Sterile

#8910

Human Basic Fibroblast Growth Factor (hFGF basic/FGF2)

Cell Signaling TECHNOLOGY®

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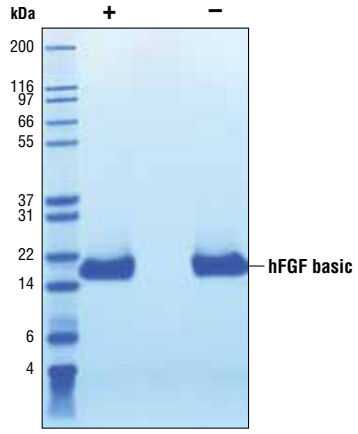
For Research Use Only. Not For Use In Diagnostic Procedures.

Source: Recombinant human FGF basic (hFGF basic) Pro143-Ser288 (Accession #NP_001997) was produced in *E. coli* at Cell Signaling Technology.

Molecular Characterization: Based on amino acid sequencing, 60-80% of recombinant hFGF basic starts at the amino-terminal Pro143 (PALPE) and has a calculated MW of 16,539. The remainder is missing Pro143 and starts at Ala144 (ALPED). DTT-reduced and non-reduced protein migrate as 17 kDa polypeptides.

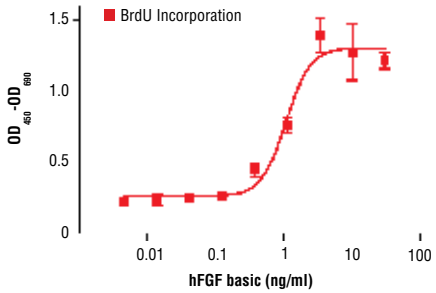
Endotoxin: Less than 0.01 ng endotoxin/1 μg hFGF basic.

Purity: >98% as determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hFGF basic. All lots are greater than 98% pure.

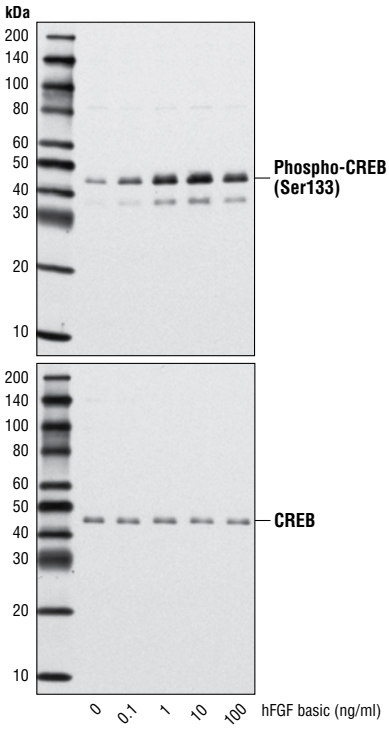


The purity of recombinant hFGF basic was determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hFGF basic and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant hFGF basic was determined in a NIH/3T3 cell proliferation assay. The ED_{50} of each lot is between 0.2 - 1.0 ng/ml.



The proliferation of NIH/3T3 cells treated with increasing concentrations of hFGF basic was assessed. After 24 hr treatment, cells were labeled with BrdU for 4 hrs. BrdU incorporation was determined by ELISA and the OD_{450}-OD_{690} was determined.



Western blot analysis of extracts from NIH/3T3 cells, untreated or treated with Human Basic Fibroblast Growth Factor for 10 minutes, using Phospho-CREB (Ser133) Antibody #9191 (upper) and CREB Antibody #9192 (lower).

Formulation: With carrier: Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.2 containing 10mM DTT and 20 μg BSA per 1 μg hFGF basic. Cystines are not required for bioactivity.

Reconstitution:
With carrier: Add sterile PBS containing 2 mM DTT or PBS containing 2 mM DTT and 1% bovine or human serum albumin or 5-10% FBS to a final hFGF basic concentration of greater than 50 μg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Storage: Stable in lyophilized state at 4°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

Maintain sterility. Storage at -20°C should be in a manual defrost freezer.

Applications: Optimal concentration for the desired application should be determined by the user.

Background: FGF basic (FGF2) is produced by epithelial, tumor and other cell types (1). FGF basic is involved in developmental processes and regulates differentiation, proliferation, and migration (1-6). FGF basic is a critical factor for growing embryonic stem cells in culture without inducing differentiation. FGF basic has a high affinity for heparan sulfate (1,2) and binding is a step in the FGF basic activation of FGFR tyrosine kinase. There are four distinct FGF receptors and each has multiple splice variants. FGF basic binds with high affinity to many, but not all, FGFRs (e.g., binds to FGFR2IIIc with high affinity but not the FGFR2IIIb splice variant). Signaling cascades activated through FGF basic binding to FGFR include the ras-raf-MAPK, PLCγ/PKC, and PI3K/AKT pathways (1).

Background References:

(1) Dvorak, P. and Hampl, A. (2005) *Folia Histochem Cytobiol* 43, 203-8.

(2) Ornitz, D.M. and Itoh, N. (2001) *Genome Biol* 2, REVIEWS3005.

(3) Shi, Y. et al. (2008) *Crit Rev Oncol Hematol* 65, 43-53.

(4) Fontijn, D. et al. (2006) *Br J Cancer* 94, 1627-36.

(5) Marek, L. et al. (2009) *Mol Pharmacol* 75, 196-207.

(6) Acevedo, V.D. et al. (2009) *Cell Cycle* 8, 580-8.