

# IMMOBAZYME - INSTRUCTION MANUAL



# BASIC FIBROBLAST GROWTH FACTOR (HUMAN)

## PRODUCT OUTLINE

### PRODUCT NAME

FGF-2 (Human)

### MANUFACTURER

Immobazyme (Pty) Ltd

### BATCH DETAILS

CAS: 106096-93-9 | LOT: 20241018-FGF2

## Product Specification & Protocol

### Basic Fibroblast Growth Factor (FGF-2)

#### PRODUCT INFORMATION

Basic Fibroblast Growth Factor (FGF-2) is a signalling protein from the fibroblast growth factor family, which regulates essential biological processes such as cell proliferation, differentiation, migration, and angiogenesis. Additionally, FGF-2 plays a crucial role in embryonic development as well as tissue maintenance and regeneration.

Applications in cell culture, regenerative medicine, and stem cell research, FGF-2 supports cellular growth and maintenance *in vitro*.

Immobazyme's FGF-2 is produced using advanced microbial expression in *E. coli*, offering high purity (>90%), enhanced stability, and superior efficacy. Available as a lyophilised powder, our FGF-2 provides an accessible, scalable, and cost-effective solution for researchers and developers in cellular and molecular biology.

Immobazyme's FGF-2 is food-grade and allergen-free.

PRODUCT SPECIFICATION

For Research Use only

Grade	Food-grade, Allergen-free
Amount	100 µg per vial
Molecular Weight	74.5 kDa (with fusion protein)
Production System	<i>E. coli</i>
Protein Information	Recombinant FGF-2 is a monomeric fusion peptide with enhanced stability and solubility
Purification Method	Sequential chromatography (IMAC and desalting)
Filtration	Filtered through a 0.22 µm sterile filter
Sterility	Sterile

Mycoplasma	Absent
Form	Lyophilised powder
Purity	>90%
Reconstitution Recommendation	1 mL of sterile MilliQ water
Formulation	10 mM Na <sup>2</sup> HPO <sub>4</sub> , 1.8 mM KH <sub>2</sub> PO <sub>4</sub> , 2.7 mM KCl, 100 mM NaCl, pH 7.0, 2% Dextran T500
Storage Condition	Lyophilised sample is transported at ambient temperature. For extended shelf life, store at -20°C before and after reconstitution.

