



SEB Main Meeting, Marseille 2008

Sunday 6 July 2008

17:30–18:30 – SEB Plenary Lecture 1 – Bidder Lecture:

PL.1: Will be given by Professor Richard J Balment (University of Manchester)

Importance of Comparative Studies or “Model Hopping”

Richard Balment graduated in Zoology and subsequently completed a PhD in mammalian renal physiology with Ian Chester Jones and Ian Henderson at Sheffield University. Since his appointment at Manchester, Richard has established an international reputation for his research in vertebrate body fluid homeostasis and its endocrine control. His work has embraced fish, reptilian and mammalian models of study including humans. Research focussing on sodium and water management and more recently calcium homeostasis has integrated molecular, biochemical, cellular and whole organism approaches. Against recognition of the high level of conservation of these vital body processes through the vertebrate series, key research questions have been moved back and forth between species. This has brought experience and knowledge from one group to bear on the development of understanding in others and in so doing enhancing our general appreciation of these core homeostatic mechanisms. This Comparative or “Model Hopping” approach has paid rich dividends for understanding key biological questions in fish, discovery of novel aspects of mammalian osmoregulatory physiology and provided insights into aspects of major human diseases. This comparative approach to the study of major body systems has been at the core of Richard’s research and is the theme developed in the Bidder Lecture.

After leaving Sheffield major influences on research directions emanated from periods in the laboratories of Brahim Lahlou in Nice and Yoshio Takei in Tokyo. Highlights in research achievement include the discovery of the physiological contributions of vasopressin and oxytocin to salt as well as water regulation in mammals. More recently, in collaboration with Cathy McCrohan, they have begun to reveal the mechanisms controlling neuroendocrine secretion of urotensin peptides from the fish caudal neurosecretory system and the regulation of target tissue expression of their receptors. In turn, in collaboration with Nick Ashton, they are making major contributions to the emerging recognition that urotensin II (UII), long held to be a unique fish hormone, also has important contributions in mammalian physiology. We have demonstrated the tonal influence of endogenous UII in the normal regulation of renal salt and water excretion and have highlighted that this is perturbed in models of hypertension and in a number of related human diseases. Current work has drawn attention to the role of Parathyroid Hormone related Protein (PTHrP), first discovered in patients with hypercalcaemia of malignancy, in the normal regulation of blood calcium in fish. Their findings imply that PTHrP likely represents an ancestral vertebrate calcium regulatory system, replaced by Parathyroid Hormone which is only evident in tetrapods.

A1 – The Multifunctional Gut

Sponsored by the SEB Osmoregulation Group

Session organised by Dr Nic Bury (King’s College London), Dr Richard Handy (Plymouth University), Dr Jean-Herve Lignot (Maître de Conférences à l’Université Louis Pasteur) and Dr Rod Wilson (Exeter University)

08:30 Introduction

Osmoregulation

Chair: Jean Hervé Lignot and Rod Wilson

08:35 Prof. Guy Charmantier (Université Montpellier 2, France)
The role of the gut in hydromineral balance during the ontogeny of the sea bass *Dicentrarchus labrax* [A1.1]

09:00 Dr Martin Grosell (University of Miami)
Apical proton pump activity and CAIV act to control luminal osmotic pressure and enhance intestinal water absorption by seawater acclimated rainbow trout (RBT) [A1.2]

09:20 Mr Joana Moreira Silva (CIIMAR and ICBAS, UPorto)
Weatherloach (*Misgurnus anguillicaudatus*) actively excretes ammonia through NHE [A1.3]

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09:40 **Mr Edward Mager (University of Miami, RSMAS)**
Down the path to identifying the transporter(s) responsible for intestinal anion exchange in marine teleost osmoregulation: exploring the versatile SLC26A6 [A1.4]

10:00 **Refreshment Break**

Multiple physiological functioning

Chair: **Nic Bury and Richard Handy**

10:30 **Dr Rod Wilson (University of Exeter)**
Anatomically separated acid-base regulation and respiratory gas exchange in a vertebrate salinity-extremophile [A1.5]

10:55 **Ms Josi Taylor (RSMAS, University of Miami)**
Basolateral NBC is the hinge of a mechanism serving both osmoregulation and acid-base balance in the marine teleost intestine [A1.6]

11:15 **Dr Chris Cooper (University of Exeter)**
Breathing in through the gill and out through the gut – unusual gas exchange in fish at hypersalinity [A1.7]

11:35 **Dr Gudrun De Boeck (University of Antwerp)**
The role of food availability in hypoxia resistance of Amazonian Oscars [A1.8]

12:00 **Lunch**

Morphology

Chair: **Nic Bury and Richard Handy**

13:15 **Dr Stephen Secor (University of Alabama)**
Intestinal form dictates function; the underlying mechanisms regulating intestinal performance [A1.9]

13:40 **Dr Rebecca Cramp (The University of Queensland)**
Morphological and functional responses of the small intestine during aestivation in the green-striped burrowing frog, *Cyclorana alboguttata* [A1.10]

14:00 **Dr Sylvie Geiger (CNRS – Strasbourg)**
Effects of prolonged fasting on intestinal cell proliferation in mallards [A1.11]

14:20 **Dr Pierre Laurent ()**
Why fish might stay healthy after several months of complete starvation? [A1.12]

14:40 **Dr Jean Hervé Lignot (Louis Pasteur University)**
Plasticity of the intestinal wall of various Booidae [A1.13]

15:00 **Refreshment Break**

Nutrient Uptake and Metals

Chair: **Rod Wilson and Jean Hervé Lignot**

15:30 **Ms SUNITA NADELLA (McMaster University)**
An overview of dietary Cu absorption in rainbow trout [A1.14]

15:55 **Dr Nic Bury (King's College London)**
Metal uptake at the gut of teleost fish: relationship between assimilation efficiency, intestinal accumulation and expression of transport proteins and metallothionein [A1.15]

16:15 **Mr Joel Klinck (McMaster University)**
Cadmium uptake by across the gut of rainbow trout *in vivo* and *in vitro*: the influence of calcium [A1.16]

16:35 **Dr Richard Handy (University of Plymouth)**
Toxicology of dietary titanium dioxide nanoparticles to Rainbow Trout, (*Oncorhynchus mykiss*) [A1.17]

A3 – General Biomechanics

Session organised by Peter Aerts (University of Antwerp)

08:25 **Introduction**

(Peter Aerts)
Chair: **Peter Aerts**

08:30 **Dr Philip Anderson (University of Bristol)**
The effect of blade design on fracture toughness in biological materials [A3.1]

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- 08:50** **Miss Charlotte Miller (The Royal Veterinary College)**
Beyond shock absorbers: elephant feet as multi-functional dynamic structures [A3.2]
- 09:10** **Mr Ralf Nederlof (Wageningen University)**
A biomechanical model of rock-drilling of *Barnea candida* (Bivalvia) [A3.3]
- 09:30** **Mr Mark van Turnhout (Wageningen University)**
Post natal development of collagen architecture in articular cartilage [A3.4]
- 09:50** **Dr Evie Vereecke (The University of Liverpool)**
The mechanical properties of the gibbon Achilles tendon and its role in locomotion [A3.5]
- 10:10** **Refreshment Break**
- 10:30** **Dr Philip Brownridge (University of Liverpool)**
Integrating Proteomics with Physiology: the influence of Parvalbumin isoforms on fish muscle performance [A3.6]
- 10:50** **Dr Rob James (Coventry University)**
Do changes in muscle mechanics explain alterations in locomotor performance caused by thermal acclimation in the saltwater crocodile (*Crocodylus porosus*)? [A3.7]
- 11:10** **Miss Angela M Berg (Harvard University)**
Kinematics and muscle function during landing flight in the pigeon (*Columba livia*) [A3.8]
- 11:30** **Dr Richard Bomphrey (Oxford University)**
A semi-empirical model of blowfly flight dynamics and control developed using a VR simulator [A3.9]
- 11:50** **Dr Anna Carruthers (Oxford University)**
Flow control in the wings of a Steppe eagle *Aquila nipalensis*: automatic aeroelastic devices [A3.10]
- 12:10** **Dr Stacey Combes (Harvard University)**
Aerial jousting in orchid bees: biomechanics *versus* behaviour in competitive interactions [A3.11]
- 12:30** **Lunch**
- Chair:** **Sam Van Wassenbergh**
- 13:30** **Miss Maria-Jose Fernandez (University of California Berkeley)**
Altitudinal variation in flight mechanics and energetics of the giant andean hummingbird [A3.12]
- 13:50** **Dr Eize Stamhuis (University of Groningen)**
Three-dimensional flow field around a flapping bird wing [A3.69]
- 14:10** **Mr David Lentink (Wageningen University)**
A leading edge vortex slows down the descent of maple seeds [A3.14]
- 14:30** **Dr Daniel K. Riskin (Brown University)**
Effects of body size on the wing kinematics of bats [A3.15]
- 14:50** **Dr Bret Tobalske (University of Portland)**
Aerodynamics of body lift during flap-bounding flight in birds [A3.16]
- 15:10** **Refreshment Break**
- 15:30** **Dr James Usherwood (The Royal Veterinary College)**
Constraints to wing morphology and kinematics imposed by inertia [A3.17]
- 15:50** **Dr Simon M. Walker (University of Oxford)**
3D reconstruction of the wing and body kinematics of hoverflies during free flight [A3.18]
- 16:10** **Dr John Young (University of New South Wales)**
Numerical simulation of the aerodynamics of a desert locust (*Schistocerca gregaria*) in forward flight [A3.19]
- 16:30** **Mr Shane Windsor (University of Auckland)**
Hydrodynamic imaging by blind Mexican cave fish (*Astyanax fasciatus*) [A3.20]
- 16:50** **Prof. Johan L. van Leeuwen (Wageningen University)**
The dynamic behaviour of the cricket ear predicted from first principles [A3.21]

A5 – General Animal Biology

Session organised by Dr David McKenzie (CNRS Montpellier) and Dr Richard Handy (University of Plymouth)

Chair: **Dr David McKenzie**

- 09:10** **Timothy Clark (University of British Columbia)**
Cardiovascular function and energetics of sockeye salmon on the spawning ground [A5.1]

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- 09:30** **Miss Maria Steinhausen (University of British Columbia)**
Cutaneous oxygen uptake in exercising adult salmon: a role for the secondary circulation system [A5.2]
- 09:50** **Mr Peter Skov (University of Copenhagen)**
The role of adrenaline as a modulator of cardiac performance in three Notothenioid fishes [A5.3]
- 10:10** **Dr Gina LJ Galli (Hopkins Marine Station of Stanford University)**
Thermal plasticity of excitation–contraction coupling in Bluefin Tuna myocytes [A5.4]
- 10:30** **Refreshment Break**
- 11:00** **Mr Simon Patrick (The University of Manchester)**
The presence of mechanosensitive channels in the Rainbow Trout (*Oncorhynchus mykiss*) heart [A5.5]
- 11:20** **Dr Holly Shiels (University of Manchester)**
The role of reverse-mode NCX in the contractility of the rainbow trout heart [A5.6]
- 11:40** **Mr Bjarke Jensen (University of Aarhus)**
Shunting and pressure separation in reptiles inferred from cardiac architecture [A5.7]
- 12:00** **Dr Jonathan Stecyk (University of Oslo)**
Effects of hydrogen sulfide on the cardiovascular system of normoxic and anoxic turtles (*Trachemys scripta*) [A5.8]
- 12:20** **Miss Nina Kerting Iversen (Aarhus University)**
Autonomic control of the heart in the swamp eel (*Monopterus albus*) during water-breathing, air-breathing and aestivation [A6.30]
- 12:40** **Lunch**
- Chair: Dr Guy Claireaux**
- 13:40** **Dr Denis Chabot (Direction des sciences halieutiques et aquaculture, Ministère des Pêches et des Océans, Institut Maurice-Lamontagne)**
Quantification of SMR and SDA in aquatic animals using quantiles and non-linear quantile regression [A5.9]
- 13:55** **Dr Denis Chabot (Direction des sciences halieutiques et aquaculture, Ministère des Pêches et des Océans, Institut Maurice-Lamontagne)**
Energy budget of the northern shrimp, *Pandalus borealis*, as a function of size and temperature [A5.65]
- 14:10** **Mrs Aurelie Dupont-Prinet (ISEM)**
The physiology of energetic strategies in European sea bass (*Dicentrarchus labrax* L.) [A5.10]
- 14:30** **Miss Lindsay Jibb (University of British Columbia)**
AMP-activated protein kinase coordinates metabolic rate suppression in the common goldfish during hypoxia exposure [A5.11]
- 14:50** **Miss Sara Kayes (School of Integrative Biology, The University of Queensland)**
Opioids as triggers for metabolic depression in the frog, *Cyclorana alboguttata* [A5.12]
- 15:10** **Refreshment Break**
- 15:40** **Mr Fabrice Pernet (Ifremer)**
Inter- and intra-specific variations in the physiological and biochemical adjustments in response to temperature in marine bivalves [A5.13]
- 16:00** **Mr Stefano Marras (Université Montpellier 2)**
Is the fast-start escape response in fish repeatable? A short and medium term analysis in juvenile European Sea bass. [A5.14]
- 16:20** **Dr Mees Muller (Wageningen University)**
Why vertebrates have semicircular ducts [A5.15]
- 16:40** **Dr Coen P.H. Elemans (University of Utah)**
Superfast vocal muscles control song production in songbirds [A5.16]
- 17:00** **End of session**

C1/P4 – Cell Biology of Plant Development

Sponsored by the SEB Cytoskeleton Group

Session organised by Prof. Patrick J. Hussey and Prof. Keith Lindsey (Durham University)

Keynote

- 09:00** **Prof. Gerd Juergens (Tuebingen University)**
Integrating cell biology and development: auxin at the crossroads [C1/P4.1]
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Session 1 – Cytoskeleton**Chair: Prof. Patrick J. Hussey****10:00 Prof. Clive Lloyd (John Innes Centre)**

The impact of rotary microtubules on cell wall texture [C1/P4.2]

10:30 Dr John Bothwell (MBA of the UK, Plymouth, UK)Ca²⁺ signals coordinate cytoskeletal polarization and cell cycle progression in the brown alga, *Fucus serratus* [C1/P4.3]**10:45 Refreshment Break****11:15 Dr Michael Deeks (Durham University)**

Regulation of actin polymerisation and morphogenesis [C1/P4.4]

11:45 Prof. Patrick Hussey (University of Durham)

Plant microtubules, MAPs and the cytokinetic phragmoplast [C1/P4.5]

12:15 Lunch**Session 2 – Trafficking****Chair: Prof. Gerd Juergens****14:00 Prof. Chris Hawes (Oxford Brookes University)**

Dynamics of plant Golgi membranes [C1/P4.6]

14:45 Prof. Ian Moore (University of Oxford)Small GTPases in post-Golgi and endocytic membrane traffic in *Arabidopsis* [C1/P4.7]**15:15 Refreshment Break****15:45 Dr Christine Faulkner (University of Edinburgh)**

Peeking into pit fields – a new model of secondary plasmodesmata formation [C1/P4.8]

16:15 Prof. Michael Blatt (University of Glasgow)

SNAREs at the traffic junction with signalling, transport and nutrition [C1/P4.9]

