

Qty: 100 μg/200 μL Mouse anti-TOP1 **Catalog No.** 435900 **Lot No.**

Mouse anti-TOP1

FORM

This affinity-purified mouse monoclonal antibody is supplied as a 200 μ L aliquot at a concentration of 0.5 mg/mL in PBS, pH 7.4, containing 0.1% sodium azide. This antibody is highly purified from mouse ascites by protein A chromatography.

Clone: 24.5 Isotype: IgG1

IMMUNOGEN

Recombinant protein derived from the N-terminal region of human TOP1 protein.

SPECIFICITY

This antibody is specific for human TOP1 (DNA topoisomerase I) protein (accession # P11387, NP_003277), which is 98% homologous with rhesus monkey and 95% homologous with rat, mouse and Chinese hamster. On Western blots of HeLa, BT474 and T47D human adenocarcinoma and breast carcinoma cell lines, it identifies the target band at ~90 kDa.

REACTIVITY

Reactivity has been confirmed with human HeLa, BT474 and T47D cell lysates using Western blotting. The reactivity has also been confirmed with HeLa cells by immunofluorescence and immunoprecipitation. Based on amino acid sequence homology, reactivity with Chinese hamster, rhesus monkey, mouse and rat is also expected.

Sample	Western Blotting	Immuno- fluorescence	Immuno- precipitation
Human	+++	+++	+++
Hamster (Chinese)	ND	ND	ND
Monkey (Rhesus)	ND	ND	ND
Mouse	ND	ND	ND
Rat	ND	ND	ND

(Excellent +++, Good ++, Poor +, No reactivity 0, Not applicable N/A, Not determined ND)

USAGE

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Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

Western Blotting:	2 µg/mL
Immunofluorescence:	2 µg/mL
Immunoprecipitation:	5 µg/IP reaction

(cont')

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STORAGE

Store at 2-8°C for up to one month. Store at -20°C for long-term storage. Avoid repeated freezing and thawing.

BACKGROUND

DNA topoisomerases are intranuclear enzymes involved in the regulation of unwinding and supercoiling of DNA. Type I topoisomerases change the degree of supercoiling of DNA by causing single-strand breaks and re-ligation, whereas type II topoisomerases (such as bacterial gyrase) cause double-strand breaks.¹ The different roles of DNA topoisomerases I and II may indicate an opposing pair of roles in the regulation of DNA supercoiling. Both activities are especially crucial during DNA transcription and replication, DNA helix must be unwound to allow proper function of large enzymatic machinery. Compounds that inhibit TOP1 function act on the target enzyme by forming cleavable complexes which are high molecular weight DNA protein adducts.^{2,3}

Patients with certain autoimmune diseases such as systemic lupus erythematosus produce autoantibodies against both topisomerases I and II. Elevated amounts of DNA topoisomerase I has been reported in colorectal tumors making TOP1 a unique target for cancer chemotherapy. Elevated levels of TOP1 expression are also demonstrated in different types of ovarian, cervical and prostate cancer.⁴

REFERENCES

- 1. Champoux JJ. Annu Rev Biochem 70:369-413, 2001.
- 2. Hochster H et al. Clin Cancer Res 3(8):1245-52, 1997.
- 3. Lauria A et al. *J Mol Model* 13(3):393-400, 2007.
- 4. Moisan F et al. Br J Cancer 95(7):906-13, 2006.

RELATED PRODUCTS

Product	Conjugate	Cat. No
Protein A	Sepharose 4B	10-1041
rec-Protein G	Sepharose 4B	10-1241
ZyMAX™ Goat anti-rabbit IgG	Unconjugated	81-6100
ZyMAX™ Goat anti-mouse IgG	Unconjugated	81-6500

Secondary antibody conjugates.

Conjugate	Goat anti-rabbit lgG (H+L)	Goat anti-mouse lgG (H+L)	Ex/Em*	Fluorescence similar to
Alexa Fluor® 488	A11008	A11001	495/519	FITC
Alexa Fluor® 555	A21428	A21422	555/565	Cy3
Alexa Fluor® 594	A11012	A11005	590/617	Texas Red
Alexa Fluor® 647	A21244	A21235	650/668	Cy5
HRP	81-6120	81-6520	NA**	NA
AP	81-6122	81-6522	NA	NA
Biotin	B2770	B2763	NA	NA

*Excitation/emission (nm); **Not applicable

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For additional secondary antibody conjugates, visit www.invitrogen.com/antibodies

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