NEWSLETTER

EADGENE

European Animal Disease Genomics Network of Excellence for Animal Health and Food

January 2010

EDITORIAL

This is the sixteenth and **Final** EADGENE Newsletter.

We have articles about

- The 5th EADGENE Days
- The Success of 5 Years of EADGENE in a Nutshell

The EFFAB Team is our "in the Picture" guest.

Marjolein Neuteboom

Nonja Remijn

On behalf of the EADGENE partners we wish you all an EXCELLENT and successful year, with a lot of new experiences to enjoy and new people to meet!

Hyperlinks

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5th EADGENE Days

Over 170 delegates attended the 5th EADGENE conference on "**Genomics for Animal Health: Outlook for the Future**", 13th-14th October 2009 at the **Musée National d'Histoire Naturelle in Paris**.

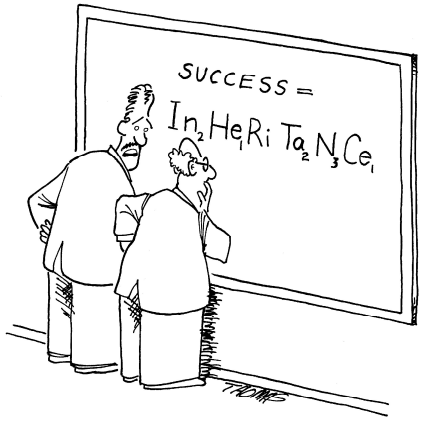
The EADGENE Co-ordinator, Marie-Hélène Pinard-van der Laan (INRA), opened the conference by reflecting on previous EADGENE conferences and emphasising the relevance of the venue to genomics research during Darwin's anniversary year.

Session 1, on **"Technologies and Approaches,"** opened with a keynote presentation on next generation sequencing technologies and bacterial genomics by Nick Thomson (Wellcome Trust Sanger Institute), followed by a second keynote presentation by Michel Georges (ULg), on the CLPG mutation. Johann Detilleux (ULg) gave an overview of genetic-epidemiological models, and Liz Glass (UEDIN) tackled the issue of the "Phenotype Gap". The EADGENE "technological triangle" experiment, where three partner laboratories have conducted a microarray quality control experiment, was described by Jakob Hedegaard (AU). Gene network results were presented by Florence Jaffrezic (INRA) and Henri Woelders (ASG) concluded the first session with a lecture on systems biology in animal sciences.

Session 2 focussed on the "**Research Results."** In his keynote presentation, Dan Bradley (Trinity College Dublin) gave a fascinating overview of population genetics and disease genetics, using the domestication of cattle across the world as an example. Thomas Moen (AquaGen) highlighted a research result which has already been implemented by a breeding company: the identification of a major QTL for resistance against IPN in Salmon. The next presentations gave specific examples of EADGENE research results: Rachel Rupp (INRA) described gene expression profiling in divergent lines of sheep giving insight into genetic resistance to mastitis; and in two related presentations Olivier Demeure and Fanny Calenge (INRA) updated delegates on the progress of EADGENE's technology transfer poultry projects. Karsten Klint Jensen (University of Copenhagen) described an ethical deliberation tool which has been used with some success during EADGENE workshops. The highlighting of results of EADGENE funded short-term stays has become a regular feature of EADGENE conferences so this year Cristina Arce-Jimenez (UCO) presented her work on NLRs in porcine macrophages and dendritic cells and Joseph Powell (UEDIN) talked about association mapping models. This session ended with a series of 5 minute short communications.

The conference cocktail session was held in the stunning venue of the Galérie de l'Évolution. Delegates were able to explore the exhibits in the Galérie, which was closed to the public, before enjoying drinks and canapés on the balcony over-looking the promenade of preserved mammals.

The next day started with the "**Focus on Pathogens"** in session 3. Vega Masignani (Novartis) gave an extremely interesting keynote lecture on pathogen genomics, including examples from various pathogens such as *Neisseria meningitidis,* and *Streptococcus pneumoniae*. Mark Stevens (IAH) focussed on Salmonella & *E. Coli*, and John Fazackerley (UEDIN) talked about emerging and re-emerging viruses, highlighting the threats from rodent-borne & vector-borne infections. The results coming out of EADGENE's fish pathogen working group were described by Espen Rimsted (NSVS) and the role of TLR4 in resistance to Salmonella infection and carrier state was the topic of Philippe Velge's (INRA) talk. Hilde Smith (ASG) discussed genome based approaches to identify virulence factors and vaccine candidates, using the particular example of her work with *Streptococcus suis*. Finally, Wolfram Petzl (LMU Munich) described the development of in vivo mastitis models, giving the example of an EADGENE study.



