

# TELOMERES — A SIGNIFICANT ROLE OF SMALL SEQUENCES

## Summary

Telomeres are distal structures of eukaryotic chromosomes, which are responsible for their stability and functioning. They assure complete replication of terminal fragments of chromosomes, prevent degradation and fusion of chromosomes. Telomeres of most chordates are comprised of tandem repeats of the basic unit 5'-(TTAGGG)<sub>n</sub>-3'. The number of repeats of the basic telomeric sequence differs between the chromosomes of one and the same cell. However, it remains within the strictly determined range for a given species, for man it ranges from

2 to 30 th pairs of nucleotides. Younger cells have got longer telomeres whereas the telomeres of older cells are shorter. Cytogenetic studies on telomeric regions of chromosomes have gained significance since the moment of the discovery that this chromosomal fragment actively participates in the process of cancer development, cell ageing and apoptosis. Telomeres consist of non-coding DNA sequences. They contain no genes and they code no proteins but their role in medicine, genetics and evolutionary studies is becoming more and more significant.