

TOP1 Antibody

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	100	Rabbit	#P11387	7150

Product Usage Information**Application**

Western Blotting

Dilution

1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

Specificity/Sensitivity

TOP1 Antibody recognizes endogenous levels of total TOP1 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gly214 of human TOP1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

DNA topoisomerases I and II are nuclear enzymes; type II consists of two highly homologous isoforms: topoisomerase II α and II β . 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, with the enzyme usually trapped as an intermediate that is 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. Thus, agents that target topoisomerases are highly sought after cancer chemotherapeutic drugs (3). Ca²⁺-regulated phosphorylation of topoisomerase II α at Ser1106 modulates the activity of this enzyme and its sensitivity to targeting drugs (4).

Background References

1. Wang, J.C. (2002) *Nat. Rev. Mol. Cell. Biol.* 3, 430-40.
2. Pulleyblank, .E. (1997) *Science* 277, 648-9.
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, 12696-702.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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