Human FGF basic Superior Stable Mutant Protein, Research Grade

Catalog # BFF-H5114

Features and Advantages

- Engineered via a Closed-Loop AI Design Platform – Enables rational sequence optimization to achieve maximal functional performance.
- Protected by PCT Patent – Guarantees intellectual property security and a reliable long-term supply.
- Superior Stability at 37°C for 3 Days – Provides unmatched operational flexibility and experimental convenience in cell culture workflows.
- Enables "Weekend-Free" Continuous Culture – Reduces manual handling, lowers contamination risk, and significantly cuts labor and reagent costs.

Synonym

FGF2, BFGF, FGFB, FGF basic, HBGF-2

Product Details

Our Recombinant Human FGF basic Superior Stable Mutant Protein, developed via an AI-modified and experimentally validated closed-loop efficient protein design platform, is the optimal FGF2 mutant with superior thermal stability and activity compared to wild-type FGF2, making it more suitable for various stem cell culture processes. This reduces medium replacement frequency, lowers contamination risks from frequent operations, and saves costs/time for stem cell culture by minimizing reagent consumption and labor, especially in large-scale applications.
This product is designed and developed utilizing our proprietary AI technology, which is protected by patent rights. We retain full commercial rights to this product.

Molecular Characterization

This protein carries no "tag".

The protein has a calculated MW of 16.5 kDa. The protein migrates as 17 kDa±3 kDa when calibrated against Star Ribbon Pre-stained Protein Marker under reducing (R) condition (SDS-PAGE).

Endotoxin

Less than 0.01 EU per μg by the LAL method / rFC method.

Purity

>95% as determined by SDS-PAGE.

>95% as determined by SEC-MALS.

Formulation

Lyophilized from 0.22 μm filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

Reconstitution

Please see Certificate of Analysis for specific instructions.

For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.

Storage

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

Please avoid repeated freeze-thaw cycles.

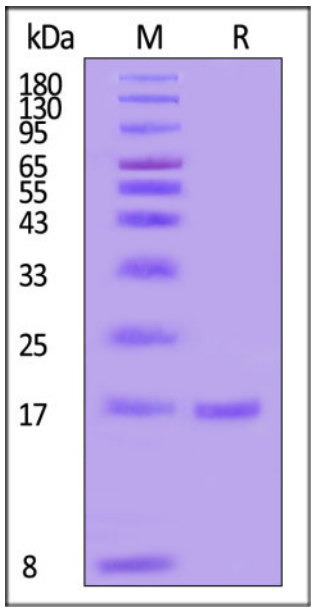
This product is stable after storage at:

- -20°C to -70°C for 24 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

ACRO Quality Management System

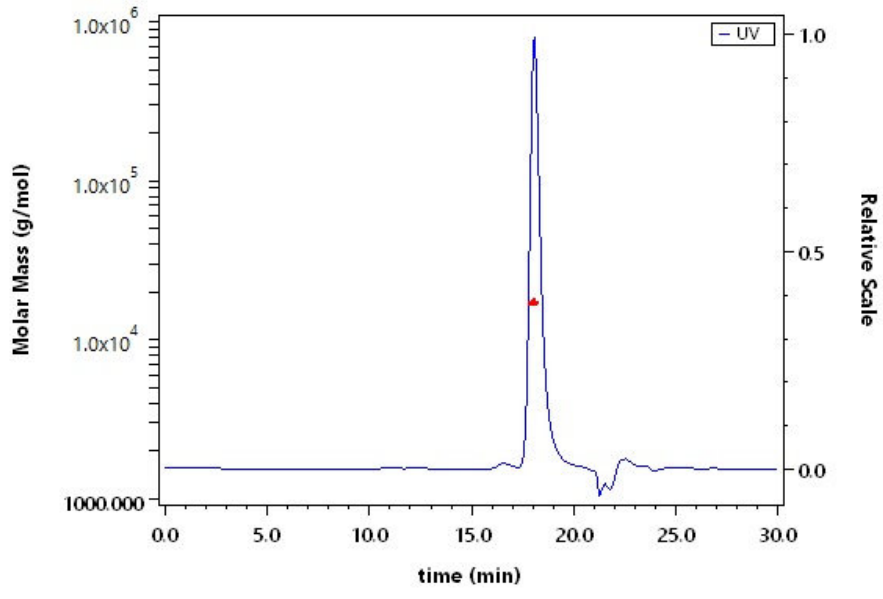
- QMS(ISO, GMP)
- Quality Advantages
- Quality Control Process

