



## Network News

Volume 4, Issue 1

### Editors' Introduction

This ninth Network News highlights several events which have been sponsored by EADGENE in the last few months: AGAH in Paris; SISG in Liège; and the Ethical Workshop in Edinburgh. We also have a report on the Gender Action Plan and mentoring surveys, and an update on the activities of our Operational Genomics work package.



Plans are now underway for the next EADGENE days, which will take place in June 2008 in Edinburgh—please see page 4 for further details and reserve these dates in your diaries.

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### AGAH Congress - 23-25th October 2007

By Marie-Hélène Pinard-van der Laan (INRA, France)

Over 260 scientists and industry representatives (breeders, veterinary, etc.) from 34 countries attended the International Symposium on "Animal Genomics for Animal Health" (AGAH), held in the OIE Headquarters in Paris. It was jointly organised by EADGENE, INRA, ARS-USDA, BBRSC, OIE and IABS. EADGENE members have been especially active in the organisation and were well represented on the scientific committee.



A total of 34 oral presentations and 90 posters were presented during this 3-day symposium, gathering experts from fields of animal genomics and animal health with the aim of paving the way for the future.



#### Highlights of the Symposium :

- \* **What has the human genome accomplished?** Even if technological advances (sequencing of the genome, bioinformatics, etc.) remain critical to make research progress, it was clearly demonstrated that applications (for example in cancer research) had been greatly facilitated thanks to excellent international collaborations between the different private and public sectors.
- \* **Where do we stand with the animal genomes and animal health?** The area of animal genomics is still moving forward: after a period of intense sequencing of animal genomes, then development of animal functional genomics, the focus is now on the "post-genomics", allowing a unique integration of animal health traits in future breeding programmes.
- \* **Examples of research projects that are using animal genomics to understand animal diseases, disease susceptibility, desirable animal health traits, and development of new tools to prevent and control animal diseases:** Most advanced research opens the way to an integrated and efficient combination of all possible strategies against diseases, i.e. genomic selection including relevant markers and customised vaccines. New approaches (e.g. Nutrigenomics) taking into account novel sources of variation (e.g. Epigenetics) were highlighted; future research in animal health genomics should also make time for "system biology".

#### Fruitful Discussions :

**Critical needs and future applications in animal health** were discussed during a roundtable session which gathered research and industry representatives, and via a questionnaire. Four overarching issues were identified and discussed: 1) quantitative population genetic studies to identify markers of health traits; 2) functional genomics of host-pathogen interactions; 3) translating genomic information to tools for controlling diseases; and 4) integrating stakeholder support to advance animal genomics in animal health. Intensifying the dialogue between the relevant disciplines and collaborations between scientists and actors of the breeding and health industry to encourage increased sharing of available data and resources remains the key challenge of tomorrow.

The proceedings of this meeting will be published in the collection "**Developments in Biologicals**" of the **International Association for Biologicals (IABS)**. The proceedings will include key recommendations for moving forward and serve as a roadmap for future research initiatives.

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## Summer Institute of Statistical Genetics (SISG)

By Anne-Sophie Lequarré (FMV-Liège, Belgium)

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The course was sponsored by several organisations including the ESF, the "Communauté Française de Belgique", the Belgian Science Policy and EADGENE. Consequently, half of the students were able to receive scholarship assistance for their registration and accommodation. The course was divided in a subset of 9 different modules focusing on different aspect of statistical genetics. Each module lasted 2.5 days with the choice between 3 of them for each session. Sixteen outstanding American and European geneticists were responsible for the teaching. Modules on population genetic data analysis, QTL mapping, association mapping and an R/Bioconductor workshop were especially popular. All modules were well appreciated by the students and the general atmosphere was very friendly allowing the establishment of new contacts between attendees.



