

## **THE ANDE EXPERT SYSTEM: FULLY INTEGRATED DATA INTERPRETATION SOFTWARE FOR RAPID DNA**

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ANDE is a fully automated Rapid DNA Analysis System and includes a ruggedized instrument, a single room-temperature stable consumable chip, and integrated Expert System software for signal processing and STR interpretation. The ANDE Expert System is an automated allele calling software that interprets the processed data based on a set of rules designed to reproduce the analytical processing of a forensic analyst, allowing for searchable profiles without human intervention.

The ANDE Expert System first completes the steps of raw data capture, peak identification, and spectral separation. After generating an electropherogram of spectrally discrete peaks, conservative allele calling and interpretation rules are applied to each sample. Rules include the application of appropriate signal strength thresholds, peak height ratios, and rules to identify iNTA, stutter, triallelic patterns, and mixtures. The rules were developed empirically after running thousands of samples on the fully integrated Rapid DNA System with the goal of maximizing the number of profiles passed by the software while maintaining accuracy as the most important criterion.

Employing the fully automated Expert System for Rapid DNA allows non-technical operators to use STR profiles for database enrollment and searching immediately – without transmitting the data to another location and waiting in a queue for analyst review. This allows an operator to generate, in less than 2 hours, actionable results for database enrollment, criminal investigation, sensitive site exploitation, and mass fatality events.