

## Active Recombinant Human TOP1, His-tagged

**Cat. No.** TOP1-8479H    **Lot. No.** (See product label)

### SPECIFICATION

**Product Overview**      Recombinant Human TOP1, fused with His tag, was expressed in Sf21 Cells.

**Species**                      Human

**Source**                        Sf21 Cells

**Description**

Human DNA topoisomerase I (topo I) is a monomeric protein of 765 amino acids encoded by a single-copy gene. Based on its function, DNA topoisomerase I has been subdivided into four distinct domains. The N-terminal 214 amino acids of topo I comprise a highly charged N-terminal domain involved in protein-protein interactions with a number of cellular proteins. The highly conserved core domain expanded from amino acids 215 to 636 contains most catalytic residues and retains DNA binding activity. The active C-terminal domain (residues 713-765) is connected to the core domain by a poorly conserved linker domain (residues 636-712). Human DNA topoisomerase I is the best studied of the DNA topoisomerase family. It catalyzes the relaxation of both positive and negative supercoiled DNAs without the requirement of energy. In addition to DNA replication and transcriptional activation, DNA topoisomerase I also plays a major role in pre-mRNA splicing, cell cycle and other gene regulatory pathways during cell growth and development. Since topo I can cause large amounts of single-strand DNA breaks and this kind of DNA damage closely relates to most cancer, it is therefore believed that DNA topo I can be an important target for antitumor agents.

**Form**                              20 mM Tris-Cl, pH 7.9, 20% Glycerol, 100 mM KCl, 1 mM DTT and 0.2 mM EDTA

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<b>Bio-activity</b>	1 unit equals 1 ng purified protein. 0.1 –1 unit (ng) is sufficient for relaxing 0.5 µg of pBR322 supercoiled DNA in a 20 µl reaction.
<b>Purity</b>	>95% as determined by SDS-PAGE
<b>Storage</b>	-80 °C
<b>Concentration</b>	500 µg/ml
<b>Shipping</b>	Dry Ice

## GENE INFORMATION

<b>Gene Name</b>	TOP1 topoisomerase (DNA) I [ Homo sapiens ]
<b>Official Symbol</b>	TOP1
<b>Synonyms</b>	TOP1; topoisomerase (DNA) I; DNA topoisomerase 1; type I DNA topoisomerase; TOPI;
<b>Gene ID</b>	7150
<b>mRNA Refseq</b>	NM_003286
<b>Protein Refseq</b>	NP_003277
<b>MIM</b>	126420
<b>UniProt ID</b>	P11387
<b>Chromosome Location</b>	20q12-q13.1

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**Pathway**

Caspase cascade in apoptosis, organism-specific biosystem;

**Function**

ATP binding; DNA binding; DNA topoisomerase (ATP-hydrolyzing) activity; DNA topoisomerase type I activity; chromatin DNA binding; chromatin binding; nucleotide binding; protein binding;

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