

Product Information

Fibroblast Growth Factor-8b from mouse, recombinant expressed in *Escherichia coli*

Catalog Number **F6926**

Storage Temperature -20°C

Synonym: FGF-8b

Product Description

Recombinant mouse Fibroblast Growth Factor-8b is produced from a DNA sequence encoding the mature mouse isoform FGF-8b.¹ FGF-8b has a predicted molecular mass of ~22 kDa. Recombinant FGF-8b (203 amino acid residues), containing additional amino acid residues at the amino and carboxyl termini, has a calculated molecular mass of 23.6 kDa.

Fibroblast growth factors (FGFs) are members of a large family of structurally related polypeptides (17–38 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.^{4–6} All FGFs share 30–50% amino acid sequence identity. FGFs are involved in normal development, wound healing and repair, angiogenesis, and 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.^{7–9} 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. 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.

Fibroblast Growth Factor-8 was originally identified as an androgen-dependent growth factor of mouse mammary carcinoma cells.¹⁰ The primary transcript of mouse FGF-8 is alternatively spliced to generate at least 8 secreted isoforms that differ at their amino terminus. The differences between the isoforms exist in the number of potential N-linked glycosylation sites.^{11,12} In mouse, the eight isoforms are labeled as 8a–8h. Human FGF-8 is limited to only four isoforms. Only isoforms 8a, 8b, 8e, and 8f are synthesized in humans. Mouse and human 8a and 8b isoforms are 100% identical, while the 8e and 8f isoforms are 98% identical.^{11,12} The FGF-8 isoforms differentially activate the various alternatively spliced forms of FGF receptors 1-3, and FGF receptor 4. FGF-8b activates the 'c' splice form of FGFR-2 and FGFR-3, in addition to FGFR-4. FGFR-2c is expressed in various cells and tissue types including mesenchymal areas of the face, limbs, gut, and germinal epithelium in the early developing CNS.¹³ FGFR-3(b or c) is found in germinal epithelium in the early CNS, glial cells of more developed CNS, cartilage of developing bone lens of the eye, and sensory epithelium in developing cochlea.¹³ FGFR-4 is expressed in endodermal and myotome derived structures of the embryo.¹³

Expression of FGF-8 is restricted to embryonic days 9–13 in the mouse. During mouse development, the expression pattern suggests a role for FGF-8 in ectodermal differentiation of the postgastrulation mouse embryo that includes a role in outgrowth and patterning of the face, limbs, and central nervous system of the vertebrate. In the adult, FGF-8 is found in prespermatogonia and antral follicles of the ovary.¹⁴

The gene for mouse FGF-8 has been mapped to chromosome 19.

This Fibroblast Growth Factor-8b product is lyophilized from a 0.2 μm filtered solution of 20 mM MOPS with 50 mM sodium sulfate, pH 7.2, containing 50 μg of bovine serum albumin per μg of cytokine.

Activity is measured by its ability to stimulate proliferation of NR6R-3T3 fibroblasts.¹⁵ The ED₅₀ for this effect is typically 15–60 ng/ml in the presence of 1 $\mu\text{g}/\text{ml}$ heparin in a fluorometric assay using the redox sensitive dye, resazurin.

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% (SDS-PAGE)

Endotoxin level: <1.0 EU/ μg protein
[LAL (Limulus ameocyte 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 containing at least 0.1% bovine serum albumin. Prepare a stock solution of ≥ 25 $\mu\text{g}/\text{ml}$.

Storage/Stability

Store the product at -20 °C. Upon reconstitution, store at $2-8$ °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.

References

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ADM,NRC,KAA,PHC,MAM 09/11-1