

The association study of microsatellite markers on swine chromosome 6 and the litter performance of parous sows⁽¹⁾

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Abstract

A total of ten microsatellite markers including MP35, SW2406, SW2525, S0087, SW1129, SWC4, SW280, SW1881, SW322, and SW607 spread on swine chromosome 6 (SSC6) were used to genotype 242 parous sows, including Landrace, Yorkshire, Duroc and Berkshire breeds. These markers spanned about 166 cM on the linkage map of SSC6. Three traits including total number born (TNB), number born alive (NBA), and the corresponding survivability of piglets were collected and analyzed in this study. The result indicated that there were significant breed effects in the distribution of allele frequencies for all markers analyzed. The relationship between litter performances described above and the presence of individual allele for parous sows in Landrace, Yorkshire and Duroc breeds were studied. Both positive and negative effects of alleles on sows' performances were observed. The marker-allele groups, i.e. MP35B7 and SW1881B1, SW2406B1, and MP35B5, SW2406B1, and SW1881B6 were beneficial for Landrace, Yorkshire, and Duroc sows, respectively. However, alleles with negative effects on sows' litter performances were also found. Furthermore, no specific marker allele was found to be significantly related to Berkshire sows in this study.

Key words: Microsatellite marker, Linkage map, Litter performance.

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