SANTA CRUZ BIOTECHNOLOGY, INC.

dUTPase (m2): 293T Lysate: sc-126749

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

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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.
7. Tóth, J., et al. 2007. Kinetic mechanism of human dUTPase, an essential nucleotide pyrophosphatase enzyme. J. Biol. Chem. 282: 33572-33582.
8. Kovári, J., et al. 2007. Methylene substitution at the α-β bridging position within the phosphate chain of dUDP profoundly perturbs ligand accommodation into the dUTPase active site. Proteins 71: 308-319.
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CHROMOSOMAL LOCATION

Genetic locus: Dut (mouse) mapping to 2 F1.

PRODUCT

dUTPase (m2): 293T Lysate represents a lysate of mouse dUTPase transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

dUTPase (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive dUTPase antibodies. Recommended use: 10-20 µl per lane.

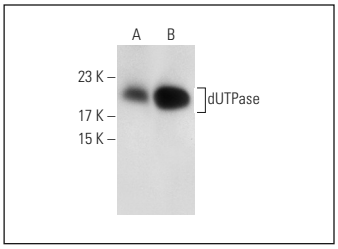
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

dUTPase (H-9): sc-166856 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse dUTPase expression in dUTPase transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

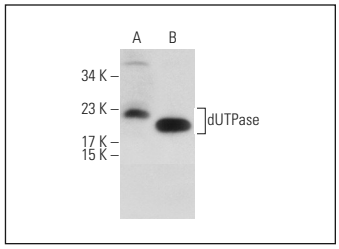
RECOMMENDED SUPPORT REAGENTS

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.

DATA



dUTPase (H-9): sc-166856. Western blot analysis of dUTPase expression in non-transfected: sc-117752 (**A**) and mouse dUTPase transfected: sc-126749 (**B**) 293T whole cell lysates.



dUTPase (F-6): sc-166758. Western blot analysis of dUTPase expression in non-transfected: sc-117752 (**A**) and mouse dUTPase transfected: sc-126749 (**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 for detailed protocols and support products.