Recombinant Mouse Klotho β

Catalog Number: 2619-KB

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived mouse Klotho beta protein Phe53-Leu995, with a C-terminal 10-His tag Accession # NP_112457
N-terminal Sequence Analysis	Phe53
Predicted Molecular Mass	110.2 kDa

SPECIFICATIONS

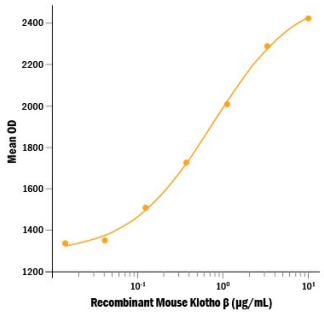
SDS-PAGE	140 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with human FGF RIIIc. The ED_{50} for this effect is 0.2-1 µg/mL in the presence of Recombinant Human FGF-21 (Catalog # 2539-FG) and Heparin.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Supplied as a 0.2 µm filtered solution in PBS, Glycerol and EDTA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. 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, -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after opening.

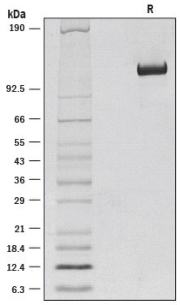
DATA

Bioactivity



Recombinant Mouse Klotho β (Catalog # 2619-KB) stimulates cell proliferation of the BaF3 mouse pro-B cell line transfected with human FGF RIIIc. The ED_{50} for this effect is 0.2-1 µg/mL in the presence of Recombinant Human FGF-21 (Catalog # 2539-FG) and Heparin.

SDS-PAGE



1 µg/lane of Recombinant Mouse Klotho β was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a band at 135 kDa.

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). Like Klotho, Klotho β facilitates binding between FGF-19 subfamily members and their receptors via formation of a ternary complex (2). The Klotho β mediated interaction of FGF-15 (human FGF-19) 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) (2-4). Klotho β is also a cofactor for the interaction of FGF-21 with FGF Receptor 1c in adipocytes, which allows FGF-21 to stimulate GLUT1 expression, up-regulating adipocyte insulin-dependent glucose uptake (2-3, 5). 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, 6). However, glucuronidase activity has since been demonstrated for Klotho, indicating that physiologically relevant enzymatic activity for Klotho β is also possible (7). The extracellular domain shares 79%, 79%, 80% and 67% identity with human, bovine, canine and rat Klotho β, respectively. The low identity with rat reflects aa discordance within rodent ECD.

References:

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6. Chang, Q. *et al.* (2005) Science **310**:490.
7. Goetz, R. *et al.* (2007) Mol. Cell. Biol. **27**:3417.

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