Recombinant Human Klotho Mucin Stalk Chimera His-tag

Catalog Number: 10308-KL

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived human Klotho protein

Human Klotho (Glu34-His549) Accession # Q9UEF7	Human Fractalkine Mucin-like Stalk (Phe103-Thr338) Accession # P78423	6-His tag

N-terminus C-terminus

N-terminal Sequence Analysis	Glu34
Predicted Molecular Mass	84 kDa

SPECIFICATIONS

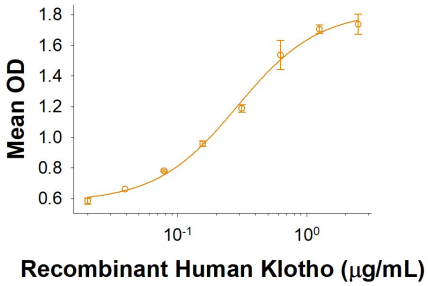
SDS-PAGE	110-140 kDa, under reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human FGF-23 (Catalog # 2604-FG) is immobilized at 5 µg/mL (100 µL/well), Recombinant Human Klotho Mucin Stalk Chimera His-tag (Catalog # 10308-KL) binds with an ED_{50} of 0.2-1.8 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in 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.

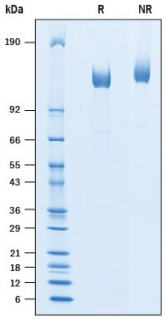
DATA

Binding Activity



When Recombinant Human FGF-23 (Catalog # 2604-FG) is immobilized at 5 µg/mL, 100 µL/well, Recombinant Human Klotho Mucin Stalk Chimera His-tag (Catalog # 10308-KL) binds with an ED_{50} of 0.2-1.8 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human Klotho Mucin Stalk Chimera His-tag (Catalog # 10308-KL) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 110-140 kDa.

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BACKGROUND

Klotho, also called alpha-Klotho (α-Klotho), is the founding member that along with β-Klotho and γ-Klotho, form the Klotho family within the glycosidase-1 superfamily (1, 2). α-Klotho is a type I transmembrane protein consisting of a large extracellular domain (ECD) containing glycosidase-like domains (KL1 and KL2), a single transmembrane domain and a short intracellular domain. Alternative mRNA splicing of the ECD of α-Klotho results in a circulating protein known as soluble α-Klotho (s-Klotho), which has been detected in both humans and mice (3, 4). In addition to the s-Klotho form, a 130 kDa form found in plasma and cerebrospinal fluid and a prominent intracellular 120 kDa form of α-Klotho have also been identified (3, 4). The mature ECD of full length human α-Klotho shares 87% and 90% identity with mouse and rat α-Klotho, respectively. Due to highly conserved sequences between α-Klotho forms, it is difficult to differentiate s-klotho from the other short forms in vivo (5). Although α-Klotho was identified ~20 years ago, its function remains incompletely understood. α-Klotho shows weak glucuronidase activity which activates the renal ion channel TRPV5 to reabsorb urinary calcium (10). α-Klotho acts as a cofactor for interaction of FGF-23 with FGF R1 (6). This interaction negatively regulates 1 alpha -hydroxylase, the rate-limiting enzyme in the synthesis of 1,25(OH)2D3 (vitamin D) (7). s-Klotho functions as a hormonal factor and is involved in anti-aging, anti-oxidation, modulation of ion-transport, and Wnt signaling (8). Both α-Klotho and β-Klotho are cofactors for FGF19 binding (9). The phenotype of α-Klotho-deficient mice resembles premature aging, including arteriosclerosis, osteoporosis, skin atrophy, infertility, emphysema and premature death (2). α-Klotho deficient mice show severe hyperphosphatemia and ectopic calcification of soft tissues due to excess vitamin D (2-7). Conversely, excess α-Klotho extends lifespan (6).

References:

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