

Chromosomal evolution and pattern of gene flow across chromosomal hybrid zones in the house mouse *Mus musculus domesticus*.

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The West European house mouse, *Mus musculus domesticus*, is a suitable model to investigate the role of chromosomal rearrangements as post-mating mechanism of reproductive isolation (Capanna and Castiglia 2004). In fact, it exhibits a broad range of chromosomal polymorphism due to Robertsonian (Rb) fusions leading to various types of contact zones between different chromosomal races. We analyzed the chromosomal structure and estimated gene flow in two different contact areas in central Italy to evaluate the role of Rb fusions in the speciation process. Microsatellite loci variation was analysed in 235 specimens sampled from 31 localities. In the hybrid zone between the Cittaducale race (CD: $2n = 22$) and the surrounding populations with standard karyotype ($2n = 40$), telomeric and pericentromeric loci were selected on six chromosome arms in order to estimate the amount of gene flow in these chromosome regions (Franchini et al. 2010). The analyses show differential gene flow, which seems more restricted near the centromeres of Rb chromosomes. A different pattern was observed in the contact zone between two metacentric races, the Cittaducale race (CD: $2n = 22$) and the Ancarano race (ACR: $2n = 24$) (Franchini et al. 2008). Here, the clear genetic differentiation between the races suggests the absence of gene flow. We discuss the obtained results considering the hybrid dysfunctions and suppressed recombination models of chromosomal speciation. We have recently extended such researches on insular systems (Sicily and Aeolian Archipelago) where chromosomal evolution of the house mouse appears particularly prominent (Solano et al. submitted; Castiglia et al. 2011).

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