

From End to End: Talking About Telomeres and Telomerase

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Telomeres, the non-coding ends of linear chromosomes, and their associated proteins constitute highly conserved system to ensure genome stability in eukaryotes. They shield the chromosome ends from inappropriate processing by the DNA repair machinery. Telomere shortening due to the end-replication problem provides a mechanism for “counting” cell divisions. However, the telomere loss can be balanced by addition of telomere repetitive DNA sequences onto chromosome ends by the enzyme telomerase. The story, of course, is never simple. As telomeres and telomerase are studied in more detail and in more diverse organisms, it is clear that they serve a number of functions other than those considered above, functions that are just being elucidated (e.g. telomere position effects on gene transcription or telomere-unrelated functions of telomerase). This lecture will be particularly focused on telomeres in plants and algae.