

Product Data Sheet

□ Cat # RP-392

Recombinant (sp9) Human DNA Topoisomerase-I

Size: □ 5 ug

DNA topoisomerases are ubiquitous enzymes found in all cell types from viruses to man. These enzymes act to regulate DNA super coiling by catalyzing the winding and unwinding of DNA strands. They do this by making an incision that breaks the DNA backbone, so they can then pass the DNA strands through one another, swiveling and relaxing/coiling the DNA before resealing the breaks. DNA topoisomerases can be divided into two groups based on the number of strands that they break.

DNA topoisomerase I (TOP 1) was the first topoisomerase to be discovered. TOP 1 can remove negative supercoils without leaving nicks in the DNA molecule. It belongs to *type 1* topoisomerase, which are enzymes that cleave only one strand of DNA. After the enzyme binds to a DNA molecule, it cuts one strand, simultaneously generating a covalent phosphoester bond between the released 5' phosphate on the DNA and a tyrosine residue in the enzyme. Formation of this phosphotyrosine bond does not require ATP or another source of energy. The free 3'-hydroxyl end of the DNA is held non covalently by the enzyme. The DNA strand that has not been cleaved is then passed through the single-stranded break. The cleaved strand is then resealed, forming a structure with the same chemical bonds as the starting DNA, but with one less negative supercoil. By this mechanism, the enzyme removes one negative supercoil at a time.

DNA topoisomerase 1 in humans is encoded by the TOP1 gene. This gene is localized to chromosome 20 and has pseudogenes which reside on chromosomes 1 and 22. This enzyme is the target antigen for the so-called Scl-70 autoantibodies. Scl-70 antibodies are a specific marker in Scleroderma patients (specificity 98-100%) and are associated with the presence of diffuse skin involvement and pulmonary fibrosis. In human tissues the DNA topoisomerase I is initially synthesized as a protein with 100 kDa molecular weight. Most of this precursor is then proteolytically processed to a species with 70 kDa molecular weight from which the Scl-70 antigen has derived its name.

Synonyms: Omega-protein, Relaxing enzyme, Swivelase
Untwisting enzyme

Source:

Recombinant DNA Topoisomerase-I Human is produced in sf9 cells. (>95%, ~91 kDa) TOP 1 is expressed with a -6x His tag and purified by proprietary chromatographic techniques.

Purified protein is supplied in 16 Mm HEPES [pH 7.5], 400 mM NaCl and 20% glycerol. (See lot specific conc. on vial)

Applications:

ELISA and inhibition Assays, positive control for Western blot, Protein assay. ELISA Coating concentration: 0.5-0.8 µg/ml (depending on the type of ELISA plate and coating buffer). Suitable for biotinylation and iodination. Users must optimize the appropriate concentration and conditions for each assay.

Storage and Stability:

Store at 4°C short term for 2-4 weeks. Long term storage at -20°C in suitable aliquots. Avoid multiple freeze-thaw cycles.

Usage: This item is for LABORATORY RESEARCH USE ONLY.

Reference: Wang JC (2002) Nat. Rev. Mol. Cell Biol. 3 (6): 430-440; Champoux JJ (2001) Annu. Rev. Biochem. 70: 369-413.

Related items:

- RP-374 Recombinant (E.Coli) T4 DNA Ligase
- RP-395 Recombinant (E.Coli) Taq Plus DNA Polymerase
- RP-394 Recombinant (E.Coli) Taq DNA polymerase
- RP-392 Recombinant (Sf9) Human DNA Topoisomerase-I
- RP-615 Recombinant E.Coli Dnak (HSP70)
- RP-616 Recombinant (E.Coli) DnaJ
- RP-618 Recombinant (E.Coli) Dnak Substrate Binding Domain C-terminal
- RP-617 Recombinant (E.Coli) Dnak Substrate Binding Domain
- RP-620 Recombinant (E.Coli) Dnak Lid Covering Substrate
- RP-619 Recombinant (E.Coli) Dnak ATPase Binding Domain
- RP-1470 Uracil DNA Glycosylase
- RP-628 Recombinant purified Mycobacterium Tuberculosis Heat Shock Protein 70 (hsp70/Dnak/ML2496)
- RP-621 Recombinant (E.Coli) Human DnaJ (HSP40)
- SP-86693-5 NES Topoisomerase II alpha (1017 - 1028)
(AA: Asp-Ile-Leu-Arg-Asp-Phe-Phe-Glu-Leu-Arg-Leu-Lys) (MW: 1564.86)
- TOP11-M Monoclonal Anti-human Topoisomerase I (TOP1) protein IgG
- TOP2A11-A Anti-human Topoisomerase II alpha (TOP2 alpha) IgG, aff pure
- TOP2A11-P human Topoisomerase II alpha (TOP2 alpha) Control/blocking peptide
- TOP2B21-A Anti-human Topoisomerase II beta (TOP2 beta) protein IgG
- TOP2B21-C Human Topoisomerase II beta-GST fusion protein for WB +ve control
- 3300-140-SCG Human Anti-Scl-70 (Scleroderma 70 Kda/DNA-topoisomerase-1) IgG ELISA kit, 96 tests, Quantitative
- 3300-150-JOG Human Anti-Jo-1 (Scleroderma 70 Kda/DNA-topoisomerase-1) IgG ELISA kit, 96 tests, Quantitative

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