SANTA CRUZ BIOTECHNOLOGY, INC.

dUTPase (T-20): sc-68074

BACKGROUND

dUTPase (deoxyuridine 5'-triphosphate nucleotidohydrolase), also known as DUT or dUTP pyrophosphatase, is a preventive DNA repair enzyme that functions in nucleotide metabolism. dUTPase is expressed in a variety of tissues and, depending on the isoform (DUT-N or DUT-M), localizes to the nucleus or the mitochondrion. The nuclear isoform, DUT-N, is the most abundant of the two isoforms. dUTPase, in the presence of magnesium ions, is responsible for hydrolyzing dUTP to dUMP and diphosphate. This reaction is important for keeping the intracellular dUTP concentration low so that uracil does not become incorporated into DNA. Extensive incorporation of uracil into DNA can ultimately lead to cell death. This suggests that dUTPase is essential for cell viability, further implying that dUTPase is a potential target for anticancer therapy. In addition, dUMP, the product of the hydrolysis reaction, is a precursor of thymidine nucleotides which are essential for DNA replication.

REFERENCES

1. Canman, C.E., et al. 1992. Variations in patterns of DNA damage induced in human colorectal tumor cells by 5-fluorodeoxyuridine: implications for mechanisms of resistance and cytotoxicity. Proc. Natl. Acad. Sci. USA 89: 10474-10478.
2. Ladner, R.D., et al. 1996. Characterization of distinct nuclear and mitochondrial forms of human deoxyuridine triphosphate nucleotidohydrolase. J. Biol. Chem. 271: 7745-7751.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601266. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Jiang, Y.L., et al. 2006. Synthesis and high-throughput evaluation of tri-skelion uracil libraries for inhibition of human dUTPase and UNG2. Bioorg. Med. Chem. 14: 5666-5672.
5. Samal, A., et al. 2007. Structures of vaccinia virus dUTPase and its nucleotide complexes. Acta Crystallogr. D Biol. Crystallogr. 63: 571-580.
6. Varga, B., et al. 2007. Active site closure facilitates juxtaposition of reactant atoms for initiation of catalysis by human dUTPase. FEBS Lett. 581: 4783-4788.

CHROMOSOMAL LOCATION

Genetic locus: DUT (human) mapping to 15q21.1; Dut (mouse) mapping to 2 F1.

SOURCE

dUTPase (T-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of dUTPase of mouse 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-68074 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

dUTPase (T-20) is recommended for detection of dUTPase of mouse, rat and 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).

dUTPase (T-20) is also recommended for detection of dUTPase in additional species, including equine, canine, bovine, porcine and avian.

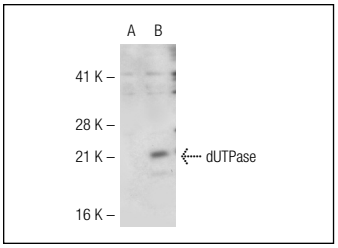
Suitable for use as control antibody for dUTPase siRNA (h): sc-62242, dUTPase siRNA (m): sc-62243, dUTPase shRNA Plasmid (h): sc-62242-SH, dUTPase shRNA Plasmid (m): sc-62243-SH, dUTPase shRNA (h) Lentiviral Particles: sc-62242-V and dUTPase shRNA (m) Lentiviral Particles: sc-62243-V.

Molecular Weight of nuclear dUTPase isoform: 22 kDa.

Molecular Weight of mitochondrial dUTPase isoform: 23 kDa.

Positive Controls: dUTPase (h2): 293T Lysate: sc-115300, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

DATA



dUTPase (T-20): sc-68074. Western blot analysis of dUTPase expression in non-transfected: sc-117752 (**A**) and human dUTPase transfected: sc-115300 (**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.

PROTOCOLS

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