Recombinant Human FGF-16

Catalog Number: 1212-FG/CF

DESCRIPTION

Source	*E. coli*-derived Ala2-Arg207 Accession # O43320
N-terminal Sequence Analysis	Ala2
Predicted Molecular Mass	23.7 kDa

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using NR6R-3T3 mouse fibroblast cells. Rizzino, A. *et al.* (1988) Cancer Res. **48**:4266; Thomas, K. *et al.* (1987) Methods Enzymol. **147**:120. The ED_{50} for this effect is 7.5-30 ng/mL.
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in MOPS and Na_2SO_4. 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.

BACKGROUND

Fibroblast growth factor 16 (FGF-16) belongs to the large FGF family which has at least 23 members (1). All FGF family members are heparin-binding growth factors with a core 120 amino acid (aa) FGF domain that allows for a common tertiary structure. FGFs are expressed during embryonic development and in restricted adult tissues. They act on cells of mesodermal and neuroectodermal origin to regulate diverse physiologic functions including angiogenesis, cell growth, pattern formation, embryonic development, metabolic regulation, cell migration, neurotrophic effects and tissue repair (2, 3). Signaling receptors for FGFs are type I transmembrane receptor tyrosine kinases belonging to the immunoglobulin (Ig) superfamily. Four distinct but related classes of FGF receptors, FGF R1, 2, 3, and 4, exist. Through alternative splicing, multiple isoforms for FGF R1, 2 and 3, with distinct ligand recognition profiles, are also generated (3).

FGF-16 was originally identified in rat heart tissue by homology based polymerase chain reaction. Human FGF-16 cDNA predicts a 207 aa precursor protein with one N-linked glycosylation site. FGF-16 lacks a typical signal peptide, but is efficiently generated by mechanisms other than the classical protein secretion pathway. Among FGF family members, FGF-16 is most similar to FGF-9, sharing 73% aa sequence homology. Human FGF-16 shares 99% and 98.6% aa sequence identity with the mouse and rat FGF-16, respectively. In rat embryos, FGF-16 message is expressed predominantly in brown adipocytes. In adult animals, it is localized primarily in heart tissue. FGF-16 binds to and activates FGF receptor 4 (4). FGF-16 induces proliferation of primary adipocytes and oligodendrocytes *in vitro* and stimulates liver weight increase *in vivo* (4, 5). The expression pattern of FGF-16 and its effect on adipocyte proliferation suggest a role for this protein on the proliferation of embryonic brown adipose tissue (4).

References:

1. Miyake, A. *et al.* (1998) Biochem. Biophys. Res. Com. **243**:148.
2. Goldfarb, M. (1996) Cytokine and Growth Factor Reviews **7**:311.
3. Green, P. *et al.* (1996) BioEssays **18**:639.
4. Konishi, M. *et al.* (2000) J. Biol. Chem. **275**:12119.
5. Danilenko, D.M. *et al.* (2000) Archiv. Biochem. Biophys. **361**:34.

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