**RECONSTITUTION PROTOCOL AND STORAGE****Reconstitute FGF-2**

*Perform reconstitution in a sterile laminar flow hood.*

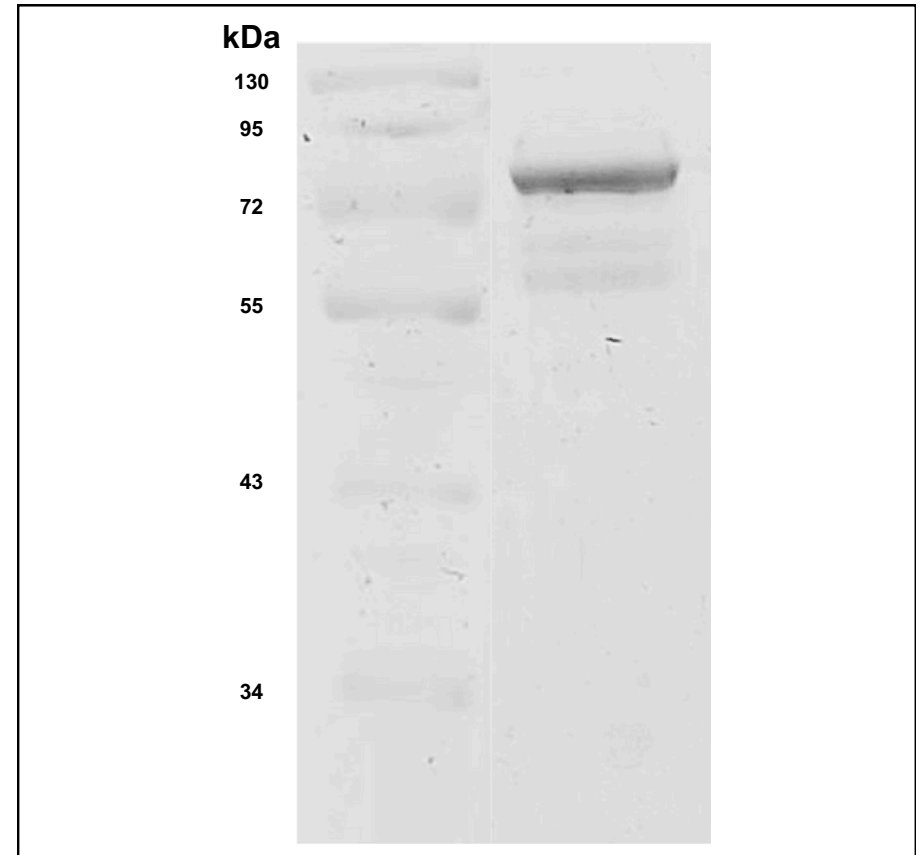
- Remove red safety cap from vial.
- Aspirate 1 mL of sterile milliQ water into a 1 mL sterile syringe.
- Attach a sterile needle onto the syringe and insert into the vial through the centre of the rubber stopper seal.
- Gently inject the 1 mL of water into the vial, then remove the needle and syringe.
- Invert the vial 5-10 times, or until the lyophilised sample is fully reconstituted.
- Insert the needle and syringe into the reconstituted sample vial, invert the vial and gently aspirate the sample liquid into the 1 mL syringe, being sure to collect the full volume by keeping the needle end near the rubber stopper opening.
- Inject the reconstituted 1 mL sample into a sterile microfuge tube through a 0.22 µm syringe filter (provided).
- Prepare stock concentrations in sterile microfuge tubes as per your relevant standard operating procedures, keeping in mind the avoidance of repeated freeze-thaw cycles.
- Prepare working concentration stocks in sterile microfuge tubes as per your relevant standard operating procedures. The recommended working concentration for FGF-2 is 1-100 ng/mL.

**Storage Instructions:**

- The lyophilised vial can be stored at -20 °C for 12 months.
- The reconstituted protein aliquots can be stored at -20°C for 6 months.
- Once resuspended use within 1 week (storage at 4°C).

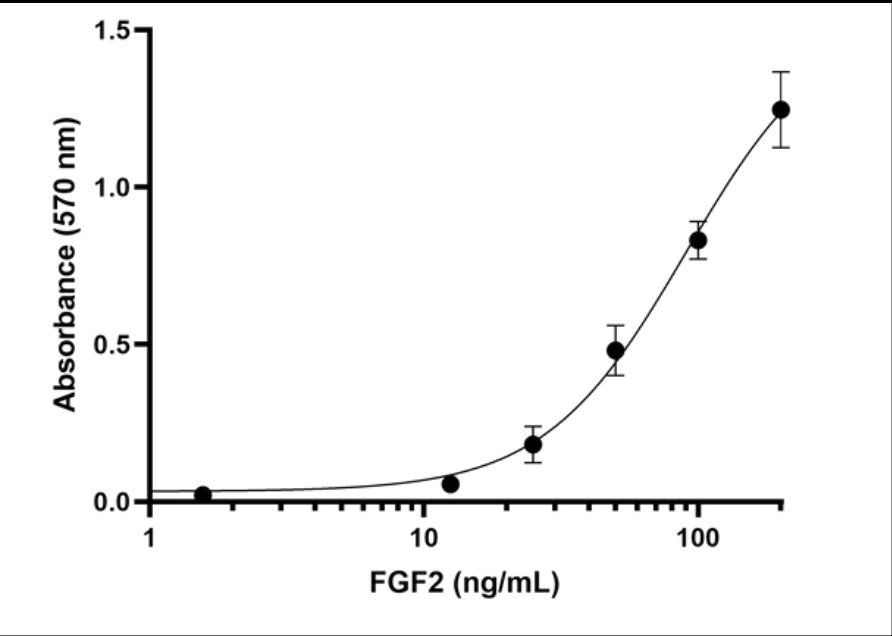
**Important Notes:**

- Avoid repeated freeze-thaw cycles.

