SANTA CRUZ BIOTECHNOLOGY, INC.

TS (h): 293T Lysate: sc-170183

BACKGROUND

Thymidylate synthase (TS), also designated TYMS, TMS, TSase and HsT422, uses 5,10-methylenetetrahydrofolate (methylene-THF) as a cofactor in the synthesis of 2'-deoxythymidine-5'-monophosphate (dTMP), an essential precursor for DNA biosynthesis. TS is an RNA-binding protein that can interact with its own mRNA. The TS/mRNA ribonucleoprotein complex can also associate with a number of other cellular mRNAs, including those corresponding to the p53 tumor suppressor gene and the Myc family of transcription factors. Inhibition of DNA replication and cell death resulting from thymidine depletion occurs when TS enzyme activity is inhibited with substrate or cofactor analogs, making the TS enzyme an important target for chemotherapy. Cancer cells are sensitive to thymidine depletion, as they multiply rapidly.

REFERENCES

1. Hardy, L.W., et al. 1987. Atomic structure of thymidylate synthase: target for rational drug design. Science 235: 448-455.
2. Ross, P., et al. 1990. Cloning and characterization of the thymidylate synthase gene from *Lactococcus lactis subsp. lactis*. Appl. Environ. Microbiol. 56: 2156-2163.
3. Kaneda, S., et al. 1990. Structural and functional analysis of the human thymidylate synthase gene. J. Biol. Chem. 265: 20277-20284.
4. Horikoshi, T., et al. 1992. Quantitation of thymidylate synthase, dihydrofolate reductase and DT-diaphorase gene expression in human tumors using the polymerase chain reaction. Cancer Res. 52: 108-116.
5. Johnston, P.G., et al. 1995. Thymidylate synthase gene and protein expression correlate and are associated with response to 5-fluorouracil in human colorectal and gastric tumors. Cancer Res. 55: 1407-1412.
6. Johnston, P.G., et al. 1995. The role of thymidylate synthase expression in prognosis and outcome of adjuvant chemotherapy in patients with rectal cancer. J. Clin. Oncol. 12: 2640-2647.

CHROMOSOMAL LOCATION

Genetic locus: TYMS (human) mapping to 18p11.32.

PRODUCT

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

APPLICATIONS

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

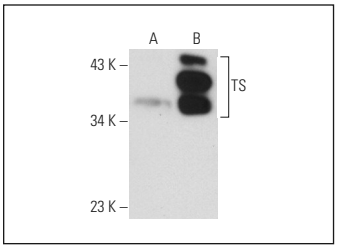
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

TS (SPM453): sc-56492 is recommended as a positive control antibody for Western Blot analysis of enhanced human TS expression in TS transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

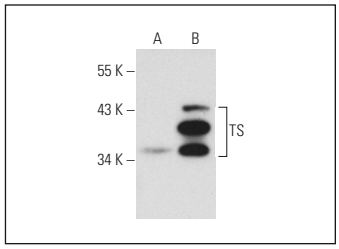
RECOMMENDED SUPPORT REAGENTS

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



TS (SPM453): sc-56492. Western blot analysis of TS expression in non-transfected: sc-117752 (**A**) and human TS transfected: sc-170183 (**B**) 293T whole cell lysates.



TS (TS 106): sc-33679. Western blot analysis of TS expression in non-transfected: sc-117752 (**A**) and human TS transfected: sc-170183 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.