

TKTL1/2 (H-58): sc-68882

BACKGROUND

Transketolase, a crucial component of the pentose phosphate pathway (PPP), functions as a link between glycolysis and the non-oxidative part of the PPP, allowing the cell to adapt to varying metabolic conditions in response to environmental changes. TKTL1 (transketolase-like 1), also known as TKR or TKT2, is a 596 amino acid protein that localizes to both the nucleus and the cytoplasm and belongs to the Transketolase family. Expressed in both adult and fetal lung, brain, liver, heart and kidney, TKTL1 exists as a homodimer that uses calcium and thiamine pyrophosphate as cofactors to catalyze the conversion of sedoheptulose 7-phosphate and D-glyceraldehyde 3-phosphate to D-ribose 5-phosphate and D-xylulose 5-phosphate. Overexpression of TKTL1, which exists as multiple alternatively spliced isoforms, is associated with diabetic complications and epithelial tumor growth and invasion. TKTL2 (transketolase-like 2) is a 626 amino acid member of the Transketolase family that, like TKTL1, is able to catalyze a specific phosphate transfer reaction.

REFERENCES

1. McCool, B.A., et al. 1993. Cloning of human transketolase cDNAs and comparison of the nucleotide sequence of the coding region in Wernicke-Korsakoff and non-Wernicke-Korsakoff individuals. *J. Biol. Chem.* 268: 1397-1404.
2. Coy, J.F., et al. 1996. Molecular cloning of tissue-specific transcripts of a transketolase-related gene: implications for the evolution of new vertebrate genes. *Genomics* 32: 309-316.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 300044. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Coy, J.F., et al. 2005. Mutations in the transketolase-like gene TKTL1: clinical implications for neurodegenerative diseases, diabetes and cancer. *Clin. Lab.* 51: 257-273.
5. Langbein, S., et al. 2006. Expression of transketolase TKTL1 predicts colon and urothelial cancer patient survival: Warburg effect reinterpreted. *Br. J. Cancer* 94: 578-585.
6. Staiger, W.I., et al. 2006. Expression of the mutated transketolase TKTL1, a molecular marker in gastric cancer. *Oncol. Rep.* 16: 657-661.
7. Zhang, S., et al. 2007. Gene silencing of TKTL1 by RNAi inhibits cell proliferation in human hepatoma cells. *Cancer Lett.* 253: 108-114.
8. Völker, H.U., et al. 2008. Expression of transketolase-like 1 and activation of Akt in grade IV glioblastomas compared with grades II and III astrocytic gliomas. *Am. J. Clin. Pathol.* 130: 50-57.

CHROMOSOMAL LOCATION

Genetic locus: TKTL1 (human) mapping to Xq28, TKTL2 (human) mapping to 4q32.2.

SOURCE

TKTL1/2 (H-58) is a rabbit polyclonal antibody raised against amino acids 231-288 mapping within an internal region of TKTL1 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.

APPLICATIONS

TKTL1/2 (H-58) is recommended for detection of TKTL1 and TKTL2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [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).

Molecular Weight of TKTL1: 65 kDa.

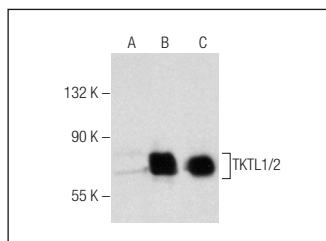
Molecular Weight of TKTL2: 68 kDa.

Positive Controls: TKTL1 (h4): 293T Lysate: sc-171984, Hep G2 nuclear extract: sc-364819 or Hep G2 cell lysate: sc-2227.

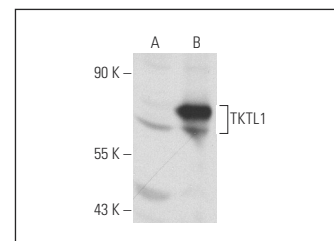
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



TKTL1/2 (H-58): sc-68882. Western blot analysis of TKTL1/2 expression in Hep G2 (A) and MOLT-4 (B) whole cell lysates and Hep G2 nuclear extract (C).



TKTL1/2 (H-58): sc-68882. Western blot analysis of TKTL1 expression in non-transfected: sc-117752 (A) and human TKTL1 transfected: sc-171984 (B) 293T whole cell lysates.

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.