IMPROVEMENTS IN DIRECT AMPLIFICATION: FROM SAMPLE TO RESULT IN 2 HOURS

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The numbers of single-source samples processed by forensic laboratories has increased rapidly in recent years due to the success of national DNA databases. Expansion of legislation to permit sample collection from more individuals and for more crimes, coupled with the associated increase in reference samples for expanding numbers of casework investigations has led laboratories to seek ways of simplifying single-source sample processing. Significant efficiencies can be achieved by removing rate-limiting steps within the workflow and optimizing the remaining steps to ensure bottlenecks in the process are not simply shifted from one part of the workflow to another. STR amplification directly from single-source samples (direct amplification) offers a route by which the need for extraction and quantitation can be removed and the workflow streamlined. In this presentation, we will describe the development of a new direct amplification STR kit capable of very fast cycling times for loci in the Expanded European Standard Set. The new kit is optimized to amplify single source samples from treated paper substrates and from untreated paper and swab substrates in conjunction with a specially developed lysis buffer. We will share results from our investigations into optimizing direct amplification results from multiple different substrate types and describe how, when used in conjunction with the latest capillary electrophoresis technology and optimized Expert System Software, these new reagents can deliver a sample to result interval of less than 2 hours. ⌘