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. Type IA topoisomerases, encoded by TOP3 in yeast, relax only negatively supercoiled DNA, while type IB topoisomerasesrelax both positively and negatively supercoiled DNA. Yeast topoisomerase II is encoded by the TOP2 gene. TOP3 is homologous to E. coli topA and topB; homologs have also been identified in C. elegansand humans. top3 null mutants are viable but exhibit a variety of defects in cell cycle progression, recombination, transciption, mating, and sporulation. Recent work has elucidated the role of Top3p in sporulation; Top3 protein plays an essential role during meiotic recombination.