EVALUATION OF THE MAXWELL48® DNA IQ™ SYSTEM: A COMPARATIVE STUDY OF AUTOMATED DNA EXTRACTION METHODS AND ITS APPLICATION TO THE CHALLENGING CASEWORK SAMPLES.

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The DNA extraction step is the critical point for the successful forensic DNA typing. It is important not only in recovering the maximum amount of DNA from the forensic casework samples but also in eliminating the PCR inhibitors. To date, many automated extraction methods have been developed to handle the large number of casework samples with the improved speed and the performance.

We evaluated the performance of Maxwell48® DNA IQ™ system with the standard blood samples and 40 forensic trace evidence samples consisting of various types of touch DNA, we also compare the performance of three additional automated DNA extraction methods (PrepFiler Express Forensic DNA Extraction kit on an AutoMate Express, QIAsymphony DNA investigation kit on an QIAsymphony SP, and QIAamp DNA Micro Kit on an QIAcube) and tested the optimal condition for the trace evidence extraction.

In addition, we present the successful casework reports of the challenging samples which require the large volume preparation with the DNA IQ™ and Maxwell48® system.