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ProductInformation

FIBROBLAST GROWTH FACTOR RECEPTOR 2α (IIIc)/Fc Chimera
Human, Recombinant
Expressed in mouse NSO cells

Product Number **F 9549**

Product Description

Recombinant Fibroblast Growth Factor Receptor 2α (IIIc)/Fc Chimera is produced from a DNA sequence encoding the extracellular domain of human FGF R2α (IIIc) protein and fused to the carboxy-terminal Fc region of human IgG1 by a polypeptide linker.[1] Mature human FGF R2α (IIIc)/Fc is a disulfide-linked homodimeric protein. Based on amino-terminal sequencing, the mature protein has Arg 22 at the N-terminus and also present is a small subunit of truncated FGF R2α (IIIc)Fc with Leu 27 at the N-terminus. The reduced monomer has a calculated molecular mass of approximately 66 kDa. As a result of glycosylation, the recombinant protein migrates to approximately 100 to 110 kDa in SDS-PAGE.

Fibroblast growth factors (FGFs) are members of a large family of structurally related polypeptides (17 kDa to 38 kDa) that exert biological activities toward cells of mesenchymal, neuronal, and epithelial origin.[2, 3] All members of the FGF superfamily have two conserved cysteine residues and a conserved 120 amino acid core region that contains six identical, interspersed amino acids.[4, 5, 6] All FGFs share 30 % to 50 % amino acid sequence identity. FGFs are involved in normal development, wound healing and repair, angiogenesis, a variety of neurotrophic activities. They are also involved in hematopoiesis as well as in tissue remodeling and maintenance. FGFs are potent physiological regulators of growth and differentiation for a variety of cells of mesodermal, ectodermal, and endodermal origin. They have been implicated in pathological conditions such as tumorigenesis and metastasis. To date, the FGF family consists of 23 members designated FGF-1 through FGF-23.[6]

Four distinct tyrosine kinase FGF receptors (FGFRs) from four separate genes have been identified: FGFR-1 (flg, cek-1), FGFR-2 (bek, cek-3), FGFR-3 (cek-2), and FGFR-4.[7, 8] Multiple additional variants (isoforms) arising from alternative splicing have also been reported.[8] Ligand binding specificity, signal transduction, and membrane attachment may be modified by alternative splicings.

FGF Receptors are members of a family of type I transmembrane tyrosine kinases that mediate the biological activities of the FGFs by undergoing dimerization and autophosphorylation after ligand binding. The high affinity cell surface FGF receptors have an extracellular region containing three immunoglobulin-like domains, a transmembrane region, and a cytosolic tyrosine kinase domain activated by ligand binding. Alternative splicing of the mRNAs generates multiple forms of FGF R1, FGF R2, and FGF R3. FGF-Rα and FGF-Rβ are splicing isoforms of FGF-R.[9] FGF-Rα has three Ig-like loops in the extracellular domain, while FGF-Rβ has two Ig-like loops in the extracellular domain.[9] A major determinant of ligand binding specificity is alternative splicing in the C-terminus of Ig domain III of FGF R1-3. This splicing event is tissue-specific and is likely to regulate important signaling events across epithelial (b spliced form)/mesenchymal (c spliced form) boundaries.[10]

FGF receptors are widely expressed during early development. At the mRNA level, FGF R2 is highly expressed in developing human tissues including the brain (preferentially in glial cells), choroid plexus, skin, lung, kidney, and bone. Overexpression of FGF R4 or expression of variant forms of FGF R1 or FGF R2 have been linked to human breast carcinoma.[11, 12] Mutations in FGF R1, FGF R2, and FGF R3 are found in patients with birth defects involving craniosynostosis. Also, mutations in the extracellular domain of FGF R2 have been correlated to certain disorders of human skeletal development.[13]

Reagent

Recombinant Human Fibroblast Growth Factor Receptor 2α (IIIc)/Fc Chimera is supplied as approximately 50 µg of protein lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS).

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 no less than 50 µg/ml.

Storage/Stability
Store at –20 °C. Upon reconstitution, store at 2 °C to 8 °C for 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 Fibroblast Growth Factor Receptor 2α (IIIc)/Fc Chimera is measured by its ability to inhibit human FGF acidic-dependent proliferation of NR6 mouse fibroblasts.

The ED_{50} for this effect is typically 0.5 to 2.0 ng/ml.

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

Purity: > 90 % as determined by SDS-Page, visualized by silver stain.

Endotoxin level is < 0.1 ng/µg protein as determined by the LAL (Limulus amebocyte lysate) method.

References

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