#12286 Store at -20°C

Topoisomerase IIα (D10G9) XP® Rabbit mAb

Cell Signaling TECHNOLOGY®

☐ Small 100 µl (10 western blots)
☐ Petite 40 µl (4 western blots)

Orders ■ 877-616-CELL (2355) orders@cellsignal.com
Support ■ 877-678-TECH (8324) info@cellsignal.com
Web ■ www.cellsignal.com

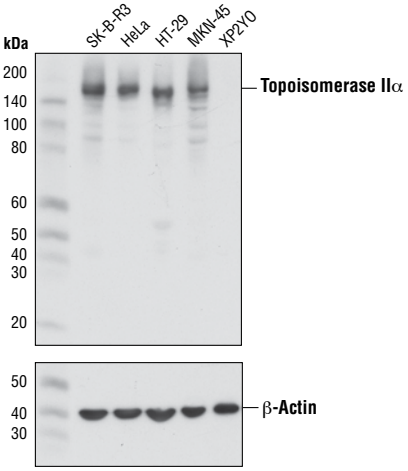
rev. 01/05/15

For Research Use Only. Not For Use In Diagnostic Procedures.

Entrez-Gene ID #7153
UniProt ID #P11388

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IHC-P, IF-IC, F Endogenous	H, Mk	190 kDa	Rabbit IgG**

Background: DNA topoisomerase I and II are nuclear enzymes, and type II consists of two highly homologous isoforms: topoisomerase IIα and IIβ. These enzymes regulate the topology of DNA, maintain genomic integrity, and are essential for processes such as DNA replication, recombination, transcription, and chromosome segregation by allowing DNA strands to pass through each other (1). Topoisomerase I nicks and rejoins one strand of the duplex DNA, while topoisomerase II transiently breaks and closes double-stranded DNA (2). Topoisomerases are very susceptible to various stresses. Acidic pH or oxidative stress can convert topoisomerases to DNA-breaking nucleases, causing genomic instability and cell death. DNA-damaging topoisomerase targeting drugs (e.g., etoposide) also convert topoisomerases to nucleases, and the enzyme is usually trapped as an intermediate, covalently bound to the 5+ end of the cleaved DNA strand(s). Research studies have shown that this intermediate leads to genomic instability and cell death, and thus, agents that target topoisomerases are highly sought after cancer chemotherapeutic drugs (3). Ca^{2+}-regulated phosphorylation of topoisomerase IIα at Ser1106 modulates the activity of this enzyme and its sensitivity to targeting drugs (4).

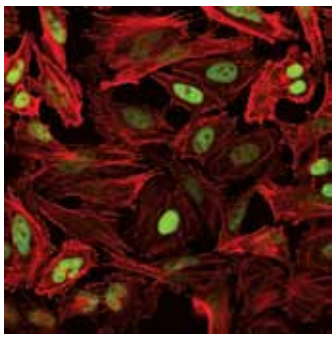


Western blot analysis of extracts from various cell lines using Topoisomerase IIα (D10G9) XP® Rabbit mAb (upper) or β-Actin (D6A8) Rabbit mAb #8457 (lower).

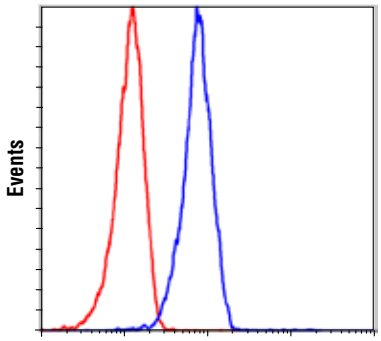
Specificity/Sensitivity: Topoisomerase IIα (D10G9) XP® Rabbit mAb recognizes endogenous levels of total topoisomerase IIα protein.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human topoisomerase IIα protein.

HeLa



Confocal immunofluorescent analysis of HeLa cells using Topoisomerase IIα (D10G9) XP® Rabbit mAb (green). Actin filaments were labeled with DyLight™ 554 Phalloidin #13054 (red).



Flow cytometric analysis of Jurkat cells using Topoisomerase IIα (D10G9) XP® Rabbit mAb compared to concentration-matched Rabbit (DA1E) mAb IgG XP® Isotype Control #3900 (red). Anti-rabbit IgG (H+L), F(ab')$_2$ Fragment (Alexa Fluor® 488 Conjugate) #4412 was used as a secondary antibody.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunohistochemistry (Paraffin)	1:400†
Unmasking buffer:	Citrate
Antibody diluent:	SignalStain® Antibody Diluent #8112
Detection reagent:	SignalStain® Boost (HRP, Rabbit) #8114
Fixative:	3% Formaldehyde

†*Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.*

Immunofluorescence (IF-IC)	1:1600
Flow Cytometry	1:100

For product specific protocols please see the web page for this product at www.cellsignal.com.

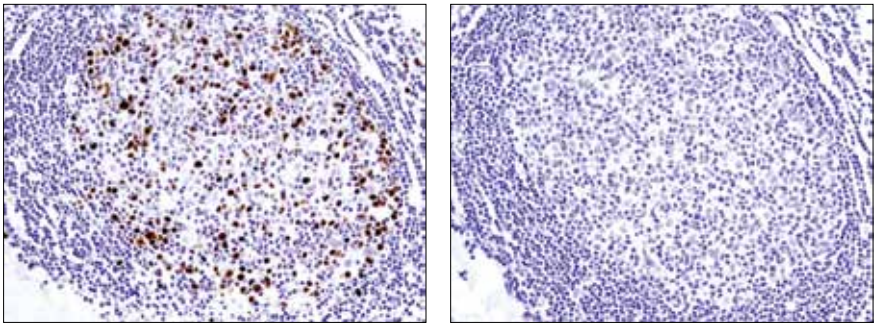
Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

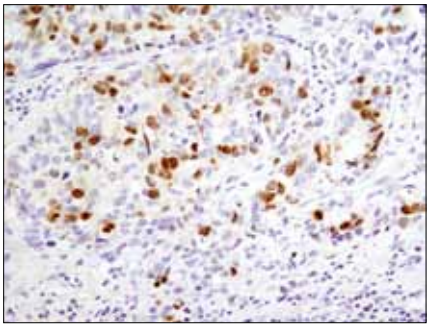
(1) Wang, J.C. (2002) *Nat. Rev. Mol. Cell. Biol.* 3, 430-440.
(2) Pulleyblank, .E. (1997) *Science* 277, 648-649.
(3) Li, T.K. and Liu, L.F. (2001) *Annu. Rev. Pharmacol. Toxicol.* 41, 53-77.
(4) Chikamori, K. et al. (2003) *J. Biol. Chem.* 278, 12696-12702.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

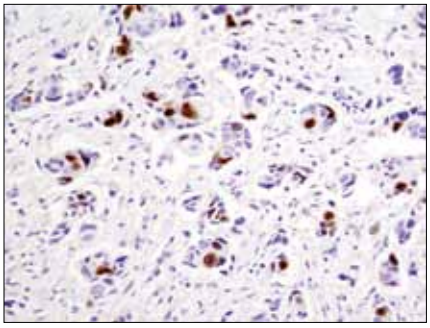
Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



Immunohistochemical analysis of paraffin-embedded human lymph node using Topoisomerase IIα (D10G9) XP® Rabbit mAb in the presence of control peptide (left) or antigen-specific peptide (right).



Immunohistochemical analysis of paraffin-embedded human colon carcinoma using Topoisomerase IIα (D10G9) XP® Rabbit mAb.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma using Topoisomerase IIα (D10G9) XP® Rabbit mAb.