Recombinant Human Flt-3 Ligand GMP

Catalog Number: 308-GMP

DESCRIPTION

Source	*Spodoptera frugiperda*, *Sf* 9 (baculovirus)-derived Thr27-Pro185 Accession # AAA17999.1 Produced in an animal component free process (ACFP). Manufactured and tested under cGMP guidelines.
N-terminal Sequence Analysis	Thr-Gln-Asp-(Cys)-Ser-Phe-Gln-His-Ser-Pro
Predicted Molecular Mass	17.5 kDa

SPECIFICATIONS

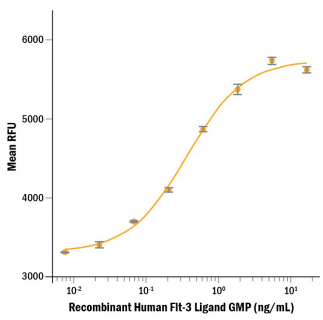
SDS-PAGE	17-30 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with mouse Flt-3. The ED_{50} for this effect is 0.2-1 ng/mL. The specific activity of recombinant human Flt-3 Ligand is approximately 1.2 x 10^3 U/µg, which is calibrated against recombinant human Flt-3 Ligand WHO Standard (NIBSC code: 96/532).
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE with silver staining, under reducing conditions.
Mycoplasma	Negative when tested in a ribosomal RNA hybridization assay.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100-200 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.** ● A minimum of 6 months when stored at ≤ -20 °C as supplied. Refer to lot specific COA for the Use by Date. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, ≤ -20 °C under sterile conditions after reconstitution.

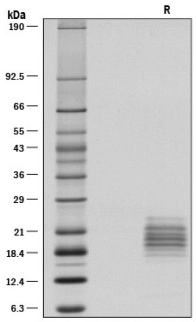
DATA

Bioactivity



GMP-grade Recombinant Human Flt-3 Ligand (Catalog # 308-GMP) stimulates cell proliferation in the BaF3 mouse pro-B cell line transfected with mouse Flt-3. The ED_{50} for this effect is 0.2-1 ng/mL.

SDS-PAGE



1 µg/lane of Recombinant Human GMP-grade Flt-3 Ligand (Catalog # 308-GMP) was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing major bands at 17-24 kDa.

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Recombinant Human Flt-3 Ligand GMP

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BACKGROUND

Flt-3 Ligand, also known as FL, is an α-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. Human and mouse Flt-3 Ligand show cross-species activity (4-6). Flt-3 Ligand is expressed as a noncovalently-linked dimer by T cells and bone marrow and thymic fibroblasts (1, 8). Each 36 kDa chain carries approximately 12 kDa of N- and O-linked carbohydrates (8). Alternate splicing and proteolytic cleavage of the transmembrane form can generate a soluble 30 kDa fragment that includes the cytokine 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 domain (4, 5, 8). Both transmembrane and soluble 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). It synergizes with IL-3, GM-CSF, and SCF to promote the mobilization and myeloid differentiation of hematopoietic stem cells (4-6). It cooperates with IL-2, -6, -7, and -15 to induce NK cell development and with IL-3, -7, and -11 to induce terminal B cell maturation (1, 10). Animal studies also show Flt-3 Ligand to reduce the severity of experimentally induced allergic inflammation (11).

References:

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MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- Material review process for variances
- Monitoring of stability over product shelf-life

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- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days)
- Mycoplasma testing by ribosomal RNA hybridization assay

Additional testing and documentation requested by the customer can be arranged at an additional cost. Testing may include, but is not limited to, USP <61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

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