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Topoisomerase

National Cancer Institute

Source

National Cancer Institute. *Topoisomerase*. NCI Thesaurus. Code C20646.

Enzymes that change the degree of supercoiling in DNA by cutting one or both strands.

Type I topoisomerases cut only one strand of DNA; type I topoisomerase of *E. coli* (omega protein) relaxes negatively supercoiled DNA and does not act on positively supercoiled DNA. Type II topoisomerases cut both strands of DNA; type II topoisomerase of *E. coli* (DNA gyrase) increases the degree of negative supercoiling in DNA and requires ATP. It is inhibited by several antibiotics, including nalidixic acid and ovobiocin.