# Recombinant Human Flt-3 Ligand/FLT3L

Catalog Number: BT-FT3L

## DESCRIPTION

| | |
|---|---|
| **Source** | *E. coli*-derived human Flt-3 Ligand/FLT3L protein<br>Thr27-Ala181<br>Accession # P49771.1 |
| **N-terminal Sequence Analysis** | Met & Thr27 |
| **Predicted Molecular Mass** | 18 kDa |

## SPECIFICATIONS

| | |
|---|---|
| **SDS-PAGE** | 17 kDa, under reducing conditions. |
| **Activity** | Measured in a cell proliferation assay using OCI-AML5 acute myeloid leukemia cells.<br>The $ED_{50}$ for this effect is 0.200-2.00 ng/mL. |
| **Endotoxin Level** | <0.10 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >97%, 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

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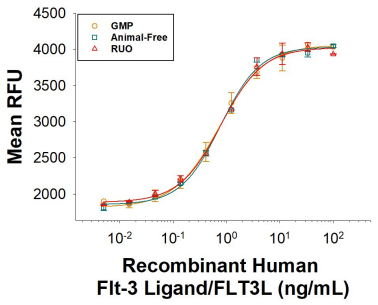
|---|---|
| **Reconstitution** | Reconstitute the 10 µg size at 100 µg/mL in PBS. Reconstitute all other sizes at 500 µg/mL in PBS |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<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. |

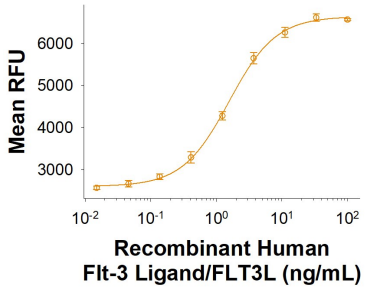
## DATA

**Bioactivity**



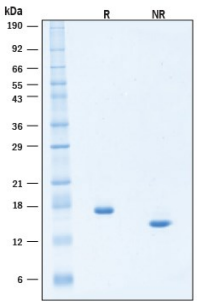

**Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human Flt-3 Ligand/FLT3L.** Equivalent bioactivity of GMP (Catalog # BT-FT3L-GMP), Animal-Free (Catalog # BT-FT3L-AFL) and RUO (Catalog # BT-FT3L) grades of Recombinant Human Flt-3 Ligand/FLT3L as measured in a cell proliferation assay using OCI-AML5 acute myeloid leukemia cells (orange, green, red, respectively).

**Bioactivity**




**Recombinant Human Flt-3 Ligand/FLT3L Protein Bioactivity.** Recombinant Human Flt-3 Ligand/FLT3L Protein (Catalog # BT-FT3L) stimulates cell proliferation of OCI-AML5 acute myeloid leukemia cells. The $ED_{50}$ for this effect is 0.200-2.00 ng/mL.

**SDS-PAGE**




**Recombinant Human Flt-3 Ligand/FLT3L Protein SDS-PAGE.** 2 µg/lane of Recombinant Human Flt-3 Ligand/FLT3L Protein (Catalog # BT-FT3L) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 17 kDa, under reducing conditions.



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## 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:**

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