



Network News

Volume 4, Issue 2

Editors' Introduction

In this edition of Network News there is a focus on EADGENE's working groups, with the latest news from the long-established mastitis group and the new post-analyses working group. The Technology Transfer Facilitator describes the EADGENE Club of Interest for industrial members and highlights the importance of consultation with industry when setting up new sub-projects. There is also a report on the recent EADGENE miRNA workshop held at the University of Liège. The next EADGENE conference is advertised below, and we very much hope to see you there in June!

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EADGENE days 2008

The 4th EADGENE annual meeting will be on the theme on Animal Genomics Research, from 9th - 12th June 2008 in Edinburgh, UK.

The main conference will take place on Tuesday 10th and Wednesday 11th June 2008. It will feature a series of presentations by keynote speakers and leading specialists in their fields which will update delegates on the latest animal genomics research. It also includes a joint session with Met-Vet-Net (the European Network of Excellence for Zoonoses research) and EADGENE scientists, highlighting the links between the two Networks.

An EADGENE Animal Trait Ontology Initiative Workshop will be held as a satellite meeting on Thursday 12th June 2008, and various EADGENE working group meetings will take place on Monday 9th and Thursday 12th June 2008.

Animal Disease Genomics: Opportunities and Applications 9th - 12th June 2008, Edinburgh, UK

Tuesday 10th June

Session 1: Developments in Animal Genomics

- ♦ Overview of the farm animal genome initiative
- ♦ Global perspectives on animal trait ontology
- ♦ Animal trait ontology within EADGENE
- ♦ Pathogen genomics: approaches and applications
- ♦ Systems Biology

Session 2: EADGENE Progress in Animal Genomics

- ♦ Review of animal models
- ♦ High throughput sequencing
- ♦ Microarray annotation
- ♦ miRNA update
- ♦ Results of short-term stays at other partners
- ♦ The EADGENE Ethical Matrix

Wednesday 11th June

Session 3: Interaction with Med-Vet-Net

- ♦ A series of 9 presentations by Met-Vet-Net (the European Network of Excellence for Zoonoses research) and EADGENE scientists, highlighting the links between the two Networks

Session 4: EADGENE Applications

- ♦ EADGENE's Fish pathogen work on ISAV
- ♦ Meta-analysis of the EADGENE mastitis data
- ♦ Technology Transfer: the global perspective
- ♦ Technology Transfer: the EADGENE perspective



Monday 9th June

- ♦ EADGENE WP1.1 Biological resources and facilities*
- ♦ EADGENE Salmonella Working Group*
- ♦ EADGENE WP6.1 Population Genomics*
- ♦ EADGENE Governing Council*
- ♦ IPUDC*

Thursday 12th June

- ♦ EADGENE Animal Trait Ontology Initiative Workshop (Open to all)
- ♦ EADGENE WP8.1 Operational genomics*
- ♦ EADGENE WP5.1 Structural genomics (Open to all)

* Open to WP/GC/IPUDC members only

Further information, programme updates and the **registration form** are available at www.eadgene.info. Please note that the extended deadline for registration is **14th May 2008**, but there is a limit on the number of participants, so registration at your earliest convenience is recommended. We look forward to seeing you in Edinburgh!





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EADGENE miRNA Workshop (Liège)

By Anne-Sophie Lequarré, Liège University, Belgium

A two-day meeting on miRNAs was held on 3rd - 4th of March at the University of Liège, organised by the Unit of Animal Genomics headed by Michel Georges.

On the first day there was a workshop dedicated to EADGENE members focusing on miRNAs in livestock. During the morning three renowned scientists introduced the biology of these small molecules, the wet-lab techniques and the informatics methods to detect them. In the afternoon several members of the EADGENE network presented their research to the other members. The first presentations were about miRNAs and viruses, more specifically about the Herpesvirus 2 in chicken (Mareks disease),

through research carried out at INRA-Tours. Then the results of miRNAs research on pseudorabies virus in pigs, conducted by PTP in collaboration with INRA, were explained. We also learned about miRNA profiling during early steps of mouse ES cells differentiation (Roslin) and about editing of miRNAs within the callipyge locus (ULg). We ended the session with the presentation of the Patrocles database (ULg) and its use for bovine and chicken sequence analysis, a very useful tool for future work on livestock polymorphisms. The general atmosphere was quite friendly and most of us ended up in the same restaurant enjoying being together.

