

HGC PERSPECTIVE

The Human Genetics Commission



The Human Genetics Commission (HGC) nominates two individuals to sit on the National DNA Database Strategy board as lay members. Currently the nominees are Professor Stephen Bain and Professor Sarah Cunningham-Burley.

Stephen Bain is Professor of Medicine (Diabetes) in the University of Swansea with clinical commitments in Swansea NHS Trust since 2005. He undertook undergraduate studies at St. John's College Cambridge followed by clinical training at King's College Hospital, London. After junior medical rotations in London and the Midlands, Professor Bain wrote a Research Thesis on the Genetics of Type 1 Diabetes. He then took an MRC Lectureship jointly with Centres in Oxford & Birmingham prior to appointment as Senior Lecturer/ Honorary Consultant Physician in Birmingham. He became a Fellow of the Royal College of Physicians in 1996 and Reader in Diabetic Medicine in 1998. He sat on the West Midlands Multi-research ethics committee from its inception in 1996 until 2005 and was invited to join the HGC in 2002.

Sarah Cunningham-Burley is Professor of Medical and Family Sociology at the University of Edinburgh. She is based in Public Health Sciences and in the Centre for Research on Families and Relationships, where she is co-director. She undertook undergraduate studies in sociology and social policy at the University of Birmingham and her PhD at the Institute of Medical Sociology, University of Aberdeen. She has continued her career in Scotland, teaching and researching at the intersection between social science and medicine. She was appointed lecturer in medical sociology at the University of Edinburgh in 1990 and promoted to a personal chair in 2005. Her research interests span medical and family sociology and include studying and promoting public engagement in science and medical technologies. She is on the scientific committee of Generation Scotland, a family and population based infrastructure to identify the genetic basis of common complex diseases. She was appointed to the HGC at the end of 2006.

The HGC is very pleased to see the announcement of the new ethics group, to be led by Professor Peter Hutton. Since its creation in 1999, the HGC has had a particular interest in the development of the National DNA Database. In June 2001, a delegation of Commissioners visited the Forensic Science Service to learn about the organisation and management of the Database and this led to a number of recommendations in the report 'Inside Information

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Balancing interests in the use of personal genetic data', published in 2002. One recommendation was to have lay involvement in the running of the database and this led to the HGC being invited to put forward one of their members. Another recommendation made specific reference to the setting up of an ethics committee. This advice was subsequently re-stated when the Science and Technology Committee asked for the HGC's view of custodianship arrangements for the database following its report Forensic Science on Trial.

In May 2005, the HGC hosted the first formal meeting to discuss ethical arrangements for the NDNAD. This brought together the three stake-holders of the newly formed Strategy Board (ACPO, APA and Home Office) and had a number of important outcomes. First, the number of lay members of the NDNAD Strategy Board was increased to two, with this initially being facilitated by the invitation of an additional HGC nominee. However, there was a formal commitment that if HGC changed its format or ceased to exist, arrangements would be made to continue lay involvement at this level. Second, it was decided that although lay members would not be granted voting rights on the Board, a commitment was made to publish minutes of Board meetings so that any concerns of the lay members would be visible; discussions are now at an advanced stage to allow this to happen. Third, the setting up of an independent

ethics group was agreed and processes began that have ultimately led to the announcement in July 2007 of the Advisory Non-Departmental Public Body. We anticipate that the ethics group will closely examine issues around volunteer consent, retention of profiles and DNA samples, as well as examining requests to perform Research and Development on the Database. We look forward to working closely with Professor Hutton and his colleagues.

The HGC's other major aim is to involve the public in open and fully informed debate of issues surrounding the forensic use of DNA. Widespread media coverage in August and September 2007 highlights that the general public have great interest in this area and HGC has managed to commission a Citizens' Inquiry into the NDNAD which will begin towards the end of 2007. Sponsorship for this event has been secured from the Sciencewise programme (Department for Innovation, Universities and Skills), the ESRC Genomics Policy and Research Forum and the Policy, Ethics and Life Sciences Research Centre (PEALS) with major funding from the Wellcome Trust. The Inquiry will involve a small, informed group of UK citizens, who will consider key social and ethical issues involved in the current and future use of the National DNA Database. Their report will both be published independently, and form part of an HGC report on the subject, which will be published in 2008.



The Scottish DNA Database

FORENSIC SERVICES **SCOTTISH** **POLICE** **SERVICES** **AUTHORITY**

In October 2005, the Police, Public Order and Criminal Justice (Scotland) Bill was introduced in the Scottish Parliament.

