

DEVELOPMENTAL VALIDATION OF THE POWERPLEX® FUSION SYSTEM

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The PowerPlex® Fusion System includes all the loci in Section A of the proposed expanded CODIS core loci (D.R. Hares, Addendum to expanding the CODIS core loci in the United States, *Forensic Sci. Int. Genet.* 6 (2012) e135.). It also includes two loci from CODIS Section B (TPOX and D22S1045) and two highly polymorphic pentanucleotide loci, Penta E and Penta D. These Penta loci have been used worldwide for more than 10 years, and are included in greater than one million profiles in the CODIS database. This five color system can be used on the Applied Biosystems 3500 or 31xx series Genetic Analyzers. No upgrade is required for use on the 31xx series instruments. The PowerPlex® Fusion System has been commercially available since September 2012 and received NDIS approval in March 2013. Twelve laboratories participated in the developmental validation testing which followed the SWGDAM guidelines. Validation testing included extracted DNA, direct amplification of samples from on FTA® paper (GE Healthcare/Whatman), amplification of samples from buccal swabs pretreated with Promega's SwabSolution™ Kit, and samples from paper substrates pretreated with Promega's PunchSolution™ Kit.