

Curriculum Vitae

Peter Gill

Personal Details

Name: Peter Gill

Date of birth: 10/2/1952

Career profile:

1970-73; University of Bristol – awarded 2:1 degree in zoology

1973-77; University of Liverpool – awarded PhD in genetics and zoology.

1977-82; University of Nottingham –SRC postdoctoral research award in the genetics department

1982-2008: Principle research scientist at the forensic science service (FSS).

2008 -2011: Senior Lecturer University of Strathclyde

And 2008-2011 (concurrent): Professor of Forensic Genetics, University of Oslo. (10% position).

2011 to date: Professor of Forensic Genetics, Norwegian Institute of Public Health and the University of Oslo, Norway..

Citation metrics

My lifetime H-index is 68, and I have 16110 citations from more than 200 peer reviewed publications (with 4827 citations since 2012) - source:

<http://scholar.google.com/citations?user=Ba1THJYAAAAJ&hl=en>

A complete list of publications, with breakdown of citations is available on this site. I have written a book entitled “Misleading DNA evidence – reasons for miscarriages of justice, published by Elsevier”

History

I joined the Forensic Science Service (FSS) in 1982. I began research into DNA in 1985, collaborating with Sir Alec Jeffreys of Leicester University. In the same year we published the first demonstration of the forensic application of DNA profiling. In 1987 I was given an award under the civil service inventor’s scheme for my discovery of the preferential sperm DNA extraction technique and the development of associated forensic tests. I was employed as Principal Research Scientist at the Forensic Science Service (FSS). This was the highest scientific grade within the FSS. I am Professor of Forensic

Genetics and I hold concurrent positions at the Norwegian Institute of Public Health and the University of Oslo.

Romanovs

In 1993-4 I was responsible for leading the team which confirmed the identity of the remains of the Romanov family, murdered in 1918, and also the subsequent investigation which disproved the claim of Anna Anderson to be the Duchess Anastasia (using tissue preserved in a paraffin wax block for several decades). This was the first example in the world of the solving of an historical mystery that involved the analysis of very degraded and aged material, and was one of the first demonstrations of low-template DNA analysis.

Low-template DNA

In relation to the above, I was responsible for developing a 'super-sensitive' method of DNA profiling that is capable of analysing DNA profiles from a handful of cells. This method was originally known as low-copy-number (LCN) DNA profiling. Now it is known as Low template DNA profiling. New statistical methods and thinking were also developed to facilitate the new methods. I published a book in 2014, "Misleading DNA Evidence" published by Elsevier that describes methods to report 'trace-DNA' along with the various pitfalls that are illustrated by recent miscarriages of justice.

National DNA database

I was responsible for leading the team that developed the first multiplex DNA systems to be used in a National DNA database anywhere in the world, and for the design of the interpretation methods that are in current use (c.1995).

Court reporting

I have been involved with giving evidence in several high profile (controversial) cases – including the Doheny / Adams appeals, and the Omagh bombing trial in the UK.

Membership of scientific societies

Currently I am a member of the European Network of Forensic Science Institutes and chair of the 'methods, analysis and interpretation sub-section'. I chair the national UK DNA technical working group. I am chair of the International society of forensic genetics DNA commission on mixtures and I have written a number of ISFG recommendations on low-template and mixture interpretation that are highly cited. I am a member of the European DNA Profiling Group (EDNAP). I am member of EUROFORGEN- network of excellence. I have published more than 200 papers in the international scientific literature – many of these are collaborative papers under the auspices of ISFG, EDNAP and ENFSI.

Workshops

I am actively promoting new interpretation methodology to interpret DNA profiles by leading international workshops on the subject. The last two years I have organised CEPOL workshops in Madrid to teach LRmix (open-source software to interpret complex mixtures). I also organise workshops for the ISFG – the most recent was in Krakow, September 2015

Editorial boards

I am on the editorial boards of Forensic Science International (Genetics) and International Journal of Legal Medicine. I frequently review for other journals such as Biotechniques and Nature Genetics.

