SANTA CRUZ BIOTECHNOLOGY, INC.

Topo IIβ (H-286): sc-13059

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 (H-286) is a rabbit polyclonal antibody raised against amino acids 1341-1626 of Topo IIβ of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Topo IIβ (H-286) is recommended for detection of Topo IIβ of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Topo IIβ (H-286) is also recommended for detection of Topo IIβ in additional species, including equine, canine and bovine.

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.

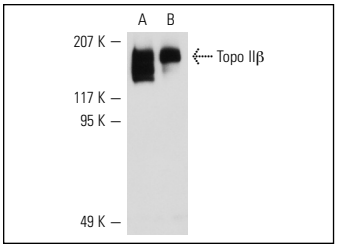
STORAGE

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

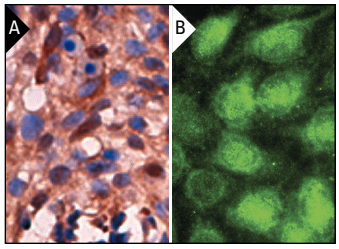
RESEARCH USE

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

DATA



Topo IIβ (H-286): sc-13059. Western blot analysis of Topo IIβ expression in U-937 (**A**) and K-562 (**B**) nuclear extracts.



Topo IIβ (H-286): sc-13059. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse embryo tissue showing nuclear and cytoplasmic localization (**A**). Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (**B**).

SELECT PRODUCT CITATIONS

1. Mochizuki, Y., et al. 2004. Mouse dyskerin mutations affect accumulation of telomerase RNA and small nucleolar RNA, telomerase activity, and ribosomal RNA processing. Proc. Natl. Acad. Sci. USA 101: 10756-10761.
2. Linka, R.M., et al. 2007. C-terminal regions of topoisomerase IIα and IIβ determine isoform-specific functioning of the enzymes *in vivo*. Nucleic Acids Res. 35: 3810-3822.
3. Sun, F., et al. 2007. Nuclear reprogramming: the zygotic transcription program is established through an "erase-and-rebuild" strategy. Cell Res. 17: 117-134.
4. Leduc, F., et al. 2008. DNA damage response during chromatin remodeling in elongating spermatids of mice. Biol. Reprod. 78: 324-332.
5. Zheng, J., et al. 2008. Erasure of the paternal transcription program during spermiogenesis: the first step in the reprogramming of sperm chromatin for zygotic development. Dev. Dyn. 237: 1463-1476.
6. Chène, P., et al. 2009. Catalytic inhibition of topoisomerase II by a novel rationally designed ATP-competitive purine analogue. BMC Chem. Biol. 9: 1.
7. Tiwari, V.K., et al. 2012. Target genes of topoisomerase IIβ regulate neuronal survival and are defined by their chromatin state. Proc. Natl. Acad. Sci. USA 109: E934-943.
8. Purushothaman, P., et al. 2012. Kaposi's sarcoma-associated herpesvirus-encoded LANA recruits topoisomerase IIβ for latent DNA replication of the terminal repeats. J. Virol. 86: 9983-9994.