *J. Immunol.* **172**:5016.