Fibroblast Growth Factor-21, human recombinant (rHuFGF-21)

Catalog No: 95006
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 ? cells leads to diabetes in mice, which thus implies that proper FGF signaling is required for normal ? 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 human recombinant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 181 amino acids, having a molecular weight of 19.4 kDa (calculated). The amino acid sequence of the human recombinant FGF21 is 100% homologous to the amino acid sequence of the human FGF21 without signal sequence. FGF-21 is purified by proprietary chromatographic techniques.

Physical Appearance

Sterile filtered white lyophilized powder.

Formulation

Lyophilized from a 0.2 µm filtered concentrated solution in PBS, pH 7.4.

Solubility

It is recommended to reconstitute the lyophilized FGF-21 sterile 18 MΩ-cm H_2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

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 96.0% as determined by a) RP-HPLC, b) SDS-PAGE.

Amino Acid Sequence

HPIPDSSPLL QFGGQVRQRY LYTDDAQQTE AHLEIREDGT VGGAADQSPE SLLQLKALKP GVIQILGVKT SRFLCQRPDG ALYGSLHFDP EACSFRELLL EDGYNVYQSE AHGLPLHLPG NKSPHRDPAP RGPARFLPLP GLPPAPPEPP GILAPQPPDV GSSDPLSMVG PSQGRSPSYA S

Activity

The ED50, as determined by a thymidine uptake assay using FGF-receptor transfected BaF3 cells is less than 0.5 µg/ml, corresponding to a specific activity of > 2.0 x 10^3 IU/mg in the presence of 5 µg/ml rMuKlotho-ß and 10 µg/ml heparin.

Usage

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