16:45 Dr Imogen Sparkes (Oxford Brookes University)

Role of Reticulons on ER morphology and secretion [C1/P4.10]

C3 – Cross-Tolerance towards Environmental Stress: molecular mechanisms and ecological case studies**Session organised by Dr Lars Tomanek (California Polytechnic State University) and Prof. Hans Poertner (Alfred Wegener Institute)****Chair: Dr Lars Tomanek (California Polytechnic State University)****09:00 Dr Martin Holmstrup (University of Aarhus)**

Strategies for cold and drought tolerance in soil invertebrates: different stressors but same mechanisms [C3.1]

09:30 Dr Meldrum Robertson (Queen's University)

Preconditioning of neural function by environmental stressors: adaptive mechanisms in model systems [C3.2]

10:00 Dr George Iwama (Carleton University)

Cross-tolerance in an intertidal sculpin [C3.3]

10:30 Refreshment Break**Chair: Prof. Hans Pörtner (Alfred Wegener Institute)****11:00 Dr George Somero (Stanford University)**Thermal and Osmotic Tolerances Affect Biogeographic Patterning of Congeners of Blue Mussels (genus *Mytilus*) [C3.4]**11:30 Dr Inna Sokolova (University of North Carolina at Charlotte)**Surviving global change in polluted environments: physiological and molecular mechanisms of cadmium and temperature interactions in a marine ectotherm *Crassostrea virginica* [C3.5]**12:00 Prof. Hans Pörtner (Alfred Wegener Institute, Bremerhaven, Germany)**

Synergistic interactions of environmental stressors: dilemma or benefit? [C3.6]

12:30 Lunch Break**Chair: Dr Lars Tomanek (California Polytechnic State University)****14:00 Dr Lars Tomanek (California Polytechnic State University)**The proteome response to temperature and salinity stress in Blue Mussel (genus *Mytilus*) Congeners [C3.7]

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- 14:30** **Dr Louis Burnett (College of Charleston)**
The metabolic consequences of immune defense coupled with the demands of exercise in marine crustaceans [C3.8]
- 15:00** **Dr Peter A. Fields (Franklin and Marshall College)**
Changes in the concentrations of counteracting osmolytes in response to environmental stress [C3.9]
- 15:30** **Refreshment Break**
- Chair:** **Prof Hans Pörtner (Alfred Wegener Institute)**
- 16:00** **Dr Karen Burnett (College of Charleston)**
Resilience and sensitivity to environmental stress in the American Oyster, *Crassostrea virginica* [C3.10]
- 16:30** **Prof. Andrew Cossins (University of Liverpool)**
Ecotoxicological analysis using transcriptomic screening technology [C3.11]

E1 Careers workshop – Skills, job seeking and CVs

Lunchtime Workshop –12:00–14:00 (lunch will be available)

Open to postgraduate students and postdoctorals, we will examine the skills developed during your research including management, communication and enterprise. We will also see how these can be translated into an effective CV fit for applying for positions in academia, industry and other organisations (research and non-research).

P1 – Ubiquitination

Sponsored by Agrisera

Organised by Dr Ari Sadanandom (University of Glasgow)

- 10:00** **Refreshment Break**
- Chair:** **Dr Ari Sadanandom**
- 10:30** **Prof. Richard Vierstra (University of Wisconsin)**
The role of the ubiquitin proteasome system in plant cellular signalling [P1.1]
- 11:10** **Dr Pascal Genschik (Institut de Biologie Moléculaire des Plantes du CNRS – Strasbourg)**
Regulation and role of *Arabidopsis* CUL4-DDB1A-DDB2 in maintaining genome integrity upon UV stress [P1.2]
- 11:35** **Dr Paul R J Birch (University of Dundee)**
Translocated oomycete effectors that target the plant immune system [P1.3]
- 12:00** **Lunch**
- Chair:** **Professor Daphne Goring**
- 13:30** **Dr Stefan Kepinski (University of Leeds)**
Auxin signalling – complex behaviour from a simple molecule [P1.4]
- 13:55** **Prof. Andreas Bachmair (Max Planck Institute for Plant Breeding Research/University of Vienna)**
Ubiquitin Lysine 63 chain formation in plants [P1.5]
- 14:20** **Prof. Angus Murphy (Purdue University)**
The *Arabidopsis* X-prolyl protease/*cis-trans* isomerase APP1 regulates auxin signal transduction via interactions with AUX/IAA proteins [P1.6]
- 14:45** **Refreshment Break**
- Chair:** **Dr Stefan Kepinski**
- 15:15** **Prof. Daphne Goring (University of Toronto)**
The Plant U-box/ARM E3 ligases as potential intracellular signalling proteins for the S-domain receptor kinases [P1.7]
- 15:40** **Dr Sandrine Bonhomme (Institut Jean-Pierre Bourgin)**
Role of the UPS pathway in sexual reproduction: screening for *Arabidopsis* gametophytic mutations affecting F-box protein genes [P1.8]
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16:05 **Mr Jean-Luc Gallois (INRA Avignon)**
The *Arabidopsis* proteasome RPT5 subunits are essential for gametophyte development [P1.9]

16:30 **Dr. Ari Sadanandom (University of Glasgow)**
The cell death regulator AtPUB17 directly interacts with the BTB/POZ domain transcriptional repressor, AtBTB1 to control disease resistance in plants [P1.10]

P2 – Green Products (Bioenergy and Pharmaceuticals)

Session organised by Prof Mike Fowler, Prof Mike Burrell (Sheffield University) and Prof Gail Taylor (University of Southampton)
Session 1 – Bioenergy

09:30 **Prof. Gail Taylor (Southampton University)**
Poplar and willow-sustainable second generation biofuel crops? [P2.1]

10:10 **Dr G Richter (Rothamsted Research)**
A new type of process-based model for biomass yield from grass crops [P2.2]

10:30 **Mr Matthew J. Aylott (University of Southampton)**
Productivity of C3 bioenergy crops grown as short rotation coppice under current and future climates [P2.3]

10:50 **Refreshment Break**

11:20 **Prof. J C Brown (Aberystwyth)**
Miscanthus – a crop with a future [P2.4]

12:00 **Dr Elaine F Jensen (IGER)**
Unravelling the genetic control of flowering time in the bioenergy grass *Miscanthus* [P2.5]

12:20 **Dr Kerrie Farrar (Institute of Grassland and Environmental Research)**
Manipulation of plant architecture for increased biomass in *Miscanthus* [P2.6]

12:40 **Lunch**

14:00 **Dr S McQueen-Mason (University of York)**
Towards cost competitive cellulosic ethanol: strategies for improving saccharification of the cell wall [P2.7]

14:40 **Dr J Hillier (University of Aberdeen)**
Spatial predictions of greenhouse gas emissions associated with production of *Miscanthus* and short rotation coppice in the UK [P2.8]

15:20 **Dr R Rowe (University of Southampton)**
A systematic review of life cycle assessments for bioenergy chains for heat, power and liquid transportation fuels [P2.9]

15:40 **Refreshment Break**

16:10 **TBC Creating a sustainability framework for biofuel supply [P2.24]**

16:50 **General discussion**

Monday 7 July 2008

09:00–10:00 – SEB Plenary Lecture 2 – Woolhouse Lecture

PL.2: Will be given by Professor Stephen P Long (University of Illinois)

Plants and global atmospheric change. Threats, challenges and opportunities

Steve Long graduated in Agricultural Botany from Reading in 1972, and then completed a Ph.D. in Environmental Physiology at Leeds in 1975 with Harold Woolhouse. Steve was appointed as the first plant biologist to the then new Biology Department at the University Essex, where he progressed through the ranks to full Professor in 1991 and the department developed to become a UK centre for photosynthesis research. After sabbaticals at the University of Vienna, Smithsonian Institution and Brookhaven National Lab. Steve moved to the Robert Emerson Chair at the University of Illinois in 1999.

Following Harold's example, Steve's research approach has been characterized by a continual interplay between hypotheses developed with model systems, both laboratory and mathematical, with tests of these hypotheses in the real-world field situation. Beginning with his undergraduate research, Steve has been curious about the environmental limitations to C4 photosynthesis, this has ranged from biochemistry and the sequencing of C4 photosynthetic genes to analysis of photosynthesis and productivity on the of the UK east coast and on the Amazon floodplains. His work with the C4 perennial *Miscanthus* has shown its exceptional productivity and adaptation to cool climates, and its promise as a sustainable bioenergy feedstock both in the UK and US. Starting with his Ph.D. work with Harold and Lynton Incoll at Leeds, Steve developed an interest in photosynthetic responses to rising CO₂ which has extended from theory, biochemistry and molecular biology to production in natural ecosystems and grain crops. This has included the development of Free Air CO₂ and ozone Enrichment (FACE) facilities, which provide the most realistic view of plant performance in the future atmosphere. Recently this research at Illinois and in collaboration with colleagues at ETH Zurich and Tokyo University has shown that the expected benefit of rising CO₂ to crop yields may be much smaller than previously expected and cannot offset the negative effects of global change. Together with Chris Somerville at UC Berkeley, Steve directs the Illinois portion of the UCB-LBNL-UIUC Energy Biosciences Institute; which represents the largest single Industry investment in public University research. Steve is listed by ISI as a highly cited author on Plant and Animal Biology, and as one of the 20 most cited authors on Global Change. He is Chief and Founding Editor of the journal *Global Change Biology*. Last year Steve was invited to the White House to brief the President on strategies to realize sustainable biofuels from plants.

CSS – Systems Biology

Sponsored by SETAC-UK

Session organised by Dr Claire Grierson (Bristol University), Dr Martin McAinsh (Lancaster University) and Dr Alex Webb (Cambridge University)

Keynote

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| 10:30 | Prof. Bela Novak (OCISB, University of Oxford)
Systems biology of the eukaryotic cell cycle [CSS.1] |
| 11:30 | Dr Richard Handy (University of Plymouth)
Systems toxicology: can we use the systems biology approach to assess chemical pollutants in the environment? [CSS.2] |
| 12:10 | Miss Lucia Vergauwen (University of Antwerp)
A systems biology approach to the effects of chemical and non-chemical stressors in zebrafish [CSS.3] |
| 12:35 | Lunch |
| 14:00 | Prof. Andrew Cossins (University of Liverpool)
Dissecting the mechanisms of environmental stress adaptation: a systems biology approach [CSS.4] |
| 14:40 | Mrs An Hagenaars (University of Antwerp)
Toxicity evaluation of perfluorooctane sulfonate (PFOS) in common carp (<i>Cyprinus carpio</i>): a systems biology approach [CSS.5] |
| 15:05 | Refreshment Break |
| 15:45 | Miss Adélaïde Lerebours (IRSN)
Comparative analysis of gene expression in brain, liver, skeletal muscle and gills of the zebrafish (<i>Danio rerio</i>) exposed to environmentally relevant uranium water concentrations [CSS.6] |
| 16:10 | Prof. Dennis Bray (University of Cambridge)
The chemotaxis receptor cluster revisited [CSS.7] |
| 16:50 | Finish: Session continues 9.00 Tuesday 8th July |
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Monday 7 July 2008

A1 – The Multifunctional Gut

Sponsored by the SEB Osmoregulation Group

Session organised by: **Dr Nic Bury (King's College London)**, **Dr Richard Handy (Plymouth University)**, **Dr Jean-Herve Lignot (Maître de Conférences à l'Université Louis Pasteur)** and **Dr Rod Wilson (Exeter University)****Feeding****Chair: Jean Hervé Lignot and Richard Handy**

- 10:30 Dr Chris M. Wood (McMaster University)**
In one end of the shark and out the other: events and consequences of feeding in the spiny dogfish, *Squalus acanthias* [A1.18]
- 10:55 Prof. William Karasov (Univ. Wisconsin-Madison)**
Digestive features of birds confer plastic responses to changing food intake and composition [A1.19]
- 11:20 Mr Henrik Seth (Göteborg University)**
Nutrient induced hyperemia and SDA in Rainbow Trout (*Oncorhynchus mykiss*) – importance of proteins and lipids [A1.20]
- 11:40 Mr François Reichardt (Louis Pasteur University)**
Effects of a kaolinite complementation on rat intestine during refeeding following prolonged fasting [A1.21]
- 12:00 Prof. Tobias Wang (Aarhus University)**
The cardiorespiratory response to increased metabolic rate during digestion [A1.22]

A3 – General BiomechanicsSession organised by **Peter Aerts (University of Antwerp)****Chair: Evie Vereecke**

- 10:30 Mr Anthony Channon (University of Liverpool)**
Morphological adaptations for jumping in the Gibbon hind limb [A3.22]
- 10:50 Mr Eloy Gálvez-López (University of Barcelona)**
Size and shape in the carnivore scapula [A3.23]
- 11:10 Miss Carol Ann Hercock (University of Liverpool)**
Adaptive remodelling of the distal thoracic limb bones of a canine athlete [A3.24]
- 11:30 Mrs Christine Tardieu (C.N.R.S.)**
Learning to walk modifies the whole locomotor skeleton: bipedalism and impact of gravity on humans [A3.25]
- 11:50 Mr Thibaud Souter (UMR 7179 / UMR 5143 CNRS-MNHN)**
Re-interpreting avian hip-joint mechanics: experimental validation of 3D structuro-functional model of a complex joint [A3.26]
- 12:10 Dr Tiana Kohlsdorf (University of São Paulo)**
Biomechanics in Tropidurinae lizards: relationships between locomotion and morpho-physiology [A3.27]
- 12:30 Lunch**
- Chair: Johan Van Leeuwen**
- 13:20 Mr Mark Bowtell (Royal Veterinary College)**
Effects of varying mass and inertia on maximum attainable running speed [A3.28]
- 13:40 Miss Patricia de Cocq (Wageningen University)**
Horse–rider interaction: a simple model for different riding techniques at trot. [A3.29]
- 14:00 Ms Monique Haazelager (Experimental Zoology Group)**
Equine aquatraining, the effect of water level on impact forces [A3.30]
- 14:20 Mr Dominic Farris (University of Bath)**
The effects of orthotic heel lifts on achilles tendon force and strain during running [A3.31]
- 14:40 Dr John Hutchinson (The Royal Veterinary College)**
Locomotor biomechanics of Asian elephants: Part II [A3.32]
- 15:00 Refreshment Break**
- 15:20 Dr Carlos Moreno (Harvard University)**
Mechanics and kinematics of 90 degree turns in goats [A3.33]

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- 15:40** **Dr Huiling Tan (Royal Veterinary College, University of London)**
Acceleration and turning performance of polo horses under field conditions [A3.34]
- 16:00** **Ms Femke van Beek (Wageningen University)**
Stirrup force measurements during equine locomotion [A3.35]
- 16:20** **Dr Sarah Williams (University of Liverpool)**
The mechanics of acceleration and deceleration in a habitual prey animal, the European Hare [A3.36]
- 16:40** **Mr Edwin Yoo (Harvard University)**
Fore and hind limb dynamics during climbing jumps in goats (*Capra hircus*) [A3.37]

A5 – General Animal Biology

Session organised by: **Dr David McKenzie (CNRS, Montpellier)** and **Dr Richard Handy (University of Plymouth)**

