### DESCRIPTION

**Source**  
*E. coli*-derived human FGF basic/FGF2/bFGF protein  
Ala135-Ser288  
Accession #: NP_001997.5

**N-terminal Sequence Analysis**  
Ala135 & Ala136

**Predicted Molecular Mass**  
16 kDa

### SPECIFICATIONS

**SDS-PAGE**  
18 kDa, under reducing conditions.

**Activity**  
Measured by its ability to inhibit human FGF-basic-dependent proliferation of NR6R-3T3 mouse fibroblast cells. Rizzino, A. et al. (1988) Cancer Res. 48:4266; Thomas, K. et al. (1987) Methods Enzymol. 147:120; Watson, J.B. et al. (1994) J. Clin. Invest. 94:261. The ED$_{50}$ for this effect is 0.100-1.00 ng/mL.

**Endotoxin Level**  
<0.01 EU per 1 μg of the protein by the LAL method.

**Purity**  
>97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation**  
Lyophilized from a 0.2 μm filtered solution in HEPES and Sodium Sulfate with Trehalose. See Certificate of Analysis for details.

### PREPARATION AND STORAGE

**Reconstitution**  
Reconstitute the 20 μg size at 100 μg/mL in sterile deionized water. Reconstitute all other sizes at 500 μg/mL in sterile deionized water.

**Shipping**  
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage**  
- Use a manual defrost freezer and avoid repeated freeze-thaw cycles.  
- 12 months from date of receipt, -20 to -70 °C as supplied.  
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.  
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

### DATA

#### Bioactivity

**Equivalent Bioactivity of GMP, Animal-Free, and RUO grades of Recombinant Human FGF basic/FGF2/bFGF.**  
Equivalent bioactivity of GMP (Catalog # BT-FGFB-GMP), Animal-Free (Catalog # BT-FGFB-AFL) and RUO (Catalog # BT-FGFB) grades of Recombinant Human FGF basic/FGF2/bFGF as measured in a cell proliferation assay using NR6R-3T3 mouse fibroblast cell line (orange, green, red, respectively).

#### SDS-PAGE

**2 μg/lane of Recombinant Human FGF basic/FGF2/bFGF**  
Protein (Catalog # BT-FGFB) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 18 kDa.

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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 β-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).

References:
11. SwissProt # P09038.