



## Network News

Volume 5, Issue 1

### Editors' Introduction

In this 12<sup>th</sup> edition of Network News we are highlighting a new genotyping platform at one of our partner institutes, the four EADGENE technology transfer projects, and several EADGENE workshops which have recently taken place.

The first announcement of the 5<sup>th</sup> EADGENE conference is given below, and various other meetings of interest to our readers are listed on the last page, such as the Partner meeting for WP Leaders in April 2009.

As always, we hope you will find this newsletter of interest, and we look forward to seeing you in Paris in October 2009!

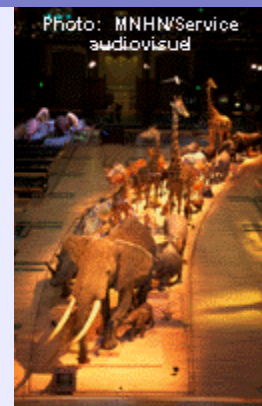
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### EADGENE Days 2009

We are pleased to announce that the 5<sup>th</sup> EADGENE conference will take place at the Muséum National d'Histoire Naturelle in **Paris** on **13-15<sup>th</sup> October 2009**. This venue has been chosen because 2009 is the 200<sup>th</sup> anniversary of Charles Darwin's birth and also the 150<sup>th</sup> anniversary of the publication (24<sup>th</sup> Nov 1859) of his enormously influential book, "On the Origin of Species." The **main 2-day conference** will be held in the "**Grand Amphitheatre**" on the 13-14<sup>th</sup> Oct, with a cocktail session in the "**Grande Galerie de l'Evolution.**" A **satellite meeting** will be held on the 15<sup>th</sup> Oct in the "Auditorium" and EADGENE Work Package meetings will take place on 12<sup>th</sup> Oct.

**Registrations will open on 1st April 2009**, so for now we ask that you reserve these dates in your diary, and visit the EADGENE website in early 2009 for regular programme updates.



### Illumina BeadExpress Genotyping Platform at Parco Tecnologico Padano

A new piece of equipment at the **Genomics Platform of Parco Tecnologico Padano** (PGP) will enhance opportunities in genomics and proteomics research. The newborn Illumina BeadXpress Reader System recently acquired by the PGP is based on the VeraCode® technology and allows a broad range of analyses, such as SNP analysis, gene expression and protein-protein interaction analyses.

The Illumina Beadexpress platform takes advantage of Veracode Beads, glass cylinders inscribed with a unique holographic code, functioning as support for the analyzed biological molecules. The BeadXpress™ Reader is capable of tracing back hybridization signals to the individual beads.

The GoldenGate® Genotyping Assay, developed on top of the VeraCode® technology, allows the creation of personalised SNP panels, enabling the analysis of **up to 384 different SNPs for each DNA/RNA sample**. The Illumina assay combines a solid support with favourable kinetics and ease of manipulation inherent to solutions, guaranteeing high levels of robustness and reliability.

With its cutting-edge equipments, the PGP, a ISO9001 certified Platform, offers high-throughput analysis in the field of genomics in the animal sector. A high level of instrument automation allows them to process **up to 800 DNA samples** and to perform **up to 5,000 genotyping analyses per day**. To provide samples and results tracking a high-end LIMS system was implemented, adhering to the principles of flexibility, robustness, security and accessibility. The Oracle backed SQL\*LIMSv5.1 system from Applied Biosystems was configured to meet the specific needs imposed by a genomics laboratory, such as micro-plate based operation tracking and genotyping analysis instrument interfacing. The LIMS is presently enrolled in a accreditation process (SINAL 17025) to allow certified tracking of selected genotyping services, from the arrival of the samples in the laboratory to the registration of the analyses results.



The optimal usage and the sharing of existing facilities is an essential part of the **EADGENE "Virtual Laboratory"**, being the main goal of the WP1.1 (Biological Resources and Facilities). Thus, **EADGENE Network partners** are welcome to benefit from the performances of the new Illumina BeadExpress instrument, as well as all the other powerful equipment available at the PTP Genomics Platform. The Director of the PTP Genomics Platform,

Dr. Pietro Piffanelli, together with his highly skilled staff, will be glad to provide more information. **Enquiries** should be sent to [pietro.piffanelli@tecnoparco.org](mailto:pietro.piffanelli@tecnoparco.org). Please also see [www.genomicsplatform.it](http://www.genomicsplatform.it).