- Chair:** **Dr Gudrun de Boeck**
- 10:30** **Dr Jasmine Sharp (Bangor University)**
Identification and expression of mRNAs encoding bursicon in the central nervous system of decapod crustaceans [A5.17]
- 10:50** **Dr Torah Kachur (University of Alberta)**
Regulation of germ cell formation in the nematode, *C. elegans* [A5.18]
- 11:10** **Dr Renate Kopp (University of Innsbruck)**
The snowball effect of an amino acid exchange in zebrafish *breakdance* mutants [A5.19]
- 11:30** **Miss Anne Bado-Nilles (CEDRE/LIENSs UMR 6250 CNRS, France)**
Effects of light cycle oils on immune parameters and on the expression of related genes in the European sea bass, *Dicentrarchus labrax* [A5.20]
- 11:50** **Mr Chris Pook (Exeter University)**
The metabolic and fitness costs of resistance to copper and zinc toxicity in *Nereis diversicolor* [A5.21]
- 12:10** **Mr Jefferson Murua (University of Exeter)**
Social interactions between mature and immature parr of Atlantic salmon (*Salmo salar*) coexisting in artificial stream tanks [A5.22]
- 12:30** **Lunch**
- Chair:** **Dr Richard Handy**
- 13:30** **Miss Agnieszka K. Dymowska (University of Oslo)**
Localization of ionocytes in crucian carp (*Carassius carassius*) gills during hypoxic remodelling [A5.23]
- 13:50** **Roselyne Labbe**
Expression of the Multidrug Resistance Associated Proteins trnMRP 1 and 4 in the Malpighian tubules of *Trichoplusia ni* (Lepidoptera) [A5.66]
- 14:10** **Dr Greg Goss (University of Alberta)**
Theoretical considerations underlying Na⁺ uptake mechanisms in freshwater fishes [A5.25]
- 14:30** **Dr Nicolas Bury (King's College London)**
What is the active corticosteroid in primitive agathan vertebrates? The effects of corticosteroids on gluconeogenesis and magnesium regulation in the Pacific hagfish (*Eptatretus stouti*) [A5.26]
- 14:50** **Mr Michael Greenwood (The University of Manchester)**
Calcium regulation in the European flounder, *Platichthys flesus* [A5.27]
- 15:10** **Refreshment Break**
- 15:40** **Mrs Sue Ebanks (University of Miami)**
Building a house when supplies are minimal: Ca²⁺ and HCO₃⁻ acquisition in freshwater by embryos of the common pond snail *Lymnaea stagnalis* [A5.28]
- 16:00** **Dr Rebecca Cramp (The University of Queensland)**
The effects of saltwater acclimation on Na-K-2Cl and Na-K-ATPase distribution, activity and gene expression in salt glands of the Estuarine Crocodile [A5.29]
- 16:20** **Dr M. Danielle McDonald (RSMAS, University of Miami)**
Happy fish? The implications of antidepressant treatment and exposure on toadfish urea excretion. [A5.30]
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16:40 **Dr Chris Wood (McMaster University)**
In vitro evidence for the involvement of Rh proteins and H⁺ efflux in ammonia excretion across the gills of the freshwater rainbow trout [A5.31]

17:00 **End of session**

C1/P4 – Cell Biology of Plant Development

Sponsored by the SEB Cytoskeleton Group

Session organised by: Prof Patrick J. Hussey and Prof. Keith Lindsey (Durham University)

Keynote

10:30 **Prof. Jim Murray (University of Cambridge)**
 Integrating cell division and plant development [C1/P4.11]

Session 3 – Cell Cycle

Chair: **Prof. Keith Lindsey**

11:30 **Dr John Doonan (John Innes Centre)**
 Cyclin dependent protein kinase substrates: insights into growth control by cell cycle regulators [C1/P4.12]

12:00 **Prof. Andrew Fleming (University of Sheffield)**
 Leaf morphogenesis: a combined computational and molecular analysis [C1/P4.13]

12:30 **Dr Peter Doerner (University of Edinburgh)**
 Genotoxic stress response networks at the nexus of plant growth control, life history traits and macroevolution [C1/P4.14]

13:00 **Lunch**

14:15 **Visit Posters**

C5 – Climate Change: from genes to ecosystem (and general thermal biology)

Session organised by Prof. Craig Franklin (The University of Queensland) and Prof. Hans Poertner (Alfred Wegener Institute)

Chair: **Prof. Craig Franklin (The University of Queensland)**

10:30 **Prof. Craig Franklin (The University of Queensland)**
 Climate change and conservation physiology [C5.1]

10:40 **Dr Brian Helmuth (University of South Carolina)**
 Ecological forecasting and hindcasting in the rocky intertidal zone: where and when do we worry about weather? [C5.2]

11:10 **Prof. Anthony Farrell (University of British Columbia)**
 Salmonids in hot water: examining aerobic scope and cardiac limitations [C5.3]

11:30 **Prof. Lloyd Peck (British Antarctic Survey)**
 When the going gets hot! [C5.4]

11:45 **Dr Melody Clark (British Antarctic Survey)**
 Is there an emergency first aid kit for warm Antarctic marine animals? [C5.5]

12:00 **Dr Jonathon Stillman (San Francisco State University)**
 Variation in transcriptome responses to thermal stress in porcelain crabs across latitudinal and seasonal gradients [C5.6]

12:30 **Lunch**

Chair: **Prof. Tony Farrell (University of British Columbia)**

13:30 **Miss Cheryl Logan (Stanford University)**
 Transcriptional remodeling during temperature acclimation of the eurythermal goby fish *Gillichthys mirabilis* [C5.7]

13:45 **Miss Hanna Hanssen (University of Antwerp, Belgium)**
 Climate change induced temperature effects: a physiological kinetic model for the incorporation of calcium and strontium in the bivalve *Mytilus edulis* [C5.8]

14:00 **Dr Daniela Storch (Alfred Wegener Institut)**
 Temperature tolerance of Zoea I from two different populations of the kelp crab *Taliepus dentatus* [C5.9]

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- 14:15** **Ms Erika Eliason (University of British Columbia)**
Oxygen limitations at warm temperatures in migrating salmon [C5.10]
- 14:30** **Mr Keith Chan (University of British Columbia)**
Modeling of thermal and hydraulic barriers that marginalize Pacific salmon spawning migrations [C5.11]
- 14:45** **Miss Chloe Cadby (University of Tasmania)**
Can viviparous reptiles adapt to a sudden change in climate? Looking at the adaptive nature of maternal basking behaviour in a Tasmanian skink. [C5.12]
- 15:00** **Dr Sam Dupont (The Sven Lovén Centre for Marine Sciences – Kristineberg)**
CO₂-driven acidification radically affects larval survival and development in marine organisms [C5.13]
- 15:15** **Refreshment Break**
- Chair:** **Prof. Hans Poertner (Alfred Wegener Institute)**
- 15:45** **Dr Frank Seebacher (University of Sydney)**
Detecting environmental change: transient receptor potential ion channels control thermoregulatory behaviour in reptiles [C5.14]
- 16:00** **Dr Felix Mark (Cambridge University / Alfred Wegener Institute)**
Thermal effects on cephalopod energy metabolism – a case study for *Sepia officinalis* [C5.15]
- 16:15** **Miss Isabel Walter (University of Sydney)**
Molecular mechanism which underlie the development of endothermy in birds (*Gallus gallus*) [C5.16]
- 16:30** **Ms Elsa Glanville (University of Sydney)**
Seasonal acclimatization of body temperature and metabolic capacities in an Australian rat (*Rattus fuscipes assimilis*) [C5.17]
- 16:45** **Mr Johannes Overgaard (University of Aarhus) SEB ANIMAL SECTION PRESIDENT'S MEDALLIST 2008**
Costs and benefits of cold acclimation in field released *Drosophila* – associating laboratory and field results [C5.18]

P2 – Green Products (Bioenergy and Pharmaceuticals)

Session organised by: Prof. Mike Fowler, Prof. Mike Burrell (University of Sheffield) and Prof. Gail Taylor (University of Southampton)
Sponsored by The Plant Journal

Additional support from the SEB Plant Transport and Cell Signalling Groups

Session 2 – Pharmaceuticals from Plants

- Chair:** **Prof. Mike Burrell**
- 10:30** **Prof. Vincenzo De Luca (Brock University) sponsored by The Plant Journal**
The *Catharanthus roseus* leaf epidermome to model alkaloid biosynthesis and cellular specialization in plants [P2.10]
- 11:10** **Mr Debbache Nadjat (University of Bejaia Algéria)**
Antioxidant activity of extracts of three Algerian medicinal plants: *Clematis flammula*, *Populus nigra* and *Ulmus campestris* [P2.11]
- 11:25** **Prof. Marcel Jaspars (University of Aberdeen)**
Marine metabolites as pharmacophores and biomedical research tools [P2.12]
- 12:05** **Lunch**
- Chair:** **Prof. Mike Fowler**
- 13:15** **Prof. Elizabeth Williamson (University of Reading)**
More than just green: synergies and interactions between the components of herbal medicines [P2.13]
- 13:55** **Miss Melinda Chua (University of Wolverhampton)**
The analysis and composition of glucomannans from corms of the Chinese medicinal herb *Amorphophallus konjac* [P2.14]
- 14:15** **Dr A Ganesan (University of Southampton)**
The rocky road from natural product to biomedical research tools [P2.15]
- 14:55** **Tea**
- 15:25** **Prof. Julian K-C Ma (University of London)**
Recombinant medicines – recent progress and future prospects [P2.16]
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- 16:05 Prof. Zivko Nikolov (Texas A&M University)**
Transgenic plants: commercial opportunities and challenges for pharmaceutical and industrial products [P2.17]
- 16:25 Dr Martin Schumacher (DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH)**
Biotechnological approaches to conserve the potential of medicinal plants. [P2.18]
- 17:05 End of session**

Monday Poster Sessions

A1 – The Multifunctional Gut

Mr Elliott Sucré (Université Montpellier 2, France)

Early development of the digestive tract (including pharynx) in the European sea bass, *Dicentrarchus labrax*, embryos and prelarvae [A1.23]

Mr Henrik Seth (Göteborg University)

A comparative study of the effects of feeding and gastric distension on the cardiovascular system in Shorthorn Sculpin (*Myoxocephalus scorpius*) [A1.24]

Mr Arkadios Dimitroglou (University of Plymouth)

The effect of dietary mannan oligosaccharides on the intestinal histology of rainbow trout (*Oncorhynchus mykiss*) [A1.25]

A2 – Integrating the Mechanics and Energetics of Locomotion

Miss Penny Hudson (Royal Veterinary College)

Built for speed? Anatomy of the cheetah (*Acinonyx jubatus*) and the greyhound (*Canis familiaris*) [A2.24]

Ms Nicole Danos (Harvard University)

Locomotor plasticity of larval zebrafish in high viscosity environments [A2.25]

Miss Marion Kauffmann (University of Leeds)

The effects of wing loading on take-off performance in greenfinches and yellowhammers [A2.26]

Dr Robert Holbrook (University of Oxford)

A comparative analysis of the normal swimming performance of two subcarangiforms, blind Mexican cave fish (*Astyanax fasciatus*) and goldfish (*Carassius auratus*) [A2.27]

Ms Jennifer Kendall (Wellesley College)

Comparing the economy of different teleost swimming styles [A2.28]

Miss Jitka Zelová (University of South Bohemia)

Cost of digging is not determined by different soil quality in two subterranean rodents [A2.29]

Dr Federico Formenti (University of Oxford)

Speeding up skating, from the Bronze Age to modern times [A2.30]

Dr Sarah Williams (University of Liverpool)

What Limits Acceleration? [A2.31]

Dr Rob James (Coventry University)

Are there differences in the effects of temperature on muscle performance between toads of the same species (*Bufo granulosus*) living in semi-arid and forest environments? [A2.32]

Mr Keith Chan (University of British Columbia)

Finlets and the steady swimming performance of Yellowfin Tuna (*Thunnus albacares*) [A2.33]

Dr Lewis Halsey (Roehampton University)

Recording detailed raptor behaviour on the wing: the application of accelerometry [A2.34]

Mr Jason Li (University of British Columbia)

Comparison of the prolonged swimming performances of closely related, morphologically distinct Three-spined Sticklebacks (*Gasterosteus* Spp.) [A2.35]

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Miss Charlotte Morris (University of Leeds)

Modulation of pectoralis muscle power output with flight speed in the cockatiel (*Nymphicus hollandicus*) [A2.36]

A5 – General Animal Biology

Mr N'Golo Ouattara (Université Montpellier 2)

Changes in gill ionocyte function and structure following transfer from fresh to hypersaline waters in the tilapia *Sarotherodon melanotheron* [A5.24]

Mr Sofia Garcia-Santos (Universidade de Trás-os-Montes e Alto Douro)

Metabolic and osmoregulatory alterations and cell proliferation in gilthead sea bream (*Sparus aurata*) exposed to cadmium [A5.32]

Ms Mary Ryan (Memorial University)

Taking a chance; factors affecting between-patch movements of juvenile Atlantic cod, *Gadus morhua* [A5.33]

Mr Thomas Milinkovitch (University of La Rochelle)

A new experimental system to study toxicological effects of dispersants and dispersed oil on fish juvenile species [A5.34]

Miss Odete Marinho Gonçalves (CIMAR/CIIMAR)

Gastric proton pump expression in teleost fishes: nongastric sites of expression in gastric versus agastric fishes. [A5.35]

Miss Inês Páscoa (CIMAR/CIIMAR)

Ammonia tolerance in the zebrafish (*Danio rerio*): effects of ionic strength and ontogeny [A5.36]

Dr Ana Filipa Gonçalves (Centro Interdisciplinar de Investigação Marinha e Ambiental)

There is a cellular stress in response to hydrostatic pressure (3 MPa) acclimation in the shallow water teleost *Oncorhynchus mykiss* [A5.37]

Miss Melissa Wetter (Aarhus University)

Osmoregulation and acid-base regulation of the Asian Horseshoe crab *Carcinoscorpius rotundicauda* [A5.38]

Prof. Tobias Wang (Aarhus University)

Blood flows and pressures when the giraffe lowers its head [A5.39]

Miss Elena Foditsch (University of Salzburg)

SuperSlow or hypertrophy resistance training: do they affect skeletal muscle mass and strength differently? [A5.40]

Mrs Svetlana Kalujnaia (University of St Andrews)

Identification of differential gene expression in the European eel (*Anguilla anguilla*) following “silvering” [A5.41]

Miss Agata Gackowska (Newcastle University)

Biology of leptin in the axolotl: a case study in the evolution of gene function [A5.42]

Mr Philipp Krupczynski (University of Erlangen-Nuremberg, Department of Biology)

Diversity of fin-activation patterns in the longsnout seahorse, *Hippocampus reidi* [A5.43]

Miss Charlotte Bodinier (Université Montpellier 2, France)

Influence of salinity on the localization and expression of CFTR chloride channel in the ionocytes of the European sea bass *Dicentrarchus labrax* during ontogeny [A5.44]

Mr Edward Mager (University of Miami, RSMAS)

Phenotypic anchoring transcriptional responses of the Fathead Minnow (*Pimephales promelas*) during chronic Pb exposures and influence of ambient water chemistry [A5.45]

