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Factors determining length distribution of telomeric structures in absence of telomerase

Absence of telomerase in cellular structures requires an alternative telomerase-independent pathway for telomeric sequence length regulation. Telomeric circles possibly play an important role in a universal mechanism for stabilization of the ends of linear DNA that possibly dates back to pre-telomerase ages. It was observed that their length distribution varies significantly in various types of organelles and organisms. How to explain these different outcomes of experiments? In this work we try to identify and estimate key factors influencing the length distribution of telomeric circles, loops and strand invasions using numerical simulations for a model we have constructed for C. parapsilosis.