



**WELCOME** to our second newsletter which sees the project gathering pace. We have decided to try and make the newsletter more of interest to non-EuroGentest participants. To this end we have interviewed the various unit leaders on their work and also included items on genetics in the news and a US perspective. As usual we welcome your comments and suggestions for further issues, the next one will come at the end of the year and will include a report on the general assembly and first year of EuroGentest.

Jean-Jacques Cassiman

## EUROGENTEST NEWSLETTER 2/2005

# EuroGentest moves Forward



EuroGentest is gathering momentum as is interest in improving genetic testing in general. Orphanet, our partner in Unit 2 on providing information to the public originated in France where the government has given strong support to developing "rare disease" services. Public awareness is also high, as shown by the annual Telethon in December in Paris where over Euros 100 million was raised last year.

## Have you registered for the annual general assembly?

You should already have received an invitation to the EuroGentest General Assembly - December 12 - 13 2005 - Leuven, Belgium. The GA will start with an informal dinner on Sunday evening December 11. In the morning we will start at 9:00am sharp (!) with a Steering committee meeting until 02:00pm. From 2:00-4:00 pm there will be 6 meetings; every unit will have its own 'general assembly'.

Tuesday start again at 9:00am with a meeting for Advisory board and all participants and its collaborators. From 2:00-4:00pm again a SCM. 4:00pm is the end of the GA.

More info can be found on the [www.eurogentest.org](http://www.eurogentest.org)

**EuroGentest**  
Genetic Testing in Europe



# Unit Reviews



## Unit 1

### Promoting the benefits of quality

The largest of the Units in EuroGentest, Unit 1, under the guidance of Els Dequeker, has the harmonization of quality systems across the EU as its prime objective. "Quality underpins everything in genetic testing and our aim is to encourage every laboratory in Europe to seek and achieve accreditation according to an accepted international standard. A difficult task for genetic testing laboratories, but one of which the necessity is becoming increasingly recognized."

Unit 1's activities are organised around three axes – training, networking and EQA. As part of our drive to encourage accreditation, our initial training activities revolve around organizing a series of expert workshops where we go beyond the theory and present participants with practical problems as well as offering them hands-on experience. The most recent one looked at the possibilities of IT support for accreditation and quality management. Networking involves identifying and then bringing together the many individuals and organizations with a role to play and a stake in ensuring quality. To help with these efforts, a massive database of laboratories performing genetic testing is being constructed. Another aspect of the Unit's work is to build a network of experts who can help labs seeking accreditation. To this end the Unit liaises with accreditation bodies and international organizations such as ISO and OECD.

Quality assurance, in simple terms, means traceability of every action within the testing process on an ongoing basis, and showing that what you are doing is correct and can be trusted. This is as much a question of attitude and commitment as anything else. "Laboratories have to realise that such is the importance of the service they offer that they must be completely accountable. This often involves a complete change of thinking".

In coming newsletters, we will report in more depth on the various aspects of Unit 1's work, including accreditation, external quality assessment schemes, internal quality control, and standards and reference materials.

## Unit 2

### Partnering with Orphanet to spread information

Prior to joining the EuroGentest project as head of Unit 2, Ségolène Aymé had been building up Orphanet as one of the leading sources of information on genetic testing for both professionals and the public. "We started in France 7 years ago where the government has strongly backed the development of services for what are also called here "rare diseases". Our site has now reached the point where we have around 300000 hits a day from over 140 countries – 2/3rds being healthcare professionals and 1/3 non-healthcare professionals and the general public. The aim originally was primarily to inform professionals about the type and quality of genetic testing offered by different laboratories so they could make an informed choice. This may sound straightforward but in fact was incredibly complex. For example laboratories could be offering the same test but for different numbers of mutations. We also soon saw the value in working on a European basis, since many rare diseases tests are often only available in another country because of the volume required to create a meaningful qc system."

