

Validation of the 3130 Series System Upgrades for use in Forensic Laboratories

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The goal of this presentation is to summarize the experiments conducted by Applied Biosystems documenting the validation of the 3130 Series System Upgrades for use in human identity laboratories. The newest instruments in the Applied Biosystems Genetic Analyzer family are the 3130 and 3130xl. These instruments utilize the industry-leading Applied Biosystems capillary electrophoresis (CE) technology and deliver improved data quality, enhanced automation, and greater reliability. The automated polymer delivery system eliminates the need for syringe filling, maintenance, and clean up, facilitating faster turn around times. Additional features of the 3130 instrument series include Windows XP® support providing improved operating system security and reliability, and enhanced data collection software with easy-to-use wizards for instrument operation and maintenance. The 3130 Series System Upgrades allow users to add the hardware and software features of the 3130 series to their existing 3100-Avant or 3100 instruments. Additionally, users may upgrade the 4-capillary 3130 instrument to a 16-capillary 3130xl instrument allowing increased throughput. Validation studies were designed according to the SWGDAM guidelines, to test the possible upgrade pathways for the 3100 and 3130 instruments. AmpFLSTR® Profiler Plus™ (4-dye) and the AmpFLSTR Identifiler® (5-dye) PCR Amplification Kits were used in this study. Three upgrade pathways were tested: ABI PRISM® 3100-Avant to 3130 Genetic Analyzer, ABI PRISM® 3100 to 3130xl Genetic Analyzer, and 3130 Genetic Analyzer to 3130xl Genetic Analyzer. These validation studies included comparisons of sizing precision, peak resolution, sensitivity, and male:female mixtures before and after performing the upgrades. Data will be shown that demonstrate the ability of the 3130 series system upgrades to produce reliable and reproducible results with the types of samples routinely encountered in the human identification laboratory.