

Product Information

Flt-3/Fc Chimera

Human, Recombinant

Expressed in mouse NSO cells

Product Number **F 7426**

Product Description

Recombinant Human Flt-3 Fc/Chimera is produced from a DNA sequence encoding the extracellular domain of human Flt-3 fused to the C-terminal 6 histidine-tagged Fc region of human IgG1 by a linker peptide.¹ Disulfide-linked homodimeric mature recombinant soluble Flt-3, generated after removal of the 26 amino acid residue signal peptide, has two 759 amino acid subunits. Each subunit has a calculated molecular mass of ~ 85.5 kDa. As a result of glycosylation, the reduced protein migrates as a 120 kDa protein in SDS-PAGE. At the amino acid level, human and mouse Flt-3 are ~ 85% identical.

Flt-3 (*fms*-like tyrosine kinase-3) receptor, also known as Flk-2 (fetal liver kinase) and Stk-1 (stem cell tyrosine kinase), is a member of the class III subfamily of receptor tyrosine kinases.¹⁻⁴ Additional members of this receptor family are the receptors for macrophage-colony-stimulating factor and steel factor, encoded by the *KIT*^{5,6} and *FMS*^{7,8} protooncogenes, respectively, and the receptors for α - and β -platelet-derived growth factors (PDGFRA and -B). Common structural features include the extracellular region composed of five immunoglobulin-like domains and an intracellular tyrosine kinase made up of an ATP-binding loop and a catalytic domain separated by a kinase insert domain.

Flt-3, Fms, and Kit play a key role in hematopoiesis by stimulating proliferation and/or differentiation of various hematopoietic cell types.^{9,10} Mice lacking a functional Flt-3 receptor have normal mature hematopoietic populations; however, they exhibit reduced numbers of early B cell precursors and multipotent stem cells.¹¹

Recombinant soluble Flt-3/Fc chimera binds FL (Flt-3 ligand) with high affinity and is a potent FL antagonist. Flt-3 ligand is a transmembrane protein with structural homology to M-CSF and SCF that promotes growth of early B cell progenitor cells and induces adhesion of the precursor B cell line BaF3/Fkt3 to fibronectin.

The 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 enriched stem/progenitor cells.¹

Reagent

Recombinant Human Flt-3/Fc Chimera is supplied as ~ 50 μ g of protein lyophilized from a 0.2 μ m filtered solution in phosphate buffered saline containing 2.5 mg of bovine serum albumin

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate buffered saline containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 μ g/ml.

Storage/Stability

Store at -20 °C. Upon reconstitution, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

Product Profile

Recombinant Human Flt-3/Fc Chimera is measured by its ability to inhibit recombinant human Flt-3 ligand-induced proliferation of a Flt-3 transfected pro-B cell line.

The ED₅₀ for this effect is typically 0.01 to 0.03 µg/ml in the presence of recombinant human Flt-3 ligand at 2 ng/ml.

The ED₅₀ is defined as the effective concentration of growth factor that elicits a 50 % increase in cell growth in a cell based bioassay.

Purity: >97 % as determined by SDS-PAGE, visualized by silver stain.

Endotoxin level is < 1.0 EU (endotoxin units) per 1 µg cytokine as determined by the LAL (Limulus amoebocyte lysate) method.

References

1. Small, D., et al., Proc. Natl. Acad. Sci. USA, **91**, 459-463 (1994).
2. Rosnet, O., and Birnbaum, D., Crit. Rev. Oncog. **4**, 595-613 (1993).
3. Rosnet, O., et al., D., Blood, **82**, 1110-1119 (1993).
4. Matthews, W., Cell, **65**, 1143-1152 (1991).
5. Chabot, B., et al., Nature, **335**, 88-89 (1988).
6. Geissler, E.N., et al., Cell, **55**, 185-192 (1988).
7. Woolford, J., et al., Cell, **55**, 965-977 (1988).
8. Rothwell, V.M., and Rohrschneider, L. R., Oncogene Res., **1**, 311-324 (1987).
9. Rohrschneider, L.R. in Guidebook to Cytokines and Their Receptors, (Nicola, A., ed), Oxford University Press, Oxford, UK, pp. 168-170(1995).
10. Lyman, S.D., and Jacobsen, S.E., Blood, **91**, 1101-1134 (1998).
11. Mackarehtschian, K., et al., Immunity, **3**, 147-161 (1995).

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