On 4th March we had a range of outstanding international speakers talking about their latest results from miRNAs. This meeting was entitled "miRNAs in health and disease". We learned about new methodologies to unravel the biology of these molecules (Z. Mourelatos, Penn State University). We had hot news about miRNAs in viruses (B. Cullen, Duke University) and in cancers (J. Mendell, Johns Hopkins Medical School). We heard about computing methods and miRNAs (A. Hatzigeorgiou, Athens and N. Rajewsky, Berlin) and we ended with a summary of miRNAs in plants (H Vaucheret, INRA).



Altogether it was an astonishing view of this new generation of effectors. The different lectures were well appreciated by all attendants; with about two hundred delegates from various research fields.

Mastitis Working Group Meeting, 11-12th May 2008, Munich

By Prof. Dr. Hans-Martin Seyfert, Mastitis Working Group Leader, RIBFA

The fourth EADGENE mastitis working group scientific meeting was designed to not only give a status report but also to develop perspectives for the future work. The meeting was organized by Holm Zerbe, of the Clinic for Ruminants, LMU Munich, which is RIBFA's national partner. The presentations given by the different groups provided an overview of the impressive breadth with which the various EADGENE groups analyse the bewildering puzzle of host genes regulated differentially by different pathogen species. Summaries are available on the EADGENE website:

<http://www.eadgene.info/NewsandEvents/EADGENEEvents/4thMastitisWorkingGroupWorkshop/tabid/285/Default.aspx>.

The survey shows that mastitis introduced changes in the transcriptome of the udder have now been recorded for cows infected by *E. coli*, *S. aureus* (Roslin / RIBFA) and *S. uberis* (Lelystad). The responses are very complex. More than 1000 genes are regulated within the udder as a consequence of infection. Hence, the groups are moving on to analyse less complex systems, like milk cells (Oslo, Milan, and Toulouse) or cell models (Lelystad, Dummerstorf). These cells have also been challenged by either live or inactivated pathogens and the time course of mounting the immune response was followed.

The transcriptome analysis of milk cells from goat or bone marrow derived Dendritic Cells in sheep revealed the problems arising if the global microarrays developed for cattle used as tools to analyse changes in the mRNA abundance in the other species. The ruminants are closely related, yet distinct species. Hence, neither can microarrays be used which are based on short oligonucleotides (Affymetrix), nor is the annotation of the genes easily converted from one species to another.

A major breakthrough regarding the genetics of mastitis resistance is the establishment of the sheep selection lines featuring divergent rates of infections and different mastitis pathology. These lines have been established by the INRA / ENVT group in Toulouse. The effects are so striking and promising that this model will now be duplicated in goats. A close collaboration between the respective mastitis working group partners in Toulouse and Milan / Lodi has now been established.

The combined efforts of the EADGENE mastitis working group to globally profile transcriptional changes during host-pathogen interaction within the udder demand that the 'wet-laboratory' scientists team up with bioinformaticians. EADGENE helps to establish such interdisciplinary interactions. A small data analysis workshop was held in Rostock / Warnemünde last September, in which bioinformaticians from Compton and INRA Toulouse came together with the team from RIBFA and Roslin to discuss routes for a deeper analysis of the *E. coli* and *S. aureus* infection experiment. Moreover, the Slovenian partner from the mastitis working group has developed databases incorporating mastitis relevant information from various species, including humans and mice. The goal is to eventually not only align more biological information with the mastitis regulated genes, but also to bring in the genomic locations of these genes. This then allows the incorporation of genetic information based on segregating QTLs into the analysis. This effort will ultimately turn a potential physiological candidate gene with relevance for mastitis into a potential positional candidate gene. This ultimately will provide more value for the breeders.

The attendees of the meeting also enjoyed the social programme: Prior to dinner our host had arranged for very nice and informative guided tour through the evening in down town Munich.





