F801 Analysis of Genetic Relationships among the Mouse Strains using RAPD-PCR

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We have analyzed the genetic relationships among the mouse strains using RAPD-PCR. A lot of polymorphic RAPD markers amplified from various primers were used to analyze the genetic relationships among the seven mouse strains. Seven mouse strains, CBA, C57BL/6, BALB/C, NOD, A/wy, DBAZ, and AKR were used. The genetic similarity coefficients among the seven mouse strains were estimated using the RAPD markers by UPGMA method. The genetic similarity coefficient between CBA and NOD was 0.474. This value was lower than any other genetic similarity coefficients among the strains tested. CBA specific RAPD band patterns were observed in several primers from different polymorphic primers used. This study make possible phylogenetic identification among the inbred mouse strains in the molecular level using RAPD-PCR techniques.

F802 Genetic analysis of Inversions in the duplicated *Amy* locus of *Drosophila melanogaster*

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The *Amy* locus(*Amy*, 2-80; 54A1-B1) of *D.melanogaster* is duplicated (*Amy-p, Amy-d*). The members of duplicated genes are ~4 kb apart, each consists of 1482bp ORF without introns and do not evolve independently but exhibit an evolutionary process called concerted evolution. To infer the concerted evolution, we analysed inversions of a *Amy* locus using PCR. In order to detect intergenic inversions, PCR primers were selected from highly divergent region in flanking regions of *Amy-p* and *Amy-d*. The ferquence of inversions in Canton-S was 2.77×10^{-3}. To genetic analysis, five inversion mutants were made homozygous for chromosome II using a balancer chromosome *Cy* and routine crosses. Homozygous inversion mutants were analysed by PAGE and Southern blotting. From the detection of the inversions in *Amy* locus, we obtained evidence of interchromosomal recombination or gene conversion.