Miltenyi Biotec

Human FGF-2
research grade

Contents

1. Description

Products

Human FGF-2, research grade.

Recombinant human fibroblast growth factor 2.

Content in µg	Order no.
10	130-093-837
50	130-093-838

Biological activity

The ED_{50} is ≤2 ng/mL corresponding to an activity of ≥5×10^5 IU/mg.

▲ **Note:** The ED_{50} is determined by proliferation assay using 3T3 cells according to Robinson and Gaines-Das.[1] The proliferation assay was calibrated with the international standard for human FGF-2 (NIBSC code 90/712) provided by the WHO/National Institute for Biological Standards and Control.

Primary structure

Single, non-glycosylated polypeptide chain (146 amino acid residues).

Molecular mass

16.4 kDa.

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

Mannitol and trehalose.

Purity

>97% as determined by SDS-PAGE analysis.

Endotoxin level

Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage

Lyophilized Human FGF-2, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution

It is recommended to reconstitute lyophilized Human FGF-2, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

Fibroblast growth factor 2 (FGF-2), also termed fibroblast growth factor basic (FGF-b) or basic FGF (bFGF), belongs to the FGF family. It functions as a wide-spectrum mitogenic, angiogenic, and neurotrophic factor and stimulates the proliferation of a wide variety of cells including mesenchymal, neuroectodermal, and endothelial cells. FGF-2 has been implicated in a multitude of physiological and pathological processes, including limb development, angiogenesis, wound healing, and tumor growth.

1.2 Applications

Human FGF-2 can be used for a variety of applications, including:

- Stimulation of proliferation and differentiation of several cell types, such as mesenchymal stromal cells, neural cells, and endothelial cells.
- Long-term maintenance and propagation of undifferentiated embryonic and induced pluripotent stem cells.
- Differentiation of neural cells starting from embryonic and induced pluripotent stem cell cultures.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Margariti A. *et al.* (2012) Direct reprogramming of fibroblasts into endothelial cells capable of angiogenesis and reendothelialization in tissue-engineered vessels. Proc. Natl. Acad. Sci. U.S.A. 109: 13793–13798.
2. Barroso-delJesus, A. *et al.* (2011) The nodal inhibitor lefty is negatively modulated by the microRNA miR-302 in human embryonic stem cells. FASEB J. 25 (5): 1497–1508.
3. Robinson, C. J. and Gaines-Das, R. (1994) The international standard for basic fibroblast growth factor (FGF-2); comparison of candidate preparations by *in vitro* bioassays and immunoassays. Growth Factors 11: 9–16.
4. Eberle, D. *et al.* (2011) Increased integration of transplanted CD73-positive photoreceptor precursors into adult mouse retina. Invest. Ophthalmol. Vis. Sci. 52 (9): 3519.
5. Barral, S. *et al.* (2013) Efficient neuronal *in vitro* and *in vivo* differentiation after immunomagnetic purification of mESC derived neuronal precursors. Stem Cell Res. 10 (2): 133–46.
6. Golebiewska, A. *et al.* (2013) Side population in human glioblastoma is non-tumorigenic and characterizes brain endothelial cells. Brain 136: 1462–1475.

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