## EADGENE Technology Transfer Projects

Four Technology Transfer subprojects are currently being run within EADGENE's WP10 (Technology Transfer). These projects involve both industry and research partners and have the goal of bridging the gap between research and industry by increasing cooperation and working together towards applicable research outcomes.

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This article gives a short overview of the current status of each of the projects. More information and the latest updates are available from the EADGENE website ([www.eadgene.info](http://www.eadgene.info) > Industry).

**Phenotypic Database:** The database contains information on the available resources of animal breeding and animal health industries, allowing researchers to look for interesting industry partners for their research. Version 1 of the tool has been built as an Excel database but opportunities to implement this in a more user friendly interface are currently being explored. Please see [www.eadgene.info](http://www.eadgene.info) > Industry > Phenotypic Database.

**Animal Trait Ontology:** This project aims to develop the Animal Trait Ontology (ATO) by including trait information for farm animals and aquaculture species and creating a database that will allow the linkage of the trait and other information (QTLs, SNPs, associations, ...) within and across species including mouse, rat, human, etc. Industry groups have been created for Cattle, Pigs and Poultry with representation from 5, 8 and 9 breeding organisations respectively. This will be followed by similar groups for Sheep, Horses, Shrimp and Salmonids. In the first step the traits, as used by industry, are being defined. The research community will be involved in the second stage in order to define the links between industry traits and the traits used in research. Development of an ATO is a never ending job with continuous improvement of the information being put into the databases and the tools to use that information. The EADGENE project contributes to the process by focussing on the collection of information on those traits used by the animal breeding industry, making sure it fits with other related activities, and by coordination of activities. The most important, and the largest task, will then be to gather appropriate and sufficient information to create the link between industry traits and biological traits as used in biological and genomic databases. Therefore, a support tool is currently under development. Please see [www.eadgene.info](http://www.eadgene.info) > Industry > Animal Trait Ontology.

**Data Comparison Project :** The ultimate goal of the data comparison project is to set up a system in which animal health and breeding data gathered from all over Europe can be compared and used (under conditions to be developed) for research and industry. The first phase, or pilot project, has been finalised. The pilot was focused on developing an overview of the current status of animal health recording systems in four EU countries, namely Denmark, France, the Netherlands and the UK. It explored how animal health and breeding data are gathered in these countries, who owns the data, how the data are stored, etc. Key persons were identified and interviewed to find out all this necessary information and a diagram to visualise this was drawn up per country and species (cattle, pigs, poultry). The pilot study showed that the collection of animal health data is strongly shaped by the national historical scale and organisation of animal production for each species, as well as by national and EU regulations. Most of the currently existing databases for animal health data were not designed with the potential for exchange of data and accessibility for a variety of stakeholders in mind. However, there are trends for more sophisticated integrated databases with electronic data input, which are stronger in some countries than in others. Animal health schemes and levy boards provide incentives for greater harmonisation and transparency of what is being collected on a commercial level on farms and in abattoirs. The various stakeholders throughout the food chains in Europe are increasingly aware of the need for harmonised and accessible animal health data. The second phase of the project is currently starting up and will focus on developing a strategy to enable the set up of a system to allow European animal health data comparison. The report of phase 1 is available at [www.eadgene.info](http://www.eadgene.info) > Industry > Data Comparison Project.

**Poultry Projects:** Two projects were originally proposed as Technology Transfer subprojects: (1) Epistasis effects for resistance to disease traits in chicken; and (2) Search for SNP markers associated with resistance to Salmonella. The proposals were discussed with representatives of industry (EFFAB members in the poultry sector) and it was decided to merge both projects into one project with a special focus on the practical link. A working group was set up to guide and provide advice throughout this project with six representatives from research as well as six from industry.



For subproject 1, DNA of the animals from the experimental designs has been successfully extracted and the 1536 SNPs which will be used to genotype them have been selected and ordered. Adaptation of the QTL map for the use of large amount of markers in one linkage group has taken place and is under beta-testing. Animals from the commercial lines have been produced and should be phenotyped in January 2009.

