Topoisomerases catalyze the interconversion between topological states of DNA by breaking and rejoining DNA strands. These changes in DNA topology are required during several cellular processes such as replication, transcription, recombination, and chromosome condensation. There are three classes of topoisomerases that are distinguished by substrate. Type I topoisomerases cleave one DNA strand, while Type II enzymes cleave a pair of complementary DNA strands. The type IB topoisomerases relax both positively and negatively supercoiled DNA; TOP1 encodes the type IB enzyme in yeast. Type IA topoisomerase, encoded by TOP3 in yeast, relaxes only negatively supercoiled DNA, and yeast topoisomerase II is encoded by the TOP2 gene. Top2p is a highly conserved, essential protein with homologs in C. elegans, Drosophila, and humans; detailed comparisons between yeast and human Top2p have been done. Top2p, like other type II enzymes, hydrolyzes ATP and cleaves a pair of complementary strands to relax both positive and negative supercoils in DNA. To maintain the integrity of the cleaved DNA, Top2p forms a transient bridge that spans across the double-strand DNA break. Several antitumor drugs target Top2p. There are inhibitors that block Top2 catalytic activity as well as Top2p poisons that stabilize Top2-DNA complexes.