

ABOUT THE COVER

Model of a partial telomerase elongation complex.

The enzyme telomerase is a ribonucleoprotein reverse transcriptase responsible for maintaining the length and integrity of the ends of linear chromosomes, termed telomeres, present in eukaryotes. The figure depicts the partial structure of the telomerase elongation complex at the end of a chromosome (blue spheres). The catalytic subunit of telomerase (red rods) uses an integral RNA template (green spheres) to add multiple identical repeats of deoxyribonucleotides to the 3' end of the DNA strand of the chromosome. Telomerase and telomere dysfunction are considered to contribute to replicative senescence and programmed cell aging. Activation of telomerase is associated with the uncontrollable proliferation of cells found in about 85 percent of human cancers. A discussion of telomerase is presented in Chapter 4, *DNA Replication, Recombination, and Repair*.

[Gillis, A. J., Schuller, A. P., Skordalakes, E. Structure of the *Tribolium castaneum* telomerase catalytic subunit TERT. *Nature* 455:633, 2008. Figure generously supplied by Dr. Emmanuel Skordalakes, The Wistar Institute, Philadelphia, PA 19104, USA.]



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