



Network News

Volume 2, Issue 3

After the 2nd EADGENE Days

This fifth Network News mainly focuses on the success of the second EADGENE Days in Oslo. The meeting updated Network Partners on the achievements of the first 18 months of the EADGENE NoE, paying particular attention to integrating activities, resources and research within the Network.

There is also an update on the activities of the technologies facilities work package, an article on technology transfer, a report from the Salmonella working group, and details of several meetings and training courses of interest to Network Partners.

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EADGENE Days 2006 in Oslo

The second EADGENE Days started with an entertaining and informative presentation by our headline speaker Joan Lunney of the Animal Parasitic Diseases Lab (Agricultural Research Service, USDA). Joan discussed genomic evaluation of host-pathogen interactions, taking several examples from her work analysing swine responses to bacterial and viral infections, particularly Porcine Reproductive and Respiratory Syndrome virus (PRRSV), *Salmonella Choleraesuis* and *S. Typhimurium*. Joan went on to draw from her own experience of working within Networks to offer excellent advice to the EADGENE Partners on how to optimise Network interactions.



Christian Gamborg (CeBRA) presented the ethical challenges likely to be encountered by scientists working in this field, and invited partners to participate in an EADGENE Ethical Matrix workshop planned for later this year.

The next day highlighted the achievements of the Network, starting with descriptions of the bioinformatics tools currently available to partners in presentations by Christophe Klopp (INRA - describing the Narcisse and Alvira tools) and Andy Law (Roslin Institute - describing ARKdb, ResSpecies and ComparaGRID). Martien Groenen (Wageningen University) gave a practical example of the role of bioinformatics in genome-wide prediction and analysis of cis-regulatory elements.

Five recipients of EADGENE short-term stay funding presented the results of their research in a variety of species, and helped demonstrate the substantial benefits of a visit to another research institution. Astrid de Greeff (Animal Sciences Group, Lelystad) outlined her work on bovine host responses to *S. uberis* infection, Emanuele Capra (PTP) discussed Toll-like receptor 4 diversity among pig populations, and Birgitte Ask (Utrecht University) described her model for immunocompetence development in poultry. Andreas Kranis (Roslin Institute) explained how his work on the genetic analysis of longitudinal binary data could be useful for the analysis of disease traits, and Alexander Rebl (RIBFA) described his work on the structure and function of Toll-like factors in salmonids. Further information on the EADGENE short-term stay funding is available at www.eadgene.org, and applications are warmly invited.

The final session of the conference focussed on the microarray resources currently available to Network partners. Richard Talbot (Roslin Institute) described the design of the chicken 20K oligonucleotide array and the bovine 24K oligonucleotide array. Christian Bendixen (DIAS) described the porcine cDNA and oligoarrays currently being developed at DIAS.

Madeleine Douaire (INRA) provided advice on the design and analysis of microarray experiments, and was followed by three presentations of work carried out using microarrays. Annemarie Rebel (ASG, Lelystad) showed that a cDNA microarray could detect differences in expression in the chicken intestine after a *Salmonella* infection at lower levels than the affymetrix arrayGene. Hans-Joachim Schuberth (Hannover) and Kirsty Jensen (Roslin Institute) presented the results of an EADGENE mastitis model which compared infection with *E. Coli* and *S. Aureus*. In the final presentation of the conference Jakob Hedegaard (DIAS) described the use pig cDNA microarrays to study the immune response and inherited differences in expression in pigs that had been infected with *Actinobacillus pleuropneumoniae*.



The proceedings of the EADGENE Days 2006 are now available on our public access website for scientists at <http://www.eadgene.org> and also on our secure access partner website at <http://partner.eadgene.info>.





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Research Update: Salmonella Working Group

By Anne-Marie Rebel (ASG, Lelystad)

Upon an infection, Salmonella can induce various pathological changes and clinical signs of disease in animal hosts. The molecular aspects of the host response upon a salmonella infection are, however, relatively unknown. Many different factors determine the type, the specificity and efficiency of such a host response. Examples of these factors are: genetic background of the individual host; breed; age; health status; salmonella strain and subtypes; environmental factors; etc.

