

betaKlotho (E-17): sc-74343

BACKGROUND

betaKlotho is a 1,044 amino acid single-pass type III membrane protein that plays a key role in bile acid and cholesterol metabolism by suppressing transcription of CYP7A1 (cholesterol 7- α -hydroxylase), the rate-limiting enzyme in bile acid synthesis. Homozygous negative betaKlotho mice showed dramatically elevated bile acid synthesis and secretion, as well as a strong upregulation of CYP7A1 and CYP8B1 and resistance to gallstone formation. FGF19 and FGF21 require direct interaction with betaKlotho for activation, intracellular signaling and gene expression modulation. Both Klotho and betaKlotho consist of two internal repeats similar to family 1 glycosidases. betaKlotho contains two glycosyl hydrolase 1 regions, however since these regions lack essential glutamic acid residues at specific and crucial locations, the domains appear to be inactive.

REFERENCES

1. Ito, S., et al. 2005. Impaired negative feedback suppression of bile acid synthesis in mice lacking betaKlotho. *J. Clin. Invest.* 115: 2202-2208.
2. Arrese, M., et al. 2006. betaKlotho: a new kid on the bile acid biosynthesis block. *Hepatology* 43: 191-193.
3. Goetz, R., et al. 2007. Molecular insights into the klotho-dependent, endocrine mode of action of fibroblast growth factor 19 subfamily members. *Mol. Cell. Biol.* 27: 3417-3428.
4. Ogawa, Y., et al. 2007. betaKlotho is required for metabolic activity of fibroblast growth factor 21. *Proc. Natl. Acad. Sci. USA* 104: 7432-7437.
5. Online Mendelian Inheritance in Man, OMIM[™]. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611135. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Wu, X., et al. 2008. C-terminal tail of FGF19 determines its specificity toward Klotho co-receptors. *J. Biol. Chem.* 283: 33304-33309.
7. Yie, J., et al. 2009. FGF21 N- and C-termini play different roles in receptor interaction and activation. *FEBS Lett.* 583: 19-24.

CHROMOSOMAL LOCATION

Genetic locus: KLB (human) mapping to 4p14; Klb (mouse) mapping to 5 C3.1.

SOURCE

betaKlotho (E-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of betaKlotho of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-74343 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

betaKlotho (E-17) is recommended for detection of betaKlotho 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

betaKlotho (E-17) is also recommended for detection of betaKlotho in additional species, including canine, bovine and porcine.

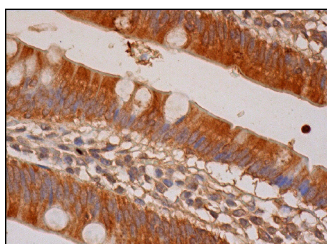
Suitable for use as control antibody for betaKlotho siRNA (h): sc-72645, betaKlotho siRNA (m): sc-72646, betaKlotho shRNA Plasmid (h): sc-72645-SH, betaKlotho shRNA Plasmid (m): sc-72646-SH, betaKlotho shRNA (h) Lentiviral Particles: sc-72645-V and betaKlotho shRNA (m) Lentiviral Particles: sc-72646-V.

Molecular Weight of betaKlotho: 120 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. 3) Immunohistochemistry: use ImmunoCruz[™]: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



betaKlotho (E-17): sc-74343. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Khuituan, P., et al. 2012. Fibroblast growth factor-23 abolishes 1,25-dihydroxyvitamin D₃-enhanced duodenal calcium transport in male mice. *Am. J. Physiol. Endocrinol. Metab.* 302: E903-E913.

STORAGE

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