Since EuroGentest aims where possible not to replicate existing initiatives, it seemed natural to approach Orphanet with a view to becoming a partner. "We were delighted since we could already see the potential benefits of offering Orphanet's information on an extended European basis. However, we also knew the large resources that were going to be required due to the scale of the undertaking and the volatile nature of the information. Our approach has been to work with national databases where they exist and to appoint coordinators in each of the member states. These are now in place in 20 countries. We are also working closely with Unit 1 and it has been great to get new ideas on what kind of quality information to have on the site. General agreement has been reached and the idea now is all data collected will be qc'd by Unit 1 before being accepted. As for timescales, we aim to launch the co-branded EuroGentest/Orphanet site with its new interface next spring. In the meantime there will be a workshop in November for the various coordinators."

One of the biggest stories this summer was the unveiling of the genome of our closest living relative – the chimpanzee – by an international consortium of scientists. The study shows incredible similarity between our genomes. The average number of protein-changing mutations per gene is just two, and 29% of human genes are absolutely identical. Furthermore, only a handful of genes present in humans are absent or partially deleted in chimps.





## Unit 3

### Creating awareness for standards in counselling

One of the key areas of Unit 3's remit is to look at standards of genetic counselling. According to Helena Kaariainen this is a fascinating area where the EuroGentest project can make a real difference. "It is essential in my view that there are common standards for the whole test procedure including counselling. Another key factor is the kind of test being performed. In the case of presymptomatic tests, there is a definite need for comprehensive pre test genetic counselling, whilst for straight diagnostic situations the onus is on post testing counselling. In both cases, there is also the added factor that the result will have implications not just for the individual, but for an extended family circle. Here again in Finland, we often have the situation where people have changed their minds about taking tests when, in the course of genetic counselling, they hear the implications. Another reason for harmonisation is that because of the rarity of some genetic disorders there will always be cases where samples have to be sent to other countries for testing. For example, my own laboratory receives testing requests from countries as diverse as Turkey and Norway. We hope that the patients get the same message wherever they are"

In common with the other Units, the first step in the project has been to chart the existing situation – who is actually responsible for counselling and under what if any guidelines or legislation are they acting. Information was initially gathered on international guidelines issued by for example WHO, Unesco and others. "Interestingly they were all very similar and tend to be very cautious and obsessed with the need to preserve freedom of choice. Nor do they seem to have been developed further," continues Helena. "This may be because counselling was regarded as potentially extremely controversial and the aim of the initial legislators was to try and draw a line under the issue and prevent further discussion."

The Unit also used a lawyer, Sirpa Soini to look into any existing EU legislation mentioning genetic counselling and consent. It turns out that there are only a few, and that most states seem to try and cover the issue through the European Biomedical Convention and national legislation. One particular area where there are neither guidelines nor legislation is counselling of minors, which, with an increasingly "medically aware" society, could become a major issue. "We are fortunate to have Elina Rantanen, a trained sociologist on the team who is providing unique insight into this research. She is now moving on to the various national situations. As part of this work a web-based questionnaire is being sent out in September to all European national Societies of Human Genetics We expect the analysis to be completed by the end of the year, although the issue is complex because of the diversity of societies involved in the field in various countries," concludes Helena Kaariainen.



## Unit 4

### From patient rights to the costs of harmonisation

The legal and ethical basis of genetic testing is being studied by Unit 4 under the guidance of Kris Dierickx of Leuven. "We have managed to assemble a panel of legal experts in 25 countries looking at the current status of patient rights. Our first action was to collate all the existing guidelines, both national and international, and we published our findings in July on the EuroGentest website. We have now moved on to measure the uptake of the European Convention on Human Rights and Biomedicine within the EU, since it has provisions that would seem to cover genetic testing. We also want to establish if it is being regarded as applying to minors. Although agreed in 1977, as with a lot of EU legislation, the implementation of this legislation, which is meant to form a fundamental basis for healthcare provision, has been varied. This work should be completed by October 15. We will then move to our second major aim which is to assess the legal and ethical implications of harmonization. This is a challenging area, since while the benefits of harmonising technical standards are clear, services are a more individual matter. Rich countries with established health systems could probably afford to reallocate resources. However poor countries face a dilemma since they simply may not be able to afford the measures proposed for harmonisation. Therefore it is not just a case of looking at ethical and legal implications but also socio-economic ones."

