

TK2 (C-17): sc-27824

BACKGROUND

Thymidine kinase 2 (TK2) salvages mitochondrial (mt) pyrimidine deoxynucleosides for mtDNA precursor synthesis. TK2 phosphorylates these nucleosides to their corresponding nucleoside monophosphates using a nucleotide triphosphate as a donor. Deficiency of mitochondrial TK2 manifests as severe skeletal myopathy during infancy, due to depletion of mtDNA. Mutant enzyme possesses similar K_m values to wild type, however, the V_{max} is markedly decreased, leading to the decreased enzyme efficiency, which causes the disease.

REFERENCES

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- Vila, M.R., et al. 2003. Reversion of mtDNA depletion in a patient with TK2 deficiency. *Neurology* 60: 1203-1205.
- Wang, L., et al. 2003. Kinetic properties of mutant thymidine kinase 2 suggest a mechanism for mitochondrial DNA depletion myopathy. *J. Biol. Chem.* 278: 6963-6968.
- Barroso, J.F., et al. 2003. Tight binding of deoxyribonucleotide triphosphates to human thymidine kinase 2 expressed in *Escherichia coli*. Purification and partial characterization of its dimeric and tetrameric forms. *Biochemistry* 42: 15158-15169.
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- Han, T., et al. 2004. 2', 3'-Dideoxycytidine represses thymidine kinases 1 and 2 expression in T-lymphoid cells. *Life Sci.* 74: 835-842.

CHROMOSOMAL LOCATION

Genetic locus: TK2 (human) mapping to 16q21; Tk2 (mouse) mapping to 8 D3.

SOURCE

TK2 (C-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of TK2 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-27824 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

TK2 (C-17) is recommended for detection of precursor and mature TK2 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).

TK2 (C-17) is also recommended for detection of precursor and mature TK2 in additional species, including canine.

Suitable for use as control antibody for TK2 siRNA (h): sc-106616, TK2 siRNA (m): sc-154287, TK2 shRNA Plasmid (h): sc-106616-SH, TK2 shRNA Plasmid (m): sc-154287-SH, TK2 shRNA (h) Lentiviral Particles: sc-106616-V and TK2 shRNA (m) Lentiviral Particles: sc-154287-V.

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.

RESEARCH USE

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

PROTOCOLS

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