Sterile

#5414

Mouse Basic Fibroblast Growth Factor (mFGF basic/FGF2)

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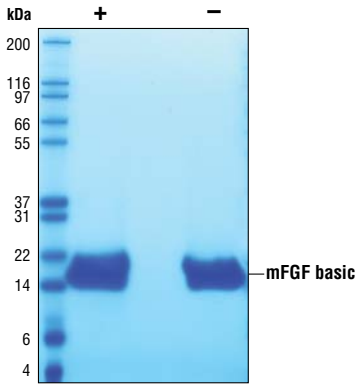
For Research Use Only. Not For Use In Diagnostic Procedures.

Source: Recombinant mouse FGF basic (mFGF basic) Ala11-Ser154 (Accession #NP_032032) was produced in *E. coli* at Cell Signaling Technology.

Molecular Characterization: Recombinant mFGF basic does not have a Met on the amino terminus and has a calculated MW of 16,354. DTT-reduced and non-reduced protein migrate as 17 kDa polypeptides. The expected amino-terminal ALPED of recombinant mFGF basic was verified by amino acid sequencing.

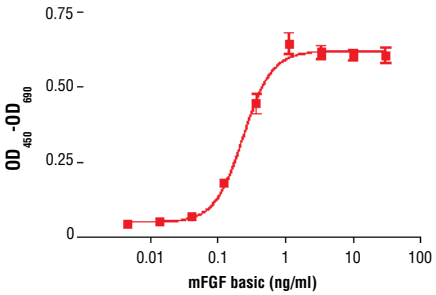
Endotoxin: Less than 0.01 ng endotoxin/1 µg mFGF basic.

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

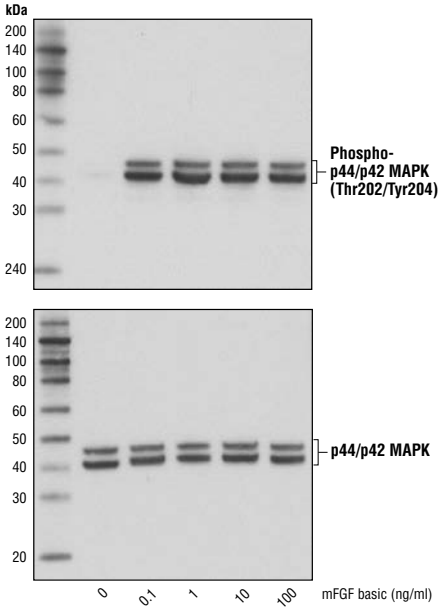


The purity of recombinant mFGF basic was determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant mFGF basic and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant mFGF basic was determined in a NIH/3T3 cell proliferation assay. The ED_{50} of each lot is between 50-400 pg/ml.



The proliferation of NIH/3T3 cells treated with increasing concentrations of mFGF 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 mFGF-basic for 10 min, using Phospho-p44/42 MAPK (Erk1/2) (Thr202/Tyr204) (D13.14.4E) XP™ Rabbit mAb #4370 (upper) and p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb #4695 (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 mFGF basic.

Carrier free: Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.2 containing 10mM DTT.

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 mFGF basic concentration of greater than 50 µg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile PBS containing 2 mM DTT or PBS containing 2 mM DTT and protein to minimize absorption of mFGF basic to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock mFGF basic should be greater than 50 µg/ml.

Storage: Stable in lyophilized state at -20°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 producted in both embryonic and adult cell types, and contributes to the pathogenesis of various diseases, including cancer and atherosclerosis (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. 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.

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