

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Klotho β in direct ELISAs.
Source	Monoclonal Rabbit IgG Clone # 1025C
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Mouse myeloma cell line, NS0-derived recombinant human Klotho β with a C-terminal 10 His tag. Phe53-Leu997 Accession # Q86Z14
Conjugate	Alexa Fluor 750 Excitation Wavelength: 749 nm Emission Wavelength: 775 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
Flow Cytometry	0.25-1 μ g/10 ⁶ cells	HepG2 human hepatocellular carcinoma cell line

PREPARATION AND STORAGE

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

Klotho β , a divergent structural member of the glycosidase I superfamily, is expressed primarily in the liver and pancreas, with lower expression in adipose tissue (1, 2). Like Klotho, Klotho β facilitates binding between FGF19 subfamily members and their receptors via formation of a ternary complex (3). The Klotho β mediated interaction of human FGF19 (mouse FGF15) with FGF Receptor 4 in the liver negatively regulates bile acid synthesis by controlling the secretion of two key bile acid synthase genes, cholesterol 7- α hydroxylase (Cyp7a1) and sterol 12- α hydroxylase (Cyp8b1) (2-5). Klotho β is also a cofactor for the interaction of FGF21 with FGF Receptor 1c in adipocytes, which allows FGF21 to stimulate GLUT1 expression, upregulating adipocyte insulin-dependent glucose uptake (2-4, 6). The 1043 amino acid (aa) type I transmembrane protein is composed of a 51 aa signal sequence, a 943 aa extracellular domain (ECD) containing two glycosidase-like regions, a 21 aa transmembrane domain, and 28 aa intracellular tail. Since Klotho-related proteins lack critical active site Glu residues present in β -glycosidases, it was initially unclear whether they were functional enzymes (1, 7). However, glucuronidase activity has since been demonstrated for Klotho, indicating that physiologically relevant enzymatic activity for Klotho β is also possible (8). The extracellular domain shares 79%, 87%, 87% and 67% identity with mouse, equine, canine and rat Klotho β , respectively. The low identity with rat reflects aa discordance within rodent ECD.

References:

1. Mian, I. S. (1998) *Blood Cells Mol. Dis.* **24**:83.
2. Kurosu, H. and M. Kuro-o (2009) *Mol. Cell. Endocrinol.* **299**:72.
3. Ito, S. *et al.* (2005) *J. Clin. Invest.* **115**:2202.
4. Kurosu, H. *et al.* (2007) *J. Biol. Chem.* **282**:26687.
5. Lin, B. C. *et al.* (2007) *J. Biol. Chem.* **282**:27277.
6. Ogawa, Y. *et al.* (2007) *Proc. Natl. Acad. Sci USA* **104**:7432.
7. Chang, Q. *et al.* (2005) *Science* **310**:490.
8. Goetz, R. *et al.* (2007) *Mol. Cell. Biol.* **27**:3417.

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.