

A SUMMARY OF THE VALIDATION OF THE THIRTEEN CORE CODIS LOCI FOR IMPLEMENTATION IN CASEWORK ANALYSIS

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The Charlotte Mecklenburg Police Department (CMPD) validated the ABI™ PRISM® and AmpF/STR™ COfiler™ kits (Perkin Elmer) to analyze the core loci for use in routine forensic casework and the CODIS system. This combination of products allows the analysis of the short tandem repeat (STR) loci D3S1358, D8S1179, D5S818, vWA, D21S11, D13S317, FGA, D7S820, D18S51, TH01, TPOX, D16S539, CSF1PO and Amelogenin in two PCR reactions.

Our validation procedure was designed to investigate the strengths and limitation of our instrument to determine the optimal protocols for routine forensic casework. Seven studies, which had previously been performed by Perkin-Elmer, were repeated to confirm the manufacturer's results. Included were precision, stutter, low template, peak height balance, and mixture studies, as well as analysis of non-probative cases.

We also performed additional analysis, which had not been addressed in the manufacturer's validation material, that provides useful information for casework analysis. These studies included the analysis of mock case samples, three extraction protocols, and the variation of injection time and PCR volume in the injection mixture. We developed databases for approximately 150 Charlotte Hispanics, and all CMPD crime scene search and laboratory personnel. In addition, we participated in external proficiency and concordance studies.

A brief summary of each study will be presented regarding the purpose, methodology, and the results of the analysis.

