Recombinant Human FGF-4

Catalog Number: 235-F4/CF

DESCRIPTION

Source	*E. coli*-derived Ser54-Leu206 Accession # P08620
N-terminal Sequence Analysis	Ser54 & Leu55
Predicted Molecular Mass	17 kDa

SPECIFICATIONS

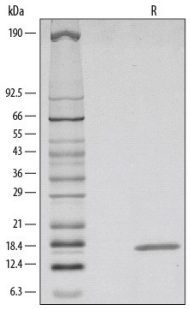
SDS-PAGE	16 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using NR6R-3T3 mouse fibroblast cells. Raines, E.W. *et al.* (1985) Methods Enzymol. **109**:749. The ED_{50} for this effect is typically 0.25-1.25 ng/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL 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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 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.

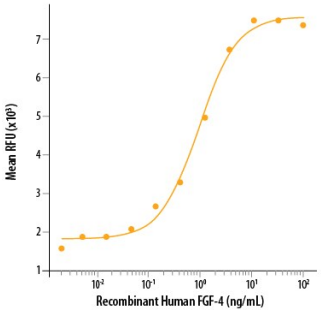
DATA

SDS-PAGE



1 µg/lane of Recombinant Human FGF-4 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 16 kDa.

Bioactivity



Recombinant Human FGF-4 (Catalog # 235-F4/CF) stimulates cell proliferation of the NR6R-3T3 mouse fibroblast cell line. The ED_{50} for this effect is typically 0.25-1.25 ng/mL.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956

BACKGROUND

FGF-4 (fibroblast growth factor-4), also known as FGF-K or K-FGF (Kaposi's sarcoma-associated FGF), is a 25 kDa secreted, heparin-binding member of the FGF family (1, 2). The human FGF-4 cDNA encodes 206 amino acids (aa) with a 33 aa signal sequence and a 173 aa mature protein with an FGF homology domain that contains a heparin binding region near the C-terminus (2). Mature human FGF-4 (aa 71-206) shares 91%, 82%, 94% and 91% aa identity with mouse, rat, canine and bovine FGF-4, respectively. Human FGF-4 has been shown to exhibit cross species activity. Expression of FGF-4 and its receptors, FGF R1c, 2c, 3c and 4, is spatially and temporally regulated during embryonic development (1, 3). Its expression in the mouse trophoblast inner cell mass promotes expression of FGF R2, and is required for maintenance of the trophectoderm and primitive endoderm (3-5). Later in mouse development, FGF-4 works together with FGF-8 to mediate the activities of the apical ectodermal ridge, which direct the outgrowth and patterning of vertebrate limbs (3, 6-9). FGF-4 is proposed to play a physiologically relevant role in human embryonic stem cell self-renewal. It promotes stem cell proliferation, but may also aid differentiation depending on context and concentration, and is often included in embryonic stem cell media *in vitro* (10-12). A C-terminally truncated 15 kDa isoform that opposes full-length FGF-4 and promotes differentiation is endogenously expressed in human embryonic stem cells. FGF-4 is mitogenic for fibroblasts and endothelial cells *in vitro* and has autocrine transforming potential (13). It is a potent angiogenesis promoter *in vivo* and has been investigated as therapy for coronary artery disease (14).

References:

1. Reuss, B. and O. von Bohlen und Halbach (2003) Cell Tiss. Res. **313**:139.
2. Hebert, J.M. *et al.* (1990) Dev. Biol. **138**:454.
3. Niswander, L. and G.R. Martin (1992) Development **114**:755.
4. Feldman, B. *et al.* (1995) Science **267**:246.
5. Goldin, S.N. and V.E. Papaioannou (2003) Genesis **36**:40.
6. Sun, X. *et al.* (2002) Nature **418**:501.
7. Boulet, A.M. *et al.* (2004) Dev. Biol. **273**:361.
8. Yu, K and D.M. Ornitz (2008) Development **135**:483.
9. Mariani, F.V. *et al.* (2008) Nature **453**:401.
10. Johannesson, M. *et al.* (2009) PLoS ONE **4**:e4794.
11. Kunath, T. *et al.* (2007) Development **134**:2895.
12. Mayshar, Y. *et al.* (2008) Stem Cells **26**:767.
13. Hajitou, A. *et al.* (1998) Oncogene **17**:2059.
14. Flynn, A. and T. O'Brien (2008) IDrugs **11**:283.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 **Europe | Middle East | Africa** TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956