

FUTURE IMPROVEMENTS IN THE UTILITY OF DNA PROFILING AS AN INTELLIGENCE TOOL

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The effectiveness of DNA profiling as an intelligence tool has been demonstrated repeatedly over the past 5 years through the operation of the national DNA database of England and Wales. To date, the collation and comparison of profiles from more than 800,000 suspects/convicts with profiles from undetected crime scene stains has culminated in 75,000 suspect to scene and 10,000 scene to scene matches. The utility of this approach will be further enhanced in the near future through improvements in both the accessibility and applicability of DNA profiling technology.

Until now, growth of DNA databases world-wide has been constrained by the lack of availability of analytical services that combine high throughput multiplex STR analysis with the exacting quality standards demanded by the forensic community. This situation is now changing as developments in robotic/sample handling and expert systems for data analysis enable large-scale processing strategies to be adopted, with concomitant reductions in unit cost and turnaround times, coupled with improvements in quality.

Historically, the applicability of DNA profiling has been constrained by a lower sensitivity limit correlating to a minimum of approximately 1 ng of target DNA template required for a full DNA profile. Over the past 12-18 months, the FSS has applied ultra-sensitive "Low Copy Number" DNA profiling to serious crime cases resulting in significant successes in situations where conventional techniques have failed to yield a result. Moreover, pilots with LCN applied to volume crime scenarios indicate that this technique will widen the applicability of DNA profiling to new evidence types associated with car crime and burglary.