

Recombinant FGF-21 (Human)

Type:	Recombinant	Cat. No.:	41189
Tag:	None (his-tag removed)	Size:	0.1 mg
Source:	<i>E.Coli</i>	Purity:	>90%
Other names:	FGF21	Species:	Human

Introduction to the Molecule

FGF21, a polypeptide with 210 amino acid residues produced mostly from the liver tissue.[1] Mouse FGF21 shares 75% identity as human FGF21. Recent animal studies indicate it possesses potent beneficial effects on glucose and lipid metabolism and insulin sensitivity.[2] Increasing data shows FGF21 can significantly stimulate glucose uptake in mature adipocytes. And The lowered LDL-cholesterol and increased HDL-cholesterol can also be observed.[2,3] FGF21 exerts its bioactivity through interaction with membrane bound FGF receptors (FGFRs) which requires β -Klotho as a co-factor to bind and activate FGFR signaling.[4,5]The activation of FGF21 can induce the stimulation of diverse downstream pathways mediated by MAPK,FRS-2, SHP-2, PI3K, raf, stat and other signaling molecules.[6-9] In sum, FGF21 induces a variety of significant beneficial metabolic changes without apparent adverse effects which makes this factor a hot candidate to treat some metabolic diseases.[10]

Description

Total 183AA Mw: 19.5kDa (calculated). N-terminal His-tag removed, 2 extra AA left (highlighted).

Amino Acid Sequence

GA	HP	IPDSSPLLQF	GGQVRQRYLY	TDDAQQTEAH	LEIREDGTVG
GAADQSPESL	LQKALKPGV	IQILGVKTSR	FLCQRPDGAL	YGSLHFDPEA	
CSFRELLLED	GYNVYQSEAH	GLPLHLPGNK	SPHRDPAPRG	PARFLPLPGL	
PPALPEPPGI	LAPQPPDVGS	SDPLSMVGPS	QGRSPSYAS		

Formulation

Lyophilized in 1 mg/mL in PBS.

Reconstitution

Add deionized water to prepare a working stock solution of approximately 1 mg/mL and let the lyophilized pellet dissolve completely.

Storage

Store lyophilized protein at -20°C . Aliquot reconstituted protein and store at -80°C . Avoid repeated freezing /thawing cycles.

Applications

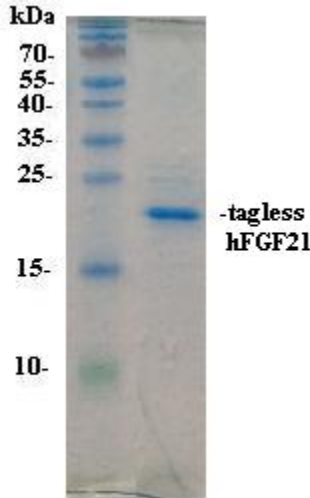
ELISA and Western blotting.

Quality Control Test

BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

SDS-PAGE gel



Reference:

- [1] Nishimura T, Nakatake Y, Konishi M, Itoh N: Identification of a novel FGF, FGF-21, preferentially expressed in the liver. *Biochim Biophys Acta* 1492:203–206, 2000
- [2] Kharitonov A et al. FGF-21 as a novel metabolic regulator. *J Clin Invest* 115:1627–1635, 2005
- [3] Alexei Kharitonov et al. The Metabolic State of Diabetic Monkeys Is Regulated by Fibroblast Growth Factor-21. *Endocrinology* .148(2):774–781. 2007
- [4] Hiroshi Kurosu et al. Tissue-specific Expression of β Klotho and Fibroblast Growth Factor (FGF) Receptor Isoforms Determines Metabolic Activity of FGF19 and FGF21. *J Biol Chem*. 282(37): 26687–26695. 2007
- [5] Ogawa Y et al. BetaKlotho is required for metabolic activity of fibroblast growth factor 21 *Proc Natl Acad Sci USA* 104: 7432-7437, 2007.
- [6] Steven L. PELECH et al. Fibroblast growth factor treatment of Swiss 3T3 cells activates a subunit S6 kinase that phosphorylates a synthetic peptide substrate. *Proc. Natl. Acad. Sci. USA* Vol. 83, pp. 5968-5972, August 1986
- [7] Rosa Carballada et al. Phosphatidylinositol-3 kinase acts in parallel to the ERK MAP kinase in the FGF pathway during *Xenopus* mesoderm induction. *Development* 128, 35-44 (2001)
- [8] Dayanand D. Deo et al. Phosphorylation of STAT-3 in Response to Basic Fibroblast Growth Factor Occurs through a Mechanism Involving Platelet-activating Factor, JAK-2, and Src in Human Umbilical Vein Endothelial Cells. *The journal of molecular chemistry*. Vol. 277, No. 24, Issue of June 14, pp. 21237–21245, 2002
- [9] Maria I. Kontaridis et al. Role of SHP-2 in Fibroblast Growth Factor Receptor-Mediated Suppression of Myogenesis in C2C12 Myoblasts. *Molecular and cellular biology*, Vol. 22, No. 11, p. 3875–3891. 2002
- [10] Dostálová I, Haluzíková D, Haluzík M. Fibroblast Growth Factor 21: A Novel Metabolic Regulator With Potential Therapeutic Properties in Obesity/Type 2 Diabetes Mellitus. *Physiol. Res*. 58: 1-7, 2009