Mr Luc Djogbénou (IRD/CREC/Bénin)

Evidence of introgression of the ace-1^R mutation in West African *Anopheles gambiae* s. s. [A5.46]

Mr Halley Caixeta de Oliveira (UNICAMP)

Superoxide-dependent nitric oxide degradation by mitochondria isolated from rat liver [A5.47]

Dr Daniel Warren (University of California, San Francisco)

Neuronal apoptosis and degeneration during forced submergence in Painted Turtles at 20 °C [A5.48]

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Mr Rasmus Ern (Aarhus University)The effect of salinity on resting metabolism in Eurasian perch (*Perca fluviatilis* L.) [A5.49]**Mrs Aurelie Dupont-Prinet (ISEM)**Biochemical and genetic aspects linked to osmoregulation and swimming capacities in brook charr (*Salvelinus fontinalis*) [A5.50]**Mr Daoud Ali (University of Lucknow)**Chlorpyrifos-mediated biochemical changes in the freshwater fish *Channa punctatus* (Bloch) [A5.51]**Miss Marion Spée (CNRS)**

Triggering of the refeeding signal in Adélie penguins: corticosterone and prolactin? [A5.52]

Dr Shaun Killen (Institut des Sciences de l'Evolution de Montpellier, Station Méditerranéenne de l'Environnement Littoral, Université Montpellier 2, Sète, 34200, France)

Ecological factors contributing to variation in the scaling of metabolic rate with body mass in fishes [A5.53]

Dr Chris Cooper (University of Exeter)

Acid-base and osmoregulatory adaptations by the fish gill and gut at hypersalinity: an immunohistochemical approach [A5.54]

Dr Melody Clark (British Antarctic Survey)

The life and times of krill [A5.55]

Ms Cathrine Fagernes (University of Oslo)Molecular background to ethanol production in crucian carp (*Carassius carassius*) [A5.56]**Dr Reza Talaei-Hassanloui (University of Tehran)**A New Cage System for the Bioassay of Entomopathogenic Fungi on *Thrips tabaci* (Thysanoptera: Thripidae) [A5.57]**Mr Gholam Ali Jafari (University of Oxford)**

unc-4 and dve-1 regulate expression of the mab-9 T-box gene [A5.58]

Miss Zahra Khoshnood (TMU)Effects of cortisol on gill chloride cells of Persian Sturgeon, *Acipenser persicus*, fry [A5.59]**Miss Saeide Mosafer (TMU)**Structure, ultrastructure and Immunolocalization of Na⁺, K⁺-ATPase and Na⁺, K⁺, 2Cl⁻ Co-transporter in compound eyes of European Lobster, *Homa* [A5.60]**Dr Saber Khodabandeh (Tarbiat Modares University)***Liza aurata*: Following different salinity acclimation [A5.61]**Mr Mohsen Shahreyari Moghaddam (University of Zabol)**Effects of different salinities on ultrastructure of chloride cells in juveniles of the Golden Grey Mullet, *Liza aurata* (Risso, 1810) (Teleostei: Mugiliformes) [A5.62]**Miss Ensiyeh Ghanizadeh Kazerouni (Tarbiat Modares University and Member of Young Researchers Club- Iran)**Skin histology and mortality rate of *Salmo trutta caspius* newly hatched larvae: exposed to UV-B irradiation [A5.63]**Dr Alex Sukhotin (University of North Carolina at Charlotte)**

Cellular protection and aging in bivalve mollusks [A5.64]

A6 – Physiological Strategies to Optimize Oxygen Delivery**Ms Milica Mandic (University of British Columbia)**

Defending Against Hypoxia: behavioural, physiological and biochemical strategies of hypoxia survival in nearshore marine sculpins [A6.17]

Mr Matthieu Bruneaux (Station Biologique de Roscoff)Respiratory adaptations of a deep-sea hydrothermal crustacean: the case of *Segonzacia mesatlantica* [A6.18]**Ms Sjannie Lefevre (The University of Aarhus)**Critical oxygen tension and the effect of hypoxia on the oxygen consumption of the striped catfish, *Pangasius hypophthalmus* (Pangasiidae) [A6.19]**Mr Leonard Forgan (University of Canterbury, New Zealand)**

Oxygen dependent and independent metabolic rates in fish muscles [A6.20]

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Mrs Joana Moreira Silva (CIIMAR and ICBAS, UPorto)

Effect of Ammonia on weatherloach (*Misgurnus anguillicaudatus*) metabolism under aquatic and aerial conditions [A6.21]

Mr Guro Sandvik (University of Oslo)

Is the presumably oxygen-dependent enzyme ribonucleotide reductase functioning in anoxic crucian carp? [A6.22]

Miss Joana Projecto-Garcia (Station Biologique de Roscoff)

Evolution of respiratory adaptations in hydrothermal vent scales worms (Polynoidae) [A6.23]

Miss Constance de Villardi de Montlaur (Station biologique de Roscoff)

Polymorphism of extracellular haemoglobin of *Arenicola marina*: field study [A6.24]

Mr Graham Scott (University of British Columbia)

Respiratory responses to progressive hypoxia in the Amazonian Oscar, *Astronotus ocellatus* [A6.25]

Mr Scott Mirceta (The University of Liverpool)

Myoglobin in diving mammals: convergent evolution of increased histidine content [A6.26]

Mr Peter Skov (University of Copenhagen)

Suckling behaviour in a viviparous teleost: role of the post-ovulatory follicle in maternal-embryonic exchange [A6.27]

Dr Timothy Clark (Land and Food Systems, University of British Columbia, Vancouver, Canada)

Oxygen transport limitations during acute temperature change in the chinook salmon [A6.28]

Miss Nina Keriting Iversen (Aarhus University)

The effect of hypoxic bradycardia on the oxygen consumption by the European eel (*Anguilla anguilla*) [A6.29]

Miss Nina Keriting Iversen (Aarhus University)

Autonomic control of the heart in the swamp eel (*Monopterus albus*) during water-breathing, air-breathing and aestivation [A6.30]

A9 – Neurobiology Poster Session

Dr Jon Barnes (University of Glasgow)

Varying the sign and gain of optomotor feedback provides insights into mechanisms of course control in walking land crabs, *Cardisoma guanhumi* [A9.1]

C3 – Cross-Tolerance towards Environmental Stress: molecular mechanisms and ecological case studies

Mr Edward Byrne (Rothamsted Research)

The wheat GCN2 signalling pathway: does this kinase play an important role in stress signalling? [C3.12]

Dr Françoise Bernard (Shahid Beheshti University)

In vivo and *in vitro* high accumulation of cadmium in licorice (*Glycyrrhiza glabra* L.) [C3.13]

Prof. Anna-Maria Botha-Oberholster (University of Pretoria)

Protection of Photosynthesis against Solar UV Radiation by different screening compounds in the benthic blue-green algae *Hydrococcus cesatii* [C3.14]

Ms Srivaidehirani Hariharan (Ghent University)

Genome-wide analysis of transcriptional changes in response to drought stress in growing leaves of rice [C3.15]

Miss Sofia Joergensen (Aarhus University)

Cryoprotectants are metabolic fuels during long term frost exposure in the earthworm *Dendrobaena octaedra* [C3.16]

Miss N. Pshybytko (National Academy of Sciences of Belarus)

Pretreatment by high temperature increased tolerance of tomato plants to fusarium wilt [C3.17]

Dr Nia Whiteley (Bangor University)

Environmental tolerances of Gammarid amphipods: lessons from myosin heavy chain genes [C3.18]

Ms Andrea Luna-Acosta (University of La Rochelle - UMR 6250 CNRS, France)

Identification of molecular immune related biomarker in the Pacific oyster, *Crassostrea gigas* (Thunberg) [C3.19]

Mrs Anna Gogoláková (The Constantine Philosopher University)

Application of chlorophyll fluorescence to detect chelate-induced cadmium stress in *Zea mays* [C3.20]

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Dr Anna Ivanina (University of North Carolina at Charlotte)

Expression and transport activity of P-glycoprotein is affected by cadmium exposure in eastern oysters, *Crassostrea virginica* [C3.21]

Dr Ilya Kurochkin (University of North Carolina at Charlotte)

Effects of environmental anoxia and re-oxygenation on mitochondrial function and metabolism of eastern oysters (*Crassostrea virginica*) [C3.22]

C5 – Climate Change: from genes to ecosystem (and general thermal biology)**Mr Peter Štrba (The Constantine Philosopher University)**

The changes of vertical plant distribution in West Carpathians Mountains [C5.19]

Miss Veronica De Micco (Università di Napoli Federico II)

Anatomy and eco-physiology of leaves and twigs of *Cistus incanus* L.: adaptive strategies to the environmental constraints of the Mediterranean ecosystems [C5.20]

Dr Simon Morley (British Antarctic Survey)

Symmorphosis and temperature adaptation: testing the theory of oxygen limitation [C5.21]

Miss Dorte Jensen (University of Aarhus)

Effects of high and low temperatures on thermal tolerance in *Folsomia candida* (Collembola) [C5.22]

Mrs Carmen Arena (Università di Napoli Federico II)

Photosynthetic performance of *Zea mays* L. during short-term exposure to high CO₂ concentration at two different photon flux densities [C5.23]

P1 – Ubiquitination**Dr Sarah Cookson (Max Planck Institute for Molecular Plant Physiology, Golm, Germany)**

The role of BTB proteins in sugar starvation responses of *Arabidopsis* [P1.11]

P2 – Green Products (Bioenergy and Pharmaceuticals)**Dr Nils Roos (Max Rubner-Institute, Kiel & Karlsruhe, Germany)**

Extract of *Tabebuia impetiginosa* inhibits pancreatic lipase activity and decreases postprandial triglyceride levels in rats [P2.19]

Dr Mattheos Koffas (University at Buffalo)

Engineering flavonoid biosynthesis in microorganisms [P2.20]

Mr Vrushabendra Swamy Bhyrapur Mathad (Srinivasa Institute of Pharmaceutical Sciences)

Anti diarrheal activity of fruit extract of *Momordica cymbalaria* Hook. F. [P2.21]

Mr Pablo Gomes Ferreira (UNICAMP)

Nitrite-reducing activity to nitric oxide by soybean extracts enriched in aglycone flavonoids [P2.22]

Mr K.C Patrick-Iwuanyanwu (University of Port Harcourt)

Studies on Saponins of leaf of *Clerodendron thomsonae* Balfour [P2.23]

CSS – Systems Biology**Dr Hicham Gouzi (University of Abou Bekr Belkaid-Tlemcen)**

Partial purification and characterization of tyrosinase extracted from mushroom (*Agaricus bisporus*) [CSS.22]

Miss Isabelle Lardon (University of Antwerp)

Anoxia resistance in vertebrates: metabolomics of brains and heart that never stop [CSS.23]

C1/P4 – Cell Biology of Plant Development**Mr Stephen Amoah (Rothamsted Research/University of Reading)**

Understanding the relationship between DNA methylation and phenotypic plasticity in crop plants [C1/P4.25]

Dr Wieland Fricke (University College Dublin, University of Paisley)

Candidate genes involved in cuticle wax deposition along growing barley leaves [C1/P4.26]

Miss Bernadette Gehl (University of Glasgow)

Arabidopsis stomatin-like proteins affect transpiration and shoot development [C1/P4.27]

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Mrs S. Melser (CNRS UMR5200, Université Bordeaux 2)

Implication of Glucosylceramide in protein transport through the Plant Secretory Pathway [C1/P4.28]

Dr Olga Koroleva (University of Reading, John Innes Centre)

Dynamic behaviour of the eIF4AIII, putative core protein of Exon Junction Complex: fast relocation to nucleolus and splicing speckles under stress [C1/P4.29]

Bram Van Loock (University of Antwerp)

Enhancer trap plants to study *Arabidopsis* root cell elongation and its control [C1/P4.30]

Eveline Jacques (University of Antwerp)

Microtubule and F-actin behaviour during *Arabidopsis* leaf development [C1/P4.31]

Dr Volker Bischoff (INRA Versailles, France)

CESA—Complex motility and expression of cell wall relevant genes is altered in Thaxtomin A treated *Arabidopsis* seedlings [C1/P4.32]

Dr Piers Hemsley (University of Bristol)

Palmitoylation affects multiple processes in *Arabidopsis* [C1/P4.33]

 Tuesday 8 July 2008

CSS – Systems Biology

Sponsored by SETAC-UK

Session organised by Dr Claire Grierson (Bristol University), Dr Martin McAinsh (Lancaster University) and Dr Alex Webb (Cambridge University) Additional support from the SEB Plant Transport and Cell Signalling Groups

- 09:00** **Dr James Schwaber (Thomas Jefferson University)**
Systems Biology of Homeodynamics: neuronal adaptive compensation [CSS.8]
- 09:40** **Dr Jing Wang (University of Glasgow)**
New view on *Drosophila* transcriptome [CSS.9]
- 09:55** **Alberto Delgado (National University of Columbia at Bogota)**
Digital circuit emulation of gene expression [CSS.10]
- 10:10** **Miss Marleen Eyckmans (University of Antwerp)**
Differences in sensitivity to waterborne Cu in three freshwater fish: effects on oxidative stress and ionregulation [CSS.11]
- 10:25** **Refreshment Break**
- 11:00** **Dr Nick Monk (University of Nottingham)**
Modelling the mutual support of differential cell fates in the *Arabidopsis* root epidermis [CSS.12]
- 11:40** **Mr Neil Dalchau (University of Cambridge)**
Modelling and simulation of a Ca²⁺-based feedback loop in the circadian clock of *Arabidopsis* [CSS.13]
- 12:05** **Lunch**
- 14:00** **Workshop: Tools for Systems Biology**
- 17:30** **Finish: Session continues 9.00 Wednesday 9th July**

CSSW. Systems Biology Workshop: Tools for Systems Biology

Session organised by Dr Carol Wagstaff (Reading University) and Chris Trimmer (SEB)

Sponsored by BBSRC, European Science Foundation (ESF), Genetix, Corbett, Mathworks, Bio-Rad, the Centre for Plant Integrative Biology and Ingenuity Systems.

Tools for Systems Biology is a workshop embedded within the main Systems Biology session and will showcase technologies and methods for generating systems data and methods for modelling complex interacting datasets.

Speakers have been recruited from leading Systems Biology centres and associated manufacturers of software and equipment will be providing hands-on demonstrations. The workshop is aimed at helping researchers understand the range of cutting-edge techniques that are available for answering questions on a whole genome scale. The presentations span a wide range of fields in which systems analysis is providing a deeper understanding of the underlying biology.

Each talk will be presented twice and the presentation times can be found above the title of each talk. The following talks will run simultaneously at 2pm and 2.40pm. This will be followed by a break for refreshment at 3.20pm before three more simultaneous talks starting at 3.40pm and 4.20pm. All talks take place on Level 1 of Les Palais de Congres, Parc Chanot.

