CHARACTERIZATION OF ADDITIONAL STR LOCI: D12S391, D1S1656, D2S441, D10S1248, D22S1045, SE33

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In November 2009, the European Union adopted five new autosomal short tandem repeat (STR) loci as part of their expanded European Standard Set (ESS). These new ESS STR loci, which include D12S391 [1], D1S1656 [2], D2S441 [3], D10S1248 [3], and D22S1045 [3], were selected based on discussion over the past few years within the European Network of Forensic Science Institutes (ENFSI) [4,5]. In the past year, Promega Corporation and Applied Biosystems have released new STR kits to enable coverage of these additional loci as well as the highly polymorphic locus SE33 [6,7].

Using three different STR kits (PowerPlex® ESX 17, PowerPlex® ESI 17, and AmpFlSTR® NGM), we have studied the allelic variation in over 1440 U.S. population samples [8]. We have also reviewed the literature to find all known variants of these STR loci. Understanding the variation in these additional STR loci across U.S. populations is important because they are being considered as possible candidates for expanding the U.S. core loci in order to enable future international DNA data sharing. Chromosomal location, sequence information, allele frequencies, and power of discrimination will be shown for each of these additional autosomal STR loci. In addition, the probability of identity with different sets of loci will be illustrated in order to help assess the benefits of adding additional loci to the current 13 CODIS core loci.

References:
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