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EADGENE Club of Interest

Angela van der Sanden, EADGENE Technology Transfer Facilitator, EFFAB, NL

The EADGENE Club of Interest (CoI) is a consultative body composed of Small and Medium Enterprises (SMEs), industrial groups and other private and public organisations. At this moment over 75 industries and umbrella organisations are a member of the Club of Interest. The member companies of the CoI have different fields of (commercial) activities, but all have as common dominator an expected benefit from EADGENE. The Club of Interest participates in research programmes and finances activities of interest to its members.

Members of the Club of Interest have actively participated in several EADGENE workshops, such as the Industry Days in 2005, where there was a lot of networking between EADGENE researchers and members of the Club of Interest. Several members attended the mastitis workshop, highlighting their role in EADGENE and helping to focus the work of the group to applicable results. Networking during the mastitis meeting resulted in two contacts being established, which were taken further after the workshop.

Recently the EADGENE ontology project started, with two members of the Club of Interest playing an important role. A working group has been established consisting of two EADGENE research representatives, two representatives of the CoI, the Technology Transfer Facilitator, Spreading of Excellence Activity leader and the Ontology Project Coordinator. This group aims to set up and run this project in such a way that it will result in a tool of benefit for both research and industry, bridging the 'language' gap. We also work closely with the global ontology project. The coordinator has started setting up subgroups with the breeding industry side (pig, poultry and cattle group). In a second phase more researchers will be involved to move from the traits used by the industry to the traits used in the research world.

Members of the Club of Interest have also made a very positive contribution of data to set up a database of genomic samples of phenotyped animals. This database is currently under development.

The Technology Transfer Facilitator has a key role within EADGENE as a Network, by increasing the level of integration with industry. She visits the members of the Club of Interest and EADGENE researchers to search for overlapping interest and set up possible links. This has already resulted in the set up of several new potential contacts.

Members of the Club of Interest play an advisory role in several activities. For example the members of the Knowledge Management Working Party (KMWP) and the Technology Transfer Working Party (both existing out of four members of the Club of Interest) established advisory documents: "research vs industry – benefits for collaboration" and "do's and don'ts protocol for Technology Transfer - several documents which can be of help when setting up collaborations". The IPUDC developed an EADGENE confidentiality agreement which can be used when CoI members are attending EADGENE meetings or participating in other activities. Furthermore, members of the Club of Interest are asked for advice when searching for and setting up Technology Transfer subprojects, evaluating the benefits for industry, and thus the relevancy of the technology transfer aspect of the proposed projects.

The Club of Interest still welcomes new members, more information can be found at the website:

<http://www.eadgene.info/Industry/ClubofInterest/tabid/207/Default.aspx>.

EADGENE and SABRE Post-analyses Working Group

The EADGENE and SABRE post-analyses working group has been set up by Florence Jaffrezic (INRA) and DJ de Koning (Roslin Institute) with the aim of evaluating existing methods and software, and potentially developing new methods to deal with the post-analyses of microarray data. Small groups or individuals will work with the same data sets using their preferred methods and activities will be co-ordinated by group leaders.

The first meeting of the working group was held in Paris on 27th November 2007 and attended by EADGENE and SABRE members from the Animal Sciences Group (formerly ID-Lelystad), INRA, PTP, Roslin Institute, Wageningen University and the University of Aarhus (formerly DIAS). During the first meeting of the group the following topics were selected as being of greatest interest to the group:

- * **Integration of the differentially expressed genes into known biological pathways**
- * **Combining QTL and microarray information**
- * **Phenotype prediction**
- * **Gene Networks**
- * **Oligo Annotation** (to be fully integrated with a planned WP1.3 annotation workshop, led by Christophe Klopp (INRA)).

Data sets have been offered by SABRE and EADGENE scientists. The next stage will be the collation and distribution of the microarray data sets to be analysed, and the initiation of the analysis. An **EADGENE and SABRE workshop on "post-analyses of microarray data"**, open to a broader audience, will then be organised for **Autumn 2008** to present the findings of this working group.

