

FGF 2 Human

Fibroblast Growth Factor-Basic Human Recombinant
GRF0063

Product Overview

Name FGF 2 Human

Description

Fibroblast Growth Factor-Basic Human Recombinant

Accession (Primary) [P09038](#)

Synonyms

Prostatropin, HBGH-2, HBGF-2, FGF-2, FGF-b.

Introduction

FGF-basic is a member of the fibroblast growth factor (FGF) family. FGF family members possess broad mitogenic and cell survival activities, and are involved in a variety of biological processes, including embryonic development, cell growth, morphogenesis, tissue repair, tumor growth and invasion. This protein functions as a modifier of endothelial cell migration and proliferation, as well as an angiogenic factor. It acts as a mitogen for a variety of mesoderm- and neuroectoderm-derived cells in vitro, thus is thought to be involved in organogenesis. Three alternatively spliced variants encoding different isoforms have been described. The heparin-binding growth factors are angiogenic agents in vivo and are potent mitogens for a variety of cell types in vitro. There are differences in the tissue distribution and concentration of these 2 growth factors.

Source

Escherichia Coli.

Physical Appearance

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation

The bFGF was lyophilized from a sterile filtered solution containing 20mM Tris-HCl, pH 7.6 and 150mM NaCl.

Stability

Lyophilized basic-FGF although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution FGFb should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity

Greater than 98.0% as determined by SDS-PAGE.

Amino acid sequence

MPALPEDGGS GAFPPGHFKD PKRLYCKNGG FFLRIHPDGR VDGVREKSDP HIKLQLQAAE RGVVSIKGVG
ANRYLAMKED GRLLASKCVT DECFFFERLE SNNYNTYRSR KYTSWYVALK RTGQYKLGSK TGPGQKAILF
LPMSAKS.

Biological Activity

The ED 50 , Calculated by the dose- dependent proliferation of mouse BALB/c 3T3 cells is < 0.05ng/ml corresponding to a specific activity of 2.0x10⁷ units/mg.

Solubility

It is recommended to reconstitute the lyophilized FGF-B in sterile 18M²-cm H₂O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Precautions

FGF 2 Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: ([P09038](#))

Background

FGF 2 HUMAN: Insights into Fibroblast Growth Factor-2 Basic Fibroblast Growth Factor or FGF 2 HUMAN is a protein with crucial roles in cell growth, tissue repair, and embryonic development. This is part of the larger fibroblast growth factor family and is vital for various biological processes, including the modulation of cell survival activities. Production and Properties Produced in E. coli, FGF 2 is a non-glycosylated polypeptide chain possessing 154 amino acids with a molecular weight of about 17.2 kDa. It is purified through advanced chromatographic techniques, ensuring high purity and activity for laboratory use. Physical Characteristics and Preparation The physical form of FGF 2 HUMAN is a sterile, white lyophilized powder. For experimental use, it is reconstituted with sterile water to at least 100 µg/ml. This reconstitution is crucial for maintaining the integrity and effectiveness of the protein in various research applications. Storage and Handling To maintain stability, lyophilized FGF 2 should be stored at -18°C and used within three weeks if kept at room temperature. Once reconstituted, it should be kept at 4°C and used within 2-7 days or stored at -18°C for longer-term storage. Proper handling and avoiding repeated freeze-thaw cycles are essential to preserve the protein's functionality. Purity and Biological Activity FGF 2 is characterized by a purity greater than 98%, verified by SDS-PAGE analysis. Its biological activity is primarily defined by its efficacy in promoting the proliferation of specific cell lines, with an effective dose (ED50) typically below 0.1 ng/ml. Research Applications and Impact In the research context, FGF 2 is used extensively to study its effects on cell migration, proliferation, and angiogenesis. Moreover, its role in disease models, particularly in cancer and tissue repair studies, makes it a valuable resource for developing

new therapeutic approaches. Usage Guidelines FGF 2 HUMAN is strictly for laboratory research use and is not suitable for drug development, food production, or cosmetic applications. Researchers are advised to comply with safety and handling guidelines to ensure that experiments are conducted under optimal conditions. The Broad Impact on Development and Disease FGF-2 is known for its multifunctional role across numerous biological processes such as tissue repair, embryonic development, angiogenesis, and even tumorigenesis. This growth factor, existing in various synonymous forms such as Basic FGF, FGF-b, and HBGF-2, is essential in cellular processes that underpin both health and disease. Furthermore, FGF-2's ability to bind to cellular receptors triggers a cascade of signaling pathways, including PI3K/Akt, MAPK/ERK, and PLC β , which in turn influence cell growth, migration, and survival. These pathways are pivotal in mediating the factor's diverse effects on cell behavior, contributing to its critical roles in wound healing, angiogenesis, and tissue remodeling.

References for protein:

1 . Title : Activation of the Hedgehog pathway in pilocytic astrocytomas Publication : Neuro Oncol (2010) 12 (8): 790-798. doi: 10.1093/neuonc/noq026 First published online: March 11, 2010 Link : FGF 2 prospec publication 2. Title :Phenotype reversion in fetal human liver epithelial cells identifies the role of an intermediate meso-endodermal stage before hepatic maturation Publication :Advance Online Publication March 4, 2008 doi: 10.1242/jcs.019315 April 1, 2008 J Cell Sci 121, 1002-1013. Link : FGF 2 Human prospec publication 3. Title :Embryonic Stem Cell-Derived Glial Precursors as a Vehicle for Sulfamidase Production in the MPS-IIIa Mouse Brain . Publication : Cell Transplantation ISSN: 0963-6897 DOI: 10.3727/096368910X498944 Volume 19, Issue 8, pages 985-998 Copyright © 2010 Cognizant Comm. Corp Link : Fibroblast Growth Factor-Basic prospec publication 4. Title :Adult Human Dental Pulp Stem Cells Differentiate Toward Functionally Active Neurons Under Appropriate Environmental Cues. Publication : Article first published online: 22 MAY 2008 DOI:10.1634/stemcells.2007-0979 Copyright © 2008 AlphaMed Press. Link : FGF-basic prospec publication 5. Title: Successful implantation of physiologically functional bioengineered mouse internal anal sphincter Publication: American Journal of Physiology-Gastrointestinal and Liver Physiology 299.2 (2010): G430-G439. Link: FGF-b prospec publication