Recombinant Human bFGF Protein

Product Name

Recombinant Human bFGF Protein

Size / Catalog Number

10μg / TL901-0010

50μg / GMP-TL901-0050

Product Information

Synonyms: FGF2, FGFB, FGF basic, HBGF-2

Accession: UniProt P09038-1

Expressed Region: Gly59-Ser210

Tag: Tag free

Expression system: *E. coli*

Predicted Molecular weight: 17.1 kDa

Purity: > 90% as determined by SDS-PAGE

Endotoxin: < 0.1 EU per 1 μg of protein (LAL method)

Activity: Measured in a cell proliferation asasay using HUVEC cells, corresponding to a specific activity of ≥ 1.0×10^6 IU/mg.

Form: Lyophilized from sterile PBS (pH7.4), typically supplemented with 6% mannitol as a protectant.

Background

Recombinant human basic Fibroblast Growth Factor (bFGF) is a non-glycosylated heparin-binding protein produced in *E. coli* expression systems, functioning as a core member of the FGF family. It selectively engages FGFR1c/2c/3c/4 receptor subtypes to activate Ras-MAPK and PI3K-AKT signaling cascades, governing critical physiological processes including cell proliferation, migration, differentiation, and angiogenesis. In cell therapy applications, bFGF serves as an essential component of serum-free stem cell culture systems, sustaining the undifferentiated state of human pluripotent stem cells (hPSCs) through continuous ERK1/2 pathway activation that stabilizes Nanog/Oct4 pluripotency factors, while synergizing with BMP signaling inhibitors (e.g., Noggin) to block spontaneous germ layer differentiation. For tissue engineering, its spatiotemporally controlled release strategies direct mesenchymal stem cell (MSC) commitment toward neural/chondrogenic lineages and promote endogenous regenerative niche formation in damaged tissues, significantly enhancing functional integration of neural repair grafts with host neural circuitry.

Stability & Storage

Lyophilized powder: Stable for 12 months at -80°C or 6 months at -20°C when stored in the original sealed container under desiccant.

Reconstitution: Dissolve in sterile water for injection, 0.9% NaCl, or PBS (pH7.4), maintaining a final concentration ≥ 100 μg/mL to prevent adsorption.

Handling: Aliquot to avoid repeated freeze-thaw cycles.

References

1. Amir Ali Khan, Tee Jong Huat, Abdullah Al Mutery, *et al*. Significant transcriptomic changes are associated with differentiation of bone marrow-derived mesenchymal stem cells

into neural progenitor-like cells in the presence of bFGF and EGF. Cell Biosci. 2020 Oct 28;10(1):126.

2. Dmitriy Bazhenov, Valentina Mikhailova, Igor Nikolaenkov, *et al*. The uteroplacental contact zone cytokine influence on NK cell cytotoxicity to trophoblasts. Gynecol Endocrinol. 2020;36(sup1):1-6.

3. Peng Chen, Hongguang Zhang, Qingtao Zhang, *et al*. Basic Fibroblast Growth Factor Reduces Permeability and Apoptosis of Human Brain Microvascular Endothelial Cells in Response to Oxygen and Glucose Deprivation Followed by Reoxygenation via the Fibroblast Growth Factor Receptor 1 (FGFR1)/ERK Pathway. Med SciMonit. 2019 Sep 25;25:7191-7201.

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