Klotho (F-5): sc-515939

SANTA CRUZ®
BIOTECHNOLOGY

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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 calcifi-cation, 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 differenti-ation. Mouse and human Klotho gene products are both character-istic 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 β-glucosidases and lactase glycosylceramidase, suggesting a role for Klotho in sphingolipid me-tabolism. 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.

CHROMOSOMAL LOCATION

Genetic locus: KL (human) mapping to 13q13.1.

SOURCE

Klotho (F-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 119-143 within an internal region of Klotho of human origin.

PRODUCT

Each vial contains 200 µg IgG$_{2b}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Klotho (F-5) is available conjugated to agarose (sc-515939 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515939 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515939 PE), fluorescein (sc-515939 FITC), Alexa Fluor® 488 (sc-515939 AF488), Alexa Fluor® 546 (sc-515939 AF546), Alexa Fluor® 594 (sc-515939 AF594) or Alexa Fluor® 647 (sc-515939 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515939 AF680) or Alexa Fluor® 790 (sc-515939 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Klotho (F-5) is recommended for detection of Klotho of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immu-noprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for Klotho siRNA (h): sc-43883, Klotho shRNA Plasmid (h): sc-43883-SH and Klotho shRNA (h) Lentiviral Particles: sc-43883-V.
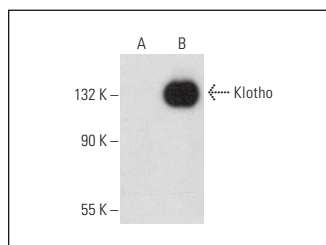
Molecular Weight of Klotho: 130 kDa.

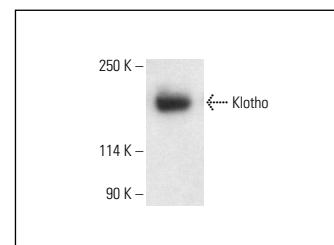Positive Controls: NIH/3T3 whole cell lysate: sc-2210.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunopre-cipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA

Western blot analysis of mouse recombinant Klotho (**A**) and human recombinant Klotho (**B**). Note lack of reactivity with mouse Klotho in lane **A**.

Klotho (F-5): sc-515939. Western blot analysis of Klotho expression in NIH/3T3 whole cell lysate. Detection reagent used: m-IgG$_{2b}$ BP-HRP: sc-542741.

SELECT PRODUCT CITATIONS

1. Wu, C.C., et al. 2020. Propofol improved glucose tolerance associated with increased FGF-21 and GLP-1 production in male sprague-dawley rats. Molecules 25: 3229.

2. Zhao, Y., et al. 2020. Klotho overexpression improves Amyloid-β clearance and cognition in the APP/PS1 mouse model of Alzheimer's disease. Aging Cell 19: e13239.

3. Fan, Y., et al. 2022. Klotho in Osx+-mesenchymal progenitors exerts pro-osteogenic and anti-inflammatory effects during mandibular alveolar bone formation and repair. Signal. Transduct. Target. Ther. 7: 155.

4. Mao, J., et al. 2022. Integrated transcriptomic and proteomic analyses for the characterization of parathyroid oxyphil cells in uremic patients. Amino Acids 54: 749-763.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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