

Tm-shift基因分型方法在遗传学中的应用

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摘要 Melting Temperature shift (Tm-shift)是一种新的基因分型方法, 主要通过两条特异性引物5'端加入不同长度的GC序列, PCR扩增后根据熔解曲线中产物Tm值的差异来完成分型。文章建立了Tm-shift法对2 048份样品的29个SNP进行分型, 通过分型成功率、重复检测一致率、测序验证准确度综合评价分型效果。结果显示, 29个SNP中有27个可以采用本方法分型, 分型成功率为93.1%。测序验证准确性达到100%。3种基因型阳性标准对照重复检测一致率为100%; 100个随机样品重复检测, 重复率为97%。因此, Tm-shift基因分型法是一种成本低廉、准确灵敏、稳定可靠、通量灵活、操作简便的基因分型方法, 可在遗传学研究中推广应用。

关键词: Tm-shift 基因分型 遗传学

Abstract: Melting Temperature shift (Tm-shift) is a new genotyping method. With two GC-rich tails of unequal length combined to 5' -terminal of allele-specific primers, genotypes can be determined by the distinct Tms of the PCR products with inspection of a melting curve on the real-time PCR machine. In this study, 29 SNPs were genotyped with 2 048 samples by using Tm-shift genotyping method, and the results were assessed by success rate, consistent rate, and accuracy. The results indicated that among 29 SNPs, 27 SNPs could be genotyped by Tm-shift. In other words, the success rate was 93.1%. The accuracy confirmed by direct sequencing was 100%. The consistency was 100% with 3 control samples, and 97% from a replication study in 100 samples. Thus, Tm-shift is a genotyping method with advantages including low cost, high accuracy, stability, reliability, flexible throughput, and easy operation, which can be applied to genetic studies widely.

Keywords: Tm-shift, genotyping, genetics

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