Tuesday 8 July 2008

Quick Reference Timetable

Time	Speaker	Title of Presentation	Location
2.00pm	Dr Alistair Middleton	Mathematical Modelling of the Aux/IAA Response to Auxin	Internet Café
2.00pm	Dr Irene Bramke	High throughput post-genomic technologies	Endoume 1
2.00pm	Dr Carlos Marcelino Rodriguez Lopez and Dr Adam Croxford	High-Resolution Melt analysis for SNP discovery, Linkage Mapping and Analysis of DNA Methylation	Endoume 2
2.40pm	Dr Alistair Middleton	Mathematical Modelling of the Aux/IAA Response to Auxin	Internet Café
2.40pm	Dr Irene Bramke	High throughput post-genomic technologies	Endoume 1
2.40pm	Dr Carlos Marcelino Rodriguez Lopez and and Dr Adam Croxford	High-Resolution Melt analysis for SNP discovery, Linkage Mapping and Analysis of DNA Methylation	Endoume 2
3.20pm	Refreshment Break		
3.40pm	Dr Catalina Guerra	Ingenuity Pathways Analysis: software for discovering and modelling pathways and networks in your systems data	Internet Café
3.40pm	Dr Max Bylesjo	Predictive modelling and integration of functional genomics data for applications in plant biology	Endoume 1
3.40pm	Dr Delphine Vincent	Hunting fungal secreted proteins down	Endoume 2
4.20pm	Dr Catalina Guerra	Ingenuity Pathways Analysis: software for discovering and modelling pathways and networks in your systems data	Internet Café
4.20pm	Dr Max Bylesjo	Predictive modelling and integration of functional genomics data for applications in plant biology	Endoume 1
4.20pm	Dr Delphine Vincent	Hunting fungal secreted proteins down	Endoume 2
5.00pm	FINISH		

CSSW.1 Mathematical modelling of the Aux/IAA response to Auxin**Dr Alistair Middleton (Centre for Plant Integrative Biology, University of Nottingham)****2pm and 2.40pm in Internet Café on Level 1**

This talk will utilize the 20-station 'Internet Café' allowing participants to manipulate example datasets provided by the speakers. This is designed to give delegates an interactive opportunity to fully understand the methodology being presented.

The hormone Auxin is implicated in regulating a diverse range of processes in developing *Arabidopsis* roots, including cell division, elongation and differentiation. Auxin functions in part by mediating the activation of the so-called Aux/IAA family of genes, comprising 29 members. We have developed a model of a single Aux/IAA gene's response to an Auxin stimulus. The model encompasses the time evolution of the following molecule concentrations: Aux/IAA protein and mRNA, ARF protein and components of the Aux/IAA ubiquitination pathway, including the interaction between SCF-TIR1 and Auxin. In this workshop we demonstrate how the model was developed using the available data and discuss the model predictions and how these can be tested in the lab.

CSSW.2 High throughput post-genomic technologies**Dr Irene Bramke (Genetix Ltd)****2pm and 2.40pm in Endoume 1 on Level 1**

The post-genomic era has yielded an explosion of techniques and technologies for large-scale, high-throughput data generation. The challenge is to identify technologies that are best suited to address a particular question thus avoiding data collection for its own sake.

This presentation will focus on tools used in the investigation of protein interactions and biomarker identity. Examples include the use of CellReporter, a novel live cell imaging and analysis system for quantitative biomarker analysis, the development and characterisation of antibodies for mammalian systems using ClonePixFL technology and the generation of protein microarrays.

CSSW.3 High-Resolution Melt analysis for SNP discovery, Linkage Mapping and Analysis of DNA Methylation**Dr Carlos Marcelino Rodriguez Lopez (University of Wales, Aberystwyth), Adam E. Croxford and Michael J. Wilkinson (University of Aberystwyth)****2pm and 2.40pm in Endoume 2 on Level 1**

High-Resolution Melt analysis (HRM) is a closed-tube method of genotyping that does not require use of fluorescent probes, fragment fractionation or amplicon sequence information. Recent advancements in florescent-detection instruments (such as the Corbett Rotor-Gene 6000) and the use of fully saturating intercalating dyes have made HRM analysis considerably more sensitive. The flexibility of the system allows it to be adapted for a wide range of uses including SNP genotyping, mutation detection, screening for loss of heterozygosity, DNA fingerprinting, characterization of haplotype blocks, species classification, somatically acquired mutations studies, linkage and physical mapping, and DNA methylation analysis. Here, we describe the first use of high-resolution melt analysis to generate STS markers based on Single Nucleotide Polymorphisms (SNPs) and microsatellite length polymorphisms for use in linkage mapping, using white lupin (*Lupinus albus*, $x=25$) as a case study. The described strategy is rapid and low-cost, and circumvents the need for labeled primers or amplicon fractionation. We also illustrate the use of HRM analysis for the detection and/or quantification of the presence of, and relative abundance of, methylated nucleic acid bases within the double-stranded molecule without any prior chemical modification of the target DNA.

3.20pm Refreshment Break

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CSSW.4 Predictive modelling and integration of functional genomics data for applications in plant biology**Dr Max Bylesjo (Umeå University)****3.40pm and 4.20pm in Endoume 1 on Level 1**

Tree biotechnology will soon reach a mature state where it will influence the overall supply of fiber and wood products. Through technological advancements, it may be possible to introduce trees that are optimized for faster growth or more efficient wood formation to grow more wood in managed plantation forests. To study and ultimately understand the underlying regulatory mechanisms of e.g. wood formation in trees, parallel profiling of molecular events are frequently utilized in functional genomics contexts. In practice, this implies that massive amounts of data are being generated from biological samples, e.g. the simultaneous measurement of tens of thousands of transcripts, proteins and metabolites at a current state or over time. This is not only creating logistical problems but also makes data integration and data mining one of the main challenges in post-genomics functional genomics studies. This presentation covers the integration of omics data sets using a predictive modeling approach. Based on the bidirectional, multivariate O₂PLS method, it is possible to separate sources of variation that are overlapping across multiple analytical platforms as well as systematic sources of variation that are unique to each platform. This property can be highly beneficial for the biological interpretation of the results. Characteristics of the method as well as a conceptual comparison to related methods will be discussed. The main focus will be on the utility of the approach for studying simultaneous regulatory events in plant biology, exemplified by a study to reveal potential targets for optimization of the lignin biosynthesis.

CSSW.5 Hunting fungal secreted proteins down

Dr Delphine Vincent, Christophe Plomion (UMR1202 INRA BIOGECO), Marie-Hélène Balesdent, Françoise Blaise, Thierry Rouxel (UR256 INRA PMDV-Bioger), Julien Gibon, Francis Martin (UMR1136 INRA-UHP Interactions Arbres/Micro-Organismes), Stéphane Claverol, Marc Bonneau (Plate-forme Protéomique, Université Bordeaux 2), Marc-Henri Lebrun (UMR 2847 CNRS Bayercropscience)

3.40pm and 4.20pm in Endoume 2 on Level 1

Fungus-plant interaction is widely spread in most environments. The majority of tree species develop symbiotic relationships with fungi to enhance nutrient absorption. Many crop diseases originate from fungus attacks, which cause massive yield losses. Little is known about the molecular associations between fungi and the plant species they interact with, whether pathogenically or symbiotically. It is postulated that secreted proteins would play a key role in the interaction between an organism and its host. Secretomics, the study of all the gene products secreted from the cell, possibly into the environment, is an emerging field, involving a variety of techniques. In this study, we present the first secretomes of the rapeseed pathogen *Leptosphaeria maculans* and the tree symbiont *Laccaria bicolor*, using gel-based approaches combined to MS analyses. Initial tests were performed on fungi *in vitro* grown in specific liquid growth media, with or without plant extracts. Several protein extraction methods were tested in combination to various protein separation techniques. Improved 2-D gel resolution was achieved through an initial separation step of the secreted proteins contained in growth medium using liquid IEF (Rotofor Cell, Bio-Rad) followed by classic IPG-IEF/SDS-PAGE. Because of the variation in the secretion rate of each species, 1-D and 2-D patterns differed greatly from one fungus to another, highlighting changes due to growth media as well. MS results on both fungi, whose genome sequencing projects were recently completed, showed that most of the secreted proteins bore unknown functions while the cell localization of known proteins was ill-predicted.

CSSW.6 Ingenuity Pathways Analysis: software for discovering and modelling pathways and networks in your systems data**Dr Catalina Guerra****3.40pm and 4.20pm in the Internet Café on Level 1**

IPA is an all-in-one software application that enables researchers to model, analyze, and understand the complex biological and chemical systems at the core of life science research. IPA has been broadly adopted by the life sciences research community and cited in hundreds of peer-reviewed journal articles.

YSAS – Young Scientist Award Session**Sponsored by Elsevier****Organised by the SEB**

- 14:15** **Rebecca Atkinson (University of Sheffield)**
Grow Fast-Die Young: exploring the growth-survival trade-off in plants [YSAS.1]
- 14:45** **Jodie Rummer (University of British Columbia)**
Beyond buoyancy and vision: the potential for the root effect to deliver oxygen to tissues other than the swim bladder and eye [YSAS.2]
- 15:15** **Graham Scott (University of British Columbia)**
Matching O₂ supply and demand in the high flying bar-headed goose [YSAS.3]
- 15:45** **Hiroto Tanaka (University of Tokyo)**
Deformation and aerodynamic performance of a flapping artificial butterfly wing in free flight [YSAS.4]
- 16:15** **Isabel Walter (University of Sydney)**
Molecular mechanism which underlie the development of endothermy in birds (*Gallus gallus*) [YSAS.5]

Tuesday 8 July 2008

A2 – Integrating the Mechanics and Energetics of Locomotion

Sponsored by the SEB Biomechanics Group

Session organised by Dr Richard L. Marsh (Northeastern University)

- Chair:** Dr David Ellerby (Wellesley College)
- 08:55** Introduction: Dr Richard L. Marsh (Northeastern University)
- 09:10** Dr Graham Askew (University of Leeds)
Linking the mechanics and energetics of avian flight [A2.1]
- 09:40** Dr Kenneth C. Welch (University of California at Riverside)
Generation of muscle power during hovering flight in hummingbirds: a comparison of aerodynamic models with measurements of metabolic input and mechanical power output [A2.2]
- 10:10** Mr Per Henningsson (University of Lund)
Vortex wake and flight kinematics of a swift in cruising flight in a wind tunnel [A2.3]
- 10:30** Coffee/Tea Break
- 10:50** Dr Jane Wang (Cornell University)
Insect flight: aerodynamics, energetics, and evolution [A2.4]
- 11:20** Dr David Ellerby (Wellesley College)
Integrating metabolic cost and muscle mechanical performance in swimming fish [A2.5]
- 11:50** Dr Douglas Warrick (Oregon State University)
The near-field flow generated by hummingbird wings [A2.6]
- 12:10** Lunch
- Chair:** Dr Graham Askew (University of Leeds)
- 13:10** Prof. Frank Fish (West Chester University)
Vortex mechanics associated with propulsion and control in whales and dolphins [A2.7]
- 13:40** Miss Paola Zamparo (University of Verona, Italy)
Froude efficiency in human swimming [A2.8]
- 14:10** Mr Florian Muijres (Lund University)
Leading edge Vortices Lift in Bat Flight [A2.9]
- 14:40** Miss Natalie Holt (University of Leeds)
The effects of length trajectory on the efficiency of mouse skeletal muscle [A2.10]
- 15:00** Refreshment Break

A3 – General Biomechanics

Session organised by Peter Aerts (University of Antwerp)

- Chair:** Rob James
- 15:20** Mr Stéphane Montuelle (Muséum National d'Histoire Naturelle)
Integration of trophic system and locomotor apparatus during predatory behaviour in *Tupinambis merianae*
- 15:40** Dr Sam Van Wassenbergh (Universiteit Antwerpen)
Dynamics of suction feeding in fish: insights from unsteady, rotationally symmetric CFD models [A3.39]
- 16:00** Dr Alexis Wiktorowicz Conroy (The Royal Veterinary College)
How to swim the Pufferfish way: a biomechanical and CFD analysis [A3.40]
- 16:20** Mr Nils Owsianowski (Bionics-Innovation-Center, University of Applied Sciences, Bremen, Germany)
Drag reduction in schooling fish? – a CFD approach [A3.41]
- 16:40** Mr Jason Li (University of British Columbia)
Swimming in four goldfish (*Carassius auratus*) morphotypes: understanding functional design and performance through artificial selection [A3.42]
- 17:00** Dr Yoshinobu Inada (Japan Aerospace Exploration Agency)
Analytical study of collective motion of organisms focusing on the link between local and global properties in a group [A3.43]
- 17:20** Mr Keith Chan (University of British Columbia)
Swimming in the upside down catfish *Synodontis nigriventris*: it matters which way is up [A3.44]
- 17:40** Dr Chris Richards (Harvard University)
Coordination of hindlimb joints to control speed in swimming frogs [A3.45]
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Tuesday 8 July 2008

A6 – Physiological Strategies to Optimize Oxygen DeliverySession organised by **Dr Colin Brauner (University of British Columbia)** and **Dr David McKenzie (CNRS Montpellier)****Chair: Dr Colin Brauner**

- 09:00 Dr Roy Weber (University of Aarhus)**
Temperature, a neglected 'allosteric effector' in hemoglobin–oxygen transport [A6.1]
- 09:20 Dr Frank B Jensen (University of Southern Denmark)**
The dual role of red blood cells in tissue oxygen delivery [A6.2]
- 09:40 Dr Pia Koldkjær (University of Liverpool)**
The importance of His a89 for the alkaline Bohr effect in bird haemoglobins [A6.3]
- 10:00 Dr Wolfgang Waser (University of Turku)**
Bridging the gap: oxygen delivery in the teleost retina [A6.4]
- 10:20 Refreshment Break**
- 10:50 Dr Michael Berenbrink (University of Liverpool)**
Oxygen delivery to the eye and swimbladder of fishes: the ups and downs of the Root effect [A6.5]
- 11:10 Dr Jodie Rummer (University of British Columbia)**
Beyond buoyancy and vision: the potential for the root effect to facilitate oxygen delivery to tissues other than the swim bladder and eye [A6.6]
- 11:30 Dr Stuart Egginton (University of Birmingham)**
Optimizing peripheral oxygen transport by means of microvascular remodelling [A6.7]

11:50 Lunch**Chair: Dr David McKenzie**

- 13:40 Dr Michael Axelsson (Göteborg University)**
Effects of feeding and temperature on gastrointestinal blood flow in the Antarctic fish *Pagothenia borchgrevinkii*; different or just another teleost? [A6.8]
- 14:00 Prof. Anthony Farrell (University of British Columbia)**
Optimizing oxygen delivery to the fish heart [A6.9]
- 14:20 Dr David McKenzie (CNRS Montpellier)**
Does autonomic regulation of heart rate optimize oxygen uptake in teleost fishes? [A6.10]
- 14:40 Prof. Edwin Taylor (Birmingham University)**
Control of cardiorespiratory interactions in fish [A6.11]
- 15:00 Prof. Tobias Wang (Aarhus University)**
Regulation of the cardiac shunt to satisfy oxygen delivery at rest and during increased metabolic rate [A6.12]
- 15:20 Refreshment Break**
- 15:40 Dr Nini Skovgaard (Indiana University School of Medicine, University of Notre Dame)**
Hypoxic pulmonary vasoconstriction in reptiles [A6.13]
- 16:00 Dr Peter Frappell (La Trobe University)**
Matching O₂ supply with demand and the influence of the environment [A6.14]
- 16:20 Prof. Goran Nilsson (University of Oslo)**
Hypoxia inducible factor (HIF) – a threat to hypoxic survival? [A6.15]
- 16:40 Dr Jeffrey Richards (University of British Columbia)**
Mechanisms and evolution of hypoxia tolerance in sculpins [A6.16]