In the joint salmonella research project we will compare the host responses at the molecular level in different salmonella infection models. From this we will extract the common response parameters of a salmonella-induced host response. Initially, we will concentrate on host responses within one animal species (chicken, pig and cattle) and later on we will also compare the responses of different animal species, for example pigs vs chicken.

We are performing this by generating a list of genes that are up- or down-regulated upon an infection with salmonella in each animal model operative in the participating institutes. We will exchange information on gene sequences, in order to evaluate the behaviour of genes, found to be up- or down-regulated in one infection model, in all the other infection models. This will identify genes that are common "response genes" for different kind of infectious models and response genes that are specific for a particular model.

Another subject is the identification of the cell types that execute the host response. Here we will evaluate whether the expression pattern of the common response genes is linked to specific cell subsets. This research will identify molecular pathways that form potential targets for improvement of (salmonella) resistance

Some exchanges and first discussions were presented at a workshop of the Salmonella Working Group in the Netherlands.

For further explanations you can contact the Salmonella Working Group leader at: Annemarie.Rebel@wur.nl



EADGENE Technologies Facilities Update (WP1.2 and WP2.1)

By Francois Hatey (INRA) and Ingrid Olsaker (NSVS)

As part of the integrating and durability activities, WP01.2 (Integrating technological facilities) and WP02.2 (Adapt existing facilities with a view to their durable shared use) aim to create a virtual laboratory in the field of genomics of host-pathogen interactions to initiate the shared use of the facilities and ensure their durable integration.

As a first task, we conducted a survey of the technologies facilities available among EADGENE partners, including equipment, access, qualitative and quantitative capabilities. The results (recently updated) and a summary of this survey are available on the EADGENE website.

Implementation of this common virtual laboratory will allow EADGENE Network members to produce and deliver the materials and the data for experiments. These materials will be, as far as possible, standardised and quality controlled to the highest degree to ensure that material is as homogeneous as possible, even if obtained on different platforms. This will allow us to compare and combine data obtained in different facilities and implies using common rules regarding experimental procedures (GLP, SOP and QA/QC). We will encourage the use of common access rules between the partners to facilitate the use of these facilities and maximise the potential of the virtual laboratory.

In order to identify a common set of rules (both for experimental procedures and access conditions), we have held two workshops, one in Roslin Institute on 27th April 2006, and a second at NSVS on 29th June 2006, just before the EADGENE days. All institutes involved in these WP, with only one exception, were represented at one or both of the meetings. These workshops highlighted some opportunities:



- The survey allows EADGENE partners to exchange information about experience and facilities, and encourages them to find and access technologies facilities of other partners, which are not available within their own institutes.
- The facilities managers are now acquainted with one another, which is a solid base for future collaboration. Already, spotting chicken and pig oligos microarrays will be allocated to (and between) the facilities in Roslin, DIAS and INRA.
- Discussion of "omics" facilities (sequencing, genotyping, transcriptome, proteome) and challenging facilities (i.e. animal facilities for handling experimentally infected animals) encompasses identification of common experimental procedures (WP 01.2) and rules for access to the facilities (WP02.2).

It is clear that there is some overlap between the two WPs. As much of the planned work has been completed, and as the future will mainly consist of updating the previous results, it has been decided to merge both WPs in September 2006. Ingrid Olsaker will take the lead of this new WP.





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Technology Transfer Working Party Update

John Bastiaansen (EADGENE Technology Transfer Working Party)

Unlike many other research projects or networks, the EADGENE NoE includes Technology Transfer (TT) as a specific deliverable. TT is not simply the process of providing or passively making available information in one direction – it is a two-way process. The application of new technologies is only possible if research output is tailored to the needs of industry, and academic research can only cater for industry needs if the scientific needs can also be met. This could be a long-term recipe for misunderstanding and distrust, but the need to increase opportunities for research and the need to innovate makes it essential for us to make TT work. We can think of

many reasons why TT does not occur automatically. Animal health industries, breeding companies and related businesses might not be aware of current research. Very often there is often a gap between final research results and the technology that can be applied, which means that industry might not recognise the potential of scientific results. The specific animal health problems that industry encounters might not fit into research programs. When industry opts for a scientific study to find answers or solutions to specific problems, it is not always clear which researchers they should approach. Moreover, it can be difficult to translate industry problems into research questions, as it is not always easy for academics to understand the animal breeding industry, or for industry to understand the workings of scientific research.