UK Forensic Science regulator

I completed a review on low-template DNA profiling and interpretation of evidence for the UK forensic science regulator. See <https://www.gov.uk/government/publications/the-interpretation-of-dna-evidence>

Awards

Civil Service award for inventors (c.1987) for discovery of DNA extraction methods associated with forensic analysis.

Rosenblatt memorial lecture (1998) Northeastern University, US – for analysis of Romanov remains.

Fitzco Award (1998) at the American Academy of Forensic Science for outstanding contribution to forensic science.

ESR, New Zealand International Research Fellowship, 2010.

International Society of Forensic Genetics scientific prize 2013

Main research interests

- a) Development of interpretation strategies (e.g. analysis of mixtures) and their incorporation into expert systems
- b) The development of new biochemical systems and markers

c) Experimental design and analysis of data to guide formation of pan-European DNA databases.

d) Development of Open-Source software solutions to interpret DNA evidence

External collaboration

I collaborate with many scientists throughout the world. My work within the ENFSI and EDNAP groups has led to numerous on-going collaborations with scientists from virtually every country in Europe. My work leading some of the ISFG DNA commissions has led to highly influential documents that are cited in court world-wide (e.g. ISFG DNA commission on mixtures)

Teaching

I have been responsible for developing many of the new DNA interpretation methods that are used in forensic laboratories. I regularly hold workshops under the auspices of various scientific societies, ISFG, ENFSI, EAFS and CEPOL

List of Major achievements:

- 1) I provided the first demonstration in 1985 that DNA could be extracted from degraded stain material, and that DNA 'fingerprints' could be obtained from such material. The results were published in *Nature*:
Gill, P., Jeffreys, A.J. and Werrett, D.J. (1985) Forensic application of DNA 'fingerprints'. *Nature*, **318**, 577-579.
- 2) In conjunction with (1) I developed a revolutionary technique to separate sperm DNA from extraneous (female) material. Without this innovation it would have been impossible to analyse material from rape victims. These techniques are still used today.
- 3) I was closely involved with the first DNA case in the world. I carried out DNA analysis to confirm results provided by Alec Jeffreys. I subsequently led the team that carried out analysis on more than 1000 samples in the first example of the
- 4) I identified the systems (short tandem repeat analysis) that are used today in all national DNA databases throughout the world.
- 5) I developed the statistical methods used by the national DNA database in order to compare samples (e.g. by development of allelic ladders and associated matching algorithms).
- 6) I was the first to recognise the importance of STRs and to develop STR multiplexes for forensic purposes in 1993.

- 7) I designed the SGM plus system, and led the team that developed the first national DNA database in the world. This system comprised 6 STRs and had a discriminating power of 1 in 50 million.
- 8) I led the team that provided the subsequent update of the SGM system – namely the SGM plus system that provided a discriminating power of 1 in 1 billion. The systems that I developed have now been adopted world-wide.
- 9) I led the team that identified the remains of the Romanov family. This was the first demonstration that historical mysteries could be resolved using mitochondrial DNA and low-template autosomal DNA analysis.
- 10) In conjunction with (7) I demonstrated the first verified example of mitochondrial heteroplasmy that was not associated with genetic disease. This was a highly contentious discovery at the time.
- 11) I provided a demonstration that the highly contentious claim of Anna Anderson to be the Duchess Anastasia was false and identified her true relationship to Karl Maucher.
- 12) Recently, new evidence was discovered in Ekaterinburg. Two bodies were demonstrated to be the remains of Prince Alexei and a Russian princess. I was closely involved with the verification of the results. The results were published in PLOS.
- 13) I have developed extensive statistical theory and algorithms that are used to interpret mixtures. With others (Hinda Haned, NFI) I support the development of open-source software that is used in all our training courses.
- 14) I developed a biochemical test sufficient to analyse the DNA profile of a single cell. I concurrently developed the statistical theory and the algorithms that were required to facilitate the method.
- 15) I have given evidence in many major court cases, and in courts of appeal. In December, 2008 I gave evidence at a Frye hearing for the New York Police Department. This was to support the reporting of the first case involving low-template DNA in the US.
- 16) Coordinated the transition to update the multiplexes utilised in National DNA databases under the auspices of the ENFSI group.