The bill contained provisions for the

establishment of a new Scottish Police Service Authority (SPSA).

Following a process of Parliamentary scrutiny and debate, The Police, Public Order and Criminal Justice (Scotland) Act received royal assent on 4 July 2006 which allowed the SPSA to be established as a Non-Departmental Public Body (NDPB).

Part of this NDPB saw the creation of the SPSA Forensic Services which incorporated Scotland wide Forensic and Fingerprint services along with force Identification Branch Scene of Crime Officers. This amalgamation of expertise places the Scottish Police Service at the forefront of evidence capture and analysis.

Implementation of these significant changes aims to provide for the first time a fully integrated national service from "Crime Scene through to court" SPSA Forensic Services now provides a broad range of forensic analysis including Biology, Chemistry, DNA, Drugs, Fingerprints and Scene Examination, along with a wide range of specialist services including the Scottish DNA Database.

Currently based within accommodation at Tayside Police Headquarters, Dundee. There are twenty members of technical and administration staff providing a wide range of crime intelligence and forensic services to Scottish police forces.

Services include criminal justice DNA profiling of arrested persons, intelligence led DNA screens, and administration of the police elimination and volunteer databases.

DNA Database staff also have responsibility for the formal identification of human remains which is normally undertaken when identification of deceased persons is not possible by conventional means, particularly if enhanced 15 Loci profiling is required.

All such case work is undertaken in the Database development laboratory situated adjacent to the main facility.

Scottish DNA Database Statistics

During the year a total of 55,339 Criminal Justice profiles were developed.

All of which were exported for inclusion on the National Database. By year end a total of 212,524 Scottish Criminal Justice profiles were held.

A total of 4,475 scenes of crime DNA profiles were received at the Database from the four SPSA forensic laboratories, and 3,238 intelligence matches were

made, these matches were subject to issue of an Intelligence Report to customer forces whilst all unmatched crime scene profiles were exported to the National Database for loading to the national system. By year end a cumulative total of 16,957 intelligence matches had been made.

In addition to volume crime scene profile matches, a total of 1,433 Speculative Searches were undertaken for serious or urgent crime, or for crime scene profiles of a partial nature which could not be loaded to the database. Turn round time for urgent speculative searches are normally within one hour or less and during the year such searches resulted in 570 matches being made for a wide range of serious crime.

