Update on recent activities in the ENFSI DNA working group

Ingo Bastisch
Bundeskriminalamt
Wiesbaden, Germany
The European Network of Forensic Science Institutes

Mission Statement
ENFSI has been established with the purpose of sharing knowledge, exchanging experiences and coming to mutual agreements in the field of forensic science. ENFSI is recognized as an expert group in the field of forensic sciences.
Membership of ENFSI

- 60 members
- 34 countries
16 Expert working groups

- Digital Imaging
- DNA
- Document
- Drugs
- Explosives
- Fibres
- Fingerprint
- Firearms
- Fire and Explosive
- Forensic IT
- Forensic Speech and Audio
- Handwriting
- Marks
- Paint and Glass
- Road Accident Analysis
- Scene of Crime
ENFSI DNA Working Group

- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France (2)
- Germany (4)
- Georgia
- Greece
- Hungary
- Italy (2)
- Latvia
- Lithuania
- Macedonia, FYR
- Montenegro
- Netherlands
- Norway
- Poland (3)
- Portugal
- Republic of Ireland
- Romania
- Russia
- Serbia
- Slovak Republic
- Slovenia
- Spain (5)
- Sweden
- Switzerland (2)
- Turkey
- Ukraine
- United Kingdom (5)

Plus regular guests from:
- Australia
- United Arab Emirates
- United States of America
Meeting Structure

• 2/yr together with EDNAP
• Focus is operational and for policy making
• Five subgroups
  – Methods and interpretation (incl. EDNAP)
  – QA, QC, training and sampling
  – Database and legislation
  – Forensic biology
  – Automation and expert systems
Welcome to the ENFSI Portal

**Polish forensic initiative**
During the last meeting of the Law Enforcement Working Party (LEWP), held on 15 of July 2011 in Brussels, Pawel Rybicki - the ENFSI Chairman, presented main points of Polish Forensic Initiative on the vision for European Forensic Science 2020. The reception of his speech in Brussels allows one to look optimistically at the future of forensic sciences in Europe. The forthcoming months seem to promise well. In fact, they may determine future role of ENFSI in the area of forensic science in the European Union.

[Read more...]

**New Board Members**
At the Annual Meeting 2011 in Tallinn, Lourdes Puigbarraca (Spain) and Úllar Lanno (Estonia) were elected as a new board member and as the chairman designate respectively replacing Tore Olsson (Sweden) and Pawel Rybicki (Poland). Chairman designate Pawel Rybicki took over from Jan De Kinder (Belgium) as the new ENFSI chairman.

[Read more...]

**ENFSI’s ANNUAL REPORT 2010 PUBLISHED**
DNA working group aims and objectives are:

- To bring together organisations actively pursuing forensic DNA analysis methods for the purpose of exchanging and disseminating information on forensic applications;
  - to discuss, share and compare forensic DNA analytical methods, protocols and research;
  - to establish forensic DNA analysis quality assurance guidelines and quality controls for Europe;
  - to co-operate with other national and international organisations in developing European standards for forensic DNA analyses;
  - to serve as a mechanism for the review and revision of European guidelines for forensic DNA analyses;
  - to establish core DNA markers for national and international criminal or intelligence DNA profile databases in Europe;
  - to disseminate to the European forensic DNA community ENFSI guidelines, forensic research results, the provision of training and any other work of benefit.

- The ENFSI DNA working group provides a forum via its regular seminars/workshops for the validation, introduction and improvement of DNA analysis in casework. It considers all aspects of case analysis and reporting. Focusing on casework requirements, the group collaborates with regard to the reporting and
Available documents

DNA database, legislative and laboratory issues

- **ENFSI document on DNA-database management 2010**
  (Published: 2010-04-30)
- **ENFSI report on DNA Legislation in Europe**
  (Published: 2008-09-19)
- **ENFSI DNA WG Terms and Abbreviations**
  (Published: 2008-09-19)
- **ENFSI Report on Criminal Cases in Europe solved by ILS**
  (Published: )
- **ENFSI survey on DNA-databases in Europe December 2010**
  (Published: )

