Study Group on Animal Models for Rheumatic Diseases (SGAM)
(reporting period March 2010-March 2011)
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The SGAM was established in 2009. Animal models are important tools in understanding of the biology and pathophysiology of disease and to develop safer and better drugs for arthritic diseases. The main aims of the SGAM are to build an international network of excellence by fostering scientific collaborations and to exchange knowledge about animal models for rheumatic diseases within Europe. In addition we will try to establish standardization were possible and useful and have discussion on animal ethics. The SGAM will be open for all institutes, including those that just want to start using animal models of disease. Information on upcoming meetings will be posted on the Eular website and communicated via mailings. Through SGAM it is expected to bring Europe a competitive advantage in the development of new bio- and genetic markers, and new therapeutic compounds.

Meetings:
In the reporting period we have organized two meetings. The first (closed) meeting was held at the EULAR house in Zurich, with funding from the Eular, to establish a guidance document for the use of animal models for research as well as for pharmaceutical companies for specific drug testing. The meeting was held in the view of the following background: In the past decade, a lot of new state-of-the-art animal models have been developed, including specific transgenic, (sub) congenic, and knockout strains, that can be of particular importance for specific scientific questions. In addition, new technologies are arising like in the area of genomics, proteomics and imaging. The alignment of animal models of immunological diseases to human diseases remains a key issue with major implications for the translational research and development of therapeutic strategies. However, to further investigate the complex mechanisms of disease pathology and answer questions generated by results coming from the area of genomic research, it is important to better characterize available and new animal models for arthritis and other immune-mediated pathologies, to accelerate the development of novel, safe and efficient therapeutics tailored to particular patient subsets. State-of-the art genetic systems will be extremely useful as accurate screening targets for the identification and validation of novel drugs. Some groups already initiated research in this area, but to make really use of the generated models and know-how it is very important to spread the knowledge within the area of experimental rheumatology/immunology research.

The following items were discussed in Zurich:
• Animal models, spontaneous and induced
• Humanized and non-rodent animal models
• Better alignment to human disease subsets and treatment responses
• Standard operating procedures (including housing conditions) and quality requirements for validation and discovery testing
• New tools to evaluate processes in disease development (models/pathways/biomarkers)
• Enhanced collaboration between basic scientists, clinicians and industry
• European policies and ethical considerations

The two day meeting was bringing together 19 scientists from the European research programmes MUGEN, AUTOUCRE and MASTERSWITCH, including scientists working in industry. The meeting was chaired by George Kollias (Flemming institute, Athens, Greece) en co-chaired by Dr. F. Apparially (Inserm) and MJ. Vervoordeldonk (AMC/University of Amsterdam).

Based on this meeting we have generated a guidance document “Animal models for arthritis: Innovative tools for drug development”. The paper is submitted to Annals of the Rheumatic Diseases and currently under review.
The second meeting was held during the workshops prior to the openings lecture at the EWRR 2011 in Amsterdam. The meeting was attended by approximately 35 scientists from different institutes. The aim of the study group is to have presentations with interactive discussions on animal models, new tools for analysis, ethical issues and other aspect related to animal models brought-up by the scientist attending the meetings. Before each meeting a mailing is sent to potential participants in order to collect points for discussion and suggestions for talks. Based on the feedback the program for the study group meeting is generated. The presentations should give more an overview of the field or bring up discussion points rather than presenting data similar to oral abstract selections that are given during the meetings like EWRR and Eular. The topics of the lectures at the workshop during the EWRR 2011 were:

- **Potentials of the SCID mouse model** [Elene Neumann](Justus-Liebig University GiessenDepartment of Rheumatology and Clinical Immunology)
- **Imaging cell interaction in immunological models and arthritis** [Agapitos Patakas](Glasgow Biomedical Research Centre)
- **In vivo imaging of viral vectors in mice: Experiences with Gaussia luciferase** [Caroline Aalbers](Div. of Clinical Immunology and Rheumatology, AMC)
- **Effects of environmental factors in animal models** [Margriet Vervoordeldonk](Div. of Clinical Immunology and Rheumatology, AMC)

The outline of the meeting was well appreciated and there were a lot of interactive discussions. Based on this meeting the mailing list of scientists interested in future meetings is increased and people discussed new collaborations.

**Future plans:**
The SGAM aims to have two interactive meetings a year, one connected to the EWRR, the second one at the Eular or in collaboration with one of the European collaborative projects like Masterswitch or IMI. In addition, we will make an effort in generating a more extended mailing list for interested groups to announce meetings and to post questions regarding the performance, analysis and evaluation of animal models in order to support exchange of knowledge. We will also generate a document with expertises of each participating group (models and specific analysis), and post it under SGAM information on the Eular website in order to enhance collaborations between institutes.

**Publications on Animal models reporting period:**