The EADGENE working party on technology transfer has worked towards setting up permanent interactions between researchers, industry and end-users, and promoting the design of future research in directions that are useful for industry applications. The only way in which a two-way transfer of knowledge can occur is by extensive interaction between the parties involved. The TTwp has addressed the goals of building trust, understanding, and respect for each others objectives (commercial objectives in industry and scientific objectives in research) through a series of activities.

Two major EADGENE meetings were held within the period that the TTwp was active (TTwp's 18 month project ended in February 2006). The EADGENE Days meeting (Brussels, 18-19 May 2005) was aimed at all research partners within the Network. Industry partners from the EADGENE Club of Interest (CoI) and TTwp members represented the views of industry at this meeting. The ensuing discussion clearly emphasised the differences in incentives for academic and industry partners. The results of this discussion (which went on long before EADGENE and will likely continue for the duration of the project) will be incorporated in the network and will be facilitated by EFFAB, the EADGENE partner responsible for TT.

The second EADGENE meeting was the Industry-Academia days (Hinxton, UK, 20-21 October 2005), jointly organised with Genesis Faraday and EFFAB. This meeting was aimed at industry partners and members of the CoI, and was attended by over 100 delegates including more than 50 representatives of the animal health and animal breeding industry. The programme included combined presentations delivered by one representative from industry and one from academia, highlighting connections between industry problems and academic research.

Several smaller activities have also been organised, including a training session for members of industry on the application of genomics in animal breeding. In response to a need identified from an industry inquiry, a document on how to achieve successful TT has been drafted and another document gives an overview of incentives for academic and industrial partners to set up collaborations. These documents will aid understanding of industry and academic backgrounds and help both sides avoid the 'common' problems and achieve successful TT.

It is intended that by these initiatives, the various partners in the Network will deliver industry solutions as well as scientific know-how by the end of the NoE funding period. For further information on the role of Technology Transfer within EADGENE, please visit www.eadgene.info or email the EADGENE Technology Translator (angela.vandersanden@effab.info). Presentations from the EADGENE Days and the Industry-Academia Days are available at www.eadgene.org.

“DO’s and DON’Ts in Technology Transfer” Report



As part of WP10, the EADGENE Knowledge Management Group have produced a report on “Do’s and Don’ts in Technology Transfer”. This report is set up as a guide for research institutes, scientists, and industries with the objective to make them aware of common problems, so that efficient collaborative research activities can be established efficiently in the framework of current legislation. The report can be found on the public website at <http://www.eadgene.info/iphelp.html> or in the WP10 downloads section of the Partner website (<http://partner.eadgene.info>).

New ArkDB web interface is now available

The ARKdb (<http://www.thearkdb.org>) system has been completely re-designed with a new database schema running in postgres and a modern object-oriented interface written in java. The initial release of the web interface focuses on a chromosome-centric view which mimics the genome sequence browsers to some extent. One of the major changes has been in the map-drawing code with more interactivity drawn into the maps. For example, you can now drag maps around within the display and position them where you like. The Roslin Bioinformatics Group will announce a series of staged additions to the code over the next few months as they become available. In the meantime, they look forward to your feature requests (and bug reports) which can be sent to info@thearkdb.org.

The ARKDB web interface is shown with a header 'ARKDB' and 'Roslin Bioinformatics Group'. Below the header, there are navigation tabs: Home, History, Map, Help, Credits. The main content area is divided into two columns. The left column is titled 'About ARKDB' and contains text describing the system's purpose and features. The right column is titled 'Species' and lists various animal species with corresponding icons: Cat, Chicken, Cow, Deer, Horse, Pig, Quail, Salmon, and Sea Bass. The text in the 'About ARKDB' section is partially obscured but mentions 'The ARKDB database system aims to provide a comprehensive repository for genome mapping data from farm and other animal species. It covers the way to provide access to genome and other sequences from the initial sequence of the genome, through the mapping of the genome to the physical map, and the mapping of the physical map to the genome. It is an alternative entry point that targets where a chromosome or a specific mapping ends as the starting point. Linked relationships between tracks are provided and displayed. As with our previous version, all maps are drawn using data extracted from the database by the UI. In this version, the maps are drawn in java using a novel technology. The web interface is a java-enabled web browser in order to have maps.'





