

## DESCRIPTION

|                                     |                                                          |        |                                           |
|-------------------------------------|----------------------------------------------------------|--------|-------------------------------------------|
| <b>Source</b>                       | Mouse myeloma cell line, NS0-derived human FGFR4 protein |        |                                           |
|                                     | Human FGF R4<br>(Leu22-Asp369)<br>Accession # P22455     | IEGRMD | Human IgG <sub>1</sub><br>(Pro100-Lys330) |
|                                     | N-terminus                                               |        | C-terminus                                |
| <b>N-terminal Sequence Analysis</b> | Leu22                                                    |        |                                           |
| <b>Structure / Form</b>             | Disulfide-linked homodimer                               |        |                                           |
| <b>Predicted Molecular Mass</b>     | 65 kDa (monomer)                                         |        |                                           |

## SPECIFICATIONS

|                        |                                                                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SDS-PAGE</b>        | 100-110 kDa, reducing conditions                                                                                                                             |
| <b>Activity</b>        | Measured by its ability to inhibit FGF acidic-dependent proliferation of NR6R-3T3 mouse fibroblast cells. The ED <sub>50</sub> for this effect is 2-6 ng/mL. |
| <b>Endotoxin Level</b> | <0.01 EU per 1 µg of the protein by the LAL method.                                                                                                          |
| <b>Purity</b>          | >90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.                                                 |
| <b>Formulation</b>     | Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.                                                                 |

## PREPARATION AND STORAGE

|                                |                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reconstitution</b>          | Reconstitute at 100 µg/mL in sterile PBS.                                                                                                                                                                                                                                                                                                                 |
| <b>Shipping</b>                | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.                                                                                                                                                                                                                                   |
| <b>Stability &amp; Storage</b> | <p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <li>12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>3 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul> |

## BACKGROUND

Fibroblast growth factor receptor 4 (FGF R4), also known as CD334, is a 110 kDa glycosylated transmembrane receptor tyrosine kinase (1). Mature human FGF R4 consists of a 348 amino acid (aa) extracellular domain (ECD) with three Ig-like domains, a 21 aa transmembrane segment, and a 412 aa cytoplasmic domain that contains the tyrosine kinase domain (2). Within the ECD, human FGF R4 shares 90% and 88% aa sequence identity with mouse and rat FGF R4, respectively. Alternate splicing generates a potentially secreted isoform with a substitution encompassing the transmembrane segment (3). A 65 kDa N-terminally truncated isoform lacks the signal peptide and first two Ig-like domains. This isoform is produced in human pituitary adenomas and is constitutively phosphorylated and oncogenic (4). FGF R4 is widely expressed during embryonic development and in adult liver, kidney, and lung (5-8). It binds FGF acidic, FGF basic, FGF-8, -15, and -19 (2, 7, 9-12). FGF R4 associates with beta-Klotho and sulfated glycosaminoglycans, and these interactions increase the affinity of FGF R4 for its ligands as well as its signaling capacity (8, 9, 12). FGF-19 induced signaling through FGF R4 is important for the regulation of bile acid synthesis and lipid and glucose homeostasis (10, 13). FGF R4 supports glucose tolerance and insulin sensitivity and protects against hyperlipidemia (13). It is down-regulated in the liver during fasting and is up-regulated by insulin (10). It can exert either proliferative or apoptotic effects on hepatocytes (8, 11). FGF R4 signaling is additionally required for skeletal muscle development in limbs (7, 14). FGF R4 interacts *in cis* with cell surface MMP-14, leading to down-regulation of both proteins (15). In contrast, the Arg388 variant of FGF R4, which is associated with tumor progression in human cancer, is activated and stabilized by MMP-14 (15, 16).

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