

# 3rd Investigator Forum

April 1–3, 2014



Sample & Assay Technologies

Dear Forum participant,

On behalf of QIAGEN, we cordially welcome you to the 3rd Investigator Forum.

Global standardization is increasingly important in today's world due to the need for international data sharing in both forensic and relationship DNA testing.

Crime prevention relies on exploring the benefits of new methods and technologies and sharing the best ways to get consistent, reliable, and sensitive results.

With this in mind, we have developed an extensive program covering both the implementation and use of existing systems for DNA analysis, and information on new technologies and their applications. We continue to provide information on quality and safety improvements within the community, and include quality assurance experts in the agenda again.

We also highlight how new methods and technologies are allowing us to learn more about our ancestry, as well as get more information from criminal and relationship testing cases. We will visit the Neanderthal Museum in Mettmann on the evening of April 2 and learn about our evolutionary history. Dr Matthias Meyer will be our guest speaker for the evening. This theme will continue into the next day when several presentations will explore the impact of next generation sequencing on forensic casework, and relationship and ancestry testing.

The Forum is a chance to have more informal discussions with colleagues from different countries as well as follow presentations from fellow forensic scientists on new and existing methodologies and technologies. We are very excited to include presentations given for the first time with new unpublished data from key experts, as well as exciting new developments at QIAGEN.

This year, in response to requests from previous attendees we wished to provide greater opportunities to learn from others in the field. Therefore, we have included the optional educational workshops on April 1 at our headquarters in Hilden. Like previous years, there is an opportunity after the workshops to look 'behind the curtains' at QIAGEN and visit our manufacturing facilities.

We are very happy you have been able to join us at the 3rd Investigator Forum. We hope you enjoy the program.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dora Quest', with a stylized, flowing script.

Dora Quest

Senior Regional Marketing Manager, Human Identity and Forensics, QIAGEN

## Forum venue:

Lindner Hotel Airport  
Unterrather Str. 108  
40468 Düsseldorf  
Germany  
Phone: +49 211 9516-0  
<http://www.lindner.de/en/AIR>

## Workshops venue:

QIAGEN GmbH  
QIAGEN Strasse 1  
40724 Hilden  
Germany  
Phone: +49 (0)152 018 11786

## Timings

### Educational workshops: April 1, 2014

Transport will depart from the Lindner Hotel Airport at 9:00. Please be ready by 8:45 in the hotel lobby. On arrival at our headquarters, you will be signed in at the reception and escorted to the appropriate room.

Workshop I: From sample to result: QIAGEN workflow solutions with the QIAAsymphony SP/AS instrument will run from 10:00 until 17:00.

Workshops II and III: Population genetics and statistics and mixture interpretation workshops will run from 10:00 until 16:00.

Production tours will take place after the workshops for those that have booked a tour.

After the workshops, transport will be provided back to the hotel.

### Investigator Forum Day 1: April 2, 2014

The Forum will start at 10:00 and end at 16:15.

### Dinner event at the Neanderthal Museum, Mettmann, April 2, 2014

The bus to the museum will depart at 16:45. Please be ready in the hotel lobby 5–10 minutes before departure.

The bus will drop you back at the hotel at around 22:30.

### Investigator Forum Day 2: April 3, 2014

The second day of the Forum will start at 9:00 and end at around 15:30.

For organisational and logistic queries please contact us at [events@qiagen.com](mailto:events@qiagen.com) or call us at:

Sylvie Lemke, +49 (0)152 018 11786

Selim Chouaibi, +49 (0)152 018 11782

Dora Quest, +49 (0)152 018 11308

## Workshop I

### From sample to result: QIAGEN workflow solutions with the QIAAsymphony SP/AS instrument

Carole Peel, QIAGEN

Please assemble in the meeting room between 9:45–10:00.

Meet in room Maurice Wilkins (MV2, ground floor)

|       |   |
|-------|---|
| 10:00 | <ul style="list-style-type: none"><li>■ Introduction to QIAAsymphony SP/AS, consumables, and reagents</li><li>■ Sample preparation and lysis</li><li>■ Load and run samples using an integrated run protocol (Casework ADV HE and Quantiplex).</li><li>■ Quantification transfer data and samples to the RGQ and start Quantiplex assay run; normalization &amp; PCR set-up</li></ul>                                       |
| 12:00 | Lunch buffet in Café Blue (building MV2, ground floor)  |
| 12:45 | <ul style="list-style-type: none"><li>■ Analyze quant results and transfer samples and data to the QIAAsymphony AS Module for normalization, and STR set-up</li><li>■ Run normalization and STR set-up on QIAAsymphony, then transfer to thermal cycler for STR amplification</li><li>■ Prepare plate and start 3500 CE instrument run for electrophoresis</li><li>■ Analyse and review data with discussion time</li></ul> |

## Workshop II

### Mixture interpretation

Dr. Susan Pope, DNA Principal Forensics Ltd

Please assemble in the meeting room between 9:45–10:00.