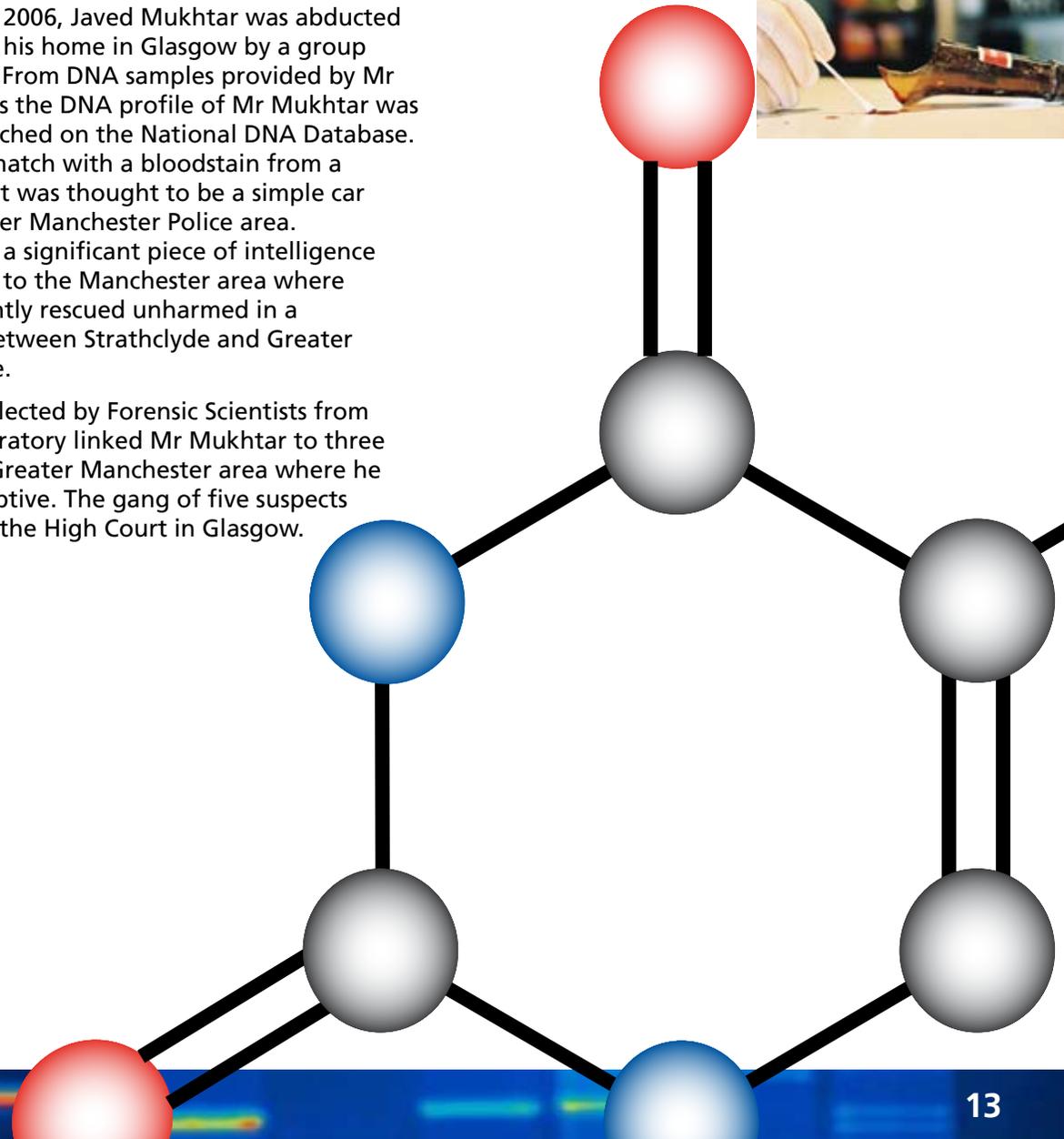
High Profile Case Histories

On 25 September 2006, Polish student Angelika Kluk was reported missing from the Glasgow church she had been residing in.

Five days later her body was discovered, she had been beaten and stabbed to death and dumped through a hatch in the church floor. Within two days a DNA match was obtained from semen which matched church handyman Peter Tobin who had vanished a few days before Angelika's body was found. Further compelling DNA evidence was found linking Tobin with the murder and at the High Court in Edinburgh Tobin, a convicted sex offender, was found guilty of the rape and murder of Angelika Kluk.

On 30 September 2006, Javed Mukhtar was abducted at gunpoint from his home in Glasgow by a group of masked males. From DNA samples provided by Mr Mukhtar's relatives the DNA profile of Mr Mukhtar was deduced and searched on the National DNA Database. This produced a match with a bloodstain from a pillowcase in what was thought to be a simple car theft in the Greater Manchester Police area. This proved to be a significant piece of intelligence linking the victim to the Manchester area where he was subsequently rescued unharmed in a joint operation between Strathclyde and Greater Manchester Police.

DNA evidence collected by Forensic Scientists from the Glasgow laboratory linked Mr Mukhtar to three addresses in the Greater Manchester area where he had been held captive. The gang of five suspects pleaded guilty at the High Court in Glasgow.



SUPPORT TO PARLIAMENT

Support to Ministers & Parliament



The NDNAD has continued to generate significant Parliamentary and media interest in 2006-07. More than 70 Parliamentary Questions were asked about the NDNAD during 2006-07. Many of the questions involve the generation of data from the NDNAD in addition to

the routine NDNAD management information which is produced each month.

The majority of questions related to the following issues:- the total number of people whose profiles were held on the Database; the number of profiles held by age, ethnic appearance and geographical area; the number of profiles relating to people who had not been charged with or convicted of an offence; and the number of profiles removed from the NDNAD. Other issues raised were the number of DNA profile search requests received from overseas police authorities; the use of DNA profiles for research purposes; the number of crimes detected where DNA match information was available; the cost of operating the NDNAD; and the security of the NDNAD. Full details of the questions can be found at

<http://www.publications.parliament.uk/pa/pahansard.htm>

Number of persons on the NDNAD who have been convicted of an offence

One of the questions most frequently asked about the National DNA Database is how many persons held on the NDNAD have been charged with or convicted of an offence. The NDNAD holds key demographic data only and does not hold information on whether those on it have committed any offence. Data on the arrest and conviction histories of persons with a profile on the NDNAD are held on the Police National Computer but is not routinely available. The main function of the PNC is to support operational policing and the investigation of crime; it is not an information database for statistical purposes. Discussions are being held on the possibility of being able to provide arrest history information from the PNC in the future.