Subproject 2 contains two experiments; one in chicks and the other with adult chickens. In both experiments the animals were infected with *Salmonella Enteritidis*. In a later stage bacteria will be searched for in the caeca and, for the adult animals, also in the spleen, liver and ovary. After this, genotyping will take place and efficiency of two methods of SNP-assisted genetic evaluation will be compared to that of the "classical" genetic evaluation based on phenotypes.

Please see at [www.eadgene.info](http://www.eadgene.info) > Industry > Poultry Projects.





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### EADGENE & SABRE Workshop at EAAP 2009

EADGENE and the SABRE Integrated Project (<http://www.sabre-eu.eu>) have recently held two joint workshops. The first was entitled "How to get in touch with two EC funded animal genomics projects" and took place at the 59<sup>th</sup> Annual Meeting of the European Association for Animal Production (EAAP), on 23<sup>rd</sup> August 2008 in Vilnius, Lithuania.

The meeting was organised by **EADGENE's WP11.1** (Knowledge transfer to other scientific teams and third countries) and was specifically aimed at scientists from Eastern European Countries (EEC).

The workshop programme included presentations from EADGENE and SABRE members, aimed at increasing understanding of the opportunities, resources and facilities that these projects could offer to scientists EEC. In the second session EEC scientists presented the animal genetic resources and studies carried out in their countries.

Presentations from this meeting can be accessed at [www.eadgene.info](http://www.eadgene.info) > News & Events > EADGENE Events.

### EADGENE & SABRE Post-analyses Workshop

The second joint EADGENE and SABRE workshop held during this period concentrated on **annotation and the post-analyses of microarray data**. Various groups had used different software tools and methods to analyse two data sets provided from within the projects and their results were presented during the three day event, held at the Animal Sciences Group in Lelystad, 12-14 November 2008 and attended by over 50 delegates.

The first data set consisted of chicken infection data provided by Annemarie Rebel's group at ASG Lelystad, and the second was pig adrenal sensitivity data provided by Pierre Mormede's group at INRA. The results from the annotation session, led EADGENE's WP1.3 (bioinformatics) clearly demonstrated that annotation pipelines are not equivalent and that the key element is the link between the oligo and the gene. Sigenae provided a half day training session on the Cytoscape software on the second day, which was followed by a session on Pathways analysis. On the final day there were further Pathways presentations, plus Gene Networks, Microarray and QTL analysis and Phenotype presentations. There was lively discussion after at the end of each session, and the main conclusions were that it was interesting to see the results produced by the many different software tools and methods, but that all analyses were limited by the "Gene-universe". Commercial software packages looked particularly interesting but the software tools used were limited by the quality of the annotation. The workshop made clear that there is so far no standard/preferable method of microarray data analysis and that re-annotation is a necessary step to improve the interpretation of micro-array data from livestock species.

The presentations from the workshop are now available on the EADGENE website at <http://www.eadgene.info> > News and Events > EADGENE Events > EADGENE and SABRE Post-analyses Workshop. The results will also be written up in a series of papers to be published in BMC Proceedings in 2009.



Photo: Post-analyses Workshop delegates, courtesy of ASG Lelystad

### 3rd Annual Meeting of the EADGENE *E. coli* Working Group

The EADGENE *E. coli* working group held their 3<sup>rd</sup> annual meeting on Monday 29<sup>th</sup> September 2008 at the Veterinary Faculty of the University of Liège (Belgium). As usual the topic was the entero-haemorrhagic strains of *Escherichia coli* (or EHEC). In total there were 12 participants from INRA-ENVT Toulouse and INRA Clermont-Ferrand (France), NSVS (Norway), IAH (UK), University of Liège (Belgium), and special guests from the University of Miyazaki (Japan; associate EADGENE partner).

The programme was subdivided into three topics:

- ◆ two introductory talks about history of entero-haemorrhagic *Escherichia coli* and its prevalence in veal calf farms;
- ◆ three talks on comparative structural genomics of different EHEC strains;
- ◆ four talks on functional genomics of EHEC.

