

# Topo III $\alpha$ (N-20): sc-11257

## BACKGROUND

DNA topoisomerases are nuclear enzymes that regulate the topological structure of DNA by transiently breaking and rejoining DNA strands. Although DNA topoisomerase I and DNA topoisomerase II relax both positive and negative supercoils, DNA topoisomerase III relaxes only negative supercoils. DNA topoisomerase III  $\alpha$  exists as a long and a short isoform, which are produced by alternative splicing. DNA topoisomerase III  $\alpha$ , which localizes to the nucleolus, is constitutively expressed and remains at high levels throughout the cell cycle in HL-60 cells. DNA topoisomerase III  $\beta$  exists as three isoforms, namely  $\beta 1$ ,  $\beta 2$ , and  $\beta 3$ , also produced by alternative splicing. DNA topoisomerase III  $\beta 1$  is expressed in testes, heart, and skeletal muscle, whereas  $\beta 2$  is expressed in thymus, kidney, and pancreas.

## 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. Kunze, N., et al. 1991. Structure of the human type I DNA topoisomerase gene. *J. Biol. Chem.* 266: 9610-9616.
3. Hanai, R., et al. 1996. Human TOP3: A single-copy gene encoding DNA topoisomerase III. *Proc. Natl. Acad. Sci. USA* 93: 3653-3657.
4. Kawasaki, K., et al. 1997. One-megabase sequence analysis of the human immunoglobulin lambda gene locus. *Genome Res.* 7: 250-261.
5. Ng, S.W., et al. 1999. A new human topoisomerase III that interacts with SGS1 protein. *Nucleic Acids Res.* 27: 993-1000.
6. Lin, C.W., et al. 2000. Differential expression of human topoisomerase III  $\alpha$  during the cell cycle progression in HL-60 leukemia cells and human peripheral blood lymphocytes. *Exp. Cell Res.* 256: 225-236.

## CHROMOSOMAL LOCATION

Genetic locus: TOP3A (human) mapping to 17p11.2.

## SOURCE

Topo III $\alpha$  (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Topo III $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-11257 P, (100  $\mu$ g 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 III $\alpha$  (N-20) is recommended for detection of Topo III $\alpha$  long form of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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 III $\alpha$  siRNA (h): sc-36699, Topo III $\alpha$  shRNA Plasmid (h): sc-36699-SH and Topo III $\alpha$  shRNA (h) Lentiviral Particles: sc-36699-V.

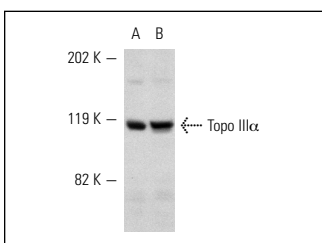
Molecular Weight of Topo III $\alpha$ : 110 kDa.

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

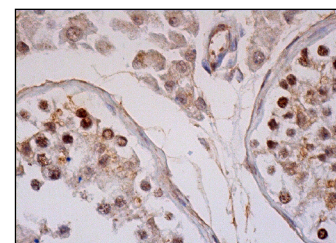
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



Topo III $\alpha$  (N-20): sc-11257. Western blot analysis of Topo III $\alpha$  expression in HeLa (A) and K-562 (B) nuclear extracts.



Topo III $\alpha$  (N-20): sc-11257. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts and Leydig cells.

## SELECT PRODUCT CITATIONS

1. Russell, B., et al. 2011. Chromosome breakage is regulated by the interaction of the BLM helicase and topoisomerase II $\alpha$ . *Cancer Res.* 71: 561-571.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.