The following information was made available in 2006-07 in a Parliamentary Question answered on 9 October 2006 and is currently the most recent data available:

- on 30 June 2006 there were **3,457,000** persons on the NDNAD
- on 14 July 2006 there were 2,933,824 persons on the NDNAD with a record retained on PNC of which **2,317,555** had a conviction or caution.

Detection of crimes

The NDNAD is an intelligence tool which provides the police with investigative leads by reporting matches between DNA taken from a person with DNA found at the scene of a crime.

In 2006-07, there were:-

- 41,717 crimes with DNA matches
- 19,949 crimes detected in which a DNA match was available ('DNA detections') and
- a further 21,199 'indirect detections' arising from the DNA match, giving a total of **41,148** detections arising from the DNA match.

A 'DNA detection' is a crime that is detected in which a DNA match is available and which may provide a link to the possible offender. The DNA match is notified to the relevant police force (the force which submitted the crime scene profile) for investigative follow up. It is important to note that the availability of DNA match intelligence may not have been causal in solving the crime as detections are achieved through integrated criminal investigation and not by forensic science alone.

'Indirect detections' are crimes which are detected as a result of further investigation linked to the original offence. The detection of one offence with a DNA match may lead to another offence being solved, for example because an offender on being presented with DNA evidence which links him to an offence also confesses to other offences.



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The number of matches and detections has increased as the NDNAD has expanded as shown below (years shown are financial years from April to March):

Year	Crime with DNA match	Crime with DNA detection	Crime with DNA indirect detection	Total ('DNA detections' and indirect detections)
1998/99	21,239	6,151	Not available	Not available
1999/00	23,021	8,612	Not available	Not available
2000/01	30,894	14,785	Not available	Not available
2001/02	39,043	15,894	6,509	22,403
2002/03	49,913	21,098	12,717	33,815
2003/04	45,269	20,489	15,899	36,388
2004/05	40,169	19,873	15,732	35,605
2005/06	45,221	20,349	19,960	40,309
2006/07	41,717	19,949	21,199	41,148
Total April 1998 Mar 2007	336,486	147,200		

Impact of DNA on detection rates for different crime types

DNA is a powerful aid to crime investigation. Where crime scene DNA is added to the Database the rate of detection can be significantly increased. In 2006/07, the overall detection rate was 26% but where DNA was successfully recovered from a crime scene and loaded on to the National DNA Database the detection rate rose to 43%.

DNA is proving to be most helpful in those crimes that are more difficult to detect e.g. domestic burglary. Whilst it makes a relatively small contribution to all detections, it makes a powerful contribution to those cases in which it is available. The DNA detection rates for volume crime show striking increases: -

- while the overall domestic burglary detection rate was 17%, where DNA has been retrieved from crime scenes the rate rises to 39%; and that for theft from motor vehicles rises from 9% to 60%.

The table below shows the number of crimes with a DNA match and the number of crimes detected in which a DNA match was available for 2006-07 by crime type:-

2006/07 Summary	CRIMES with a DNA match	Detections of CRIMES in which a DNA match was available
All other Recorded Crime	4,082	1,472
Criminal Damage	5,679	3,354
Domestic Burglary	8,571	3,911
Drugs Offences	1,035	348
Homicide	452	88
Other Burglary	8,075	4,608
Other sex offences	222	84
Other Violent Crime	1,872	790
Rape	644	195
Robbery	1,634	547
Theft from Vehicle	3,906	2,686
Theft of Vehicle (incl. UTMV)	5,545	1,866
Sum of 12 Crime Types	41,717	19,949



Elimination of suspects

DNA also has a very important - and often under-reported role - in eliminating innocent persons from police inquiries. Since 1995, over 94,000 persons have been asked by the police and have volunteered to give a DNA sample for the purposes of an Intelligence Led Screen in the investigation of a serious crime. Of these persons, over 92,500 have been excluded by their DNA as it did not match with the DNA left by the offender at the scene of the crime. This illustrates the clear benefits of DNA in eliminating innocent persons from inquiries. Eliminating innocent persons also helps the police to focus the direction of major investigations, resulting in savings in police time and in building public confidence that elusive offenders may be detected and brought to justice.

NDNAD Custodian Relationships & Structure