## Unit 5

### First version of technologies database nearing completion.

Unit 5 are well on the way to completing the immense task of building a genetic testing technology database. Because of the current speed of change in the sector, Egbert Bakker from Leiden and his group were given a remit to look at both existing and emerging technologies such as Real-time PCR, flow-through arrays and sequence analysis. For each technology information has thus been collected on assay principle and characteristics, sample type and size, required equipment etc. Another major topic is to assess the patent situation for each technique, especially given, for example, the ongoing qPCR challenges in the US. "In addition to being a key ongoing point of reference for laboratories throughout the EU, the project has two important aims. Firstly, with the often bewildering choice of new technologies facing laboratories we want to establish a means of validation followed by SOPs for their implementation, eg. for MLPA, and DNA isolation. Secondly, under the direction of EuroGentest we also want to create a network of accredited beta sites across Europe to enable better evaluation of new technologies. This we believe will benefit all parties, since currently such evaluations are often performed at hoc in laboratories which are not accredited to an (inter)national standard." Once the basic database has been opened to other members of EuroGentest, the group will broaden out into areas such as HPLC in biochemical genetics and media preparation and robotics in cytogenetics.

The Unit 6 team recently met in Genoa to report on progress to date in collating information on education initiatives for both professionals and the public.

Elina Rantanen and Helena Kaariainen are researching the existing legal status of counselling.

# GENETICS IN THE NEWS

## New members:

Jana Camajova and Malgorzata Libik, both Prague, working on both establishing a lab quality system and on the preparation of SOP's and implementing recently validated technologies.

Florence Le Calvez, started recently in Leuven, for coordinating validation and implementation and SOP inventories. Yvo Fokkema, is mainly involved till the end of 2005 with building and starting up the database, his temporary position is in Leiden.

Nienke van der Stoep, will start later this year in Leiden, to evaluate new technologies, and organise meetings with companies and EuroGentest labs to establish the first EuroGentest beta test sites.

## Unit 6

### Education for both public and professionals

Education of both professionals and the public is the concern of Unit 6 under Domenico Coviello and Alastair Kent. Both have a passionate belief in the need for EuroGentest driven by personal experience. Domenico was dismayed at the variation in counselling given to patients with genetic diseases in his native Italy, while Alastair has been one of the leading campaigners for greater awareness of genetic disorders in the UK for over a decade. "We have three main aims – to set up a network with contacts in each country for education, to collect information on educational schemes in each country and by the end of the year to have a plan of action to facilitate harmonization. Key to achieving all this will be to get medical genetics recognised at European level as a medical speciality. Currently the situation is different in various countries with medical genetics often only seen as a subspeciality of another discipline such as paediatrics. I am therefore active in another of my roles as Chair of the Education Committee of the European Society of Human Genetics (ESHG) to remedy this situation. In September ESHG facilitated a meeting with the presidents of the various national genetics societies to discuss lobbying for recognition and accreditation to the CME medical education system and Prof. Ulf Kristoffersson presented a document that will help to start the application at EC level for this purpose. Next is our meeting in December where we hope to have sufficient information on the current situation to be able to plan a way forward. Questionnaires have gone out to both professionals and patient organisations across Europe. The response so far has been good, but the situation as we thought is extremely varied. Cultural differences are immediately apparent, as are opinions on the relationship between pre and post counselling. In patient education there is also the question of trust – do patients trust official information less than that from patient support groups? There are many factors to be taken into consideration and we already feel that we will tend towards advising minimum standards rather than absolutes.



In a new feature, we take a regular look at genetics in the news across Europe, starting with the UK. Nowadays more and more non-specialist journalists feel competent to write about genetic matters but as you can see from the selection of topics below coverage runs from highly scientific to completely sensational. So we range from Oprah being interested in her ancestry to the chimp genome to pharmacists worried about the implications of predisposition tests! Also this selection is not just from national papers but also local ones. Food for thought for both professionals and public.

