

RAPID PURIFICATION OF MITOCHONDRIAL DNA FROM HAIR

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Hair is one of the most common sources of mitochondrial DNA (mtDNA) for analysis. Although established protocols exist for the extraction of mtDNA from hair, they are frequently laborious and lengthy, often requiring grinding, overnight incubation with Proteinase K, and phenol extraction. In an effort to reduce this bottleneck in sample analysis, we have adapted technologies to give a rapid, efficient hair mtDNA extraction procedure. Segments of hair shaft, 1-2 cm in length, were washed in Tergazyme™ followed by ethanol. The washed hair was then disrupted by incubation in a novel Solubilization Solution. We found that hair could be completely solubilized with incubation times as short as 10 minutes. The released mtDNA was then purified on a mini spin column, adapting Marligen rapid DNA purification technology. All column steps were completed in 30 minutes. Purity of the DNA was assessed by its ability to be amplified by PCR. Mitotype screening was performed with the Signet™ Mitochondrial DNA Screening System. The overall procedure could be completed in one day.