SANTA CRUZ BIOTECHNOLOGY, INC.

Topo I (H-5): sc-271285

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA topoisomerase I and II (Topo I and Topo II) are nuclear enzymes that regulate the topological structure of DNA in eukaryotic cells by transiently breaking and rejoining DNA strands. Eukaryotic topoisomerases are capable of relaxing both positive and negative supercoils, whereas prokaryotic topoisomerases relax only negative supercoils. DNA topoisomerases play a role in DNA replication, recombination, and transcription and have been identified as targets of numerous anticancer drugs. Topo I, a ubiquitously expressed, soluble enzyme, acts by introducing a transient break in one strand of DNA, while Topo II acts by making a transient double-strand break. Topo II is encoded by two different genes to generate two distinct isoforms that are designated Topo IIα and Topo IIβ. Topo IIβ, and Topo IIα are largely homologous at their N-terminal three quarters, however, the C-terminal segments are considerably divergent, suggesting that these regions may mediate different cellular functions and account for the observed differential tissue expression patterns of the two isoforms.

CHROMOSOMAL LOCATION

Genetic locus: TOP1 (human) mapping to 20q12; Top1 (mouse) mapping to 2 H2.

SOURCE

Topo I (H-5) is a mouse monoclonal antibody raised against amino acids 685-765 of Topo I of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Topo I (H-5) is available conjugated to agarose (sc-271285 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271285 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271285 PE), fluorescein (sc-271285 FITC), Alexa Fluor® 488 (sc-271285 AF488), Alexa Fluor® 546 (sc-271285 AF546), Alexa Fluor® 594 (sc-271285 AF594) or Alexa Fluor® 647 (sc-271285 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271285 AF680) or Alexa Fluor® 790 (sc-271285 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Topo I (H-5) is recommended for detection of Topo I of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Topo I (H-5) is also recommended for detection of Topo I in additional species, including equine, canine, bovine and porcine.

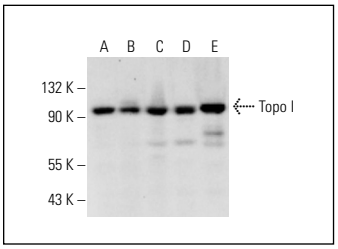
Suitable for use as control antibody for Topo I siRNA (h): sc-36694, Topo I siRNA (m): sc-36693, Topo I shRNA Plasmid (h): sc-36694-SH, Topo I shRNA Plasmid (m): sc-36693-SH, Topo I shRNA (h) Lentiviral Particles: sc-36694-V and Topo I shRNA (m) Lentiviral Particles: sc-36693-V.

Molecular Weight of Topo I: 100 kDa.

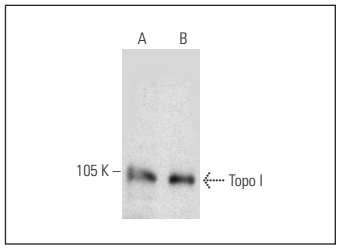
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



Topo I (H-5) HRP: sc-271285 HRP. Direct western blot analysis of Topo I expression in K-562 (**A**), SK-N-SH (**B**), KNRK (**C**), LADMAC (**D**) and Ramos (**E**) whole cell lysates.



Topo I (H-5): sc-271285. Western blot analysis of Topo I expression in Ramos (**A**) and HeLa (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. King, I.F., et al. 2013. Topoisomerases facilitate transcription of long genes linked to autism. Nature 501: 58-62.
2. Ghotbaddini, M. and Powell, J.B. 2015. The AhR ligand, TCDD, regulates androgen receptor activity differently in androgen-sensitive versus castration-resistant human prostate cancer cells. Int. J. Environ. Res. Public Health 12: 7506-7518.
3. Mabb, A.M., et al. 2016. Topoisomerase 1 regulates gene expression in neurons through cleavage complex-dependent and -independent mechanisms. PLoS ONE 11: e0156439.
4. Pan, M., et al. 2021. The chemotherapeutic CX-5461 primarily targets TOP2B and exhibits selective activity in high-risk neuroblastoma. Nat. Commun. 12: 6468.
5. Krishnathas, G.M., et al. 2021. C81-evoked inhibition of the TNFR1-NFκB pathway during inflammatory processes for stabilization of the impaired vascular endothelial barrier for leukocytes. FASEB J. 35: e21656.
6. Flörkemeier, I., et al. 2021. High antitumor activity of the dual topoisomerase inhibitor P8-D6 in breast cancer. Cancers 14: 2.
7. Glauzy, S., et al. 2022. Defective early B cell tolerance checkpoints in patients with systemic sclerosis allow the production of self antigen-specific clones. Arthritis Rheumatol. 74: 307-317.
8. Burgers, L.D., et al. 2022. The protein biosynthesis inhibitor vioprolide A evokes anti-angiogenic and pro-survival actions by targeting NOP14 and decreasing VEGF receptor 2- and TAZ-signaling. Biomed. Pharmacother. 152: 113174.
9. Zhang, H., et al. 2022. COPS5 conferred the platinum resistance in epithelial ovarian cancer. Curr. Issues Mol. Biol. 44: 3948-3958.

RESEARCH USE

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