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Development of DNA markers for discrimination between domestic and imported beef

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In the meat industry, correct breed information in food labeling is required to assure meat quality. Genetic markers provide corroborating evidence to identify breed. This paper describes the development of DNA markers to discriminate between Japanese and Australian beef. Two Bos indicus-specific markers and MC1R marker were used as possible candidate markers. Amplified fragment length polymorphism method was employed to develop additional candidate markers. The 1564 primer combinations provided three markers that were converted into single nucleotide polymorphisms markers for high-throughput genotyping. In these markers, the allele frequencies in cattle from both countries were investigated for discrimination ability using PCR-RFLP. The probability of identifying Australian beef was 0.933 and probability of misjudgment was 0.017 using six selected markers. These markers could be useful for discriminating between Japanese and Australian beef and would contribute to the prevention of falsified breed labeling of meat.