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New Staff welcome!

Anne-Sophie Lequarré has been appointed as the scientific coordinator of FMV-Ulg in April 2006.

Simona Sušnik (ULJ) will assist Peter Dovč with WP11.1.

Dennis Prickett will work on the EADGENE project at IAH.

Sem Genini (PTP) will work on WP8.1 in collaboration with E. Giuffra.



Sem Genini (PTP)

Congratulations

To **Michel Georges** (FMV-Ulg) who has taken over leadership of WP11.2 Cross-linking with the other NoE.

To **Toine Roozen** (Genesis Faraday) who is a member of the Knowledge Management WP within EADGENE. Toine has been appointed Project Manager of SABRE.

To **Martin Shirley** who has been appointed Director of IAH.

Contact Us

Network News is the EADGENE Partner newsletter

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Contributions & suggestions are always welcome!

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Upcoming Meetings

Sixth ARK-Genomics Farm Animal Functional Genomics Workshop

27- 28 September 2006. Robinson College, Cambridge, UK
<http://www.ark-genomics.org/workshops>

24th Stadler Genetics Symposium "Genomics of Disease"

2-4 October 2006, Missouri, United States
<http://muconf.missouri.edu/stadler/>

International Avian Immunology Meeting: 9th AIRG meeting

21-24 October 2006, Paris, France
<http://airgmeeting.snv.jussieu.fr/>

Study of resistance mechanisms in animal infectious diseases

13-17 November 2006, Liège, Belgium

This EADGENE supported course aims to provide a general introduction to the concepts and methods for the identification and exploitation of genetic factors in infectious diseases. The course focuses on major infectious diseases in farm animals and explores the interactions between the genetic diversity of the pathogen and the host in their particular. The registration fees for this course are: Students - 400.00 € ; Academic personnel - 600.00 €; Industry personnel - 800.00 €. This includes: CD-ROM and course materials, five days of lectures and labs, computer fee, and individualised instruction, plus lunches and refreshments.

<http://www.eadgene.org>

EADGENE Microarray Data Analysis workshop

1-3 November 2006, Tune, Denmark

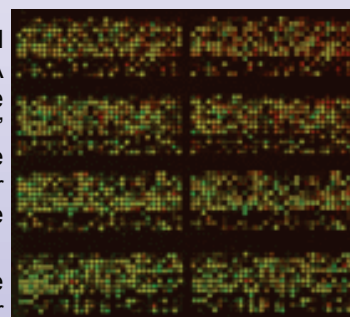
An EADGENE workshop dedicated to the analysis of microarray data.
<http://www.eadgene.org>; Email: caroline.channing@bbsrc.ac.uk

DIAS Microarray Course

26 Nov to 1 Dec 2006, DIAS, Denmark

This combined lecture and laboratory course will introduce the participant to the use of DNA microarrays in different applications and provide hands-on training in the technology both in the "wet" and in the "dry" lab. The costs for the course will be 900 € for PhD students and 1400 € for all other participants. This includes accommodation, course materials, lunches and refreshments.

The course is limited to 12 participants and the deadline for registration is 27 October 2006. For further information and to indicate your interest in the course, please contact Jakob.Hedegaard@agrsci.dk.



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Management Communications

Annual reporting : Deadline 31th August 2006!!!

- * The **periodic Activity report**: an overview of the activities carried out during the year, progress of the WP during the period (achievements, deviations, etc.)
- * The **draft planning for the next 18 months**: description of the work planned (technical Annex), and the estimated budgets
- * The **periodic Management report**: a detailed justification of the costs incurred and of the resources deployed by each contractor in each WP, the financial statement (Form C)
- * Audit certificates are mandatory for : INRA, WU, IDL, Roslin, DIAS, EFFAB
- * The **other partners are not exempt from providing FORM C**.

Please contact **Thu Bizat** and **Sandrine Ayuso** for more information!!!

