SANTA CRUZ BIOTECHNOLOGY, INC.

Topo IIβ (C-12): sc-48429

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 topo-isomerases 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, an 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: TOP2B (human) mapping to 3p24.2; Top2b (mouse) mapping to 14 A2.

SOURCE

Topo IIβ (C-12) is a mouse monoclonal antibody raised against amino acids 1341-1626 of Topo IIβ 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.

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.

APPLICATIONS

Topo IIβ (C-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) 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.

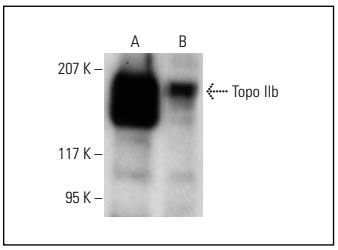
Molecular Weight of Topo IIβ: 180 kDa.

Positive Controls: U-937 nuclear extract: sc-2156, K-562 nuclear extract: sc-2130 or 3611-RF nuclear extract: sc-2143.

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Topo IIb (C-12): sc-48429. Western blot analysis of Topo IIb expression in U-937 (**A**) and 3611-RF (**B**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Sinha, D. and Roy, M. 2011. Antagonistic role of tea against sodium arsenite-induced oxidative DNA damage and inhibition of DNA repair in Swiss albino mice. J. Environ. Pathol. Toxicol. Oncol. 30: 31.
2. Kanagasabai, R., et al. 2017. Alternative RNA processing of topoisomerase IIα in etoposide-resistant human leukemia K-562 cells: intron retention results in a novel C-terminal truncated 90 kDa isoform. J. Pharmacol. Exp. Ther. 360: 152-163.
3. Gulyaeva, O., et al. 2018. Sox9-Meis1 inactivation is required for adipogenesis, advancing Pref-1$^+$ to PDGFRα$^+$ cells. Cell Rep. 25: 1002-1017.
4. Yi, D., et al. 2019. Zc3h10 acts as a transcription factor and is phosphorylated to activate the thermogenic program. Cell Rep. 29: 2621.e4-2633.e4.

PROTOCOLS

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