

Topo II α (F-12): sc-365916

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, 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 II α and Topo II β . Topo II α and Topo II β 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: TOP2A (human) mapping to 17q21.2; Top2a (mouse) mapping to 11 D.

SOURCE

Topo II α (F-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1511-1530 at the C-terminus of Topo II α of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Topo II α (F-12) is available conjugated to agarose (sc-365916 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365916 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365916 PE), fluorescein (sc-365916 FITC), Alexa Fluor[®] 488 (sc-365916 AF488), Alexa Fluor[®] 546 (sc-365916 AF546), Alexa Fluor[®] 594 (sc-365916 AF594) or Alexa Fluor[®] 647 (sc-365916 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-365916 AF680) or Alexa Fluor[®] 790 (sc-365916 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365916 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

PROTOCOLS

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

APPLICATIONS

Topo II α (F-12) is recommended for detection of Topo II α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

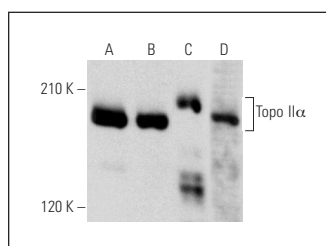
Topo II α (F-12) is also recommended for detection of Topo II α in additional species, including porcine.

Suitable for use as control antibody for Topo II α siRNA (h): sc-36695, Topo II α siRNA (m): sc-36696, Topo II α shRNA Plasmid (h): sc-36695-SH, Topo II α shRNA Plasmid (m): sc-36696-SH, Topo II α shRNA (h) Lentiviral Particles: sc-36695-V and Topo II α shRNA (m) Lentiviral Particles: sc-36696-V.

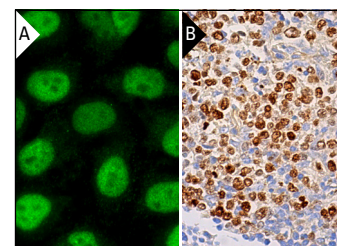
Molecular Weight of Topo II α : 170 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, Jurkat nuclear extract: sc-2132 or RPE-J cell lysate: sc-24771.

DATA



Topo II α (F-12): sc-365916. Western blot analysis of Topo II α expression in HeLa (A), Jurkat (B) and MM-142 (C) nuclear extracts and RPE-J whole cell lysate (D).



Topo II α (F-12): sc-365916. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear staining of cells in a germinal center (B).

SELECT PRODUCT CITATIONS

- Dykhuizen, E.C., et al. 2013. BAF complexes facilitate decatenation of DNA by topoisomerase II α . *Nature* 497: 624-627.
- Liu, L.M., et al. 2018. DNA topoisomerase 1 and 2A function as oncogenes in liver cancer and may be direct targets of nitidine chloride. *Int. J. Oncol.* 53: 1897-1912.
- Pattschull, G., et al. 2019. The Myb-MuvB complex is required for YAP-dependent transcription of mitotic genes. *Cell Rep.* 27: 3533-3546.e7.
- Olivieri, M., et al. 2020. A genetic map of the response to DNA damage in human cells. *Cell* 182: 481-496.e21.
- Pan, M., et al. 2021. The chemotherapeutic CX-5461 primarily targets TOP2B and exhibits selective activity in high-risk neuroblastoma. *Nat. Commun.* 12: 6468.

RESEARCH USE

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