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## 1. Description

<b>Products</b>	Human Flt3-Ligand, research grade. Recombinant human Flt3-ligand.						
	<table border="1"> <thead> <tr> <th>Content in µg</th> <th>Order no.</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>130-093-854</td> </tr> <tr> <td>25</td> <td>130-096-474</td> </tr> </tbody> </table>	Content in µg	Order no.	10	130-093-854	25	130-096-474
Content in µg	Order no.						
10	130-093-854						
25	130-096-474						
<b>Biological activity</b>	The ED <sub>50</sub> is ≤5 ng/mL corresponding to an activity of ≥2×10 <sup>5</sup> U/mg. <b>▲ Note:</b> The ED <sub>50</sub> is determined by proliferation assay using human OCI-AML5 cells <sup>1</sup> . The proliferation assay was calibrated with the reference standard for human Flt-Ligand (NIBSC code 96/532) provided by the WHO/National Institute for Biological Standards and Control.						
<b>Primary structure</b>	Two identical, non-glycosylated polypeptide chains (158 amino acid residues).						
<b>Molecular mass</b>	17.9 kDa.						
<b>Source</b>	Produced in <i>E. coli</i> .						
<b>Product format</b>	Lyophilized from a filtered (0.2 µm) buffer solution.						
<b>Stabilizer</b>	Mannitol and trehalose.						
<b>Purity</b>	>97% as determined by SDS-PAGE analysis.						
<b>Endotoxin level</b>	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.						
<b>Storage</b>	Lyophilized Human Flt3-Ligand, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.						
<b>Reconstitution</b>	It is recommended to reconstitute lyophilized Human Flt3-Ligand, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.						

### 1.1 Background information

Fms-related tyrosin kinase 3 ligand (Flt3-Ligand) is a growth factor that regulates early hematopoiesis. Flt3-Ligand belongs to a small family of α-helical cytokines and promotes in synergy with other growth factors like G-CSF, GM-CSF, SCF, and IL-3 the proliferation and differentiation of primitive hematopoietic stem cells. Early B cell lineage differentiation as well as expansion of monocytes and immature dendritic cells is stimulated. Flt3-Ligand is expressed by T lymphocytes and bone marrow stromal fibroblasts as a membrane-bound and a soluble isoform. Both isoforms signal through the tyrosine kinase receptor Flt3/Flk-2, which is restricted to cells of hematopoietic origin. Human Flt3-Ligand is also active on mouse cells.

### 1.2 Applications

Human Flt3-Ligand can be used for a variety of applications, including:

- *In vitro* expansion of CD34<sup>+</sup> hematopoietic progenitor cells.
- Differentiation of ES-derived cells towards the hematopoietic lineage.
- *In vitro* generation of Langerhans cells, dendritic cells, or eosinophils from CD34<sup>+</sup> cells.

Optimal concentration for a specific application should be determined by a dose-response experiment.

## 2. References

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3. Velardi, E. *et al.* (2014) Sex steroid blockade enhances thymopoiesis by modulating Notch signaling. *J. Exp. Med.* 211 (12): 2341–2349.
4. Dussiau, C. *et al.* (2015) Targeting IRAK1 in T-cell acute lymphoblastic leukemia. *Oncotarget* 6: 18956–18965.
5. Meyer, C. and Drexler, H.G. (1999) FLT3 ligand inhibits apoptosis and promotes survival of myeloid leukemia cell lines. *Leuk. Lymphoma* 32: 577–581.
6. Brault, J. *et al.* (2014) Optimized generation of functional neutrophils and macrophages from patient-specific induced pluripotent stem cells: *ex vivo* models of X<sup>0</sup>-linked, AR22<sup>0</sup>- and AR47<sup>0</sup>- chronic granulomatous diseases. *Biores Open Access* 3 (6): 311–326.

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