

EADGENE: European Animal Disease Genomics Network of Excellence for Animal Health and Food Safety
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Genomics provides valuable tools to develop improved disease control in animals. Concentrating on pathogens occurring in the food chain, it has also significant impact on human health. Genomics will promote improved control and diagnosis of disease, and a greater understanding of host – pathogen interactions. However, genomics research in the animal sector receives far less support than its human counterpart and the research base is relatively fragmented. The EADGENE Network of Excellence aims to overcome this fragmentation by linking its 13 partners. Many other players in research and industry can also benefit by interaction through membership in a club of interest. The industry will drive the focus of the research and use the results, and eventually, contribute to finance important areas. As a result, EADGENE has a strong role in orientating European animal genomics. The project creates a European virtual genomics laboratory of animals and their pathogens. It ensures sharing of genomics data, knowledge, equipment and materials. It also promotes a common platform and language among European researchers. It has an extensive training and education program, encouraging staff mobility and international exchange of information. Based on a core of studies in structural, population and functional genomics, the project aims to develop new vaccine targets, molecular diagnostic tools and assist in developing breeding strategies. It also encourages interaction with the human genomics research.

More info can be found on the web-site www.eadgene.org.

EADGENE focuses on cattle, swine, chicken and Atlantic salmon.

EADGENE has 4 main activities:

- 1) Integration
- 2) Joint research programme
- 3) Spreading of excellence
- 4) Management

1) Integration

The activities for integration consists of the creation of a virtual lab, to consolidate the integrated organisation, a plan for staff mobility and to integrate knowledge.

The task of creating a virtual lab includes integration of the biological resources, the technological and the bioinformatics facilities and to integrate analytical tools. The project is focusing on pooling resources and facilities and integrating research strategies. This will ensure that all partners have easy and durable access to the best available facilities, biological resources, technological platforms, software, analytical tools and knowledge.

The pooling of resources includes all available resources in bioinformatics and genomics created by the partners. In addition new resources are being developed or the available ones will be extended or made more accessible.

2) Joint research programme

The joint research programme consists of structural genomics, population genetics, functional genomics as well as operational genomics. The aim for the structural genomics is to have a complete description of the genome organisation in the different

farm animals. This is of course limited to the species where a complete genome sequence is available. For the moment there is a complete sequences of the chicken genome and with cattle and pig sequences coming soon.

For the commercial fish species a complete genome sequence will not be available for some years. However there are projects such as the Norwegian Salmon Genome Project (SGP), the Canadian Genomics on Atlantic Salmon Project (GRASP) and the UK Salmon Traits (TRanscriptome Analysis of Important Traits in Salmon) that has provided valuable resources for genomics in Atlantic salmon, which will be used in the EADGENE context.

The activities on functional genomics, population genetics and operational genomics are all involved in the research on host-pathogen interaction and at present there are working groups on mastitis, E. coli and salmonella and a working group on fish is being organised.

3) Spreading of excellence

To facilitate the spreading of excellence the project has joint programmes to train research or key staff, to exploit and transfer technology to the industry, to transfer knowledge to other scientific teams and third countries, to cross-link with other NoE and IPs as well as various communication plans for public dissemination and a working plan for the ethical aspects of the research.

4) Management

The management system is split into three levels: strategic management, integrative management and management of activities.