1033-92-255 **Jennifer K Mann*** (jmann@math.utexas.edu), Department of Mathematics, University of Texas at Austin, 1 University Station/C1200, Austin, TX 78712-0257, and **Richard W Deibler**, **Zhirong Liu**, **De Witt L Sumners**, **Lynn Zechiedrich** and **Hue Sun Chan**. *DNA Knotting: Occurrences, Consequences & Resolution.*

Cellular DNA knotting is driven by DNA compaction, topoisomerization, replication, supercoiling-promoted strand collision, and DNA self-interactions resulting from transposition, site-specific recombination, and transcription. Type II topoisomerases are ubiquitous, essential enzymes that interconvert DNA topoisomers to resolve knots. These enzymes pass one DNA helix through another by creating an enzyme-bridged transient break. We investigate how type II topoisomerases accomplish their unknotting feat and the cellular consequences of unresolved knotting. (Received September 12, 2007)