**QUALITY CONTROL & PERFORMANCE TESTING****Purity verification: SDS-PAGE and Coomassie staining**

**Figure 1.** FGF-2 (LOT: 20241018-FGF2) run on an SDS-PAGE gel after lyophilization. A prominent band was present at ~75 kDa with ~ 90% purity.

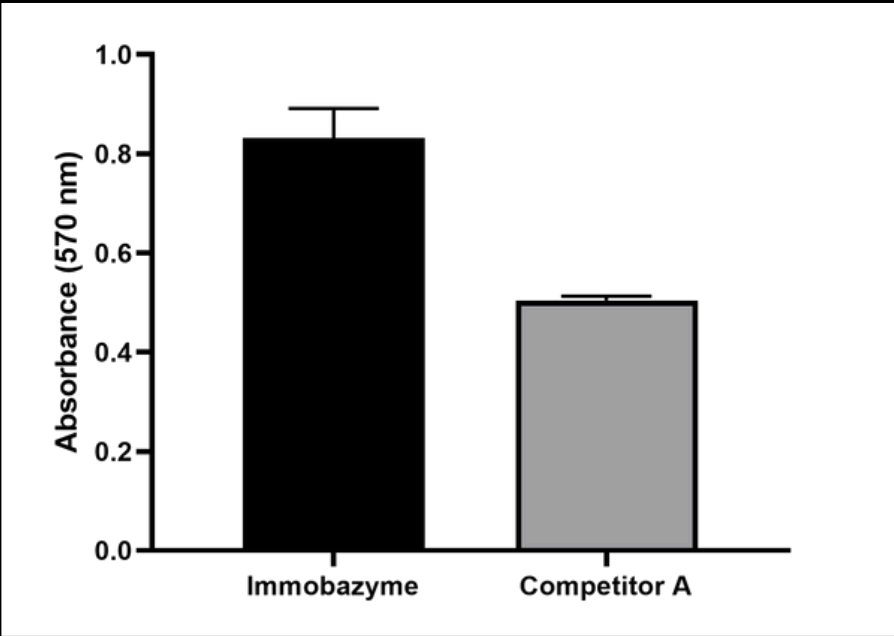
Effect of FGF-2 on NIH-3T3 cell proliferation (T48)



**Figure 2.** Effect of FGF-2 (20241018-FGF2) on NIH-3T3 fibroblast cell proliferation, tested over 48 hours.

An MTT assay graph for FGF-2 (LOT 20241018-FGF2) shows a sigmoidal dose-response curve, with cell proliferation of fibroblasts increasing as FGF-2 concentration rises. The X-axis (FGF-2 concentration, in ng/mL) is on a logarithmic scale, while the Y-axis represents cell viability or proliferation percentage, normalised to untreated controls. The EC50, where 50% of maximal proliferation is achieved, is 90.27 ng/mL. At low concentrations, proliferation remains near baseline, increases sharply around the EC50, and plateaus at higher concentrations, indicating saturation. This demonstrates the dose-dependent effectiveness of FGF-2 in stimulating cell growth.

Competitor analysis



**Figure 3.** Effect of 100 ng/mL of FGF-2 (20241018-FGF2) on NIH-3T3 cell proliferation, tested over 48 hours.

This bar graph illustrates the effect of FGF-2 on NIH-3T3 cell proliferation measured at 48 hours (T48) using an MTT assay. The y-axis represents the absorbance at 570 nm, which is indicative of cell proliferation, while the x-axis shows the FGF-2 samples that were compared. Each sample was tested at a concentration of FGF-2 concentration of 100 ng/mL. Immobazyme's FGF-2 results in significantly higher absorbance at 570 nm compared to Competitor A, suggesting greater cell proliferation.

