

## Topo I NTD

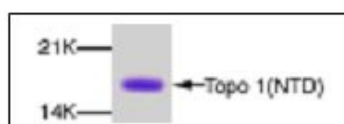
[Human DNA Topoisomerase I, N-terminal Domain (NTD)]

Human, Recombinant, Sf9 insect cells

Cat. No.	Amount
PR-738	2 $\mu$ g

**Purity:** > 95% by SDS-PAGE.

**Store:** -80 °C



Liquid. Supplied in 20 mM Tris-HCl, pH 7.9, 100 mM KCl, 0.2 mM EDTA, 1 mM DTT, 20 % glycerol.

Human DNA Topoisomerase I is the best studied of the DNA topoisomerase family. It catalyzes the relaxation of both positive and negative supercoils 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.

The N-terminal 214 amino acids of Topoisomerase I comprise a highly charged N-terminal domain (NTD) involved in protein-protein interactions with a number of cellular proteins, including SV40 T antigen, nucleolin, SR proteins, p53 and other transcription factors.

The N-terminal domain (NTD) of human DNA Topoisomerase I protein (residue 1-197) was expressed in baculovirus system and purified by using an affinity column and FPLC chromatography.

Purified Topo I NTD can be tested for *in vitro* transcription, pre-mRNA splicing, DNA binding and protein-protein interaction assays.

Purified Topo I protein (NTD) is greater than 95% homogeneous and contains no detectable protease, DNase, and RNase activity.

### Unit definition:

0.1-10 units (ng) have been tested for *in vitro* relaxation assay in a 20  $\mu$ l reaction and contain no detectable DNA relaxation activity.

AVOID FREEZE/THAW CYCLES.

**For *in vitro* use only!**

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### Selected References:

Gai *et al.* (2000) Topoisomerase I associates specifically with simian virus 40 large-T-antigen double hexamer-origin complexes. *J. Virol.* **74**:5224.

Haluska *et al.* (1998) Interaction between the N-terminus of human topoisomerase I and SV40 large T antigen. *Nucleic Acids Res.* **26**:1841.

Mao *et al.* (2002) Subnuclear distribution of topoisomerase I is linked to ongoing transcription and p53 status. *Proc. Natl. Acad. Sci. USA* **99**:1235.

Labourier *et al.* (1998) Interaction between the N-terminal domain of human DNA topoisomerase I and the arginine-serine domain of its substrate determines phosphorylation of SF2/ASF splicing factor. *Nucleic Acids Res.* **26**:2955.

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Merino *et al.* (1993) DNA topoisomerase I is involved in both repression and activation of transcription. *Nature* **365**:227.

Kretzschmar *et al.* (1993) Identification of human DNA topoisomerase I as a cofactor for activator-dependent transcription by RNA polymerase II. *Proc. Natl. Acad. Sci. USA* **90**:11508.

Shykind *et al.* (1997) Topoisomerase I enhances TFIID-TFIIA complex assembly during activation of transcription. *Genes Dev.* **11**:397.

Wang *et al.* (1998) DNA topoisomerase I and PC4 can interact with human TFIIC to promote both accurate termination and transcription reinitiation by RNA polymerase III. *Mol. Cell* **1**:749.

Suzuki *et al.* (2000) HTLV-1 tax oncoprotein binds to DNA topoisomerase I and inhibits its catalytic activity. *Virology* **270**:291.