Development of a "Global" STR Multiplex for Human Identification Analysis

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National DNA databases are one of the most efficient and effective tools to provide intelligence about unknown perpetrators in criminal investigations. Due to its overwhelming success in solving crimes, governments around the world have implemented an ongoing expansion of DNA databases. For examples, the European community expanded their set of standard loci in 2008 and the CODIS Core Loci Working Group have published recommendations to expand the CODIS core loci set in the United States in 2011. In addition to the DNA database expansion, countries are attempting to establish a legal basis for exchanging DNA database profiles between countries in criminal investigations.

Life Technologies is responding to these initiatives by developing a new generation of STR chemistry that incorporates as many of the loci utilized in different DNA databases as possible into a single amplification reaction. This “Global” STR multiplex is larger and more discriminating. It can reduce the likelihood of adventitious matches, increase international compatibility and improve discrimination power to assist missing person cases. The “Global” STR multiplex concept features two kits, one optimized for casework samples and the other for database applications while sharing the same configuration. The new chemistries will enable unprecedented capabilities in terms of robustness, concordance and overall ability to recover information from forensic samples. Some key features are expanded allelic ladders at certain loci to assist genotyping of rare alleles, inclusion of the DYS391 marker to provide gender confirmation in amelogenin Y-deficient males, and the addition of extra primers to reduce rare instances of false homozygosity.