

Product Specification Sheet

Human Topoisomerase II alpha (Top II alpha) Antibody

Cat # TOP2A11-A	Rabbit Anti-Human Topo II alpha IgG # 1	SIZE: 100 ug
Cat # TOP2A11-P	Human Topo II alpha control peptide # 1	SIZE: 100 ug

The topology of the DNA is a crucial issue in different biological processes like recombination, replication, transcription, and chromatin remodeling. **DNA topoisomerases** are enzymes that control the amount of supercoiling in DNA. Without topoisomerase, DNA cannot replicate normally. The protein family of DNA topoisomerases is divided into two types (**type I and II**) based on their mechanism and physical properties. While the **type I topoisomerases** are monomeric and do not require ATP, the **type II** contain multi-subunits and depend on ATP for their activity. The type I enzymes include eukaryotic and bacterial topoisomerase I and III. The type II enzymes include bacterial DNA gyrase and topoisomerase IV and the eukaryotic topoisomerase II. Type I enzymes introduce transient single strand breaks in DNA, while type II enzymes produce transient double strand breaks in the DNA. Human DNA Topoisomerase I belongs to the subtype IB enzymes. The protein has four distinct domains. The N-terminal 214 amino acids are dispensable for relaxation activity and constitutes a hydrophilic and highly protease sensitive region of the protein. There are four nuclear localization signals in the N-terminal domain. The second domain is a core domain of 421 amino acids that is responsible for the single break in the DNA. Recently it was reported that DNA topoisomerase I is involved in modulation of RNA and is present in retroviral particles (like HIV1). Furthermore, the enzyme enhances HIV-1 cDNA production in reverse transcription assays.

Topo II plays important roles in synthesis and transcription of DNA as well as chromosomal segregation during mitosis. It is reported to be a sensitive and specific marker of late S-, G2- & M-phases in transformed and developmentally regulated normal cells Top II is also implicated in drug resistance of tumor cells.

Source of Antigen and Antibodies

Antigen	18-aa peptide from ~C-terminus of human topoisomerase II alpha (Cat # TOP2A11-P) control peptide
Ab Host/type	Rabbit, polyclonal IgG Aff pure IgG (Cat # TOP2A11-A)
2-ab	Goat Anti-rabbit IgG-HRP cat # 20320 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/100ul solution lyophilized powder
Supplied in **Buffer:** PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide

100 ug/100 ul solution lyophilized powder
Supplied in **Buffer:** PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage

Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -20oC..

Long-term: at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20oC or below.

Shipping: 4oC for solutions and room temp for powder.

Recommended Usage

Western Blotting: An initial concn. of 2-10 ug/ml is recommended for Western. Human Raji cells topoisomerase II alpha is ~ 170 kda.

Histochemistry & Immunofluorescence: Not tested. An initial concn. 2-20 ug/ml is recommended for IHC.

Specificity & Cross-reactivity

Top2A11-P sequence is 100% conserved in alternatively spliced isoforms 2-4 of human TOP2A protein. It is also conserved in g. pig, and pig (94%), mouse (87%), chicken (72%), and rat (88%) in TOP2 alpha proteins. No significant reaction is seen with TOP2 beta protein. Antibody cross-reactivity in various other species has not been studied. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity.

General References: Jenkins JR et al (1992) Nucl. Acid Res. 20, 5587-5592; Austin CA et al (1993) BBA 1172, 283-291; Chung TD et al (1989) PNAS 86, 9431-9435; Sng JH et al (1999) BBA 1444, 395-406; Wang JC et al (1985) Ann Rev. Biochem 54, 665-697; Earnshaw WC et al (1985) j Cell Biol. 100, 1706-1715

***This product is for In vitro research use only.**

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