



ISAG
CONFERENCE 2012, Cairns, Australia

Comparative MHC Workshop

STANDING COMMITTEES / WORKSHOPS Information will be posted online

Organised by a standing committee **Yes**

Date and meeting time: Tuesday 17th July 2012, 14.00-17.30

**Chair, name and contact email: Chair, Dr Keith Ballingall keith.ballingall@more.dun.ac.uk
 Co-Chair, Professor Michael Stear, m.stear@vet.gla.ac.uk**

Agenda / programme attached

Time	Speaker	Presentation title	Abstract
2:00 pm	Keith Ballingall	Welcome and Introduction An Update on the IPD-MHC databases	
2:15 pm	Jun-Heon Lee	The Swine Leukocyte Antigen (SLA) Nomenclature System: Current Status after 10 Years of its Establishment	P3041
2:30 pm	Nuria Mach	Diversity studies of SLA haplotypes by targeted high-throughput re-sequencing	P3044
2:45 pm	Alvaro Perdomo	Evolution and diversity of MHC class I and class II genes in suids and peccaries	P6011
3:00 pm	Keith Ballingall	Functional diversity arising from intra and inter haplotype combinations of DQ loci within the sheep MHC	P3001
3:15 pm	Mike Stear	Characterization of Diversity in the Sheep MHC class II antigen presenting genes	P3068
3:30 pm	AFTERNOON TEA		
4:00 pm	Weerachai Jaratlerdsiri	MHC class I diversity in saltwater crocodiles and its association with Lymphoid Proliferation, Vasculitis and Encephalitis syndrome	P5030
4:15 pm	Liming Ren	Characterization of the duck MHC class II genes	P3060
4:30 pm	Yoko Aida	Identification of bovine leukocyte antigen (BoLA) class II haplotypes that are regulated bovine leukemia virus (BLV) proviral load in Japanese Black cattle	P5003

4:45 pm	Discussion	Can high density SNP chips be used for MHC genotyping in sheep and cattle? Any other Committee Business	
5:15 pm		Close	

Number of participants at meeting: Approximately 50 over the course of the workshop

Summary of the meeting including votes, decisions taken and plans for future conferences

Introduction and background.

The international Society for Animal Genetics (ISAG) proposed in 2002 that a comparative MHC nomenclature committee should be set up, comprising members of individual “species nomenclature committees”. This committee is also affiliated to, and supported by, the Veterinary Immunology Committee (VIC) of the International Union of Immunological Societies, (IUIS).

Current committee includes:

Keith Ballingall	Ovine, Bovine,	Current Chair
Shirley Ellis	Bovine	
Mike Stear	Bovine, Ovine	
Hans Dijkstra	Salmonid Fish	
Lorna Kennedy	Felines/Canines	
Steven Marsh	HLA, Immunopolymorphism database (IPD)	
Chak-Sum Ho	Swine	
Chris Davies	Bovine, Bison	
Jim Kaufman	Chicken	
Doug Antczak	Equine	
Ronald Bontrop	Non-Human primates	
Lutz Walter	Rats	

The committee’s role is to

- To establish guidelines for MHC nomenclature species outside of human and mouse
- To facilitate the development of databases which provide a source of validated MHC sequences each with an official nomenclature for any species (IPD-database)
- To facilitate discussions on comparative aspects of MHC nomenclature and MHC biology
- To organize workshops on comparative aspects of MHC biology at ISAG and IVIS meetings

The principal role of the members of the committee is to coordinate the setting up and curation of the individual species sections of the IPD-MHC database (<http://www.ebi.ac.uk/ipd/mhc/index.html>). This database provides a standardized system of allelic nomenclature for each species included and allows improvements in data quality, the addition of more specialized information such as an official name, previous local nomenclature, the origin of the sequence, accession numbers, down loads and alignments. The IPD project was established by the HLA Informatics Group of the Anthony Nolan Research Institute in close collaboration with the European Bioinformatics Institute (EBI) and the support from Professor SGE Marsh of University College London and Dr James Robinson, Anthony Nolan Research Institute in maintaining IPD-MHC is gratefully acknowledged by the committee.

Workshop Details

The workshop started with an introduction to the committee and its role from the chair. The importance of the IPD-MHC databases was emphasised and the contribution of its supporters acknowledged.

Eight papers were presented at the workshop. These are detailed above and covered a range of approaches to investigate questions of MHC genetics, MHC diversity and MHC function in most of the important livestock species world wide. The role of new technologies centred on next generation sequencing approaches, targeted sequencing of MHC regions was discussed in a number of presentations.

A brief discussion took place on the potential of MHC haplotype characterisation in sheep using high density panels of SNPs. David Groth (Curtin University) described his use a SNP panel for extended haplotype determination which identified high levels of sheep haplotype diversity. Similar approaches in Pig were mentioned by Nuria Mach (INRA) and Claire Rogel-Gaillard (INRA). The ability of SNP panels to identify broad haplotypes is clear but what is not clear is their ability to identify individual alleles at highly polymorphic loci.

The committee Business ended the workshop.

New Sections within IPD-MHC: There was interest in developing new sections for target species. Including the different suids and peccaries as individual sections within the swine section of IPD-MHC was discussed. As with other species section within IPD-MHC this possibility will be taken forward by the swine nomenclature committee. The possibility of including the crocodile sequences within a new section was discussed. Weerachai Jaratlerdsiri (University of Sydney) agreed to look into this possibility. Similarly, a marsupial section which would include the Tasmanian Devil sequences was discussed. The identification of someone within Kathy Belov's group (University of Sydney) to take this forward was discussed. Any interested individuals should contact Keith Ballingall.

Committee make up

The committee composition remains the same with rolling appointments for species specific members. Committee members who have committed to take forward the Chicken and Horse sections will be contacted again to review and encourage progress or identify possible alternatives.

Committee members

Chair Keith Ballingall	term of service	rolling
E mail address: Keith.Ballingall@moredun.ac.uk		
Other members	term of service	
Michael Stear: m.stear@vet.gla.ac.uk		rolling
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