C1/P4 – Cell Biology Plant Development

Sponsored by the SEB Cytoskeleton Group

Session organised by **Prof. Patrick J. Hussey** and **Prof. Keith Lindsey (Durham University)****Keynote**

- 09:00 Prof. Herman Höfte (Laboratoire de Biologie Cellulaire, IJPB, INRA, Versailles)**
Cell–matrix interaction in plants [C1/P4.15]

Session 5 – Cell Walls**Chair: Prof. Clive Lloyd**

- 10:00 Dr Simon Turner (University of Manchester)**
Assembly and trafficking of the cellulose synthase complex within developing xylem vessels [C1/P4.16]

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- 10:30** **Dr Piers Hemsley (University of Bristol)**
Palmitoylation affects multiple processes in *Arabidopsis* [C1/P4.17]
- 10:45** **Refreshment Break**
- 11:15** **Prof. Paul Knox (University of Leeds)**
Dissection of cell wall arabinans in relation to cell functions and plant growth [C1/P4.18]
- 11:45** **Dr Kris Vissenberg (University of Antwerp)**
Arabidopsis root cell elongation and its control - SEB CELL SECTION PRESIDENT'S MEDALLIST 2008 [C1/P4.19]
- 12:15** **Lunch**

Session 6 – Cell Signalling

- Chair:** **Prof. Herman Hofte**
- 14:00** **Prof. Malcolm Bennet (University of Nottingham)**
Lateral root emergence: a paradigm for cell signaling in plants [C1/P4.20]
- 14:45** **Prof. Keith Lindsey (Durham University)**
Signalling in the *Arabidopsis* root meristem [C1/P4.21]
- 15:15** **Refreshment Break**
- 15:45** **Prof. Veronica Franklin-Tong (University of Birmingham)**
Signalling to Programmed Cell Death in self-incompatible pollen [C1/P4.22]
- 16:15** **Prof. Julie Gray (University of Sheffield)**
Control of stomatal development [C1/P4.23]
- 16:45** **Miss Xiaoqi Feng (University of Oxford)**
Signalling and cell specification in the anther microsporangium of *Arabidopsis thaliana* [C1/P4.24]

C2 – Circadian Clocks

Organised by Dr Weiqun Lu and Prof. Hugh Piggins (University of Manchester)

- Chair:** **Hugh Piggins**
- 13:30** **Introduction**
- 13:35** **Prof. Russell Foster (University of Oxford)**
Inner retinal and extraretinal photoreceptor up-dates: isolation and characterisation of VA Opsin in *Xenopus* and the chicken [C2.1]
- 14:15** **Prof. Ralph Mistlberger (Simon Fraser University)**
Neurobiology of food-entrainable circadian rhythms in mammals [C2.2]
- 14:55** **Refreshment Break**
- Chair:** **Weiqun Lu**
- 15:30** **Prof. Achim Kramer (Charité Universitätsmedizin Berlin)**
A genome-wide RNAi screen for novel components of the mammalian circadian clock [C2.3]
- 16:10** **Professor Andrew Loudon (University of Manchester)**
The biology of the tau mutant and the role of Casein kinase 1 in circadian timing in mammals [C2.11]

E2 Science and Society – Bioenergy Debate

The session will start at **09.00** and will run for a half-day with a refreshment break at 10:30.

Bioenergy Technology – WHAT and WHO decides the way forward?

Co-chairs: **Professor John Bryant (University of Exeter, SEB, UK) and Professor Steve Yearley (Sociology of Scientific Knowledge, University of Edinburgh, UK)**

This session complements the Bioenergy session. Bioenergy technology is poised to forge ahead with large collaborative research groups tackling new ways to produce energy as heat, power and fuel. As with GM, there are wider social responsibilities attached to this technology which need to be considered by scientists as they move forward. We invite delegates to debate the issues surrounding Bioenergy technology with an expert panel, which will provide a balanced perspective from social science, civil society, politics, economics and scientific standpoints. Delegates will debate the issues with the panellists and have the opportunity to formulate their own opinions on this hot topic. The panellists are:

Tuesday 8 July 2008

E2.1

Achieving sustainable biofuels from plant feedstocks

Steve Long (University of Illinois, USA)

E2.2

Bioenergy technology – what are the implications for Society?

Suzanne de Cheveigné (L'Ecole des Hautes Etudes Sciences Sociales, CNRS, Marseille)

E2.3

Bioenergy technology – balancing energy output with environmental benefits

John Clifton-Brown, Astley Hastings, Pete Smith, Paul Stampfl, John Valentine, Mike Jones, Iain Donnison (IGER, Aberystwyth, UK)

E2.4

Economic challenges facing the biomass market

Elisabeth Le Net (Pôle Economic Energic Prospective Institut Technologie FCBA)

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CSS – Systems Biology

Sponsored by SETAC-UK

Session organised by: Dr Claire Grierson (Bristol University), Dr Martin McAinsh (Lancaster University) and Dr Alex Webb (Cambridge University)

Additional support from the SEB Plant Transport and Cell Signalling Groups

- 09:00** **Prof. Malcolm Bennett (University of Nottingham)**
Adopting an integrative systems biology approach to study root growth and development [CSS.14]
- 09:40** **Dr Alistair Middleton (University of Nottingham)**
Mathematical modelling of gibberellin signalling [CSS.15]
- 10:05** **Refreshment Break**
- 10:45** **Dr Gabriel Krouk (New York University)**
A systems approach to nitrogen regulatory networks and the *Virtual Plant* [CSS.16]
- 11:25** **Dr Alisdair Fernie (Max Planck-Institut für Molekulare Pflanzenphysiologie) SEB PLANT SECTION PRESIDENT'S MEDALLIST 2008**
Integrated genomics approaches using introgression lines of tomato [CSS.17]
- 12:05** **Dr Olga Koroleva (University of Reading, John Innes Centre)**
A systematic approach to study location and function of the Exon Junction Complex in plants [CSS.18]
- 12:30** **Lunch**
- 14:00** **Prof. Philip Maini (Mathematical Institute, Oxford University)**
Modelling aspects of solid cancer growth [CSS.19]
- 14:40** **Prof. Mike White (Liverpool University)**
Spatial and temporal information encoding by the NF- κ B system [CSS.20]
- 15:20** **Refreshment Break**
- 16:00** **Prof. Michael Levine (UC Berkeley MCB)**
To Be Confirmed [CSS.21]
- 16:40** **Session ends**

A2 – Integrating the Mechanics and Energetics of Locomotion

Sponsored by the SEB Biomechanics Group

Session organised by: Dr Richard L. Marsh (Northeastern University)

- Chair:** **Dr Richard L. Marsh (Northeastern University)**
- 08:55** **Session Opening Remarks**
- 09:00** **Dr Norman Heglund (Université Catholique de Louvain)**
Mechanics and energetics of load carrying in humans [A2.11]
- 09:30** **Dr Arthur Kuo (University of Michigan)**
Energetic trade-offs that determine optimal step length in human walking [A2.12]
- 10:00** **Dr Lewis Halsey (Roehampton University)**
Heavier king penguins do not use more energy to walk; do changes in gait compensate when body mass is greater? [A2.13]
- 10:20** **Prof. Nancy Curtin (Imperial College London)**
Energetics of isometric and working contractions and of recovery in mouse soleus muscle [A2.14]
- 10:40** **Refreshment Break**
- 11:00** **Dr Gregory Sawicki (Brown University)**
Tendon elasticity influences the mechanics, energetics and control of muscle contraction: insights from walking humans and isolated frog muscle-tendon [A2.15]
- 11:30** **Dr Alberto Minetti (University of Milan)**
Skyscraper running [A2.16]
- 12:00** **Prof. R.C. Woledge (Imperial College London)**
Lizard muscle produces work with high thermodynamic efficiency across a wide temperature range [A2.17]
- 12:20** **Dr Federico Formenti (University of Oxford)**
The origins of ice skating (an energy saving strategy?) [A2.18]
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- 12:40 Lunch**
- Chair: Dr Arthur Kuo (University of Michigan)**
- 13:40 Dr Jonas Rubenson (Stanford University)**
Revealing the mechanical determinants of limb-swing cost [A2.19]
- 14:10 Dr Brian Umberger (University of Massachusetts)**
Computer modeling of stance and swing phase costs in human walking [A2.20]
- 14:40 Mr Joakim Genin (Université Catholique de Louvain)**
Locomotor biomechanics of Asian elephants: Part I [A2.21]
- 15:00 Refreshment Break**
- 15:20 Miss Melanie Scholz (MOVE Institute, VU University Amsterdam)**
Linking mechanical energy production to metabolic energy consumption during *in vivo* stretch-shortening cycles of the human triceps surae [A2.22]
- 15:50 Dr Richard L. Marsh (Northeastern University)**
Linking the mechanics and energetics of locomotion by examining muscle energy use [A2.23]
- 16:20 Discussion**

A7 – Radical species, mitochondria and cardiac function

Sponsored by the SEB Animal Section

Session organised by: Prof. Maria Carmela Cerra and Prof. Bruno Tota (University of Calabria)

- 09:00 Prof. Fabio Di Lisa (University of Padova)**
Mitochondrial ROS formation and myocardial injury [A7.1]
- 09:30 Dr David Wink (National Cancer Institute)**
Biochemistry of NO and RNOS in ischemia and reperfusion injury [A7.2]
- 10:00 To be confirmed**
- 10:30 Prof. Barbara Casadei (John Radcliffe Hospital)**
Constitutive NO production in the myocardium: more than cGMP signalling [A7.4]
- 11:00 Refreshment Break**
- 11:30 Dr Frank B Jensen (University of Southern Denmark)**
Nitric oxide production from nitrite in fish: mechanisms and physiological implications [A7.5]
- 12:00 Prof. Bruno Tota (University of Calabria)**
Nitrite modulation of cardiac contractility in vertebrate hearts [A7.6]
- 12:30 Lunch**
- 14:00 Dr Georg Kojda (Institute of Pharmacology, University Hospital, Duesseldorf)**
Reactive oxygen species as cardiovascular mediators: lessons from transgenic mice [A7.7]
- 14:30 Dr Pasquale Pagliaro (Università di Torino)**
ROS in cardiac ischemic pre- and post-conditioning [A7.8]
- 15:00 Refreshment Break**
- 15:30 Dr Kenneth R. Olson (Indiana University School of Medicine)**
Oxygen sensing or just passing gas: hydrogen sulfide as the mediator of cardiovascular responses to hypoxia [A7.9]
- 16:00 Dr Daniele Mancardi (Università di Torino)**
Involvement of mitochondria in the protective effect of Hydrogen Sulfide against oxidative stress in cardiomyocytes [A7.10]
- 16:30 Dr Richard Handy (University of Plymouth)**
The effects of carbon monoxide and hyperbaric oxygen on the cardiovascular system [A7.11]
- 17:00 Concluding Remarks**

A11 – Insect homeostasis: a tribute to Simon Maddrell FRS

Sponsored by: Company of Biologists, European Science Foundation, the SEB Animal Section and the SEB Osmoregulation Group

Session organised by: Prof. Julian Dow and Dr Shireen-Anne Davies (University of Glasgow)

- Chair: Dr Geoffrey Coast**
- 08:30 Welcome**
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- 08:31** **Prof. Klaus Beyenbach (Cornell University)**
Mechanism and regulation of transepithelial Cl⁻ secretion in Malpighian tubules of the yellow fever mosquito [A11.1]
- 09:15** **Prof. Helmut Wiczorek (University of Osnabrueck)**
The potassium ion pump of insect epithelia: from K⁺-ATPase to H⁺-ATPase [A11.2]
- 10:00** **Refreshment Break**
- 10:20** **Dr William R. Harvey (The Whitney Laboratory, University of Florida)**
AgNHA1 and AgNHE_{VNATS}, two Chemiosmotic Na⁺/H⁺ Transporters in a Model Insect [A11.3]
- 11:05** **Dr Markus Huss (University of Osnabrueck)**
Inhibitors of ion transport ATPases: old and new players [A11.4]
- 11:35** **Dr Antonio M Gutiérrez (IVIC, Caracas)**
Fluid secretion in Rhodnius Malpighian tubules: possible role of the second Na pump [A11.5]
- 12:05** **Lunch**
- Chair:** **Prof. Julian Dow**
- 13:05** **Prof. Nathan Tublitz (University of Oregon)**
Dr. Simon Maddrell FRS: an appreciation [A11.6]
- 13:30** **Prof. Jeffrey Spring (University of Louisiana at Lafayette)**
Regulation of water transport in Malpighian tubules [A11.7]
- 14:15** **Dr Michael O Donnell (McMaster University)**
How insects cope with excess ions or toxins in the diet [A11.8]
- 15:00** **Refreshment Break**
- 15:30** **Dr Helen Skaer (University of Cambridge)**
Development of renal systems in the fly- parallels between flies, mice and men? [A11.9]
- 16:15** **Dr Steven Hou (National Cancer Institute at Frederick, National Institutes of Health)**
The adult *Drosophila* Malpighian tubules are maintained by multipotent stem cells [A11.10]
- 17:00** **Finish – Poster Session starts**

C2 – Circadian Clocks

Organised by: **Dr Weiqun Lu and Prof. Hugh Piggins (University of Manchester)**

- Chair:** **Weiqun Lu**
- 09:00** **Prof. Hugh Piggins (University of Manchester)**
Circadian oscillators in extra-SCN brain sites [C2.4]
- 09:40** **Dr Clare Guilding (The University of Manchester)**
An ensemble of novel circadian oscillators in the mouse mediobasal hypothalamus [C2.5]
- 10:00** **Miss Sara Namvar (University of Manchester)**
Are Hypothalamic Oscillators Dysfunctional with High Fat Feeding? [C2.6]
- 10:20** **Dr Alun Hughes (University of Manchester)**
Live Imaging of Altered *Period1* Driven GFP Expression in Mice Lacking the VPAC₂ Receptor [C2.25]
- 10:40** **Refreshment Break**
- Chair:** **Hugh Piggins**
- 11:00** **Dr Anthony Balmforth (University of Leeds)**
Characterisation of self-sustaining circadian oscillations of clock genes in cultured human adipocytes [C2.7]
- 11:30** **Dr Weiqun Lu (University of Manchester)**
Life with stress – a clock work [C2.8]
- 12:00** **Lunch**
- Chair:** **Weiqun Lu**
- 13:30** **Dr David Hazlerigg (University of Aberdeen)**
Circadian clocks & melatonin-dependent seasonal timing in mammals [C2.9]
- 14:10** **Prof Paul Pevet (INCI UMR 7168, CNRS and University Louis Pasteur, Strasbourg France)**
Melatonin in the multi-oscillatory circadian network [C2.10]
- 14:50** **Refreshment Break**
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- Chair:** **Hugh Piggins**
- 15:30** **Ms Fiona Scott (University of Manchester)**
Effects of Melatonin on Neuronal Activity in the Rat Suprachiasmatic Nuclei (SCN) *in vitro*. [C2.26]
- 15:50** **Dr Mino Belle (University of Manchester)**
Circadian rhythm in membrane properties of *Period1::GFP* neurons in the suprachiasmatic (SCN) nucleus of mice [C2.27]
- 16:10** **Prof. Charalambos Kyriacou (University of Leicester)**
Flies go wild: natural variation in circadian behaviour [C2.12]

