

## Product Information

### Flt-3/Flk-2 Ligand mouse, recombinant expressed in mouse NSO cells

Catalog Number **F9175**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonym: FL

#### Product Description

Flt-3/Flk-2 Ligand (FL) is produced from a DNA sequence encoding the extracellular domain of mouse FL, amino acid residues 1–188.<sup>1</sup> The 162 amino acid residue recombinant protein, generated after removal of the 26 amino acid residue signal peptide, has a predicted molecular mass of ~18 kDa. Due to heterogeneous glycosylation, the recombinant protein migrates as multiple bands ranging from 18–32 kDa in SDS-PAGE. At the amino acid level, human and mouse FL are ~72% identical and the two proteins exhibit cross-species activity.

The Flt-3 (*fms*-like tyrosine kinase-3)/Flk-2 (fetal liver kinase-2) ligand (FL), a hematopoietic cytokine, was cloned based on its ability to bind and activate *c-kit* and Flt-3 tyrosine kinase receptors.<sup>2</sup> FL plays a key role in hematopoiesis by stimulating proliferation and/or differentiation of various hematopoietic cell types *in vitro* as well as *in vivo*.<sup>3,4</sup> Mouse FL, a type I transmembrane glycoprotein, can undergo proteolytic cleavage to generate a soluble form of the protein. Also, alternatively spliced FL mRNA, encoding a soluble form of the mouse FL, has been identified. Both the transmembrane and soluble forms of FL are biologically active.

FL synergizes with other hematopoietic cytokines to stimulate the growth and differentiation of early hematopoietic progenitors. FL promotes growth of early B cell progenitor cells in combination with IL-7<sup>5</sup> and induces adhesion of the precursor B cell line Bafit3 to fibronectin by activating the fibronectin receptors, VLA-4 and VLA-5 integrins.<sup>6</sup>

Flt-3/Flk-2 ligand is widely expressed in a variety of mouse tissues. Cells known to express FL include T cell lines,<sup>1</sup> a thymic stromal cell line,<sup>7</sup> bone marrow fibroblasts,<sup>8</sup> and hematopoietic cells. Flt-3 receptor is expressed in a variety of tissues including placenta, gonads, and tissues of nervous and hematopoietic origin.

In the hematopoietic system, the expression of Flt-3/Flk-2 ligand and Flt-3 receptor is restricted to the population enriched for precursor/progenitor cells.<sup>9</sup> The gene for FL has been mapped to chromosome 7 in mouse.

Recombinant Mouse Flt-3/Flk-2 Ligand is supplied lyophilized from a 0.2  $\mu\text{m}$  filtered solution of 50% acetonitrile and 0.1% TFA containing 50  $\mu\text{g}$  of bovine serum albumin per 1  $\mu\text{g}$  of cytokine.

Activity of this product is measured by its ability to stimulate the proliferation of a Flt-3 transfected pro-B cell line.

The ED<sub>50</sub> for this effect is typically 4–8 ng/ml.

The ED<sub>50</sub> is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity:  $\geq 97\%$  (SDS-PAGE, visualized by silver stain)

Endotoxin level:  $< 0.1\text{ ng}/\mu\text{g}$  protein  
[LAL (Limulus ameobocyte lysate) method]

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of  $\geq 10\text{ }\mu\text{g}/\text{mL}$ .

#### Storage/Stability

Store the product at  $-20\text{ }^{\circ}\text{C}$ . Upon reconstitution, store at  $2\text{--}8\text{ }^{\circ}\text{C}$  for up to one month. For extended storage, freeze in working aliquots at  $-20\text{ }^{\circ}\text{C}$ . Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

## References

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3. Rohrschneider, L.R., in *Guidebook to Cytokines and Their Receptors*, (Nicola, A., ed.), Oxford University Press, (Oxford, UK: 1995) pp. 168-170.
4. Lyman, S.D., and Jacobsen, S.E., *Blood*, **91**, 1101-1134 (1998).
5. Ray, R.J., et al., *Eur. J. Immunol.*, **26**, 1504-1510 (1996).
6. Shibayama, J., et al., *Cell. Immunol.*, **187**, 27-33 (1998).
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8. Lisovsky, M., et al., *Leukemia*, **10**, 1012-1018 (1996).
9. Small, D., et al., *Proc. Natl. Acad. Sci. USA*, **91**, 459-463 (1994).

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