- TV SHOW TO OFFER FREE DNA TESTS  
Evening Times (Glasgow), September 26, 2005,
- PHARMACISTS WILL NEED PHARMACOGENETICS TRAINING  
The Pharmaceutical Journal, September 24, 2005
- PERSONALISED MEDICINES 'YEARS AWAY'  
Financial Times (London, England), September 22, 2005 Thursday,  
By CLIVE COOKSON
- DRUG SIDE-EFFECTS 'KILL 1,000 PEOPLE EVERY YEAR';  
The Independent (London), September 22, 2005 By Jeremy Laurance  
Health Editor
- HEALTH: THREE OF THESE GIRLS GOT BREAST CANCER.  
WHY?; WHEN TWO OF HER SISTERS BECAME ILL, THE AUTHOR MEG  
ROSOFF LEARNT ALL  
The Independent (London), September 20, 2005, MEG ROSOFF
- TAKE FOUR PEOPLE, ONE DNA TEST, AND UNRAVEL THE STORY OF  
HUMAN MIGRATION: THE MAKERS OF A NEW £300 TEST CLAIM IT  
ALLOWS ANYONE TO TRACE THEIR ANCESTRY BACK THOUSANDS  
OF YEARS. WE CHECKED IT OUT  
The Observer, September 18, 2005, Antony Barnett
- GPS LACKING THE CONFIDENCE ON GENE TEST ADVICE  
Pulse, September 10, 2005,
- NEW DNA TEST COULD END HEART DISEASE  
The Evening Standard (London), September 5, 2005
- PRIVATE HEALTH TESTS 'CAN DO MORE HARM THAN GOOD'  
The Daily Telegraph (London), August 24, 2005, Wednesday, By Celia  
Hall, Medical Editor
- EMBRYOS FACE GENE TEST  
The Mirror, August 12, 2005, By Lorraine Fisher Health Correspondent
- SHOCK OF PATERNITY SECRETS REVEALED BY DNA ADVANCES  
Daily Post (Liverpool), August 11, 2005, Thursday, By Emily Ashton
- I IN 25 MEN IN DARK AS THEY RAISE OTHERS' CHILDREN  
The Daily Telegraph (London), August 11, 2005, Thursday, By Celia Hall,  
Medical Editor
- NEW CANCER GENE TEST  
The Journal (Newcastle, UK), August 10, 2005, By The Journal
- GENE TEST COULD SAVE MEN FROM PROSTATE SURGERY  
The Scotsman, August 10, 2005, Wednesday, Louise Gray
- PERSONAL GENETIC PROFILING KIT TO COST POUNDS 560  
The Daily Telegraph (London), August 05, 2005, Friday, By Roger  
Highfield Science Editor
- GENE TEST HOPE ON COT DEATH  
Sunday Mirror, July 31, 2005, NEWS;
- ANCIENT SKELETONS POINT TO 3000 YEAR-OLD SETTLEMENT IN FIJI  
Agence France Presse -- English, July 15, 2005 Friday,
- SCIENCE FINDS BEHAVIOUR IS IN THE GENES  
Sunday Times (London), July 10, 2005, Lois Rogers
- GENETIC TEST DEVELOPED TO CRACK DOWN ON FAKE ANGUS BEEF  
Sunday Times (London), July 3, 2005, Camillo Fraccasini
- THE MISSING LINK?; OPRAH WINFREY SAYS SHE HAS ZULU BLOOD.  
SHE'S NOT ALONE. THOUSANDS OF  
The Independent (London), June 29, 2005, By Steve Connor

# What's new on the Website?

The web development team have been very busy over the past few months and I am pleased to report that there has been some significant improvements to the website. Reports Olivia Willcocks.

Firstly, we have a new interactive calendar, which shows all the events that are held under the name of EuroGentest and others which are related. From the calendar you can access information about the event including maps, programmes and registration details. After the event you can check back and download your copy of the minutes, presentations and view any pictures.

