LOCUS SPECIFIC BRACKETS IN STR GENOTYPING

Debang Liu
Oligotrail, LLC, Evanston, IL

A new DNA internal lane standard, locus specific brackets (LSB), has been developed for STR genotyping. LSB are created from their target STR loci. They have identical flanking region sequences, but fewer or more repeat units than any common allele or known allele of the locus being analyzed. LSB are applied as internal lane standards in electrophoresis without overlap with true alleles. Because LSB have the same flanking region sequences they are amplified with the same primers used for amplifying true alleles and labeled with the same dye. Therefore, LSB applied as internal lane standards free up the dye employed by the heterogeneous internal lane standards for other purposes. A validation study with 10 genomic DNA samples showed with LSB as internal lane standards, the maximum deviation of the measured length from the true length was 0.2 nt and the average error and standard deviation were 0.05 ± 0.06 nt on Phamacia's ALFexpress automated DNA sequencer. An example of amplification of CODIS 13 STR loci, divided into 4 multiplex subsets, from a genomic DNA sample in one PCR and electrophoresed in one channel with LSB as internal lane standards on the ABI 310 will be demonstrated.