## GAP and Mentoring Surveys

By Simona Palermo (PTP, Italy)

Two separate surveys were launched among EADGENE participants as part of the Gender Action Plan (GAP) activities. The first survey aimed at monitoring the percentage of women involved in the project and gathering data, statistics and indicators on gender specific preferences, attitudes, needs and job satisfaction levels. The survey was designed in collaboration with Observa – Science in Society ([www.observa.it](http://www.observa.it)), an Italian non-profit cultural association which aims at promoting the study and the discussion of the interaction between science and society.

A second survey was launched with the aim of assessing the interest of EADGENE's scientists in the establishment of a mentoring programme and to help design an effective mentoring scheme fitting real needs and expectations of researchers. For each survey a structured multiple choice questionnaire was designed and administered through the EADGENE website.

Fifty-six people eventually participated in the gender dimension survey: 26 males (46.4%) and 30 females (53.6%). The analysis of questionnaire responses is still in progress.

With regard to the mentoring survey, only 27 of EADGENE's participants filled in the questionnaire. In total, 59.3% of the respondents are interested in participating in a mentoring programme, as mentees (14.8%), as mentors (40.7%) or both (3.7%). Four of the eight younger respondents (under 35 years of age) showed an interest in receiving guidance from more experienced scientists. Eleven experienced scientists are willing to provide support to younger colleagues, but only three of them are females.

Among the expectations of respondents towards a professional mentor, the most chosen were the possibility of being introduced to people or being given suggestions about potential work contacts (5 respondents) and of receiving suggestions on their résumé (5). The most appreciated qualities for mentors are long standing professional experience (chosen by 8 respondents), listening skills (8) and helpfulness (5). Other qualities requested in a good mentor are: interest in human relationships and empathy, fairness and objectivity, personal balance, calmness and patience, open-mindedness and innovative attitude, etc. On the other hand, the respondents who are willing to offer their support to younger scientists believe that this experience could help them to develop communication (7 respondents) and teamwork skills (5) as well as other scientific-related skills (4), giving their time and efforts to a worthy activity (5). Some respondents (3) would like to provide others with the kind of mentoring they received, while others (4) wish to offer the help they couldn't get. The favourite type of contact was e-mail (chosen by 15 respondents), followed by workplace visits (11) and phone (5).

Starting from this data, a web-based mentoring scheme has been established: a list of eleven available mentors has been created and published in the password protected area of EADGENE's website. A personal profile for each mentor has been created, which contains information about mentor's age, nationality, education/title, current position, main field of research, participation in EU projects, family status, hobbies & interests and contacts. For more information please visit the mentoring pages at:

<http://www.eadgene.info/AboutEADGENE/GenderActionandMentoring/Mentoring/tabid/266/Default.aspx>

Anyway, considering that very few young researchers showed interest in having guidance from experienced scientists and that only three female scientists are willing to become mentors, further actions need to be undertaken to promote the mentoring programme within the network, in order to involve more young researchers as mentees and more women as mentors, providing equally valuable perspectives.





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### Local Ethical workshop in Roslin Institute

By C. Gamborg (CeBRA), K. Millar (Nottingham University) & E.-M. Forsberg (AFI)

The first of the four planned local ethical matrix workshops was held at Roslin Institute, Edinburgh, UK on 7th November, 2007. The aim of these one day events is to provide a forum where participants can explore some of the ethical issues raised by animal disease genomics research. The methodology used, the ethical matrix, is a conceptual tool designed to facilitate sound decision-making and encourage reflection on the ethical acceptability of existing or prospective technologies in the food and agriculture sector. After a brief introduction to the field of bioethics and the ethical matrix method by the organisers, the 20 delegates (from Roslin Institute, SABRE, University of Aarhus, INRA, IBMC and the EADGENE Club of Interest) were provided with a case study presented by Craig Lewis, based on his PhD work and prepared in collaboration with Prof. Stephen Bishop. The study concerned the use of challenge experiments to examine host response to PRRSV infection.