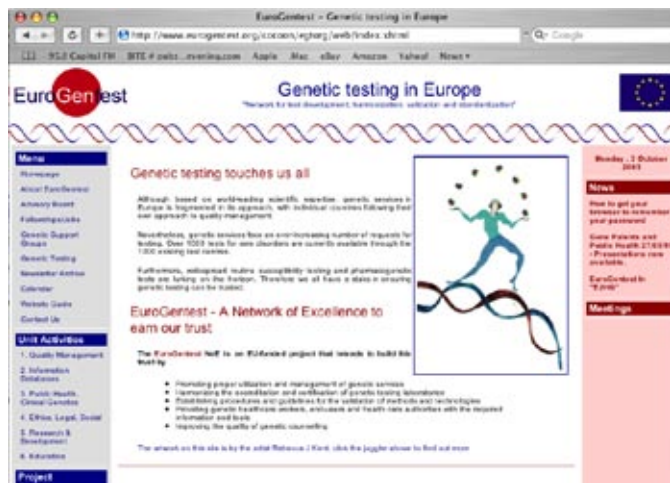
Units 1 and 6 have been very busy revamping their pages, we are still working through these so check back to see these as they are completed.

The participants of the project now have their own menu on the homepage and from this you can access documentation, minutes, reports, published articles and blank forms. From this area you can also get a full list of all the participants email addresses.

Online reporting will be going live soon and this should make the world of reporting an easier beast!

Please check the website at [www.eurogentest.org](http://www.eurogentest.org) to view these and many other developments which we have made.

As the project unfolds the website will constantly change and any suggestions, ideas and material you have will be greatly appreciated by the website editorial board so please send anything you can to [o.willcocks@waypointsystems.co.uk](mailto:o.willcocks@waypointsystems.co.uk)



## NEW LINKS WITH Japan and Poland

Although our remit is Europe, EuroGentest also aims to forge strong links with the rest of the world to share experiences. The latest is with Japan, where there is also a major effort to raise standards. Tomoshige Hori, Director, Standardization and Strategy, of the Japanese Bioindustry Association has joined our Advisory Board. We hope especially to benefit from their knowhow in Genetic testing.

We also have a new Advisory Board member from Poland - Wegryzn Grzegorz, Central Europe and Eastern countries Genetic Network, Gdansk.

## Reporting goes on-line

The website team have been working hard and are delighted to announce that as from Monday October 3rd all reporting can go online.

# First fellowships awarded

The first fellowships for EuroGentest have been awarded. Both existing EuroGentest participants and potential new members are eligible.

<b>FELLOW</b>	Esther van Zimmeren University of Leuven, Minderbroedersstraat 5, 3000 Leuven Participant 1.6
<b>HOST</b>	Hawsmere Course on "International technology licensing agreements"
<b>TIMING</b>	13-14 October 2005

<b>FELLOW</b>	Viktoria Havasi M.D. University of Pecs, Faculty of Medicine, Dept. of Medical Genetics and Child Development, Pecs, Szigeti ut 12, H-7624, Hungary Participant 6
<b>HOST</b>	Dr David Barton, Molecular Genetics Laboratory, National Centre for Medical Genetics, Dublin, Ireland Participant 9
<b>TIMING</b>	Autumn 2005

<b>FELLOW</b>	Jana Camajova PhD Institute of Biology and Medical Genetics, Charles University Prague, Czech Republic Participant 8
<b>HOST</b>	Laboratory of Prof. G. Matthijs at CME University Hospital Leuven – Campus Gasthuisberg (WP 5.1). Participant 1.1
<b>TIMING</b>	20-30 September 2005

<b>FELLOW</b>	Malgorzata Libik PhD Institute of Biology and Medical Genetics, Charles University Prague, Czech Republic Participant 8
<b>HOST</b>	Laboratory of Prof. G. Matthijs at CME University Hospital Leuven – Campus Gasthuisberg (WP 5.1). Participant 1.1
<b>TIMING</b>	20-30 September 2005

<b>FELLOW</b>	Elina Rantanen Department of Medical Genetics, University of Turku, Kiinamyllynkatu 10, 20520 Turku Finland Participant 16
<b>HOST</b>	European School of Genetic Medicine Course: Genetic Counselling in Practice Bertinoro di Romagna, Italy
<b>TIMING</b>	25-30 September 2005

<b>FELLOW</b>	Pia Vuorela Itäinen Pitkätatu 43 b 26, 20700 Turku, FINLAND Participant 16
<b>HOST</b>	Leiden University Medical Center Bert Bakker Participant 20
<b>TIMING</b>	15-30 Oktober 2005

# A US perspective

Effectively communicating health related information pertaining to genetic tests between the laboratory and clinical setting is key toward achieving positive patient outcomes and one of EuroGentest's main concerns. Other countries share this concern – the US in particular. Current guidelines there primarily describe what information elements should be present in genetic test result reports but speak far less to how to achieve effective communication. Dr. Ira Lubin of the CDC recently presented data from an ongoing study designed to assess how laboratories report genetic test results using DNA-based cystic fibrosis testing as a model. The following is a report from the presentation and the resulting discussion.

