

The robertsonian phenomenon in the house mouse: mutation, meiosis and speciation

Garagna, Silvia

Page, Jesus

Fernandez-Donoso, Raul

Zuccotti, Maurizio

Searle, Jeremy B.

© 2014, Springer-Verlag Berlin Heidelberg. Many different chromosomal races with reduced chromosome number due to the presence of Robertsonian fusion metacentrics have been described in western Europe and northern Africa, within the distribution area of the western house mouse *Mus musculus domesticus*. This subspecies of house mouse has become the ideal model for studies to elucidate the processes of chromosome mutation and fixation that lead to the formation of chromosomal races and for studies on the impact of chromosome heterozygosities on reproductive isolation and speciation. In this review, we briefly describe the history of the discovery of the first and subsequent metacentric races in house mice; then, we focus on the molecular composition of the centromeric regions involved in chromosome fusion to examine the molecular characteristics that may explain the great variability of the karyotype that house mice show. The influence that metacentrics exert on the nuclear architecture o