Analysis of an “off-ladder” allele at the Penta D short tandem repeat locus

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ABSTRACT. Kinship testing of a father and his son from Guangxi, China, the location of the Zhuang minority people, was performed using the PowerPlex® 18D System with a short tandem repeat typing kit. The results indicated that both the father and his son had an off-ladder allele at the Penta D locus, with a genetic size larger than that of the maximal standard allelic ladder. To further identify this locus, monogenic amplification, gene cloning, and genetic sequencing were performed. Sequencing analysis demonstrated that the fragment size of the Penta D-OL locus was 469 bp and the core sequence was $[AAAGA]_{21}$, also called Penta D-21. The rare Penta D-21 allele was found to be distributed among the Zhuang population from the Guangxi

Zhuang Autonomous Region of China; therefore, this study improved the range of DNA data available for this locus and enhanced our ability for individual identification of gene loci.

Key words: Cloning; Sequencing; Penta D allele; Short tandem repeat; Zhuang nationality