The subject of the talks were quite diverse illustrating the numbers of studies that are being performed on those *E. coli* strains that are of the utmost importance in public health. The discussions after each presentation were animated and very informative.

For more information on the EADGENE working groups please visit the EADGENE website ([www.eadgene.info](http://www.eadgene.info)).





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### Contact Us

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Contributions & suggestions are always welcome!

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[www.eadgene.info](http://www.eadgene.info)

### Upcoming Events

#### Gordon Conference on Quantitative Genetics and Genomics

22-27<sup>th</sup> February 2009, Galveston, Texas

<https://www.grc.org/programs.aspx?year=2009&program=quantgen>

#### WP1.1- WP1.3 Annual meeting

2-3<sup>rd</sup> March 2009, University of Aarhus - Center of Foulum, Denmark

Topic: Next generation sequencing and large scale proteomics

<http://www.eadgene.info> > Intranet > Partner Info > WP1.1 (Login required)

#### Course: Study of Resistance Mechanisms in Animal Infectious Diseases

16-20<sup>th</sup> March 2009, University of Liège, Belgium

<http://www.eadgene.info> > Training & Careers > Training & Courses

#### 13<sup>th</sup> QTLMAS workshop

20-21<sup>st</sup> April 2009, Wageningen, The Netherlands

<http://www.qtlmas2009.wur.nl/UK>

#### 60<sup>th</sup> Annual Meeting of the European Association for Animal Production

24-27<sup>th</sup> August 2009, Barcelona, Spain

The 60<sup>th</sup> EAAP will include presentations from EADGENE and SABRE.

<http://www.eaap.org/Content/meetings.htm>

You can find information on other upcoming events at [www.eadgene.info](http://www.eadgene.info)

### Management Communications : Annual reporting!

After several weeks of intense activity the **Management Team** completed the **Fourth Year Scientific Annual Report** for the European Commission on **15<sup>th</sup> October 2008**.

The document has now been submitted for assessment by the EU Commission and also by two external reviewers. This document is composed of several reports, in particular the **Periodic Activity Report** and the **Draft Planning of the Joint Programme of Activities** from September 2008 to February 2010 (M49–M66). You can find all reports in the EADGENE website Intranet at [www.eadgene.info](http://www.eadgene.info) (Partner Info > Management > WP15.1). This submission was followed by the review (assessment by two external reviewers) in the presence of the majority of WP leaders on **21<sup>st</sup> November 2008 in Paris**. We expect to receive the EC's response soon.

The **Periodic Management report** (financial report) was delayed until **5<sup>th</sup> December**.

We would like to **thank you all for your patience and your efficient work!**

**Note: Contractors are required** by article II.29.3 of the contract **to keep all documentation** relating to EADGENE **for up to five years from the end of the project**.



Photo: Venue of EADGENE Review

### Merry Christmas!

On behalf of the Management and Communication Team of EADGENE, we would like to take this opportunity to wish you and your families a **very Merry Christmas** and send you our **best wishes for 2009**.



### New Technology Transfer Facilitator

Marjolein Neuteboom is the new EADGENE Technology Transfer Facilitator, taking over from Angela van der Sanden who is leaving us to pursue a new career path in February. Marjolein graduated in Animal Breeding and Genetics at Wageningen University and started working for EFFAB on 1<sup>st</sup> December 2008. She work on tasks concerning WPs 9 through to 12.



### Partner Meeting - April 2009



Photo: [www.wikipedia.org](http://www.wikipedia.org)

The next EADGENE Partner meeting for all Workpackage Leaders will take place in Ljubljana, Slovenia on **Thursday 16<sup>th</sup> April and Friday (morning only) 17<sup>th</sup> April 2009**. The aim of the meeting is to update the Partners on the progress of each WP and to discuss **the finalisation** of each of the activities for the **last year of the project** and some potential continuation of collaborations. We hope to have the attendance of each WP Leader and institute in order to prepare the **final reports** of the project and to strengthen contacts; therefore if you are not available, could you please take steps to find a relevant person to represent you. Further information (agenda, travel etc...) will be placed in the EADGENE intranet ([www.eadgene.info](http://www.eadgene.info) > Partner Info) in March 2009.

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