A DNA-Based Cash-in-Transit Solution
A Case Study

The Client

Loomis UK, a world leading cash-handling company that moves over £150 billion in cash annually, uses Applied DNA Science's (APDN) SigNature® DNA to protect its cash boxes. Loomis offers products and services that provide complete cash logistics solutions for financial institutions, retailers and other commercial enterprises. Loomis is present in twelve European countries and in the USA and has just over 20,000 employees.

The Challenge

With the downturn in the global economy, cash-in-transit (CIT) crime is on the rise. In the U.K. alone, there is an estimated £500 billion being transported each year, or £1.4 billion per day. Money stolen in CIT attacks is a major source of funding for serious organized crime. In 2008, there were 1,000 documented attacks against cash-in-transit couriers in the UK. This is out of a total of 4,000 boxes in use throughout the year. The latest statistics from the **British Security Industry Association (BSIA)** show that attacks against cash-in-transit couriers remain a serious problem. While the problem is not as well documented in the US and elsewhere, CIT attacks and robberies are a pervasive and growing problem throughout the world.

Previously, when banks identified dye-degraded currency, it was simply removed from circulation, but without attribution to its original owner. Prosecution was difficult without a definitive way to link the criminal to the crime.

SigNature DNA Markers

SigNature DNA markers allow attribution of the cash, since each transport box has an individualized SigNature DNA sequence which can be readily determined at APDN's Authentication Labs in either NY or U.K. SigNature DNA uses the DNA from plants to mark and authenticate products in a unique manner that essentially cannot be copied. SigNature DNA cannot be detected, removed or altered allowing for 100% authentication of recovered bank notes.

Patented and proprietary, SigNature DNA:

- Will not alter the quality of the product
- Will not require major changes to the manufacturing process or logistic chain
- Is stable and persistent

- Is instantly detectable with a hand-held device
- Can be forensically authenticated in the lab

SigNature DNA is a unique and powerful means to authenticate originality. It's truly versatile and stable and has been prototyped and tested in many different types and forms of ink, varnish, adhesives and textile treatments.

The Solution
Embedding SigNature DNA markers into the liquid dye provides the CIT industry with a unique and cost effective method to trace the origin of the cash that is stolen and to quickly detect and forensically authenticate the recovered cash.

SigNature DNA markers are being incorporated into the degradation inks used in cash boxes. SigNature DNA is automatically sprayed onto the enclosed currency along with an intense dye whenever a Loomis Cash Box is disturbed. Any tampering with the CIT boxes will result in both the money and offenders being contaminated. The addition of SigNature DNA markers to existing deterrents increases the likelihood of the criminal getting caught and successfully prosecuted. SigNature DNA forensically links an offender with an individual crime scene, meaning they cannot deny their involvement.

APDN has supplied over 1,000 unique SigNature DNA markers developed for cash-in-transit, and has conducted numerous CIT DNA deployments to ensure that even with the most strenuous attempts to wash out the ink (typically with heavy solvents), the DNA still persists in the note itself and can be forensically DNA authenticated. APDN can supply an unlimited number of unique DNA codes enabling the unequivocal authentication of bank notes and other marked items.

The Result
SigNature DNA markers have been authenticated from recovered bank notes and the information is being used to assist in the prosecution of the alleged perpetrators. Bank notes recovered by the UK Police and submitted to APDN for forensic authentication appear to have been washed multiple times by the criminals using harsh chemicals, in an attempt to remove the dye that stained the cash during the robbery. SigNature DNA resisted removal and was still readily detectable using APDN's proprietary methods.

The same DNA markers detected on the recovered bank notes have also been detected on personal items belonging to the suspects in the investigation. DNA provides a forensic trail of evidence linking the criminal to the crime, and DNA authentication supports the enforcement programs of the various law enforcement groups

SigNature DNA forensic markers are helping the CIT companies and the UK police to identify stolen cash and to link the evidence directly to the perpetrators. DNA – DO NOT ATTEMPT!!