Northumbria University NEWCASTLE

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University forensic experts advise on use of DNA

Researchers from the European Forensic Genetics Network of Excellence (EUROFORGEN), including Northumbria University, have called for the truth about what DNA can and can't tell us in criminal investigations and in court to be made clearer.

DNA analysis has revolutionised forensic science; helping to catch prolific murderers and exonerating innocent people wrongfully convicted of serious crimes. But as DNA profiling has become increasingly sensitive and is used in more investigations, it is essential that public and professional expectations

of this technology come not from TV crime fiction, but from reality.

To address existing misconceptions and share exciting new developments researchers from EUROFORGEN, in partnership with charity Sense about Science have issued new guidance, Making Sense of Forensic Genetics to share what DNA analysis can currently do in the criminal justicesystem, what it's limitations are, and what might be possible in the 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.

The guidance makes reference to landmark cases including cases where DNA has been a game changer; helping to catch prolific serial killer Gary Ridgway, and where it has caused miscarriages of justice; Adam Scott being detained and charged with rape due to a contamination error whilst subsequent phone records placed him in a different city at the time of the crime.

Key points made by the researchers include:

- **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 **– i**t 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.**

Robin Williams, Professor of Forensic Science Studies at Northumbria University, was one of the international team of scientists who helped produce the guide. He said: “DNA features very much in crime dramas and in the news and there are many exciting developments taking place within the industry. It is important that the strengths and limitations of DNA profiling in support of criminal investigations and prosecutions are understood by all those involved in the criminal justice process as well as more widely in society at large. This guide offers a balanced perspective on the current state and future prospects of forensic genetics and explains clearly the often misunderstood statistical issues involved in evaluating DNA evidence.”

The guide can be downloaded at http://senseaboutscience.org/activities/making-sense-of-forensic-genetics/

For more information about courses on forensic science at Northumbria University visit www.northumbria.ac.uk

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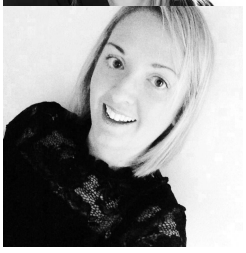

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