

# Topo I (C-15): sc-5342

## 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 II $\alpha$  and Topo II $\beta$ . Topo II $\beta$  and Topo II $\alpha$ , 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: TOP1 (human) mapping to 20q12; Top1 (mouse) mapping to 2 H2.

## SOURCE

Topo I (C-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of Topo I 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-5342 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Topo I (C-15) is recommended for detection of DNA topoisomerase I of mouse, rat and 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), flow cytometry (1  $\mu$ g per 1 x 10<sup>6</sup> cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000). Topo I (C-15) is also recommended for detection of DNA topoisomerase I in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for Topo I siRNA (h): sc-36694, Topo I siRNA (m): sc-36693, Topo I shRNA Plasmid (h): sc-36694-SH, Topo I shRNA Plasmid (m): sc-36693-SH, Topo I shRNA (h) Lentiviral Particles: sc-36694-V and Topo I shRNA (m) Lentiviral Particles: sc-36693-V.

Molecular Weight of Topo I: 100 kDa.

Positive Controls: K-562 nuclear extract: sc-2130, A-431 whole cell lysate: sc-2201 or K-562 whole cell lysate: sc-2203.

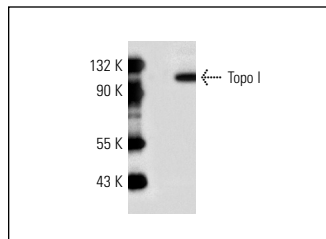
## RESEARCH USE

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

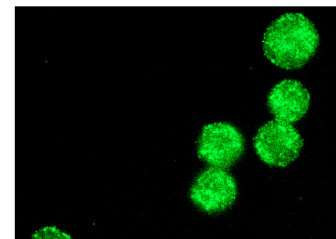
## STORAGE

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

## DATA



Topo I (C-15): sc-5342. Western blot analysis of Topo I expression in K-562 nuclear extract.



Topo I (C-15): sc-5342. Immunofluorescence staining of methanol-fixed K-562 cells showing nuclear staining.

## SELECT PRODUCT CITATIONS

- Selvaraj, A., et al. 2003. Megakaryoblastic leukemia-1/2, a transcriptional co-activator of serum response factor, is required for skeletal myogenic differentiation. *J. Biol. Chem.* 278: 41977-41987.
- Rodriguez, P., et al. 2006. Isolation of transcription factor complexes by *in vivo* biotinylation tagging and direct binding to streptavidin beads. *Methods Mol. Biol.* 338: 305-323.
- Khobta, A., et al. 2006. Early effects of topoisomerase I inhibition on RNA polymerase II along transcribed genes in human cells. *J. Mol. Biol.* 357: 127-138.
- Igarashi, T., et al. 2007. Clock and ATF4 transcription system regulates drug resistance in human cancer cell lines. *Oncogene* 26: 4749-4760.
- Leavenworth, J.W., et al. 2009. SUMO conjugation contributes to immune deviation in nonobese diabetic mice by suppressing c-Maf transactivation of IL-4. *J. Immunol.* 183: 1110-1119.
- Amir, S., et al. 2009. SEPT9\_v1 up-regulates hypoxia-inducible factor 1 by preventing its RACK1-mediated degradation. *J. Biol. Chem.* 284: 11142-11151.
- Huang, P.R., et al. 2010. Telomeric DNA-binding activities of heterogeneous nuclear ribonucleoprotein A3 *in vitro* and *in vivo*. *Biochim. Biophys. Acta* 1803: 1164-1174.
- Jin, H.R., et al. 2010. Zinc-finger protein 91 plays a key role in LIGHT-induced activation of non-canonical NF $\kappa$ B pathway. *Biochem. Biophys. Res. Commun.* 400: 581-586.

**MONOS**  
Satisfaction  
Guaranteed

Try **Topo I (C-21): sc-32736** or **Topo I (H-5): sc-271285**, our highly recommended monoclonal alternatives to Topo I (C-15). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **Topo I (C-21): sc-32736**.