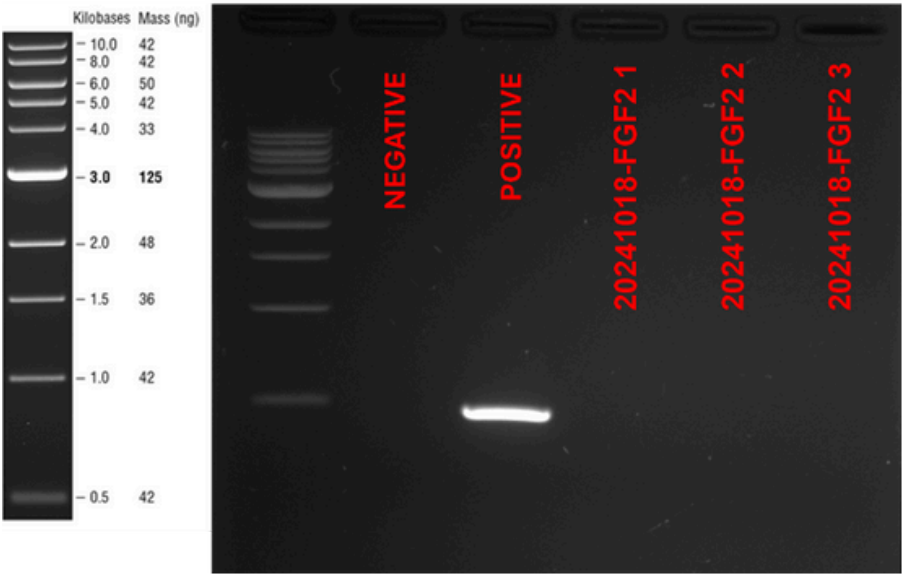
Sterility

Growth promotion test: Lysogeny Broth (LBL) for bacteria and Tryptic Soy Broth Agar (TSBA) plates for fungi.

	LBL	TSBA
Negative Control (Water)	-	-
Positive Control ( <i>B. subtilis</i> )	+	N/A
Positive Control ( <i>A. niger</i> )	N/A	+
FGF-2 Replicate 1	-	-
FGF-2 Replicate 2	-	-
FGF-2 Replicate 3	-	-

Our samples are absent of all microbial growth.

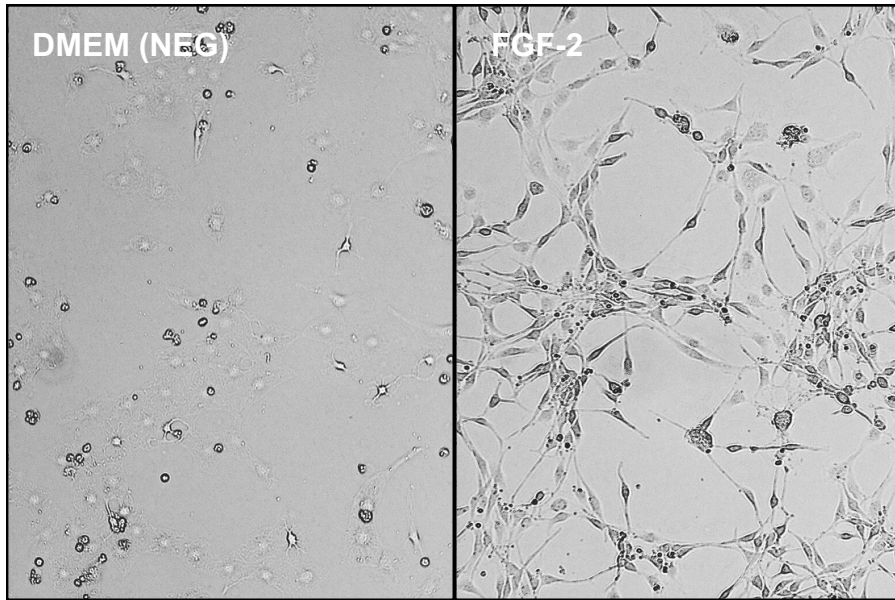
Absence of mycoplasma



**Figure 4.** Mycoplasma detection via PCR on FGF-2 (LOT: 20241018-FGF2).

No amplification of the PCR product indicates that the samples are free of the mycoplasma contamination.

## Observation of FGF-2 treated NIH-3T3 cells



**Figure 5.** Microscopic observation of FGF-2 treated NIH-3T3 cells (LOT: 20241018-FGF2), after 48 hours.

FGF-2 is available for laboratory research and large-scale *in-vitro* biopharmaceutical manufacturing use only. Not for diagnostic or therapeutic use