An intranet page has been set up for this working group at: <http://www.eadgene.info/Intranet/PartnerInfo/Integration/AnalyticaltoolsWP14/PostanalysesWorkingGroup/tabid/277/Default.aspx>, containing the presentations and minutes from the first working group meeting and a contacts list for all group members.

If you are interested in finding out more about this working group please contact caroline.channing@bbsrc.ac.uk.





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Contact Us

Network News is the EADGENE Partner newsletter

Editors: S.Ayuso, C.Channing
Email : ayuso@jouy.inra.fr

Contributions & suggestions are always welcome!

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Upcoming Events

XII QTL-MAS Workshop 2008

15-16 May 2008, Uppsala, Sweden

The focus of this EADGENE sponsored meeting will be on: fine mapping, genome-wide association analysis and genomic selection.

<http://www.computationalgenetics.se/QTLMAS08/QTLMAS/Welcome.html>

The 4th Med-Vet-Net Annual Scientific Meeting

11-14 June 2008, St Malo, Brittany, France

<http://www.medvetnet.org/cms/>

Pig Genome Annotation Jubilee

16-18th July 2008, Hinxton, UK

http://www.sanger.ac.uk/Projects/S_scrofa/workshop_Hinxton08/index.shtml

EAAP 2008

24-27th August 2008, Vilnius, Lithuania

The 59th Annual Meeting of the European Association for Animal Production will include a joint EADGENE and SABRE satellite workshop.

<http://www.eaap2008.org>

3rd SABRE Conference: Welfare and Quality Genomics

10-11 September 2008, Foulum (University of Aarhus), Denmark

<http://www.sabre-eu.eu/NewsEvents/3rdSABREConference/tabid/306/t.aspx>

You can find information other upcoming events at : <http://www.eadgene.info/NewsandEvents/tabid/157/Default.aspx>

Management Communications

Some useful new documents have been added for your information to the EADGENE intranet (under WP15.1): <http://www.eadgene.info/Intranet/PartnerInfo/Management/ActivitiesManagementWP151/tabid/194/Default.aspx>

- * The **revised Draft Planning M37-M54** which has been approved by the Commission. We now await the payment!
- * The updated **Management Procedures report** (providing guidance on procedures for applying for Short-term stay funding, declaring expenses, and completing the **“Plan for using and disseminating the knowledge.”**)

Every partner institute involved in the EADGENE project should fill in the **Dissemination Plan**, and in particular section 2, which includes past and future dissemination activities such as a **list of publications (as a result of Indirect/Direct EADGENE funds)** and a **list of oral scientific presentations and abstracts** related to your EADGENE research. Please send your contributions to ayuso@jouy.inra.fr.

EADGENE Publications

Four papers arising from the EADGENE “Microarray Data Analysis Workshop” which was held in Tübingen in November 2006 have been published by the international research journal, Genetics Selection Evolution (GSE). Please see Genetics Selection Evolution 39(6): 621– 683, available online at <http://www.gse-journal.org>.

Details of other EADGENE publications are given on the EADGENE website at: <http://www.eadgene.info/NewsandEvents/Publications/tabid/271/Default.aspx>.

Remember: Please add an “acknowledgement” to any of your publications which result from direct and indirect funding by EADGENE. It is also essential to send an electronic version of these publications to ayuso@jouy.inra.fr.

Partner Meeting - 6-7th May 2008

The next “Partner meeting” for all the Work Package Leaders will take place in Rostock-Warnemünde (Germany) on **Tuesday 6th May and Wednesday (morning only) 7th May 2008**. The aim of the meeting is to update the Partners on the progress of each WP and to discuss **the evolution (work and budget)** of each of the **activities for last year of the project**.

We hope to have the attendance of each WP Leader and institute in order to follow the project and to remain in contact. Therefore if you are not available, could you please take measurements to find a relevant person to represent you.

You will be able to find all information (agenda, travel etc...) on the intranet of EADGENE website at :

<http://eadgene.info/Intranet/PartnerInfo/LatestEADGENEUpdates/PartnerMeetingMay2008/tabid/283/Default.aspx>

