

## **Abstract:**

Chromosome aberrations play an important role in human pathogenesis as well as in evolution of many organisms. Robertsonian translocation or centric fusion are the most frequent chromosomal rearrangements in mammals. The most investigated model for their research is house mouse *Mus musculus*. The standard karyotype of a mouse consists from 40 acrocentric chromosomes, notably there are more than one hundred wild populations that are characterized by various combination of metacentrics, formed by centric fusion of different acrocentrics. Several models have been proposed for the formation of metacentrics, taking account of the sequential structure of their centromeres and short arms in mouse. Segregation distortion in favor of metacentrics is present in female and/or male meiosis, such as meiotic drive can positively affect the degree of fixation of metacentric chromosomes in certain population. Centric fusions have been also presented in evolution of other organisms. Cytogenetic data in spiders indicate the possibility of similar phenomena in the most diversified group of spiders, Entelegynae. Spiders are notable for their unusual sex chromosome systems. Centric fusions also play an important role in the evolution of sex chromosomes and the formation of neo-sex chromosome systems. So far, there is complete lack of data of repetitive DNA and possible specifics of the molecular biology of meiotic division in spiders. This fact, do not yet allow the assessment of analogies and testing of model situations in domestic mouse for spiders.

Key words: centromere, centromere fusion, genome, sex chromosome, meiotic drive, *Mus*, Araneae