



Recombinant Human Klotho

20190319BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no.:	100-346S
Size:	5 µg
Lot. No.:	According to product label

Scientific Background

Gene-ID (NCBI):	9365
Synonyms:	KL

Klotho is a glycosylated protein that plays an important role in the regulation of phosphate and calcium homeostasis. Human Klotho exists in both membrane-bound and secreted forms, and is predominantly expressed in the kidney convoluted tubules, and, to a lesser extent, in the brain, reproductive organs, endocrine glands, urinary bladder, skeletal muscle, placenta, and colon. The full-length transmembrane form has a large extracellular domain composed of two homologous subunits termed KL1 and KL2, which contain 516 and 439 amino acid residues, respectively. The predominant circulating form, which is derived from alternative RNA splicing, contains the KL1 subunit and constitutes the N-terminal sequence of transmembrane Klotho. A third Klotho protein of about 128 kDa has been identified in the blood and cerebrospinal fluid. This circulating protein arises from the action of an as yet unidentified protease, which cleaves transmembrane Klotho just above and/or within the plasma membrane. Klotho has been shown to play a key role in the signaling cascade of fibroblast growth factor-23 (FGF-23), a bone-derived hormone that acts in the kidney to inhibit phosphate reabsorption and vitamin D biosynthesis. Klotho promotes FGF-23 signaling through binding to FGFR1 (IIIc) which converts this canonical FGF receptor into a specific receptor for FGF-23. In the absence of Klotho the function of FGF-23 is literally abolished.-- Recombinant Human Klotho is a glycoprotein of 516 amino acid residues that migrates at an apparent molecular weight of 65-70 kDa by SDS-PAGE analysis under reducing conditions. Recombinant Human Klotho has a calculated molecular weight of 58.6 kDa.

Sequence

```
EPGDGAQTWA RFSRPPAPEA AGLFQGTFFD GFLWAVGSAA
YQTEGGWQQH GKGASIWDTF THHPLAPPD SRNASLPLGA
PSPLQPATGD VASDSYNNVF RDTEALRELG VTHYRFSISW
ARVLPNGSAG VPNREGLRYY RRLLELREL GVQPVVTLYH
WDLPQRLQDA YGGWANRALA DHFRDYAELC FRHFGGQVKY
WITIDNPYVV AWHGYATGRL APGIRGSPRL GYLVAHNLLL
AHAKVWHLYN TFSRPTQGGQ VSIALSSHWI NPRRMTDHSI
KECQKSLDFV LGWFAKPVFI DGDYPESMKN NLSLILPDFT
ESEKKFIKGT ADFFALCFGP TLSFQLLDPH MKFRQLESFN
LRQLLSWIDL EFNHPQIFIV ENGWFVSGTT KRDDAKYMYI
LKKFIMETLK AIKLDGVDVI GYTAWSLMDG FEWHRGYSIR
RGLFYVDFLS QDKMLLPKSS ALFYQKLIK NGFPPLPENQ
PLEGTFPCDF AWGVVDNYIQ VSQLTKPISS LTKPYH
```

Database References

Protein RefSeq:	NP_004786
Uniprot ID:	Q9UEF7
mRNA RefSeq:	NM_004795

Product Specifications

Expressed in	CHO cells
Purity	> 98% by SDS-PAGE & HPLC analyses
Endotoxin level	< 0.1 ng/µg of protein (<1EU/µg).
Formulation	lyophilized
Length (aa):	516
MW:	65-70 kDa

Stability: The lyophilized protein is stable at room temperature for 1 month and at 4°C for 6 months. Reconstituted working aliquots are stable for 1 week at 2°C to 8°C and for 3 months at -20°C to -80°C.

Reconstitution: Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. *Do not vortex.* This solution can be stored at 2-8°C for up to 1 week. For extended storage, it is recommended to further dilute in a buffer containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.



AVOID REPEATED FREEZE AND THAW CYCLES!

Biological Activity: Determined by the dose-dependent stimulation of the proliferation of murine NIH-3T3 cells. Recombinant human Klotho is effective in a concentration range of 0.5-2.0 µg/ml.