

Advances in DNA Technology

Driver – Technology

Related Drivers –Collection and Storage of Personal Information, Collaborative Working Between Forces, Efficiency, Procurement, Public Sector Productivity, Compatibility

Background

In recent years new advances in the areas of nanotechnology are laying ground work which will impact forensic measurements.

Perhaps the area of nanotechnology with the greatest potential to affect present operations in a DNA analysis laboratory is the development of microfluidic systems as alternatives to Capillary Electrophoresis for analysis and detection of nanoliter volumes of DNA.¹ These systems are more compact than standard capillary and gel electrophoresis systems and can be disposable. Because of their small size, the potential of such devices to be used at the crime scene is widely mentioned.^{1,2,3}

Other potential developments include 'lab on a chip' technology where all current forensic processes in a forensic laboratory are integrated onto one chip or DNA biosensors. For this technology to become wide spread, technical issues still need to be addressed but the developments sit on the horizon.

Potential Skills Needs

Technical skills – staff to stay up to date with advancements in technology to maximise the use of the new tools available

¹ [McCord, Bruce \(2006\) Nanotechnology and its potential in Forensic DNA Analysis. Profiles in DNA: USA.](#)

² [Office of Science & Innovation Horizon Scan \(2006\) Delta Scan: Nanowire sensors for DNA Testing.](#)

³ [Office of Science & Innovation Horizon Scan \(2006\) Delta Scan: Advances in DNA microarray technology.](#)