

New guide helps public understand role of DNA in criminal investigations

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Researchers from King's working with the European Forensic Genetics Network of Excellence (EUROFORGEN) are launching a guide in partnership with the charity Sense about Science, to address misconceptions about DNA analysis and profiling and share exciting new developments in this area.

Making Sense of Forensic Genetics provides information on what DNA analysis can currently do in the criminal justice system, what its limitations are and what might be possible in future. It includes case studies, both where DNA evidence has been a game changer in investigations and where its misinterpretation has led to miscarriages of justice.

DNA analysis has revolutionised forensic science; helping to catch

prolific murderers and exonerating innocent people wrongfully convicted of serious crimes. As DNA profiling has become increasingly sensitive and is used in more investigations, it is important that public and professional expectations come not from TV crime fiction, but from reality. The guide aims to address this challenge.

The researchers share their insights:

- Despite claims to the contrary, predicting visible traits such as face shape from DNA is not currently possible. There are reports of police departments using tests that claim to predict face shape, but these tests are not scientifically validated. The latest advances in forensic genetics are beginning to enable some externally visible characteristics including hair and eye colour to be predicted from someone's DNA. This could be a powerful investigative tool in future. But there are limits to what we can currently tell from DNA.
- Your DNA could be in a room even if you weren't. Our DNA is everywhere – it can be transferred by saliva from talking, sneezing, coughing and by shedding skin cells. There is even DNA present in house dust. So DNA from individuals who have nothing to do with a crime might be present at a crime scene.
- DNA alone doesn't solve crimes. Advancements in forensic DNA techniques mean that we can now detect minute traces of DNA. The presence of DNA doesn't establish guilt – and doesn't necessarily tell us when or how it got there or the body tissue it came from (particularly for very small amounts). Therefore, context has become increasingly key, and now more than ever, DNA needs to be viewed within a framework of other evidence. It's an important detection tool, but it's certainly not a detective.

Dr Denise Syndercombe-Court, Reader in Forensic Genetics, King's College London and EuroforGen researcher, said: 'We all enjoy a good

crime drama and although we understand the difference between fiction and reality, the distinction can often be blurred by overdramatised press reports of real cases. As a result most people have unrealistic perceptions of the meaning of scientific evidence, especially when it comes to DNA, which can lead to miscarriages of justice.

She added: 'As we developed this guide, even readers who were professionally involved in [criminal justice](#) were surprised by some of the information it contained: this particularly showed me how important the guide is in explaining science that, though complex, really does need to be widely understood.'

More information: "Making Sense of Forensic Genetics" is available at: senseaboutscience.org/activities/f-forensic-genetics/

Provided by King's College London

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