

Topo II β (H-8): sc-25330

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 II α and Topo II β . Topo II β , and Topo II α 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: TOP2B (human) mapping to 3p24.2; Top2b (mouse) mapping to 14 A2.

SOURCE

Topo II β (H-8) is a mouse monoclonal antibody raised against amino acids 1341-1626 of Topo II β of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Topo II β (H-8) is available conjugated to agarose (sc-25330 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-25330 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-25330 PE), fluorescein (sc-25330 FITC), Alexa Fluor[®] 488 (sc-25330 AF488), Alexa Fluor[®] 546 (sc-25330 AF546), Alexa Fluor[®] 594 (sc-25330 AF594) or Alexa Fluor[®] 647 (sc-25330 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-25330 AF680) or Alexa Fluor[®] 790 (sc-25330 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Topo II β (H-8) is recommended for detection of Topo II β of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

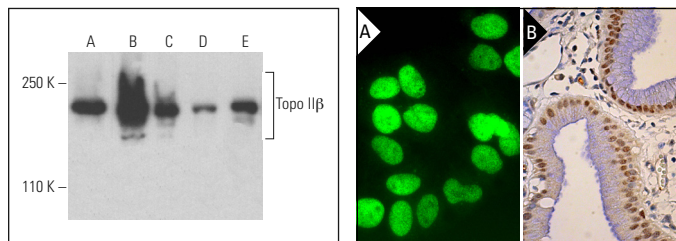
Suitable for use as control antibody for Topo II β siRNA (h): sc-36697, Topo II β siRNA (m): sc-36698, Topo II β shRNA Plasmid (h): sc-36697-SH, Topo II β shRNA Plasmid (m): sc-36698-SH, Topo II β shRNA (h) Lentiviral Particles: sc-36697-V and Topo II β shRNA (m) Lentiviral Particles: sc-36698-V.

Molecular Weight of Topo II β : 180 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 II β (H-8) HRP: sc-25330 HRP. Direct western blot analysis of Topo II β expression in K-562 (A), RPE-J (D) and THP-1 (E) whole cell lysates and U-937 (B) and 3611-RF (C) nuclear extracts.

Topo II β (H-8): sc-25330. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Renis, M., et al. 2008. Response of cell cycle/stress-related protein expression and DNA damage upon treatment of CaCo2 cells with anthocyanins. *Br. J. Nutr.* 100: 27-35.
2. Miyahara, H., et al. 2021. Topoisomerase II β immunoreactivity (IR) co-localizes with neuronal marker-IR but not glial fibrillary acidic protein-IR in GLI3-positive medulloblastomas: an immunohistochemical analysis of 124 medulloblastomas from the Japan Children's Cancer Group. *Brain Tumor Pathol.* 38: 109-121.
3. Bunch, H., et al. 2021. BRCA1-BARD1 regulates transcription through modulating topoisomerase II β . *Open Biol.* 11: 210221.
4. Delint-Ramirez, I., et al. 2022. Calcineurin dephosphorylates topoisomerase II β and regulates the formation of neuronal-activity-induced DNA breaks. *Mol. Cell* 82:3794-3809.e8.
5. Hernandez, V.A., et al. 2022. Use of CRISPR/Cas9 with homology-directed repair to silence the human topoisomerase II α intron-19 5' splice site: Generation of etoposide resistance in human leukemia K562 cells. *PLoS ONE* 17: e0265794.
6. Muciño-Hernández, G., et al. 2023. Nucleophagy contributes to genome stability through degradation of type II topoisomerases A and B and nucleolar components. *J. Cell Sci.* 136: jcs260563.
7. Chiang, Y.C., et al. 2023. Mechanistic study of dual-function inhibitors targeting topoisomerase II and Rad51-mediated DNA repair pathway against castration-resistant prostate cancer. *Prostate* 83: 1549-1563.
8. Bunch, H., et al. 2023. ERK2-topoisomerase II regulatory axis is important for gene activation in immediate early genes. *Nat. Commun.* 14: 8341.

RESEARCH USE

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

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