

Geographic distribution of Mus domesticus-specific genetic markers primarily within the parapatric ranges of other Mus species: A literature review of data supporting long-distance gene migration

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ABSTRACT: My objective is reviewing primarily Mus domesticus-specific genetic marker data (allozymes; mitochondrial DNA; Robertsonian translocations; morphology; genetic resistance) from 13 genetic surveys including 40 populations within the parapatric ranges of other Mus species. I included some populations with unique genetic markers (e.g., Robertsonian translocations) within the range of M. domesticus.

Though these species-specific genetic markers occurring within the range of other Mus species are potentially strong evidence for the genetic impact of stowaway house mice on local populations, more controls are needed. (1) Collections from more locations must document the geographic extent of disjunct distributions of species-specific genetic markers because some collection sites were close to hybrid zones and because others included few sampling locations. (2) Identity by kind and descent must be distinguished using sequencing, closely-linked loci, and other methods. The more Mus domesticus-specific genetic markers that can be detected, the stronger will be the case for stowaways' genetic impact. For example, the same Robertsonian translocation and rare transferrin allele occurred in collections from Tübingen, Germany and Binasco and Bergamo, Italy. (3) Running a panel of inbred-line-specific genetic markers can discriminate escaped laboratory mice.

This is an abstract, published without review.

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