

DESCRIPTION

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| Species Reactivity | Human |
| Specificity | Detects human FGF-21 in direct ELISAs. In direct ELISAs, less than 10% cross-reactivity with recombinant mouse FGF-21, recombinant human (rh) FGF-3, -4, -6 or -10 is observed and no cross-reactivity with rhFGF-5 or rhFGF-9 is observed. |
| Source | Monoclonal Mouse IgG _{2B} Clone # 461804 |
| Purification | Protein A or G purified from hybridoma culture supernatant |
| Immunogen | <i>E. coli</i> -derived recombinant human FGF-21 His29-Ser209 Accession # Q9NSA1 |
| Conjugate | Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm |
| Formulation | Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

| | Recommended Concentration | Sample |
|---|----------------------------------|---|
| Intracellular Staining by Flow Cytometry | 0.25-1 µg/10 ⁶ cells | HepG2 human hepatocellular carcinoma cell line fixed with paraformaldehyde and permeabilized with saponin |

PREPARATION AND STORAGE

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| Shipping | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| Stability & Storage | Protect from light. Do not freeze. <ul style="list-style-type: none"> ● 12 months from date of receipt, 2 to 8 °C as supplied. |

BACKGROUND

Fibroblast growth factor 21 (FGF-21) is a member of the FGF gene family, which currently contains 22 human members. Based on its structure, it is further classified as an FGF-19 subfamily member. This subfamily includes FGF-19, -21, and -23. Like all other FGF subfamilies, FGF-19 subfamily members contain a 120 amino acid (aa) core FGF domain that exhibits a β-trefoil structure (1, 2). Unlike other FGF subfamilies, FGF-19 subfamily members apparently exhibit poor binding to ECM, resulting in highly diffusible molecules (3). The cDNA for FGF-21 predicts a 209 aa polypeptide that contains a 28 aa signal sequence and a 181 aa mature region (4). Notably, FGF-21, as well as FGF-19 show limited binding to heparin (4). One potential alternate splice form has been reported. It shows a 43 aa substitution for the C-terminal 12 aa of the standard form (5). Mature human FGF-21 shows 81% aa identity to mouse FGF-21, and is known to be active on mouse cells (4, 6). The FGF-19 subfamily is considered endocrine in nature. All three subfamily members impact some aspect of metabolism, all three are induced by a nuclear receptor heterodimer that includes RXR, and all three utilize Klotho family members for signal transduction (7, 8, 9). FGF-21 is produced by hepatocytes in response to free fatty acid (FFA) stimulation of a PPARα/RXR dimeric complex (3, 7, 10, 11). This situation occurs clinically during starvation, or following the ingestion of a high-fat/low-carbohydrate diet. Upon FGF-21 secretion, white adipose tissue is induced to release FFAs from triglyceride stores. Once FFAs reach hepatocytes, they are oxidized and reduced to acetyl-CoA. The acetyl-CoA is recombined into 4-carbon ketone bodies (acetoacetate and β-hydroxybutyrate), released, and transported to peripheral tissues for TCA processing and energy generation (11, 12).

References:

1. Itoh, N. and D.M. Ornitz (2004) *Trends Genet.* **20**:563.
2. Mohammadi, M. *et al.* (2005) *Cytokine Growth Factor Rev.* **16**:107.
3. Huang, X. *et al.* (2006) *Mol. Carcinog.* **45**:934.
4. Nishimura, T. *et al.* (2000) *Biochim. Biophys. Acta* **1492**:203.
5. GenBank Accession #: EAW52401 (2006).
6. Ford, A.M. *et al.* (2005) *J. Clin. Invest.* **115**:1627.
7. Moore, D. D. (2007) *Science* **316**:1436.
8. Ogawa, Y. *et al.* (2007) *Proc. Natl. Acad. Sci. USA* **104**:7432.
9. Kurosu, H. *et al.* (2007) *J. Biol. Chem.* **282**:26687.
10. Lundasen, T. *et al.* (2007) *Biochem. Biophys. Res. Commun.* **360**:437.
11. Badman, M.K. *et al.* (2007) *Cell Metab.* **5**:426.
12. Inagaki, T. *et al.* (2007) *Cell Metab.* **5**:415.

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