

#### DESCRIPTION

**Source** *E. coli*-derived  
Ala144-Ser288  
Accession # NP\_001997

**N-terminal Sequence Analysis** Ala144

**Predicted Molecular Mass** 16 kDa

#### SPECIFICATIONS

**Activity** This protein was used at 20-50 ng/mL to support a 100-fold expansion of rat cortical neural stem cells. Cells were cultured in N2 plus medium and supplemented with fresh FGF basic every day. Medium was changed every other day and cells were split every 2-4 days upon becoming 70% confluent.

**Endotoxin Level** <1.0 EU per 1 µg of the protein by the LAL method.

**Formulation** Lyophilized from a 0.2 µm filtered solution in MOPS, Na<sub>2</sub>SO<sub>4</sub>, EDTA and DTT. See Certificate of Analysis for details.

#### PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 200 µg/mL in sterile PBS.

**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.

#### BACKGROUND

FGF basic (also known as FGF-2 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 (FGF-2) 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:

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