SANTA CRUZ BIOTECHNOLOGY, INC.

Klotho (T-19): sc-22218

BACKGROUND

In Greek mythology the fate known as Klotho is a goddess who spins the thread of life. In mice, a deficiency in klotho (kl) gene expression leads to various systemic phenotypes resembling human aging. Characteristics of the klotho deficient mouse include arteriosclerosis, osteoporosis, ectopic calcification, and skin atrophy together with growth retardation, short life-span and infertility. Mice deficient in klotho show barely detectable amounts of white adipose tissue yet their brown adipose tissue (BAT) is comparably the same as in a normal genotype, suggesting that klotho influences adipose differentiation. Mouse and human klotho gene products are both characteristic type I transmembrane proteins that are approximately 80% homologous. The amino terminal extracellular domain has two internal repeats, known as KL-1 and KL-2, which have partial sequence homology to beta-glucosidases and lactase glycosylceramidase, suggesting a role for Klotho in sphingolipid metabolism. The human klotho gene maps to chromosome 13q13.1 and encodes a 1,012 amino acid protein that is abundant in the kidney and brain. Chronic renal failure (CRF) patients express lower levels of klotho mRNA and protein in the kidneys.

REFERENCES

1. Mori, K., et al. 2000. Disruption of Klotho gene causes an abnormal energy homeostasis in mice. Biochem. Biophys. Res. Commun. 278: 665-670.
2. Mizuno, I., et al. 2001. Upregulation of the Klotho gene expression by thyroid hormone and during adipose differentiation in 3T3-L1 adipocytes. Life Sci. 68: 2917-2923.
3. Koh, N., et al. 2001. Severely reduced production of Klotho in human chronic renal failure kidney. Biochem. Biophys. Res. Commun. 280: 1015-1020.
4. Fukino, K., et al. 2002. Regulation of angiogenesis by the aging suppressor gene Klotho. Biochem. Biophys. Res. Commun. 293: 332-337.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604824. World Wide Web URL: http://www.ncbi.nlm. nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: KL (human) mapping to 13q13.1; Kl (mouse) mapping to 5 G3.

SOURCE

Klotho (T-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Klotho of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22218 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Klotho (T-19) is recommended for detection of Klotho of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Klotho (T-19) is also recommended for detection of Klotho in additional species, including equine and bovine.

Suitable for use as control antibody for Klotho siRNA (h): sc-43883, Klotho siRNA (m): sc-77344, Klotho shRNA Plasmid (h): sc-43883-SH, Klotho shRNA Plasmid (m): sc-77344-SH, Klotho shRNA (h) Lentiviral Particles: sc-43883-V and Klotho shRNA (m) Lentiviral Particles: sc-77344-V.

Molecular Weight of Klotho: 130 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Dooley, J., et al. 2008. Alterations of the medullary epithelial compartment in the aire-deficient thymus: Implications forprograms of thymic epithelial differentiation. J. Immunol. 181: 5225-5232.
2. Adijiang, A., et al. 2010. An oral sorbent, AST-120, increases Klotho expression and inhibits cell senescence in the kidney of uremic rats. Am. J. Nephrol. 31: 160-164.
3. Ohata, Y., et al. 2011. Circulating levels of soluble α-Klotho are markedly elevated in human umbilical cord blood. J. Clin. Endocrinol. Metab. 96: E943-E947.
4. Dai, B., et al. 2012. A comparative transcriptome analysis identifying FGF23 regulated genes in the kidney of a mouse CKD model. PLoS ONE 7: e44161.

RESEARCH USE

For research use only, not for use in diagnostic procedures.