

Recombinant Human TOP2B

Cat. No. TOP2B-105H Lot. No. (See product label)

SPECIFICATION

Product Overview Recombinant Human TOP2B is produced from a baculovirus expression system. The final fraction of enzyme contains a single polypeptide band of 180 kDa and is devoid of contaminating nuclease activity.

Species Human

Source Insect Cells

Description This gene encodes a DNA topoisomerase, an enzyme that controls and alters the topologic states of DNA during transcription. This nuclear enzyme is involved in processes such as chromosome condensation, chromatid separation, and the relief of torsional stress that occurs during DNA transcription and replication. It catalyzes the transient breaking and rejoining of two strands of duplex DNA which allows the strands to pass through one another, thus altering the topology of DNA. Two forms of this enzyme exist as likely products of a gene duplication event. The gene encoding this form, beta, is localized to chromosome 3 and the alpha form is localized to chromosome 17. The gene encoding this enzyme functions as the target for several anticancer agents and a variety of mutations in this gene have been associated with the development of drug resistance. Reduced activity of this enzyme may also play a role in ataxia-telangiectasia. Alternative splicing of this gene results in two transcript variants; however, the second variant has not yet been fully described.

Unit Definition A unit of topo IIb can relax 0.2 ug pGEM 5Z DNA or KDNA in 30 min at 37oC. The enzyme is supplied at a nominal concentration of approximately 2 units/ul.

 Tel: 1-631-559-9269 1-516-512-3133

 Email: info@creative-biomart.com  Fax: 1-631-938-8127

 45-1 Ramsey Road, Shirley, NY 11967, USA

Applications	I. Studying the effects of supercoiling on transcription in vitro. 2. Studying chromatin reconstitution in vitro. 3. Determining the degree of supercoiling of naturally occurring DNA. 4. Anticancer drug screening.
Quality Control Test	1. A test for nuclease contamination is carried out by assaying for the formation of linear KDNA and linear plasmid DNA. Incubation with KDNA or supercoiled pGEM 5Z DNA (4 hrs. at 37oC in the presence of 10 mM MgCl ₂) is performed. Linear DNA or breakdown products are not generated under these conditions. 2. A check for cross contamination with Topo I is negative. There must be no relaxation of supercoiling plasmid DNA in the reaction conditions without ATP.
Storage	The enzyme is shipped on ice and must be stored at -20 degree or lower.
Storage Buffer	The final fraction of topoisomerase IIb is an affinity column pool and is in the following buffer: 10 mM Tris-Cl, pH 7.5, 500 mM NaCl, 500 mM Imidazol, 0.5 mM PMSF, 1 mM DTT, 10 % glycerol. The enzyme is stable in this buffer at -70oC. In general the enzyme is less stable when diluted. We recommend that you do not dilute the enzyme before storage at -70oC. In addition, it is a good practice to aliquot the enzyme after the first thaw.
Dilutions	Dilutions should be performed in 1x Reaction Buffer. 5X Reaction Buffer [200 mM Tris-HCl (pH 7.5), 500 mM KCl, 50 mM MgCl ₂ , 50 mM DTT, 2.5 mM EDTA and 150 ug/ml BSA].

GENE INFORMATION

Gene Name	TOP2B topoisomerase (DNA) II beta 180kDa [Homo sapiens (human)]
Official Symbol	TOP2B
Synonyms	TOP2B; TOPIIB; top2beta; topoisomerase (DNA) II beta 180kDa; DNA

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topoisomerase 2-beta; topo II beta; antigen MLAA-44; topoisomerase IIb;
topoisomerase II beta; U937 associated antigen; DNA topoisomerase II beta; DNA
topoisomerase II, 180 kD; DNA topoisomerase II, beta isozyme; NP_001059.2; EC
5.99.1.3

Gene ID 7155

mRNA Refseq NM_001068

Protein Refseq NP_001059

MIM 126431

UniProt ID Q02880

**Chromosome
Location** 3p24

Function DNA topoisomerase type II (ATP-hydrolyzing) activity; ATP binding; chromatin binding

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