Working with the concrete example provided by the study, two facilitated work sessions were held. Each group was asked to respond to the following questions: What are the ethical issues at stake in relation to the case - and to animal disease genomics?; What ethical issues would you consider most significant?; What are your

main responsibilities with regard to these issues?; How should these issues be dealt with? The two groups filled out the cells of the matrix; i.e. considered the specified principles of wellbeing, autonomy and justice in relation to the interest groups, such as animals in research or consumers, and the extent to which the principles would be infringed or promoted by the use of animal genomics. By reflecting upon a concrete case the participants should be able to transfer this ethical reflection to other cases.

Some, but not all, of the topics raised in the EADGENE prototype ethical matrix workshop held last year in Copenhagen were raised: Ethical issues related to wellbeing of animals in research and of production animals, openness about uncertainty, and how communication with society should take place. The feedback from the delegates was very positive, the ethical matrix was seen as a simple tool facilitating the consideration of, and communication about significant ethical issues raised by the research, although as applied here it does not necessarily ensure that all major issues are covered.

The remaining three local workshops will be held at University of Liege (13th December 2007), at Wageningen University (18th January 2008) and at INRA (8th February 2008).

You can find out more at: <http://www.eadgene.info/NewsandEvents/EADGENEEvents/tabid/148/Default.aspx>.

### Operational Genomics: first achievements and future perspectives

By Sem Genini & Elisabetta Giuffra (PTP, Italy)

Consistent with the overall scope of dissecting host-pathogen interactions in farm animals, in the past months the efforts of the "Core Group" of EADGENE WP8 (PTP and Roslin) have been directed towards the identification of the most appropriate infectious disease to be thoroughly studied and the most adequate methodology to be applied to an Operational Genomics project. Among the large amount of experimental data coming from the Joint Programme of Activities of EADGENE's structural, functional and population genomics work packages, the microarray data on mastitis obtained in EADGENE WP7 has been identified as the most interesting and suitable for a successful Operational Genomics approach.

Mastitis is a complex and economically relevant inflammatory disease of the mammary gland caused by a broad spectrum of infectious bacterial pathogens. The WP7 working group on "Mastitis", led by Prof. Dr. Hans-Martin Seyfert (RIBFA, Germany), has already carried out several microarray studies aimed at identifying genes associated with mastitis susceptibility/resistance in different host species and populations (cattle, sheep and goat) infected with different pathogens (*E. coli*, *S. aureus* and *S. uberis*). In addition, further microarray experiments on mastitis infection in cattle will be soon performed in the frame of the WP5 "Mammary function" of the SABRE (Cutting Edge Genomics for Sustainable Animal Breeding, [www.sabre-eu.eu](http://www.sabre-eu.eu)) project, led by Dr. Mogens Sandø Lund (University of Aarhus, Faculty of Agricultural Sciences, Denmark), who has expressed the interest of this SABRE WP to participate in the EADGENE WP8 project.

Hence, an important achievement made by the WP8 during the past months was the drafting of a KTA (Knowledge Transfer Agreement), through which all the partners involved, from both EADGENE and SABRE, agree to confidentially share and exchange their specific data.

As far as next steps are concerned, the microarray datasets obtained by different investigations will be combined through a meta-analysis approach, which will increase the sample size and thus improve the power to detect differentially expressed genes. Furthermore, by reducing the number of false positives (i.e. genes that are differentially expressed but do not underlie the observed phenomenon), this approach will allow us to obtain more reliable and informative results than each microarray experiment separately.

However, the complexity of the meta-analysis methodology will require multidisciplinary expertise and strong collaborations with other components of the networks. In particular, the successful application of meta-analysis tools to the mastitis microarray data will rely on the statistical expertise of the groups led by Prof. Stephen Bishop and Dr. DJ de Koning at Roslin Institute. In this regard, Dr. Sem Genini, a post doc scientist from PTP, will benefit from an EADGENE short-term stay fellowship to be spent in the next months in the stimulating environment of Roslin, where numerical genomics and bioinformatics tools are being developed within both the EADGENE (WP 1.4) and SABRE projects. The expected results should provide further intriguing information for the extrapolation of the genetical components of innate immunity against mastitis, as well as additional clues on the host-pathogen specific interactions during mastitis infection.





