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PRIME

**Priorities for mouse functional genomics research across Europe:
Integrating and strengthening research in Europe**

Instrument: Coordination Action

Thematic Priority: Life sciences, genomics and biotechnology for health

**Deliverable No. 03
Report of networking meetings**

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Dissemination Level		
PU	Public	√
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

PRIME

Deliverable No. 3: Report of networking meetings held – aims and main conclusions

Annual project networking meeting - *EuroMouse*

The EuroMouse conference was held in San Giuliano, near Venice, on 14th and 15th October 2005. This conference brought together the mouse community for the first time to discuss mouse function genomics and its current and future position in Europe. Fifteen mouse functional genomics projects, funded by the European Commission, were represented at the meeting. Over 100 scientists attended the meeting, from over 70 institutes across 17 European countries. In addition, delegates attended from industry and from the USA and Australia. The meeting was held in conjunction with the EUMORPHIA project, in order to introduce the community to EMPReSS, its free web-based resource of phenotyping screens. A full report of the meeting can be found at Appendix 3.1.

Note: Meetings of the Science Advisory Group and Policy Makers are covered in the report for Deliverable 04.

Appendix 3.1: Report of EuroMouse meeting

PRIME 1st Open Scientific Meeting

Priorities for mouse functional genomics research

15th October 2005, Venice

REPORT

Aim

The EuroMouse meeting brought together, for the first time, many of the major groups funded by the European Commission to undertake research into mouse functional genomics. The aim was to increase awareness within the community of the research being undertaken and to discuss priorities for the future of the research.

Projects present

- **EUMORPHIA** - Understanding human molecular physiology and pathology through integrated functional genomics in the mouse model
- **FunGenES** - Functional genomics in engineered mouse ES Cells
- **EUReExpress** - A European consortium to generate a web-based gene expression atlas by RNA *in situ* hybridisation
- **BioSapiens** - A European network for integrated genome annotation
- **FLPFLEX** - A flexible toolkit for controlling gene expression in mouse
- **EUCOMM** - European Conditional Mouse Mutagenesis Program
- **MUGEN** - Integrated functional genomics in mutant mouse models as tools to investigate the complexity of human immunological disease
- **Lymphangiogenomics** - Genome-wide discovery and functional analysis of novel genes in lymphangiogenesis
- **EUROHEAR** - Advances in hearing science: from functional genomics to therapies
- **EuReGene** - European Renal Genome Project
- **MYORES** - Multi-organismic approach to study normal and aberrant muscle development, functions and repair
- **MolecularImaging** - Integrated technologies for *in vivo* molecular imaging
- **Pathbase** - European mutant mouse pathology database
- **PRIME** - Priorities for Mouse Functional Genomic Research in Europe
- **EMMA** - European Mouse Mutant Archive

Format for the meeting

Presentations were made by the individual projects on the first day of the meeting, to inform the community of their work and to create links between the projects. This was followed by an international satellite link-up was made with Canada. The simultaneous broadcast announced the newly funded European Conditional Mouse Mutagenesis Programme, EUCOMM and its sister project in Canada, NorCOMM. Dr. Octavi Quintana-Trias, Director of Health Research at the European Commission, gave a presentation followed by Prof. Dr. Wolfgang Wurst who described the new global effort in mouse mutagenesis. The day ended with a poster session, where posters were presented on European and international research as well as other issues such as animal welfare.

The second day of the meeting focussed on building an integrated programme of mouse functional genomics at the European level. Presentations were made on EC functional genomics research programme, the Federation of International Mouse Resources (FIMRe), phenotyping centres, large-scale mutagenesis and bioinformatics support. Discussions were held to identify opportunities to establish pan-European programmes that deliver added value and improve Europe's competitiveness. Opportunities to deliver in Europe the infrastructure and resources to sustain both national and pan-European programmes were highlighted. Finally, discussions were held on driving the translational engine from functional genomics to clinical research and experimental medicine.

Conclusions

Two types of project benefit from funding at a European level

- 1. Large-scale, high-throughput projects with a critical mass of research labs across Europe tackling issues such as large scale production of Gene mutation production and archiving of mouse lines, phenotyping and gene expression**
- 2. Integrated projects bringing together researchers in a variety of fields from mouse functional genomics research, through to human genetics to pharmaceutical therapies. These are largely funded by the European Commission as Integrated Projects and Networks of Excellence under FP6 and are grouped together as the EuroMouse projects**

Mutagenesis

These large-scale mutagenesis projects (*EUCOMM*, *NorCOMM* and *KOMP*) will form a tremendous resource available to all researchers. Links should be maintained with similar mutagenesis programmes in North America. There is now a need to develop mice from these ES cell resources and to add further value to them by phenotyping them.

New mutagenesis technologies

There are enormous opportunities to develop an integrated approach to mutagenesis across Europe that develop synergies through integration of technology development and enhance delivery to the wider community through the establishment of appropriate archives of resources generated. Integrating efforts should be underpinned by the establishment of forums or working groups to drive and oversee developments.

Phenotyping

A continuing effort will be required for the foreseeable future in the development and application of phenotyping platforms taking advantage of multidisciplinary strengths across Europe. These platforms also need to be developed to manage the large-scale phenotyping efforts that will be needed to phenotype the mice coming out of the large-scale mutagenesis programmes. This ongoing programme will need to take into account technology advances, to continue to interact with industry and to tackle the integration and dissemination of the vast swathes of phenotype data that will be generated.

Gene expression

There are enormous opportunities to bring together mutant production, phenotyping and gene expression analysis. The successful integration of these approaches will depend upon close

cooperation between different European centres and will enormously improve the breadth and depth of the readout of functional information.

Archives

A coherent strategy, based upon sound business principles, needs to be developed to maintain the growing number of archives that will be required to sustain the European Mouse Functional Genomics programme. These need to be applied to existing archives to ensure their long term future.

Bioinformatics

There are enormous challenges and difficulties in this arena that threaten the success of both national and EU programmes. From data capture, to data interpretation and mining to data dissemination, an integrated and European approach will be necessary to sustain European Mouse Functional Genomics. At the outset, a European forum to discuss the developing informatics needs in mouse functional genomics programmes is paramount.

Training

Europe has a critical mass in the diverse multidisciplinary skills base that will be required to maintain the EU at the forefront of mouse functional genomics. It will be vital to ensure that closer integration in research efforts across Europe is matched by a commensurate focus on training. Within the research networks, it will be important to establish training centres not only for the dissemination of mouse functional genomics skills but also for importing skills and approaches from physiology, pathology, clinical, computational and mathematical fields.

Actions

The results of the discussions at the meeting will be used to draft the PRIME position statement on mouse functional genomics in Europe. This paper will serve as a guide for setting priorities in the research, for determining mechanisms for the long-term support of the research and maintaining its competitiveness.