

FGF basic/bFGF Protein, Human (K128N, solution)

Cat. No.:	HY-P70600
Synonyms:	Fibroblast growth factor 2; FGF-2; Basic fibroblast growth factor; bFGF; Heparin-binding growth factor 2; HBGF-2; FGF2; FGFB
Species:	Human
Source:	E. coli
Accession:	P09038-2/BAG70135.1 (M1-S155, K128N)
Gene ID:	2247
Molecular Weight:	Approximately 17.0 kDa

PROPERTIES

AA Sequence	<p> M A A G S I T T L P A L P E D G G S G A F P P G H F K D P K R L Y C K N G G F F L R I H P D G R V D G V R E K S D P H I K L Q L Q A E E R G V V S I K G V C A N R Y L A M K E D G R L L A S K C V T D E C F F F E R L E S N N Y N T Y R S R K Y T S W Y V A L N R T G Q Y K L G S K T G P G Q K A I L F L P M S A K S </p>
Biological Activity	Measured in a cell proliferation assay using NIH-3T3 mouse embryonic fibroblasts. The ED ₅₀ for this effect is 0.3765-0.8717 ng/mL, corresponding to a specific activity is 1.15×10 ⁶ -2.656×10 ⁶ units/mg.
Appearance	Solution
Formulation	Supplied as a 0.2 µm filtered solution of 20 mM Tris, 200 mM NaCl, pH 7.5 or PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	<p>FGF-2/bFGF is a member of the fibroblast family and has a high affinity for heparin. FGF-2 plays an important role in tendon to bone healing, cartilage repair, bone repair, and nerve regeneration. FGF-2 specifically binds to tyrosine kinase receptors and activates the FGF/FGFR signaling pathway. Subsequently, FGF-2 influences cell proliferation, differentiation and apoptosis, as well as immune regulation by transducing other classical pathways. For example, FGF-2 regulates the JAK-STAT signaling pathway to regulate cartilage metabolism. FGF-2 also acts as a mitotic promoter to accelerate cell proliferation. Therefore, (1) FGF-2 is an important growth factor in the healing process of ligament/tendon injury. In vitro</p>
-------------------	---

experiments, low-dose FGF-2 can stimulate the proliferation and differentiation of bone marrow mesenchymal stem cells, and up-regulate the mRNA expression of type I/III collagen and fibronectin. However, high doses of FGF-2 did not stimulate extracellular matrix (ECM) protein proliferation and gene expression. (2) FGF-2 is also an endogenous and intrinsic growth factor in cartilage repair. FGF-2 binds to heparan sulfate proteoglycan and is stored in the ECM of articular cartilage. When cartilage is damaged or degenerated, ECM rapidly releases FGF-2 and activates ERK signaling pathways to promote cartilage regeneration. FGF-2 exhibits a biphasic effect in combination with its specific receptor. FGF-2 combined with FGFR3 promoted the repair of articular cartilage. FGF-2 combined with FGFR1 promoted the degeneration of articular cartilage^[1]. FGF-2 is expressed in granulosa cells and colliculus cells, as well as hepatocellular cancer cells, but not in non-cancerous liver tissues. This reveals the role of FGF-2 in brain tumors, particularly glioblastoma. According to studies, FGF-2 is a known carcinogenic factor in GBM. FGF-2 increases the self-renewal of glioblastoma stem cells and contributes to the growth and vascularization of glioma^[2]. FGF-2 protein is highly conserved in some species, and the similarity rate of human FGF-2 protein sequence to rat, mouse, and bovine was 97.4%, 95.45%, and 98.71%, respectively.

REFERENCES

- [1]. Zhang J, et al. FGF2: a key regulator augmenting tendon-to-bone healing and cartilage repair. *Regen Med.* 2020 Sep;15(9):2129-2142.
- [2]. Jimenez-Pascual A, et al. FGF2: a novel druggable target for glioblastoma? *Expert Opin Ther Targets.* 2020 Apr;24(4):311-318.
- [3]. Hankemeier S, et al. Modulation of proliferation and differentiation of human bone marrow stromal cells by fibroblast growth factor 2: potential implications for tissue engineering of tendons and ligaments. *Tissue Eng.* 2005 Jan-Feb;11(1-2):41-9.
-

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA