A145 Pyrosequencing Analysis of DNA-Tagged Cash-in-Transit

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After attending this presentation, attendees will understand how synthetic DNA is utilized in allowing valuable items or cash to be traced.

This presentation will impact the forensic science community by discussing a growing field with increased use in the security area that will become more important.

Valuable property is often security marked regardless of the material. Security marking is especially interesting when it comes to cash in transit and ATM machines, where a vast amount of money is handled. One method is to stain the money with either ink dye or dye and smoke. A further step is to add unique synthetic DNA tags to the dye. Stolen money that is DNA-tagged can be traced back to its original location. This system is already being used in many countries.

Trace Tag, Inc. assay has been used for analysis of tags from individual bank notes to assist the law enforcement in robbery investigations. In short, the extracted DNA is PCR amplified and the short DNA sequences are determined by pyrosequencing technology. The result from each bank note is sent to Trace Tag International (TTI) in the United Kingdom where a database is used for identification of the code and the serial number of the sequence. The code is thereafter submitted to 3SI security systems, in Belgium, which identifies the customer, the location, and the installation of the unique DNA tag.

The successful analyses of unique DNA tags and the identification through TTI and 3SI show that it is possible to trace the bank notes back to specific cash in transit bags, ATM machines, and their staining device. This identification will provide an asset to overall security and has the potential to be applicable on a larger scale in the near future.

DNA Analysis, Pyrosequencing, Sequrity Labelling

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