Meeting room to be confirmed

|       |   |
|-------|---|
| 10:00 | DNA interpretation methods <ul style="list-style-type: none"><li>■ Manual interpretation and cognitive bias</li><li>■ Guidelines and propositions</li></ul> |
| 13:00 | Lunch buffet in Café Blue (building MV2, ground floor)  |
| 13:45 | Population genetics <ul style="list-style-type: none"><li>■ LR formulae</li><li>■ Low template DNA issues</li></ul>   |

## Workshop III

### Population genetics and statistics

Dr. Chris Phillips, Forensic Genetics Unit, University of Santiago de Compostela

Dr. Andreas Tillmar, National Board of Forensic Medicine, Linköping

Please assemble in the meeting room between 9:45–10:00.

Meet in room Hilden A, B (Q1, ground floor)

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10:00

#### Part 1:

Criminal profiling, Dr. Chris Phillips

- Basics of human population genetics
- Considerations for preparing and using STR allele frequency data
- The profile frequency. Linkage issues with syntenic STRs.  
The 'ceiling RMP' (e.g. UK's adoption of 1 in 1 billion)
- Non-recombining Y-STR sets – using YHRD data
- Population sub-structure and using the theta correction factor
- Anticipating brother pleas
- On the horizon: Familial searching, expanded STR sets, STR typing with NGS

12:30

Lunch buffet (outside meeting room)

13:30

#### Part 2:

Relationship testing\*, Dr. Andreas Tillmar

##### A. Theoretical

- Basic paternity issues
- Complex pedigree testing
- Mutations and silent alleles
- Linkage and linkage disequilibrium
- Introduction to the biostatistical softwares Familias & FamLink

##### B. Practical

- Tutorial Familias version 3 (download via <http://familias.no/english/download>)
- Case examples covering simple paternity issues, complex pedigree issues, and examples of how to account for mutation and silent alleles
- Tutorial FamLink (download via [http://www.famlink.se/f\\_download.html](http://www.famlink.se/f_download.html))
- Case examples of how to account for linkage

\*The session will include a theoretical and practical part. The participants are advised to bring their laptops and download the software Familias and FamLink before the workshop. Please download the case studies for the workshop from <http://www.famlink.se/InvestigatorForumWorkshopRelationshiptesting.html> before the workshop. To connect to the QIAGEN wireless network, please search for "guest" network (no password required).

# Agenda Investigator Forum, Lindner Hotel Airport

## Day 1 April 2, 2014, Wednesday

|       |   |   |
|-------|---|---|
| 10:00 | Welcome   | Thomas Schnibbe,<br>Sen. Director Global LS Market<br>Management Appl.Sciences, QIAGEN                        |
| 10:20 | Overview of agenda  | Dora Quest,<br>Senior Regional Marketing Manager HID, QIAGEN  |
| 10:30 | <b>Session: Validation and quality standards</b>  |   |
| 10:30 | EUROFORGEN-NoE initiatives in research and training – a progress report   | Peter Schneider,<br>Institute of Legal Medicine, Cologne, Germany   |
| 11:00 | Investigator ESSplex Plus for human identification  | Ana Goios,<br>IPATIMUP, Porto, Portugal   |
| 11:25 | Evaluation of the performance of commercial kits for the rapid generation of DNA profiles   | Naseem Malik,<br>Institute of Legal Medicine Aarau,<br>Forensic Genetics, Switzerland                         |
| 11:55 | Evaluation of QIAGEN quantification assay and DIPlex chemistry in forensic casework   | Branka Gršković,<br>Forensic Science Centre “Ivan Vučetić”,<br>Ministry of Interior, Zagreb, Croatia          |
| 12:15 | <b>Lunch</b>  |   |
| 13:15 | <b>Session: Validation and quality standards (continued)</b>  |   |
| 13:15 | Developing a high-throughput workflow with the QIASymphony system   | Amy Jeanguenat,<br>VP, Director, Forensic Lab Operations, Bode Technology, USA                                |
| 13:40 | Effects of EO treatment on various plastic consumables  | Mario Scherer,<br>Associate Director Scientific Applications, QIAGEN  |
| 13:55 | Plasma sterilization: a novel decontamination strategy for forensically relevant consumables  | Marielle Vennemann,<br>Institute of Legal Medicine, Münster, Germany  |
| 14:15 | QIAGEN Forensic Grade Quality   | Bruno Monschau,<br>Senior Director Operations Europe, QIAGEN  |
| 14:30 | <b>Session: Experiences in casework</b>   |   |
| 14:30 | Statistical challenges in relationship testing  | Andreas Tillmar,<br>National Board of Forensic Medicine, Linköping, Sweden                                    |
| 14:55 | Analysis of trace DNA recovered from spent cartridges   | Juliane Sanft,<br>Institute of Legal Medicine, Jena, Germany  |
| 15:10 | <b>Coffee break</b>   |   |
| 15:30 | <b>Session: Experiences in casework (continued)</b>   |   |
| 15:30 | Identity testing the remains of Yasser Arafat   | Pavel Ivanov,<br>Federal Center for Forensic Medical Expertise of<br>Ministry of Health of Russian Federation |
| 16:00 | Expertise in disaster victim identification – process optimization to minimize the analysis time for DNA investigations of highly postmortem modified skeletons | Anne-Marie Pflugbeil,<br>Institute of Legal Medicine, Leipzig, Germany  |
| 16:45 | <b>Depart to evening event</b>  |   |
| 17:15 | <b>Neanderthal Museum Mettmann</b>  |   |
| 17:45 | Welcome and introduction to evening program   | Thomas Schnibbe,<br>Sen. Director Global LS Market<br>Management Appl.Sciences, QIAGEN                        |
| 18:00 | Neanderthals, Denisovans and more – insights into human evolutionary history from ancient DNA   | Matthias Meyer,<br>MPI für Evolutionäre Anthropologie, Leipzig, Germany                                       |
| 18:50 | Museum tour followed by dinner  |   |

## Day 2 April 3, Thursday

|   |  |  |
|---|--|--|
| <b>09:00</b>  | Welcome and agenda for the day   | Dora Quest,<br>Senior Regional Marketing Manager HID, QIAGEN   |
| <b>Session: New and emerging technologies for forensic analysis</b> |  |  |
| 09:10   | Investigator 24plex – fast, sensitive and robust amplification of all relevant CODIS and ESS loci                          | Daniel Müller,<br>R&D Scientist, QIAGEN  |
| 09:30   | A collaborative European exercise on mRNA-based body fluid/skin typing and interpretation of DNA and RNA results           | Margreet van den Berge,<br>Netherlands Forensic Institute<br>The Hague, The Netherlands                        |
| 10:00   | CNV-based identification, overview of methylation and bacterial DNA based methods  | Dmitry Zubakov,<br>Erasmus MC 2 University Medical Center,<br>Rotterdam, The Netherlands                       |
| <b>10:30</b>  | <b>Coffee break</b>  |  |
| <b>11:00</b>  | <b>Session: New and emerging technologies for forensic analysis (continued)</b>  |  |
| 11:00   | Simultaneous analysis of DNA and RNA from backspatter as an integrative approach to the forensic investigation of firearms | Cornelius Courts<br>Institute of Legal Medicine,<br>Bonn, Germany  |
| 11:25   | Next generation sequencing expands the scope of forensic ancestry inference  | Chris Phillips,<br>Forensic Genetics Unit,<br>University of Santiago de Compostela, Spain                      |
| 11:55   | The future of mitochondrial forensic genetics  | Walther Parson,<br>Institute of Legal Medicine,<br>Innsbruck Medical University, Austria                       |
| <b>12:30</b>  | <b>Lunch</b>   |  |
| <b>13:45</b>  | <b>Session: New and emerging technologies for forensic analysis (continued)</b>  |  |
| 13:45   | Next generation sequencing of short hypervariable regions  | Peter de Knijff,<br>Forensic laboratory for DNA research,<br>Leiden University Medical Center, The Netherlands |
| 14:15   | Consequences of next generation sequencing for forensic DNA databases  | Kees van der Beek,<br>Custodian Dutch DNA-database,<br>The Hague, The Netherlands                              |
| 14:45   | Bioinformatics requirements for the use of NGS in human mitochondrial DNA analysis   | Mark Wilson,<br>Western Carolina University,<br>USA  |
| <b>15:15</b>  | <b>Meeting close and depart</b>  |  |

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