



Fibroblast Growth Factor-21, mouse recombinant (rmFGF-21)

Catalog No: 97057
Lot No: XXXXX
Source: *E. coli*
Synonyms: Fibroblast growth factor 21, FGF-21

Background

The FGFs are a family of more than 20 small (~17–26 kDa) secreted peptides. The initial characterization of these proteins focused on their ability to stimulate fibroblast proliferation. This mitogenic activity was mediated through FGF receptors (FGFRs) 1, 2, or 3. A fourth closely related tyrosine kinase receptor (FGFR4) was able to bind the FGFs but did not lead to a mitogenic response. FGFs modulate cellular activity via at least 5 distinct subfamilies of high-affinity FGF receptors (FGFRs): FGFR-1, -2, -3, and -4, all with intrinsic tyrosine kinase activity and, except for FGFR-4, multiple splice isoforms, and FGFR-5, which lacks an intracellular kinase domain. There is growing evidence that FGFRs can be important for regulation of glucose and lipid homeostasis. The overexpression of a dominant negative form of FGFR-1 in β cells leads to diabetes in mice, which thus implies that proper FGF signaling is required for normal β cell function and glycemia maintenance. FGFR-2 appears to be a key molecule during pancreatic development. Moreover, FGFR-4 has been implicated in cholesterol metabolism and bile acid synthesis. FGF-19, has been shown to cause resistance to diet-induced obesity and insulin desensitization and to improve insulin, glucose, and lipid profiles in diabetic rodents. Since these effects, at least in part, are mediated through the observed changes in metabolic rates, FGF-19 can be considered as a regulator of energy expenditure. FGF-21 is preferentially expressed in liver, but an exact knowledge of FGF-21 bioactivity and its mode of action have been lacking to date. FGF-21 is a potent activator of glucose uptake on adipocytes, protects animals from diet-induced obesity when overexpressed in transgenic mice, and lowers blood glucose and triglyceride levels when therapeutically administered to diabetic rodents.

Description

Fibroblast Growth Factor -21 mouse recombinant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 182 amino acids and having a molecular mass of 19.9 kDa. FGF-21 is purified by proprietary chromatographic techniques.

Physical Appearance

Filtered white lyophilized powder.

Formulation

The protein was lyophilized from a concentrated (1 mg/ml) solution containing 1 x PBS pH7.4.

Solubility

It is recommended to add deionized water to prepare a working stock solution of approximately 0.5 mg/ml and let the lyophilized pellet dissolve completely. Product is not sterile! Please filter the product by an appropriate sterile filter before using it on cell culture.

Stability

Lyophilized FGF-21, although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution Fibroblast Growth Factor 21 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

Purity

Greater than 95.0% as determined by (a) Analysis by RP-HPLC, (b) Analysis by SDS-PAGE.

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Amino Acid Sequence

AYPIPDSSPL LQFGGQVRQR YLYTDDDQDT EAHLEIREDG TVVGAHRSP ESLLELKALK PGVIQILGVK ASRFLCQQPD
GALYGSPHFD PEACSFRELL LEDGYNVYQS EAHGLPLRLP QKDSPNQDAT SWGPVRFLLP PGLLHEPQDQ AGFLPPEPPD
VGSSDPLSMV EPLQGRSPSY AS

Activity

The ED50, as determined by the dose-dependent stimulation of the proliferation of NIH-3T3 mouse embryonic fibroblast cells, is 0.2 – 0.8 µg/ml in the presence of beta-Klotho.

Usage

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