STR TYPING: A NOVEL APPROACH TO DIRECT PCR AMPLIFICATION FROM FTA® CARDS

Col. Liana Haddadin, Sgt. Anas Ababneh, Sgt. Islam Jaber
Public Security Directorate Forensic Labs Department, Amman, Jordan

Blood is often the biological sample of choice for paternity testing, forensic reference standards, and convicted offender DNA databases. As with many other forensic laboratories, the current DNA analysis method for whole blood at the Jordan Public Security Directorate Forensic Labs Department (FLD) involves an organic extraction to purify DNA prior to amplification. Whole blood samples are also spotted onto FTA® cards for long-term storage. While the organic extraction is robust and the resulting DNA profiles are of high quality, this method requires multiple sample transfers and reagent additions, thus contributing to processing time, complexity, cost, and the potential incidence of sample mix-up/contamination. Additionally, reagents used for organic extraction are hazardous and require special handling. Recently, a number of laboratories have reported new methods for direct amplification from FTA®. While these new approaches eliminate some steps in the extraction process, they still often require a washing step. The FLD biology section has developed a novel direct amplification method of whole blood spotted onto FTA® cards that requires no washing or purification steps after sample cutting. The blood sample on FTA® is amplified directly using Promega's PowerPlex® 16 HS kit. This new procedure, which eliminates the need to wash the sample, is also easy, rapid, robust, and yields profiles of good quality.

Laboratories will greatly benefit from this effective direct amplification method. The novel approach saves reagents, processing steps, and time, thereby reducing the overall cost of DNA analysis.