SANTA CRUZ BIOTECHNOLOGY, INC.

Topo IIβ (A-12): sc-365071

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 IIα and Topo IIβ 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 IIβ (A-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1579-1611 near the C-terminus of Topo IIβ of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Topo IIβ (A-12) is available conjugated to agarose (sc-365071 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365071 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365071 PE), fluorescein (sc-365071 FITC), Alexa Fluor® 488 (sc-365071 AF488), Alexa Fluor® 546 (sc-365071 AF546), Alexa Fluor® 594 (sc-365071 AF594) or Alexa Fluor® 647 (sc-365071 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365071 AF680) or Alexa Fluor® 790 (sc-365071 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365071 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

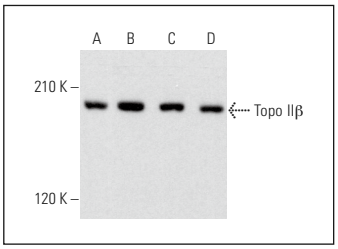
Topo IIβ (A-12) is recommended for detection of Topo IIβ of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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 IIβ siRNA (h): sc-36697, Topo IIβ siRNA (m): sc-36698,Topo IIβ shRNA Plasmid (h): sc-36697-SH, Topo IIβ shRNA Plasmid (m): sc-36698-SH, Topo IIβ shRNA (h) Lentiviral Particles: sc-36697-V and Topo IIβ shRNA (m) Lentiviral Particles: sc-36698-V.

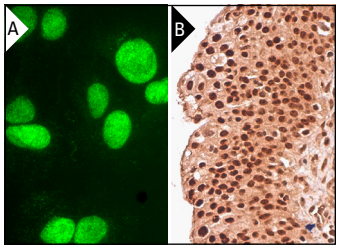
Molecular Weight of Topo IIβ: 180 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

DATA



Topo IIβ (A-12): sc-365071. Western blot analysis of Topo IIβ expression in MEG-01 (**A**), K-562 (**B**), Hep G2 (**C**) and HeLa (**D**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Topo IIβ (A-12): sc-365071. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear and cytoplasmic staining of urothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Ryu, M.J., et al. 2019. PTEN/Akt signaling mediates chemoresistance in refractory acute myeloid leukemia through enhanced glycolysis. Oncol. Rep. 42: 2149-2158.
2. Lutz, H., et al. 2019. NMDA receptor signaling mediates cFos expression via Top2β-induced DSBs in glioblastoma cells. Cancers 11: 306.
3. Hatzl, S., et al. 2020. Increased expression of micro-RNA-23a mediates chemoresistance to cytarabine in acute myeloid leukemia. Cancers 12: 496.
4. Matias-Barrios, V.M., et al. 2021. Discovery of new catalytic topoisomerase II inhibitors for anticancer therapeutics. Front. Oncol. 10: 633142.
5. Oelschläger, L., et al. 2023. Taspase1 facilitates topoisomerase IIβ-mediated DNA double-strand breaks driving estrogen-induced transcription. Cells 12: 363.

RESEARCH USE

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