

Abstract

The objective of this study was to study the association of melanocortin 1 receptor (*MC1R*) and v-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog (*KIT*) genes with characteristics of the Royal Project pig breeds (Thai native x Meishan x Pietrain and Thai native x Meishan x Duroc). Six DNA markers of *MC1R* and *KIT* genes (*MC1R283*, *MC1R305*, *MC1R727*, *MC1R729*, *KIT2678* and *KIT84291*) were used to genotype in 60 black pigs and 40 non-black pigs (control group). The results showed that all DNA markers were segregated in the population of the Royal Project pig breeds. The *MC1R283*, *MC1R305*, *MC1R727*, *MC1R729* and *KIT2678* markers were significantly associated with characteristics of black color of pigs ($P < 0.05$). These markers (*MC1R283*, *MC1R305*, *MC1R727*, *MC1R729* and *KIT2678*) could be identified the black pigs with 49.8, 65.1, 64.2, 30.2 and 48.0 % accuracy, respectively. In addition, the combination of 5 DNA markers (*MC1R283*, *MC1R305*, *MC1R727*, *MC1R729* and *KIT2678*) could be identified the black pigs with 88.4% accuracy. The results in this study indicated that the *MC1R283*, *MC1R305*, *MC1R727*, *MC1R729* and *KIT2678* markers were associated with black color of pigs and these markers could be used to select the black characteristics of the Royal Project pig breeds.