SANTA CRUZ BIOTECHNOLOGY, INC.

Topo IIα (K-19): sc-5347

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.

REFERENCES

1. D'Arpa, P., et al. 1988. cDNA cloning of human DNA Topoisomerase I: catalytic activity of a 67.7 kDa carboxyl-terminal fragment. Proc. Natl. Acad. Sci. USA 85: 2543-2547.
2. Chung, T.D., et al. 1989. Characterization and immunological identification of cDNA clones encoding two human DNA Topoisomerase II isozymes. Proc. Natl. Acad. Sci. USA 86: 9431-9435.
3. Austin, C.A., et al. 1990. Isolation and characterization of a human cDNA clone encoding a novel DNA Topoisomerase II homologue from HeLa cells. FEBS Lett. 266: 115-117.
4. Kunze, N., et al. 1991. Structure of the human type I DNA Topoisomerase gene. J. Biol. Chem. 266: 9610-9616.

CHROMOSOMAL LOCATION

Genetic locus: TOP2A (human) mapping to 17q21.2.

SOURCE

Topo IIα (K-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Topo IIα 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.

Blocking peptide available for competition studies, sc-5347 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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

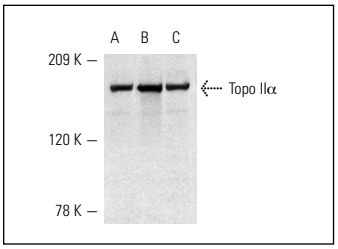
Topo IIα (K-19) is recommended for detection of DNA topoisomerase IIα of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Topo IIα siRNA (h): sc-36695, Topo IIα shRNA Plasmid (h): sc-36695-SH and Topo IIα shRNA (h) Lentiviral Particles: sc-36695-V.

Molecular Weight of Topo IIα: 170 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, K-562 nuclear extract: sc-2130 or Jurkat nuclear extract: sc-2132.

DATA



Topo IIα (K-19): sc-5347. Western blot analysis of Topo IIα expression in HeLa (**A**), K-562 (**B**) and Jurkat (**C**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Chen, H.W., et al. 2004. Anti-invasive gene expression profile of curcumin in lung adenocarcinoma based on a high throughput microarray analysis. Mol. Pharmacol. 65: 99-110.
2. de Lucio, B., et al. 2005. Characterization of human NSCLC cell line with innate etoposide-resistance mediated by cytoplasmic localization of topoisomerase IIα. Cancer Sci. 96: 774-783.
3. Catalano, M.G., et al. 2006. Valproic acid, a histone deacetylase inhibitor, enhances sensitivity to doxorubicin in anaplastic thyroid cancer cells. J. Endocrinol. 191: 465-472.
4. Belluti, S., et al. 2013. Concurrent inhibition of enzymatic activity and NF-Y-mediated transcription of Topoisomerase-IIα by bis-DemethoxyCurcumin in cancer cells. Cell Death Dis. 4: e756.