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Contributions & suggestions are always welcome!

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### 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 2008.



## Upcoming EADGENE Events

### EADGENE Local Ethical Matrix Workshops

18th January 2008 in Wageningen, NL; 8th February 2008 in Paris, France  
EADGENE would like to invite interested scientists working in the fields of animal genomics and animal diseases to participate in a one-day workshop to explore ethical issues raised by the interplay of animal genomics, animal disease and food safety.

### EADGENE miRNAs Workshop followed by miRNAs in Health & Disease 2

3-4th March 2008, Liège University, Belgium  
On 3rd March 2008 the workshop will be divided into 2 sessions: a morning session to introduce miRNAs in general with 3 different courses, and an afternoon session dedicated to oral presentations about miRNAs in livestock research.

### 3rd International Symposium on Animal Functional Genomics (ISAFG)

7 - 9th April 2008, Edinburgh International Conference Centre (EICC), UK  
ISAFG will update the current European and International position in animal functional genomics, identifying areas for collaborations and the development of new resources, by bringing together two conference series: 1st European Farm Animal Functional Genomics Conference (ARK-Genomics) and 2nd International Symposium on Animal Functional Genomics (Michigan State University).



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

## First Announcement of EADGENE days 2008

The EADGENE Days 2008 will take place from 9-12th June 2008 in Edinburgh, UK. The programme is currently being finalised, and will focus on the successes of the EADGENE Network. An email will be sent out to our members when registration opens in January 2008 and the event will be fully advertised via our website ([www.eadgene.info](http://www.eadgene.info)). In the meantime please reserve these dates in your diaries.



## Management Communications : Annual reporting & Review

After several weeks of intense activity the Management Team completed the Third Year Scientific Annual Report for the European Commission on 15 October 2007. This submission was followed by the review (assessment by the EU Scientific Officer and two external reviewers) with the presence of the majority of WP leaders on 26th October 2007 in Paris. We expect to receive the EC's response (with some recommendations) as soon as possible.

We would like to thank you all for your understanding and your efficient work in particular the WP leaders !!

## Rodrigue Closset's Memorial

By Anne-Sophie Lequarré (Liège University, Belgium)

Rodrigue Closset, a young scientist working at the Veterinary Faculty of the University of Liège, died in an accident on 10th November 2007. We are all struck by this terrible event and we would like to give here a short memorial to this scientist who we will greatly miss.

Initially Rodrigue worked in motor technology, but indeed his greatest interest was simply in nature; he enjoyed observing fauna and flora. This is why Rodrigue undertook a Master Degree in cellular and molecular biology at the University of Liège. After graduating he was involved in various research fields and started a PhD in the laboratory of Pierre Lekeux. The subject of his thesis was the design of a horse micro-array for studying genes involved in inflammatory and autoimmune diseases. Under that scope he participated in the EADGENE data analysis workshop last year in Tune, Denmark and is co-author of a publication resulting from that workshop. In the lab he was particularly good on the computer, and there was no one like him to trawl the web for any scientific information. He was also the recipient of an EADGENE grant for a short term stay in another Institution: Rodrigue was about to leave for the Roslin Institute in Edinburgh to use the EADGENE bovine arrays. RNA samples were coming from calves challenged by pathogens responsible for developing acute pleuropneumonia and treated or not with non-steroidal anti-inflammatory drug. One of his co-workers will complete that work and publish the data in memoriam of our estimated colleague who has disappeared so suddenly.

He was a nice guy, sometimes a bit absent-minded but so thoughtful for his friends! And if you would ask him for a drink or to party, he was always ready! We will always keep a nice picture of him in our minds and hearts.

