B129 I-Typer: Development and Validation of an Interspersed Genetic Element-Based Human Identity Kit

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The goal of this presentation is to introduce the development of a novel, 3100-based genetic system which utilizes unconventional genetic elements.

This presentation will impact the forensic community by showing the allele frequency database and the application of this system to actual casework samples for relationship testing. There will also be information given on the primer design process used to exploit these sequence similar elements. I-Typer is stable (no mutations), highly sensitive, robust, and has the potential for becoming a popular additional genetic system with the forensic and relationship testing communities.

Human identity testing methods are built on the variation that exists between individuals at particular genomic locations. These differences are typically targeted using neutral genetic markers such as VNTRs, SNPs and STRs. These have become the primary genetic tools utilized in the fields of forensics and relationship testing. There is another group of genetic candidates that have been largely unexplored as to their potential for use as markers. Interspersed elements have created a rich source of human diversity that has had minimal academic exposure as identity markers. These elements are already being used in DNA quantitation systems as well as forensic male chromosomal screening assays. Reliagene Technologies, Inc. has now designed a kit, I-Typer, which utilizes polymorphic interspersed elements as human identity markers. These elements have unique attributes that are advantages over currently used systems. This system has been designed such that intra- specific competition inherent in a locus has been eliminated completely, minimizing the possibility for allele drop-out in trace samples which is caused by stochastic effects.

Interspersed Element, DNA Testing, Relationship Testing

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