

**AN EXPANDED HVI/HVII IMMOBILIZED SEQUENCE-SPECIFIC  
OLIGONUCLEOTIDE (SSO) PROBE TYPING STRIP FOR  
THE RAPID SCREENING OF FORENSIC SPECIMENS**

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Analysis of human mitochondrial DNA (mtDNA) control region sequences is a useful tool for forensic identity testing on a range of samples. Due to the high genome copy number per cell (~500-1000), mtDNA analysis often succeeds in cases where two-copy nuclear markers fail. Furthermore, the maternal inheritance of mtDNA genomes and high sequence variability make this a suitable approach for human identification efforts in many forensic settings.

Immobilized sequence specific oligonucleotide (SSO) probe analysis has been described in the literature as a useful screening tool for mtDNA haplotypes. Reynolds *et al.* previously reported sequence variation detection of the mtDNA hypervariable region II (HVII) for 689 unrelated individuals using a typing strip that targets five polymorphic regions. We have expanded the original typing strip to include two polymorphic regions within hypervariable region I (HVIA and HVIC) and two sites (positions 189 and 16093 relative to the Anderson reference sequence) for additional sequence variation detection. This typing approach provides a significant power of discrimination of ~0.92 or greater, making the system an effective tool for sample exclusions.