"Doctor, I believe you've found the formula for success."

www.cartoonstock.com

In the final session of the main conference, on **"Breeding to Improve Animal Health"**, the three speakers gave presentations on the scientific view of genomic selection (Theo Meuwissen, Institute for Animal and Aquacultural Sciences), the industry view of genomic selection in cattle (Sander de Roos, CRV), and the industry view of genomic selection in chickens (Albert Paszek, Cobb-Vantress). This was followed by a roundtable discussion during which the audience was free to pose questions to the panel.

The closing speech was giving by Muriel Mambrini, head of INRA Jouy-en-Josas, who emphasised the various achievements of the EADGENE Network over the previous 5 years, and thanked the coordinator, Marie-Helene Pinard-van der Laan

The Success of 5 Years of EADGENE in a Nutshell

Communication and cooperation have proven to be the keywords in the achievement of one of the main objectives of the EADGENE network: 'to coordinate a genomics approach to the unravelling of diseases (host-pathogen interactions) in domestic livestock'. Sixteen working groups (WP's) have worked on four main activities namely **research**, **integration**, **spreading of excellence** and **management**.

The sharing of research data, integrating resources, up to date technologies, research tools, and the expertise of the analysis of data has resulted in a big improvement in our research. This helps us to combine and compare more data in the future in a more efficient way. For example, WP 1.1 has focused on sharing biological resources through a 'virtual lab' to conduct experiments using microarrays from the same sources, so that results could be compared within the Network, and WP 7 has combined results of different infection models. You can read more about research results on the diseases Salmonella, Mastitis, E.Coli and Fish pathogens on the EADGENE website (www.eadgene.info > Results).

A beautiful example of the value of increasing cooperation between institutes can be read in the reports resulting from WP 3.1, where motivated scientists (seniors, postdocs and students) have visited 15 EADGENE partner institutes and the face-to-face exchange of ideas and technical expertise has been made possible.

Research and industry have been brought together in WP 10. By setting up a 'Club of Interest', interested industries have been formed around EADGENE and industry experts have developed technology transfer guidelines in the knowledge management and technology transfer industry expert groups. Several projects have resulted from WP 10, such as the technology transfer poultry project, animal health data comparison, ontology project and phenotypic database.

The EADGENE Days conferences have helped increase the knowledge, understanding and recognition of EADGENE among relevant scientific and industrial communities through presentation of EADGENE research results. Numerous workshops on topics such as analytical tools, specific diseases and ethics have been organised and over the last five years EADGENE has also been involved in developing and funding new courses and various training proposals with the aim of creating a stable framework for animal genomics and health education activities.

The results achieved by the hard work, trust and commitment in the EADGENE project, and all the new contacts that have been made during EADGENE, have opened doors to new challenges in the future. EADGENE will now continue as a European Research Group (ERG), with the EADGENE ERG agreement that has been signed by the partners of the EADGENE Network of Excellence.

We wish to thank you all for your interest in the project and network!

In the picture:

'The EFFAB Team'

The European Forum of Farm Animal Breeders (EFFAB) is an organisation working to promote the interest of the animal breeding and reproduction industry. With only 3 employees EFFAB is a small organisation, but an important link in a very strong and big network, that is built up since 1995 (until 2001 as FAIP). EFFAB also coordinates the Sustainable Breeding and Reproduction Platform (FABRE-TP).

Anne-Marie Neeteson is General Manager and has been the driving force of EFFAB since the start. She is also part of the Management Team of EADGENE. Colleague Marjolein Neuteboom is Project Manager and within EADGENE she is active in the Technology Transfer between science and industry (WP10). She is also a member of the communication team of EADGENE. Anne-Marie and Marjolein are supported in their work by Nonja Remijn, who works part-time as Communication Manager, and hopes to present an improved website of EFFAB any moment soon (*www.effab.info*).

All three of us have a background in Animal Sciences at the Wageningen University in the Netherlands. Our office is located in the old Genetics building of the University. For Dutch standards you can say the office is located on top of a mountain, as we are at a height of 42 meters above sea level! Nevertheless we can enjoy a nice view over the river lands next door

Nonja *Marjolein* *Anne-Marie*

More information about the results of EADGENE, all the activities, the partners that were involved, the publications and follow up, is available at www.eadgene.info > Results, and in the latest edition of Network News