QA issues

- **DNA contamination prevention guidelines (version 2010) for the file “contamination prevention final”**
  (Published: )
- **Minimum validation guidelines in DNA profiling (version 2010) for the file “Recommended minimum criteria...”**
  (Published: )
- **Recommendations for the training of DNA staff (version 2010)**
  (Published: )
DNA-DATABASE MANAGEMENT REVIEW AND RECOMMENDATIONS

ENFSI DNA Working Group
April 2010

With financial support from the ISEC Programme
European Commission - Directorate General Justice and Home Affairs
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# DNA WG

## QA related documents

### Contamination prevention guidelines

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### Recommended Minimum Criteria for the Validation of Various Aspects of the DNA Profiling Process

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### CONCEPT TRAINING DOCUMENT

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Welcome to the ENFSI Portal

European Network of Forensic Science Institutes

Links

**ENFSI DNA WG STR Population Database:**

The European Network of Forensic Science Institutes (ENFSI) conducted research projects involving collecting STR-data from 24 European populations using the AMPFLSTR SGM Plus system. In total, 5700 genetic profiles were obtained. These data - termed a population database - can be used for calculating match probabilities of genetic profiles generated in laboratories across Europe. For unlimited availability, the database has been put on the website below, which allows onsite calculation of profile frequency with different adjustment factors. ENFSI DNA WG STR Population Database: [www.str-base.org/demo.php](http://www.str-base.org/demo.php)
The European Network of Forensic Science Institutes (ENFSI) has undertaken an extensive study collecting STR-data from 24 European populations (5700 profiles) using the AMPIFLSTR SGM Plus system [6], which has become one of the standard STR multiplexes to be used within Europe for the purpose of constructing national DNA criminal intelligence databases. This allele proportion (frequency) database - further referred to as the 'ENFSI DNA WG STR Population Database' - can be used to calculate match probabilities of DNA profiles from cosmopolitan Caucasian populations across all Europe, regardless of their specific country of origin.

Differences in allele proportions between populations of the different countries have been quantified by estimating Fst [1], showing that the effect is small (Fst is approximately 0.001). Nevertheless, the effect cannot simply be ignored because match probabilities of DNA profiles derived from a European database will tend to be lower than those derived from an appropriate cognate population database. In order to take account of both sampling error and population sub-structuring effects, various methods can be applied including the Balding size bias correction [2], the Balding and Nichols Fst correction [3], and an upper bound of a 95% confidence interval [4], which are summarized among others in a recent publication [5].

The task of this website is to make the ENFSI DNA WG STR Population Database generally
STR-Base

• STR-Base will in 2011/2012
• New population data will be included as a result of the introduction of the new European Standard Set of Loci
• Movement to new hardware environment and some software adjustments
• Of course you know…
• Population data analysis of 25 populations did not show any major inconsistencies
• Some discordances detected between different kits but nothing that caused concerns
## Participating labs

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ISO-Standard

- Please visit P355 „The Future of Forensic Science Standards“ by Linzi Wilson-Wilde et al.
- Aim: Publish specification for products used in the forensic (DNA) chain in order to ensure that products will be as DNA free as possible
ISO-Standard

• Following up on the occurrence of manufacturing based contaminations (e.g. German Phantom)

• Using IFSA intl. Group was meeting for preparation of a proposal that will be published soon at ISO.

• Goal is to have the process finished in ~1yr.
Future

• Database document continuously expanded
• Cooperation with ICMP regarding establishment of databases for known contaminants and manufycturer samples
• Extending population data (countrie and subpopulation)
• More training esp. Interpretation & statistics
Future

• Interpretation will be one of main topics
• More looking at mtDNA
• Exchanging experiences and ideas
• Continue cooperation with manufacturers
• Develop and publish recommendations where appropriate
Ingo Bastisch
BKA (Federal Criminal Police Office)
,  ingo.bastisch@bka.bund.de
( +49 611 55-16030