

**VALIDATION OF PROFILER PLUS™ FOR A FRENCH CANADIAN POPULATION USING A COST-EFFECTIVE APPROACH SUITABLE FOR SMALL FORENSIC SAMPLES**

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Short tandem repeat (STR) loci are widely used in forensic genetics for identification and paternity testing. One of the commercially available multiplex kits is the Ampf/STR Profiler Plus™ (Perkin-Elmer) consisting of nine polymorphic loci (D3S1358, vWA, FGA, D8S1179, D21S11, D18S51, D5S818, D13S317 and D7S820) and amelogenin.

In order to reduce consumption of irreplaceable crime scene samples, validation studies were performed on PCR reaction volumes ranging from 7.5 µl to 50 µl and DNA input from 30 pg to 3 ng in a Perkin-Elmer 9600 Thermal Cycler. Electrophoresis was carried out on an ABI 377 DNA sequencer using GeneScan® ROX 500 as internal standard. Experiments showed that detection limits and sensitivity were greatly improved in a reduced reaction volume. Amplification of 350-700 pg in a 15 µl reaction enhances overall test performances.

Alleles and genotypes of the nine STR loci were determined in a French Canadian population sample consisting of 226 unrelated Caucasian individuals from the Province of Quebec. Forensically relevant parameters were calculated and a comparison between different populations was performed. Ranges of stutter ratios and heterozygous peak height ratios were determined from the database samples for subsequent casework mixture interpretation.