

Product Information

Fibroblast Growth Factor 10, Human

Recombinant, Expressed in *E. coli***F8924**

Storage Temperature: -20 °C

Synonym: FGF-10

Product Description

Fibroblast Growth Factor 10 (FGF-10) is produced from a DNA sequence encoding human FGF-10 amino acid residues 37–208.¹ Recombinant FGF-10 contains both the 172 amino acid residue mature FGF-10 and a N-terminal truncated form of FGF-10 (signal peptide) lacking 4 additional amino acid residues. FGF-10 migrates as a 19 kDa protein in SDS-PAGE. Human FGF-10 shares ~92% and 95% amino acid sequence identity with mouse FGF-10 and rat FGF-10, respectively.

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 (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 10 was originally identified from rat embryos by homology-based polymerase chain reaction. Subsequently, human and mouse FGF-10 were also cloned. FGF-10 has unique roles in the brain, in lung development, in wound healing, and limb bud formation.^{10–12} FGF-10 is mitogenic for epithelial and epidermal cells but not fibroblasts.¹ FGF-10 is predominantly expressed in the embryo and adult lung.¹³ In the adult, fibroblasts and pre-adipocytes also express FGF-10. In the fetus, posterior limb mesoderm and mesenchyme associated with the development of the seminal vesicle and prostate express FGF-10.

This product is lyophilized from 34.8 µL of a 0.2 µM filtered solution containing 20 mM MOPS, 50 mM Na₂SO₄, 1 mM DTT, and 0.5 mM EDTA, pH 7.2, with 50 µg bovine serum albumin per 1 µg as a carrier protein.

Measured in a cell proliferation assay using 4MBr-5 Rhesus monkey epithelial cells.¹⁴ The ED₅₀ for this effect is 20–100 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% (SDS-Page, visualized with Silver Staining and quantitative densitometry by Coomassie Blue Staining).

Endotoxin level: <0.10 EU per 1 µg of the protein by the LAL method.

Precautions and Disclaimer

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

Preparation Instructions

Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

Storage/Stability

Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

Store the product at –20 °C. Upon reconstitution, store at 2-8 °C for up to one month. After reconstitution, store at –20 to –70 °C under sterile conditions.

References

1. Emoto, H. et al., J. Biol. Chem., 272, 23191 (1997).
2. Givol, D., and Yayon, A., FASEB. J., 6, 3362 (1992).
3. Baird, A. et al., Curr. Opin. Neurobiol., 4, 78 (1994).
4. Fernig, F.G., and Gallagher, J.T., Prog. Growth Factor Res., 5, 353 (1994).
5. Kirkoshi, J. et al., Biochem. Biophys. Res. Commun., 274, 337 (2000).
6. Nishimura, T. et al., Biochem. Biophys. Acta, 1492, 203 (2000).
7. Bernard, O., and Matthew, P., Guidebook to Cytokines and Their Receptors, Oxford Press (New York, NY: 1994).
8. Galzie, Z. et al., Biochem. Cell Biol., 75, 669 (1997).
9. Callard, R., and Gearing, A., The Cytokine Facts Book, Academic Press (New York, NY: 1994).
10. Bellusci, S. et al., Development, 124, 4867 (1997).
11. Tagashire, S. et al., Gene, 197, 399 (1997).
12. Ohuchi, H. et al., Development, 124, 2235 (1997).
13. Yamasaki, M. et al., J. Biol. Chem., 271, 15918 (1996).
14. Rubin, J.S. et al., Proc. Natl. Acad. Sci. USA, 86, 802 (1989).

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.

The life science business of Merck operates
as MilliporeSigma in the U.S. and Canada.

Merck, and Sigma-Aldrich are trademarks of Merck or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2012-2025 Merck and/or its affiliates. All Rights Reserved.
23249522 Rev 07/25

