

Evaluation of a Novel Simple/Complex STR Multiplex for DNA Fingerprinting

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A novel marker system for DNA fingerprinting has been developed in Procrea's laboratories. This system presently includes seven STR markers based on Alu-tail polymorphism located on six different chromosomes. In 4 markers, the polymorphic regions consist of simple repeats. The other 3 are made of highly polymorphic complex repeat units. A population study with more than a thousand non-related individuals has reached a combined matching probability of 8×10^{10} and a typical paternity index over 8500. The system has many advantages among which is its unique and highly discriminative Sextolet 900 marker, quick PCR-setup time, and optional upgrading to an even higher matching probability. All markers used in this system are new and unlinked to the widely used CODIS markers as well as many other markers used in forensic investigation. This feature provides the existing marker with additional informativeness and greater flexibility.

The system has been assessed for various experimental conditions with regards to the quality of the amplification, among them the sensibility test and a discussion on the plus-A and stutter bands amplification. The performance of the system with biological liquid stains on different materials has also been investigated. Parameters for multiplex and singleplex amplifications under these conditions will be presented in detail. The analysis of mixed DNA samples using this multiplex system will also be available.