

MITOCHONDRIAL DNA TYPING FROM PROCESSED FINGERPRINTS

Nicole Gross, Susan Currence and Robert Bever, Ph.D.
The Bode Technology Group, A Choice Point Company, Springfield, VA



Fingerprints are routinely used in investigation to characterize individuals associated with forensic evidence. However, fingerprints are sometimes smeared or incomplete and cannot be interpreted. The use of mtDNA for the identification of the donor of these fingerprints would be valuable in forensic investigations. Three extraction methods were compared for their ability to purify amplifiable mtDNA from processed fingerprints. Fingerprints collected on porous and nonporous substrates were treated with Ninhydrin solution, Physical Developer, Magnetic Powder, DFO, Genetian Violet, Sudan Black, Super Glue and RAM. Fingerprints collected on porous and nonporous substrates that were processed using Vacuum Metal Deposition and Multi Metal Deposition were also tested. Total DNA was extracted from these fingerprints using the Qiagen QIAamp[®] DNA Blood Mini Kit, Promega Wizard kit and InstaGene[™] Matrix. Based on our comparison between the three kits we determined that the Qiagen QIAamp[®] DNA Blood Mini Kit consistently yielded the highest amount of amplified DNA in our lab. Direct sequencing of the amplified products produced interpretable DNA sequence. Results comparing the strengths and weaknesses of each extraction method, our choice Qiagen QIAamp[®] DNA Blood Mini Kit as our main extraction method and results from the processed fingerprints will be discussed.