C4 – Glycosylation

Session organised by: Dr Ben J. Appelmelk (Vrije Universiteit Medical Center), Dr Susan Brooks (Oxford Brookes University) and Prof. Pauline Rudd (Glycobiology Institute/Dublin-Oxford NIBRT Glycobiology Laboratory)

Sponsored by Royal Microscopical Society

- Chair:** **Prof. Pauline Rudd (Glycobiology Institute/Dublin-Oxford NIBRT Glycobiology Laboratory)**
- 14:00** **Dr Susan Brooks (Oxford Brookes University)**
Human N- and O-linked protein glycosylation – an overview [C4.1]
- 14:30** **Prof. Christelle Breton (CERMAV-CNRS)**
Structural and functional aspects of glycosyltransferases [C4.2]
- 15:00** **Refreshment Break**
- 15:30** **Mr Dieter Schouppe (Ghent University)**
Characterization of N-glycosylated receptors for the tobacco lectin in the plant cell nucleus [C4.3]
- 15:50** **Dr Louise Royle (Ludger Ltd)**
Introduction to analytical tools for glycan analysis [C4.4]
- 16:20** **Dr Susan Brooks (Oxford Brookes University)**
Glycosylation in diverse cell systems – similarities, differences and challenges [C4.5]

E3 Science Communication workshop

12:00–14:00 (over lunch – lunch available)

Registration fee: £5.00

John Bryant and Sarah Blackford (Education & Public Affairs Section, SEB)

Science is nothing without its communication. Whether it's the dissemination of your latest results at a scientific conference such as the Society for Experimental Biology or telling your friends what your research is all about, the most important factor is that the audience understands what you are saying. Scientists are well trained in presenting their work as a paper, poster or talk at a high level of subject specificity but are sometimes less able when it comes to engaging at the public level. This is an important skill which needs to be honed as it may determine whether your work reaches the wider parts of Society and even whether you secure future funding.

This workshop aims to assist you in the latter type of communication, i.e. communicating with the wider public. This could be producing a readable media release which catches the eye of a science editor and so is published in a newspaper, magazine or is aired on the radio or even TV. It could be engaging in a debate on your subject with the public, who will need to understand your argument in layman's terms if they are to be persuaded by it. Or it could simply be giving a talk to the local gardeners club or women's group.

This is a practical interactive workshop which will show you skills, tips and hints on the ways to make something of your science to the wider public by getting your communication right.

P3 – Developments in Plant Biology

Organised by: Professor Christine Raines (University of Essex)

- Chair:** **Professor Christine Raines**
- 09:00** **Dr Lee Sweetlove (University of Oxford)**
Getting to grips with the plant metabolic network [P3.1]
- 09:35** **Dr Ian Tetlow (University of Guelph)**
Protein–protein interactions among enzymes of starch synthesis [P3.2]
- 10:00** **Mr Adam Moolna (University of Manchester)**
Catalysing the final electron transfer step in photosynthesis: why are there multiple isoforms of ferredoxin NADP⁺ oxidoreductase (FNR) in the chloroplast? [P3.3]
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Wednesday 9 July 2008

- 10:20 Refreshment Break**
- 10:50 Mr Nicolas Fabre (CNRS)**
Functional characterization of AtbCA5, a new chloroplastic carbonic anhydrase isoform in *Arabidopsis* [P3.4]
- 11:10 Mr Halley Caixeta de Oliveira (UNICAMP)**
Involvement of external NAD(P)H dehydrogenases in nitric oxide degradation by plant mitochondria [P3.5]
- 11:30 Dr Ricardo Azevedo (Universidade de São Paulo)**
Threonine synthesis in maize – *LL-DAP-aminotransferase* and threonine synthase temporal expression in developing quality protein maize seeds [P3.6]
- 11:50 Mr Thomas Williams (University of Oxford)**
Investigating control of TCA cycle-dependent biosynthesis using metabolic flux analysis [P3.7]
- 12:10 Lunch Break**
- Chair: Dr Ian Tetlow**
- 14:00 Dr Mark Hooks (College of Natural Sciences, Bangor University)**
Structural properties of the peroxisomal acetyl-CoA synthetase ACN1 from *Arabidopsis* [P3.8]
- 14:25 Dr Astrid Wingler (University College London)**
Genetic basis of the link between senescence regulation and flowering time control [P3.9]
- 14:45 Prof. Viktor Zarsky (Academy of Sciences of the Czech Republic)**
Exocyst complex functions in plant development [P3.10]
- 15:05 Dr Margaret Pullen (University of Durham)**
Stipules produce sterols, which regulate axial bifurcation and phyllotaxy in *Arabidopsis* [P3.11]
- 15:25 Refreshment Break**
- 16:00 Dr Zinnia Gonzalez-Carranza (University of Nottingham)**
The F-box protein HAWAIIAN SKIRT regulates boundary fusion via miRNA processing [P3.12]
- 16:20 Dr Wendy Peer (Purdue University)**
Mutation of the membrane-associated M1 protease APM1 results in embryonic and seedling developmental defects phenocopied by treatment with 1-*N*-naphthylphthalamic acid [P3.13]
- 16:40 Mr Gordon Breen (University of Bristol)**
Predicting functional modules in root hairs that drive tip growth [P3.14]

Wednesday Poster Sessions
A3 – General Biomechanics

- Dr Tatjana Hubel (Brown University)**
Wing motion and wake structure of bat flight [A3.13]
- Miss Fana Michilsens (University of Antwerp)**
Morphometric analysis of forelimb muscles in a specialized brachiator: the siamang [A3.53]
- Mr Quentin Manguit (University of Liège)**
Ontogeny of swimming movements in two catfishes (Teleostei, Siluriformes) performing two different undulatory swimming modes at adulthood [A3.54]
- Mr Ludovic D. MAES (Muséum National d'Histoire Naturelle)**
Limb preference in the asymmetrical locomotion of dogs, pikas and mouse lemurs [A3.55]
- Miss Anna Walker (Royal Veterinary College)**
Changes in ground reaction force profiles in dairy cattle as a function of time, speed and lameness [A3.56]
- Mr Bjoern Melzer (Plant Biomechanics Group Freiburg, Botanic Garden, University of Freiburg)**
The attachment of English ivy (*Hedera helix* L.): biomechanical aspects [A3.57]
- Prof. Adrià Casinos (University of Barcelona)**
Scaling of the articular surfaces in the lumbar vertebral bodies of catarrhines [A3.58]
- Ms Cinnamon Pace (Northern Arizona University)**
Terrestrial jumping in the mangrove killifish [A3.59]
- Miss Heather Paxton (Royal Veterinary College)**
Breast is not always best: the effects of selective breeding on aspects of chicken/broiler locomotor design [A3.60]
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Wednesday 9 July 2008

Ms Stefanie Wuttke (University of Applied Sciences, Bremen)Sticky solutions: how the tree frog *Litoria caerulea* solves the allometry problem [A3.61]**Mr Daniel Matz (University of Applied Sciences, Bremen)**Scaling of toe pad forces in *Litoria caerulea* provides insights into mechanisms of adhesion, friction and detachment in tree frogs [A3.62]**Mr James Bullock (University of Cambridge)**

Friction forces in the hairy adhesive pads of beetles [A3.63]

Mr Thomas Endlein (Dept. of Zoology, University of Cambridge)

On heels and toes: how ants climb with direction-dependent attachment structures [A3.64]

Mr Stéphane Montuelle (Muséum National d'Histoire Naturelle)Drinking behaviour in a Gekkotan lizard, *Eublepharis macularius* [A3.65]**Dr Dimitrios Tsaopoulos (The Royal Veterinary College, Structure and Motion Laboratory, University of London)**

A 3D musculoskeletal computer model of elephant fore and hindlimbs [A3.66]

Dr Alexis Wiktorowicz Conroy (The Royal Veterinary College, Structure and Motion Laboratory, University of London)

Scaling of the appendicular skeleton: CT scan-based analysis of whole-bone geometry for clades Proboscidea and Felidae [A3.67]

Ms Monique Haazelager (Experimental Zoology Group, Wageningen University, The Netherlands)

Quantification of collagen fibril structure in developing equine articular cartilage [A3.68]

A4 – Predator/Prey Interactions**Dr Reza Talaie-Hassanlou (University of Tehran)**Functional response of *Orius albidipennis* preying on healthy and *Metarhizium anisopliae* – infected larvae and adults of *Thrips tabaci* [A4.1]**Mr Gheylen Daghfous (UMR 7179 CNRS/MNH)**Best of both worlds: prey capture behaviour in banded water snake (*Nerodia fasciata*) [A4.12]**Mr Stéphane Montuelle (Muséum National d'Histoire Naturelle)**

Target the prey in scleroglossan lizards [A4.13]

A7 – Radical species, mitochondria and cardiac function**Dr Joseph Yanni (University of Manchester)**

Age-dependent remodelling of the sinoatrial node [A7.12]

Miss Sabina Rohde (University of Southern Denmark)

Oxygenation-dependency of nitrite transport and nitric oxide formation in carp and rabbit erythrocytes [A7.13]

Dr Mikkel Misfeldt (University of Aarhus)NO increases myocardial efficiency in the hypoxic tolerant turtle *Trachemys scripta* [A7.14]**Dr S. Imbrogno (University of Calabria)**cGMP-independent nitric oxide modulation of the Frank-Starling response in the eel *Anguilla anguilla* [A7.15]**Dr Daniele Mancardi (Università di Torino)**

Hydrogen sulfide exerts protective effects against oxidative stress in cultured H9C2 myocytes [A7.16]

Dr Claudio Penna (Università di Torino)

Preconditioning-like effect of the platelet activating factor (PAF): pre- and post-ischemic signaling pathway in isolated rat hearts [A7.17]

Miss Joyce Velez (University of Kentucky)

p53 is an important contributor of oxidative stress-mediated doxorubicin-induced cardiac injury [A7.18]

A11 – Insect homeostasis: a tribute to Simon Maddrell FRS**Mr Yahya Hobani (University of Glasgow)**Mapping the *Drosophila* metabolome using liquid chromatography Fourier transform mass spectrometry [A11.20]**Miss Gayle Overend (University of Glasgow)**

Using functional genomics to identify conserved genes underlying insect renal function [A11.21]

Mr Andrew Finlayson (University of Glasgow)The characterisation of the Phosphodiesterase 11 family using *Drosophila melanogaster* as a model organism. [A11.22]**Mr Andy Xin Guo (University of Glasgow)**Novel *in vivo* roles of the receptor guanylate cyclase, Gyc76C [A11.23]

Wednesday 9 July 2008

Mr Venkateswara Chintapalli (University of Glasgow)

Using FlyAtlas to identify better *Drosophila* models of human disease [A11.24]

Mrs Andrea Albertmelcher (University of Osnabrueck)

Reversible dissociation of V-ATPases: fact or artefact? [A11.25]

Dr Horst Onken (Wagner College)

Revisiting the mechanism of strong alkalization in the anterior midgut of larval yellow fever mosquitoes *Aedes aegypti* [A11.26]

Miss Stephanie Graham (University of Glasgow)

Using FlyAtlas to detect novel functions for well-known genes [A11.27]

Ms Svenja Bockelmann (University of Osnabrück)

Archazolid: a novel inhibitor of the V-ATPase [A11.28]

Dr Shubha Shanbhag (Tata Institute of Fundamental Research)

Segmental bidirectional transport of H⁺ in the adult *Drosophila* midgut. [A11.29]

Dr Edward Blumenthal (Marquette University)

Molecular dissection of tyramineric communication in the *Drosophila* Malpighian tubule [A11.30]

Dr Olga Vitavska (University of Osnabrueck)

Phosphorylation of the V-ATPase subunit C by protein kinase A [A11.31]

C2 – Circadian Clocks

Mr Nicola Costa (University of Liverpool)

The critical role of the *Arabidopsis* Circadian Clock at high temperature [C2.23]

Miss Jelena Kusakina (University of Liverpool)

Investigating effects of temperature on the circadian clock in plants [C2.24]

P3 – Developments in Plant Biology

Miss Magdalena Musialak (Max Planck Institute for Molecular Plant Physiology, Golm, Germany)

Investigating novel potential regulators and signalling components in phosphate stress responses of *Arabidopsis thaliana* [P3.28]

Dr John Bothwell (MBA of the UK, Plymouth, UK)

Sex determination in the model brown alga, *Ectocarpus siliculosus* [P3.29]

Miss Xin Chen (University of Bristol)

The role of ROPs in *Arabidopsis* root hair growth [P3.30]

Mr Petr Skupa (The Academy of Sciences of the Czech Republic)

Characterization of tobacco cell lines transformed with the *AtPIN5* gene from the auxin efflux carrier family of *Arabidopsis* [P3.31]

Dr Deirdre McLachlan (University of Bristol)

Roles of calcium sensor proteins CBL9 and CBL1 in guard cell signalling [P3.32]

Dr Ian Tetlow (University of Guelph)

Functional interactions between starch synthases and branching enzymes of cereal endosperms [P3.33]

Dr Shona Lindsay (University of Bristol)

Analysis of the R2R3-MYB transcription factor family identifies genes involved in stomatal function [P3.34]

Mr Michael Panagopoulos (University of Bristol)

The role of sphingosine kinase in plant cell signalling [P3.35]

Mrs Sladjana Savic (Faculty of Agriculture, University of Belgrade)

The effects of different water supply conditions on the tomato plant and fruit growth in two tomato hybrids [P3.36]

Dr Matthew Paul (Rothamsted Research)

Integration of leaf metabolism and physiology by the trehalose pathway [P3.37]

Ms Saher Mehdi (Durham University)

Role of the POLARIS peptide in *Arabidopsis* root development [P3.38]

Mr Philip Sipek (University of Nottingham)

Callus induction and somatic embryogenesis of *Musa* spp. ABB cv. Pisang Awak [P3.39]

Mr Alireza Dadkhah (Ferdowsi University of Mashhad)

Response of root yield and quality of sugar beet (*Beta vulgaris*) to salt stress [P3.40]

Wednesday 9 July 2008

Ms Zahra Nourmohammadi (Tarbiyat Moddares University)

RAPD analysis of Iranian Pomegranate (*Punica granatum* L.) Cultivars [P3.41]

Mr Boris Parent (INRA-SUPAGRO)

ABA affects root hydraulic conductance and leaf growth via aquaporin content and activity [P3.42]

Mr Alfred Anthony Darkwa (University of Sussex)

Growth and influence of defoliation in terrestrial orchids, *Anacamptis morio* and *Serapia lingua* [P3.43]

Mr Alfred Anthony Darkwa (University of Sussex)

Influence of depth of planting on stolon and tuber formation in *Serapia lingua* [P3.44]

Dr Alexis Maizel (CNRS Institut des Sciences du Végétal)

