Active Recombinant Mouse klotho protein, His-tagged

Cat. No. Kl-362M **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Mouse Klotho(Ala35-Lys982 (Arg948Lys)) fused with His tag at C-terminal was expressed in CHO.
Species	Mouse
Source	CHO
ProteinLength	35-982 a.a.
Description	Klotho, also called Klotho-alpha, is the founding member of the Klotho family within the glycosidase-1 superfamily. Klotho is expressed in areas concerned with calcium regulation, predominantly in the kidney distal convoluted tubules, but also in the brain choroid plexus (which produces cerebrospinal fluid) and the parathyroid. The 1014 amino acid (aa) type I transmembrane protein contains a 34 aa signal sequence, a 948 aa extracellular domain (ECD) containing two extracellular glycosidase-like domains, a 21 aa transmembrane domain and an 11 aa intracellular domain. Within the ECD, mouse Klotho shares 95%, 87% and 87% aa identity with rat, human and equine Klotho, respectively. Although a truncated 554 aa isoform predicts a soluble 70 kDa form, the soluble form found in plasma and cerebrospinal fluid is a 130 kDa form produced by proteolytic cleavage of the glycosylated 135 kDa full-length Klotho. A prominent intracellular 120 kDa form of Klotho is localized to endoplasmic reticulum and Golgi membranes. Klotho is named for the Greek goddess who spins the thread of life. The phenotype of Klotho-deficient mice resembles premature aging, including arteriosclerosis, osteoporosis, skin atrophy, infertility, emphysema and premature

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	death. Conversely, excess Klotho extends lifespan. Klotho acts as a cofactor for interaction of FGF23 with FGF R1. This interaction negatively regulates 1 alpha - hydroxylase, the rate-limiting enzyme in the synthesis of 1,25(OH)2D3 (vitamin D). Klotho-deficient mice show severe hyperphosphatemia and ectopic calcification of soft tissues due to excess vitamin D. Both Klotho and Klotho-beta are cofactors for FGF19 binding. Klotho also shows glucuronidase activity which activates the renal ion channel TRPV5 to reabsorb urinary calcium. Klotho has been reported to downregulate insulin or IGF-1 signaling in adipocytes, to bind and antagonize Wnt molecules, and to facilitate release of parathyroid hormone.
Predicted N Terminal	Ala35
Form	Supplied as a 0.2 μm filtered solution in PBS, Glycerol and EDTA.
Bio-activity	Measured in a cell proliferation assay using BaF3 mouse pro-B cells transfected with human FGF RIIIc. The ED50 for this effect is typically 0.04-0.4 μg/mL in the presence of 1 μg/mL of Recombinant Human FGF-23 and 10 μg/mL of heparin.
Molecular Mass	Predicted Molecular Mass: 109.5 kDa;SDS-PAGE: 125-130 kDa, reducing conditions.
Endotoxin	<0.01 EU per 1 μg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE under reducing conditions and visualized by silver stain
Storage	Avoid repeated freeze-thaw cycles.12 months from date of receipt, -70 centigrade as supplied.1 month, 2 to 8 centigrade under sterile conditions after opening.

GENE INFORMATION

Gene Name	Kl klotho [Mus musculus]

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Official Symbol	Kl
Synonyms	KL; klotho; secreted form of Klotho protein; alpha-kl;
Gene ID	16591
mRNA Refseq	NM_013823
Protein Refseq	NP_038851
MIM	
UniProt ID	O35082
Chromosome Location	5; 5 G3
Pathway	Ascorbate biosynthesis, animals, glucose-1P => ascorbate, organism-specific biosystem; Ascorbate biosynthesis, animals, glucose-1P => ascorbate, conserved biosystem; Downstream signaling of activated FGFR, organism-specific biosystem; Endocrine and other factor-regulated calcium reabsorption, organism-specific biosystem; Endocrine and other factor-regulated calcium reabsorption, conserved biosystem;
Function	beta-glucuronidase activity; catalytic activity; cation binding; fibroblast growth factor binding; fibroblast growth factor binding; fibroblast growth factor receptor binding; hydrolase activity; hydrolase activity, acting on glycosyl bonds; hydrolase activity, hydrolyzing O-glycosyl compounds; protein binding;

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