In the study, two diagnostic case studies and three carrier testing case studies were sent out to 27 labs around the US to see how they would report the results. Data was presented showing variation in how laboratories report out diagnostic test results that are not conclusive that may lead to differences in interpretation by the clinician. This was provided as an example where standard language may be useful to assure common interpretation and use of the result. When it came to carrier testing, there was significant variation between labs as to whether risk estimate, detection rate, and limitations such as family history and ethnicity were reported. Dr. Lubin provided examples pertaining to the communication of risk information on the laboratory report that exemplified differences in what information was communicated that could potentially impact on use for patient counseling and management. Further, for both diagnostic and carrier status cases, there was variability how reports addressed follow-up options, whether for additional testing or genetic counseling. Dr. Lubin made the point that these examples were derived from test that is relatively simple to perform but as we move to more complex technologies, it is critical to consider what is needed to properly report a result to avoid misunderstandings.

In conclusion, Dr Lubin commented

1. There is lack of standard nomenclature in communicating results in terms of their genetic and phenotypic meaning.
2. There are both general and platform/clinical specific reporting issues that need to be considered (for instance, results from a direct mutation analysis might need to be handled differently from those from full sequence analysis).
3. Quality indicators are needed to assess reporting effectiveness which should take the clinician perspective into account.

Following on from this, a template comprising the following five elements is suggested for a test result

1. The analytic test result (single mutation/multiple SNPs/other).
2. Indication for testing (to direct laboratory to most appropriate technique and interpretation).
3. Interpretation of the result (genotype/phenotype correlation, risk presentation, prognosis).
4. Limitations on the analytic test and interpretive component.
5. Follow up actions (testing, counseling).

In discussion, it was noted that:

- There has been little debate on how critical results should be communicated – labs tend to develop methods for themselves.
- Many of the same issues arise in the diagnosis of leukemia – where the prognosis may be very poor and great sensitivity is needed in communicating results to the patient and their family.
- In Europe, test result reports are evaluated as part of the CF network and European Molecular Quality Network. This has been shown to be an effective mechanism for improving the quality of reports over time. Consideration should be given to how reports relevant to new technologies will be evaluated.



## People

EuroGentest has attracted many of the leading names in genetics in Europe. Equally exciting though are the number of enthusiastic young scientists – from recent graduates to PhDs - who have joined reflecting the growing popularity of genetics as a discipline. Here we start a series of profiles of the names of the future with Sarah Berwouts

### NAME

Sarah Berwouts

### NATIONALITY

Belgian

### POSITION

Scientific Collaborator Unit I

### QUALIFICATION

Masters in Biomedical Sciences, Leuven

### LANGUAGES

Dutch, French and English

### FAVOURITE MUSIC

Belgian pop! Daan and Vive la Fête

### HOBBIES

Just started street dance

### LAST BOOKS READ

Nicci French and Donna Tart

**Q:** What stimulated your interest in genetics?

A: At school, biology was one of my favourite subjects and we touched on genetics. When it came to university I decided that I liked the human side more and thus chose Biomedical Sciences over Biology.

**Q:** How did you get involved with EuroGentest?

A: I wasn't sure what to do after graduating since there wasn't an immediate Phd position in my lab. Looking on the web I came across the EuroGentest vacancy. I had already been taught by Els Dequeker and really enjoyed her courses on quality a lot.

**Q:** Is the project living up to your expectations?

A: Yes, it's fantastic. Every day is different – either I am researching, meeting new people or travelling and presenting. The Unit's work combines two of the most interesting and exciting topics today – genetics and quality. I definitely made the right choice.

**Q:** Any spare time?

A: Some. Leuven is a great place, a lot of my former student friends have stayed on and we often meet up.

