

ROLE OF THE (TTAGGG)_n SEQUENCE IN STUDIES ON THE KARYOTYPE AND EVOLUTION OF BIRDS

Summary

As in mammalian chromosomes, avian chromosomes consist of 5'-(TTAGGG)_n-3' repeats, the sequence being the pattern conserved throughout vertebrate evolution. Although the avian genome is only 1/3 of the average mammalian genome, the telomeric sequences constitute as much as 4% of it and occur ten times more often than in mammals. What is particularly interesting from the point of view of bird karyotype evolution is research on the localization of telomeric sequences in the interstitial parts of chromosomal arms. Interstitial telomeric sequences occur on macro- and microchromosomes,

and their distribution, especially of those located on macrochromosomes, varies a lot. Interstitial telomeric sequences act as hot recombination places and they are correlated with occurrence of chiasms. High frequency of telomeric sequences in bird microchromosomes also results in a particularly high rate of microchromosome recombination. Determination whether interstitial telomeric sequences on macrochromosomes are evolutionary places of microchromosomal fusions is a very significant issue in studies on bird telomeric sequences.