SDS-PAGE



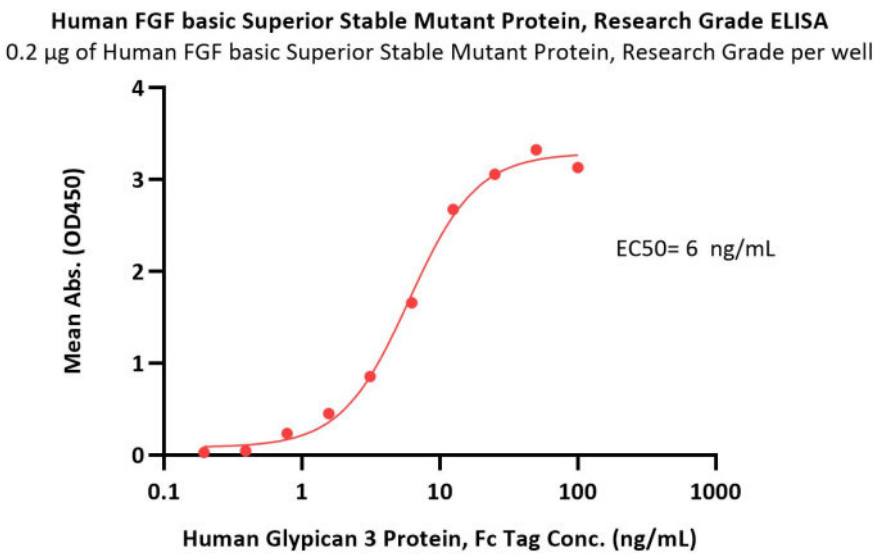
Human FGF basic Superior Stable Mutant Protein, Research Grade on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With Star Ribbon Pre-stained Protein Marker).

SEC-MALS



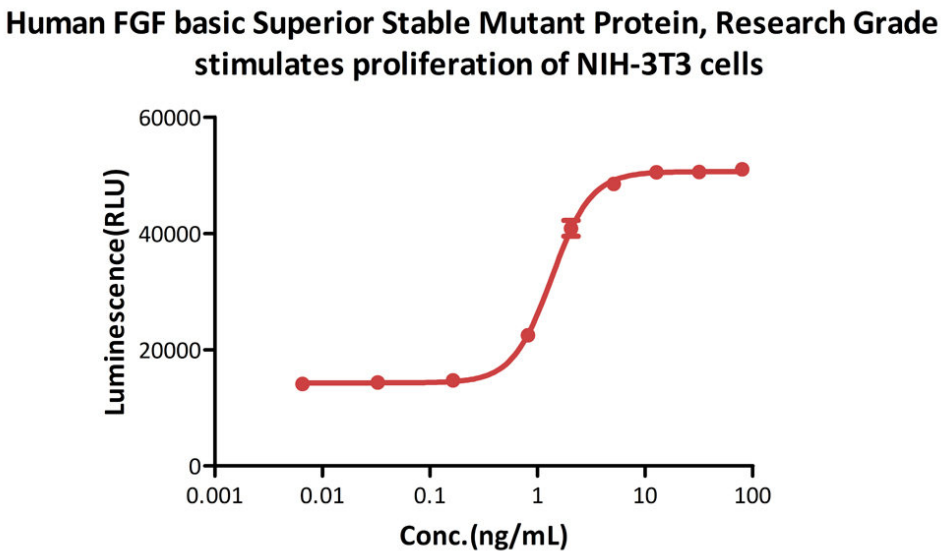
The purity of Human FGF basic Superior Stable Mutant Protein, Research Grade (Cat. No. BFF-H5114) is more than 95% and the molecular weight of this protein is around 13-21 kDa verified by SEC-MALS.

Bioactivity-ELISA



Immobilized Human FGF basic Superior Stable Mutant Protein, Research Grade (Cat. No. BFF-H5114) at 2 μg/mL (100 μL/well) can bind Human Glypican 3 Protein, Fc Tag (Cat. No. GP3-H5258) with a linear range of 2-25 ng/mL (QC tested).

Bioactivity-CELL BASE



Human FGF basic Superior Stable Mutant Protein, Research Grade (Cat. No. BFF-H5113) stimulates proliferation of NIH-3T3 cells. The specific activity of Human FGF basic Superior Stable Mutant Protein, Research Grade > 1.60 x 10^7 IU/mg, which is calibrated against Basic Fibroblast Growth Factor WHO International Standard (NIBSC code: 90/712) (QC tested).

Background

FGF basic (also known as FGF2 and HBGF-2) is an 18-34 kDa, heparin-binding member of the FGF superfamily of molecules (1-3). Superfamily members are characterized by the presence of a centrally placed beta -trefoil structure. FGF acidic (FGF-1) and FGF basic (FGF2) were the first two identified FGFs, and the designations acidic and basic refer to their relative isoelectric points. Human FGF basic is 288 amino acids (aa) in length. There are multiple start sites, four of which utilize atypical CUG codons, and one that initiates at an AUG start site (4 - 6). The four CUG start sites generate high molecular weight (HMW) FGF basic. There is a 34 kDa, 288 aa form, a 24 kDa, 210 aa form, a 22.5 kDa, 201 aa form, and a 22 kDa, 196 aa form. All are retained intracellularly, undergo extensive methylation, and possess one or more nuclear localization signals (NLS) (7-9). The AUG initiating form is 18 kDa and 155 aa in length. There is no signal sequence (ss). It is, however, secreted directly through the plasma membrane via a mechanism that appears to be dependent upon tertiary structure (10). In place of a ss, there is purportedly a 9 aa N-terminal prosegment that precedes a 146 aa mature segment (11). Early isolations of 18 kDa bovine FGF basic yielded 146 aa molecules, an effect attributed to the presence of acid proteases (12). The molecule contains a heparin-binding site (aa residues 128-144), and undergoes phosphorylation at Ser117 (13). There is also an ill-defined C-terminal NLS that may be more “functional” (or 3-dimensional) than structural (7). Human 146 aa FGF basic is 97% aa identical to mouse FGF basic (14).