Activation of the TAS3-derived tasiRNA pathway in the root system of *Arabidopsis thaliana* [P3.45]

Miss Katie Field (University of Sheffield)

Does genetic diversity in plants matter? An environmental metabolomic approach [P3.46]

SAT – Satellite Meeting – Nuclear Envelope and Golgi

Dr Anne Osterrieder (Oxford Brookes University)

All in order: dynamics of plant golgins. [SAT.12]

Miss Katja Graumann (Oxford Brookes University)

SUN domain proteins at the plant nuclear envelope [SAT.13]

Dr Sarah Irons (Oxford Brookes University)

Studies on the nuclear envelope targeting and retention of the N-terminus of the mammalian lamin B receptor expressed in plant cells [SAT.14]

Thursday 10 July 2008

A3 – General Biomechanics

Session organised by Peter Aerts (University of Antwerp)

- Chair:** James Usherwood
- 08:00** Dr Anick Abourachid (Museum National d'Histoire Naturelle)
3D Kinematics of the walk of the quail [A3.46]
- 08:20** Dr Christofer Clemente (Cambridge)
Why Go Bipedal? Locomotion and morphology in Australian agamid lizards [A3.47]
- 08:40** Mr Hadi EL DAOU (ISIR, Université Pierre et Marie Curie)
Biomimetic analysis of locomotion in tortoise, *Geochelone graeca* [A3.48]
- 09:00** Mr Ludovic D. Maes (Muséum National d'Histoire Naturelle de Paris)
The variations of temporal and spatial limb coordination in dogs as a function of speed and gaits [A3.49]
- 09:20** Dr Walter Federle (University of Cambridge)
Pushing and pulling: direction dependence of insect attachment structures [A3.50]
- 09:40** Dr Anne Peattie (University of Cambridge)
Effect of morphological variation on single seta force in eight gecko species [A3.51]
- 10:00** Mrs Tina Steinbrecher (Institute for Materials Research II, Forschungszentrum Karlsruhe)
Mechanics and morphology of permanent attachment systems of climbing plants [A3.52]
- 10:20** Refreshment Break

A4 – Predator/Prey Interactions

Session organised by: Prof. Vincent Bels (Museum National d'Histoire Naturelle)

- 10:45** Introduction by Prof. Vincent Bels (Museum National d'Histoire Naturelle)
- 11:00** Dr Alice C. Gibb (Northern Arizona University)
The ramifications of life history for escape performance and survivability in larval fishes: a case study from an altered habitat, the Colorado River, USA [A4.2]
- 11:30** Mr Paolo Domenici (CNR-IAMC Oristano Italy)
Temporal and directional patterns in escape responses [A4.3]
- 12:00** Dr Kiisa Nishikawa (Northern Arizona University)
Sensory modulation of prey capture in frogs: alternative strategies, biomechanical trade-offs, and sensory hierarchies [A4.4]
- 12:30** Dr B Young (Washburn University)
Why spitting cobras oscillate their heads and puff adders don't: Functional integration of the head and neck in snakes [A4.5]
- 13:00** Lunch
- 14:00** Mr Stéphane Montuelle (Muséum National d'Histoire Naturelle)
Prey-prehension modes in *Gerrhosaurus major*: integration of the locomotor apparatus and trophic system [A4.6]
- 14:25** Miss Emmanuelle Pouydebat (USTV, France)
Phylogenetic reconstructions of food catching among primates [A4.7]
- 14:50** Dr Sylvain Pincebourde (University of South Carolina, Dept of Biological Sciences)
Interaction between underwater and aerial body temperatures in influencing a top predator feeding rate in the intertidal [A4.8]
- 15:15** Refreshment Break
- 15:45** Mr Nikolay Natchev (University Vienna)
Kinematic analysis of prey capture, prey transport and swallowing in the Common Musk Turtle *Sternotherus odoratus* (Chelonia, Kinosternidae) [A4.9]
- 16:10** Mr Egon Heiss (University of Vienna)
On the biochemical and bizarre mechanical defensive strategies of the salamandrid *Pleurodeles waltl* [A4.10]
- 16:30** Miss Ana Marçalo (INRB/IPIMAR-Olhão)
Effect of simulated purse seine fishing on acclimated sardines and post-fishing interactions with predators [A4.11]

A11 – Insect homeostasis: a tribute to Simon Maddrell FRS

Sponsored by: Company of Biologists, European Science Foundation, the SEB Animal Section Satellite Fund and the SEB Osmoregulation Group

Session organised by Prof. Julian Dow and Dr Shireen-Anne Davies (University of Glasgow)

Chair: Prof. Klaus Beyenbach

Thursday 10 July 2008

- 08:55** **Welcome**
- 09:00** **Dr Geoffrey Coast (Birkbeck)**
Neuroendocrine control of ionic homeostasis [A11.11]
- 09:45** **Dr Shireen-Anne Davies (University of Glasgow)**
Regulation of innate immunity by cGMP and cGMP-dependent protein kinases [A11.12]
- 10:30** **Refreshment Break**
- 11:00** **Prof. Nathan Tublitz (University of Oregon)**
Peptidergic regulation of physiology and behaviour in insects [A11.13]
- 11:45** **Dr Selim Terhzaz (University of Glasgow)**
Spatiotemporal filtering of mitochondrial calcium and its role in the *Drosophila* Malpighian tubule [A11.14]
- 12:15** **Prof. Heinrich Dirksen (Stockholm University)**
Identified *Drosophila* ion transport peptide splice forms are differentially expressed in central and peripheral neurons throughout postembryogenesis [A11.15]
- 12:45** **Lunch**
- Chair:** **Prof. Helmut Wiczorek**
- 13:45** **Dr Timothy Bradley (University of California, Irvine)**
On the breathing patterns of *Rhodnius prolixus* [A11.16]
- 14:30** **Dr Melody Clark (British Antarctic Survey)**
Drying out, not freezing up! [A11.17]
- 15:00** **Refreshment Break**
- 15:30** **Prof. Julian Dow (University of Glasgow)**
New insights into Malpighian tubule function from functional genomics [A11.18]
- 16:15** **Prof. Simon Maddrell (University of Cambridge)**
Insect Malpighian tubules: what does past research suggest about future investigations? [A11.19]
- 17:00** **Finish**

C2 – Circadian Clock

Organised by Dr Weiqun Lu and Prof. Hugh Piggins (University of Manchester)

- Chair:** **Weiqun Lu**
- 09:00** **Dr Nicholas S. Foulkes (Institute of Toxicology and Genetics)**
The ins and outs of zebrafish circadian timing [C2.13]
- 09:40** **Dr David Whitmore (UCL)**
Fish circadian clocks: from river to dish [C2.14]
- 10:20** **Dr Margit Egg (University of Innsbruck)**
Hypoxia – a zeitgeber of the circadian clock? [C2.15]
- 10:40** **Refreshment Break**
- Chair:** **Hugh Piggins**
- 11:10** **Prof. Hugh Nimmo (University of Glasgow)**
Organ specificity and communication in the *Arabidopsis* circadian clock [C2.16]
- 11:50** **Dr Isabelle Carre (University of Warwick)**
Dual oscillator control of *LHY* transcription in *Arabidopsis* [C2.17]
- 12:10** **Lunch**
- Chair:** **Weiqun Lu**
- 13:30** **Dr Paul Devlin (Royal Holloway University of London)**
The role of *FHY3* in red light input to the *Arabidopsis* clock [C2.18]
- 14:10** **Prof. Dorothee Staiger (University of Bielefeld)**
RNA-binding proteins as mediators of circadian clock output in *Arabidopsis thaliana* [C2.19]
- 14:50** **Refreshment Break**
- Chair:** **Hugh Piggins**

Thursday 10 July 2008

- 15:20** **Dr Anthony Hall (University of Liverpool)**
Temperature compensation of the *Arabidopsis* circadian clock [C2.20]
- 16:00** **Mr Roland Meszter (University of Liverpool)**
Molecular dissection of the circadian clock output pathway that mediates the temporal coordination of Crassulacean acid metabolism [C2.21]
- 16:20** **Miss Katharine Hubbard (University of Cambridge)**
The *Arabidopsis thaliana* Calmodulin-like protein CML24 is a regulator of rhythmic Ca²⁺ signalling and flowering time [C2.22]
- 16:50** **End of Session**

C4 – Glycosylation

Session organised by: Dr Ben J. Appelmek (VUmc Vrije Universiteit Medical Center), Dr Susan Brooks (Oxford Brookes University) and Prof. Pauline Rudd (Glycobiology Institute/Dublin-Oxford NIBRT Glycobiology Laboratory)

Sponsored by Royal Microscopical Society

- Chair:** **Dr Susan Brooks (Oxford Brookes University)**
- 09:30** **Dr B. J. Appelmek (VUmc Vrije Universiteit Medical Center)**
Glycosylation in (myco-) bacteria [C4.6]
- 10:00** **Dr Cornelis H Hokke (Leiden University Medical Center)**
Parasite glycobiology: schistosome glycans in parasite–host interaction and development [C4.7]
- 10:30** **Refreshment Break**
- 11:00** **Dr Frans Klis (University of Amsterdam)**
Mass spectrometric explorations of the fungal wall proteome [C4.8]
- 11:30** **Dr Muriel Bardor (University of Rouen)**
Plant N-glycosylation: an engineered pathway for the production of therapeutical plant-derived glycoproteins [C4.9]
- 12:00** **Lunch**
- Chair:** **Dr Ben Appelmek (VUmc Vrije Universiteit Medical Center)**
- 13:00** **Prof. Pauline M Rudd (Glycobiology Institute/Dublin-Oxford NIBRT Glycobiology Laboratory)**
Integrated strategy for identifying and screening potential cancer biomarkers [C4.10]
- 13:30** **Miss Hannah Lomax-Browne (Oxford Brookes University)**
Interactions between Cancer Cell Glycans and Endothelial Cells during Adhesion and Transmigration Events in Metastasis. [C4.11]
- 14:00** **Prof. Peter Seeberger (Swiss Federal Institute of Technology)**
Glycan Arrays [C4.12]
- 14:30** **Refreshment Break**
- 15:00** **Dr Teunis Geijtenbeek (VUMC)**
C-type lectins on dendritic cells induce Raf-1 signaling to dictate adaptive immune responses against pathogens [C4.13]
- 15:30** **Dr Martin Franck (German Cancer Research Centre, Heidelberg)**
Glycosylation – bioinformatics & modelling [C4.14]
- 16:00** **Prof. Peter Seeberger (Swiss Federal Institute of Technology)**
Synthetic carbohydrate vaccines [C4.15]

P3 – Developments in Plant Biology

Organised by Professor Christine Raines (University of Essex)

- Chair:** **Professor Christine Raines**
- 09:00** **Prof. Gail Taylor (University of Southampton)**
Natural genetic variation and plant response to the changing climate – what experiments do we need to do in future? [P3.15]
- 09:35** **Miss Katie Field (University of Sheffield)**
Does genetic diversity in plants matter? An environmental metabolomic approach [P3.16]
- 09:55** **Dr Penny Tricker (University of Reading)**
Epigenetic control of stomatal number in response to humidity environment [P3.17]
- 10:15** **Refreshment Break**
- 10:45** **Dr Piotr Stepień (University of Manchester)**
Contrasting response of photosynthesis to salt stress in the glycophyte *Arabidopsis thaliana* and the halophyte *Thellungiella halophila* [P3.18]
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Thursday 10 July 2008

- 11:05** **Mr Simon Dittami (Station Biologique de Roscoff)**
Abiotic stress response in the model brown alga *Ectocarpus siliculosus* (Phaeophyceae) [P3.19]
- 11:25** **Mr Edward Byrne (Rothamsted Research)**
The wheat GCN2 signalling pathway: does this kinase play an important role in stress signalling? [P3.20]
- 11:45** **Prof. Masoud Seidai (Shahid Beheshti University)**
Molecular and cytogenetical diversity in gamma irradiated cotton cultivars, their hybrids and tissue culture regenerated plants [P3.21]
- 12:05** **Elodie Lanet (CEA-CNRS/University Aix-Marseille)**
mRNA Translation is a Component of Plant RNA silencing [P3.47]
- 12:25** **Lunch Break**
- Chair:** **Dr Mark Hooks**
- 14:00** **Prof. Wolfgang Schmidt (Institute of Plant and Microbial Biology, Academia Sinica)**
IRONIC controls iron deficiency-induced changes in root epidermal patterning [P3.22]
- 14:20** **Dr Wieland Fricke (University College Dublin, University of Paisley)**
Cloning and expression analyses of potassium channels in barley leaves [P3.23]
- 14:40** **Dr Lucia Primavesi**
Trehalose 6-phosphate makes sugar sense [P3.24]
- 15:00** **Dr Wendy Peer (Purdue University)**
Localization and function of beta-adaptin isoforms in *Arabidopsis thaliana* [P3.25]
- 15:20** **Refreshment Break**
- 15:50** **Dr Nynne Christensen (University of Edinburgh)**
Imaging the early events of TMV infection [P3.26]
- 16:10** **Dr Andrew Love (Glasgow University)**
An effector protein encoded by cauliflower mosaic virus inhibits SA-dependent defence responses in *Arabidopsis* via an NPR1-dependent mechanism [P3.27]

SAT – Satellite Meeting – Nuclear Envelope and Golgi

Supported by the National Science Foundation of the USA, SEB Cell Section Satellite Fund and Biology of the Cell

Session organised by Dr David Evans (Oxford Brookes University) and Prof. Iris Meier (Ohio State University)

- Chair:** **Dr David Evans (Oxford Brookes University)**
- 08:30** **Introduction – Prof Iris Meier**
- 08:45** **Dr Symeon Siniosoglou (University of Cambridge)**
Regulation of nuclear structure by phosphatidic acid metabolism [SAT.1]
- 09:30** **Dr Iris Meier (Ohio State University)**
Two distinct, interacting classes of nuclear envelope-associated coiled-coil proteins are required for the tissue-specific nuclear envelope targeting of *Arabidopsis* RanGAP. [SAT.2]
- 10:15** **Refreshment Break**
- Chair:** **Prof. Iris Meier (Ohio State University)**
- 10:45** **Dr David Evans (Oxford Brookes University)**
Probing the plant nuclear envelope [SAT.3]
- 11:30** **Dr Thomas Merkle (University of Bielefeld)**
Characterization of the CRM1/Xpo1 nuclear export pathway by identifying different classes of interacting proteins in *Arabidopsis thaliana* [SAT.4]
- 12:15** **Dr Beatrice Satiat-Jeunemaitre (Gif sur Yvette)**
Functional relations between nuclear membrane formation, cell plate growth and Golgi dynamics in dividing BY2 cell: a study using photoconvertible protein to track membrane dynamics [SAT.5]
- 12:45** **Lunch**
- Chair:** **Dr David Evans (Oxford Brookes University)**
- 13:45** **Dr Andreas Nebenführ (University of Tennessee)**
Golgi stack integrity in plant cells [SAT.6]
- 14:30** **Dr Federica Brandizzi (Michigan State University)**
Protein export from the plant endoplasmic reticulum to the Golgi apparatus [SAT.7]

Thursday 10 July 2008

- 15:15** **Dr John Runions (Oxford Brookes University)**
Dynamic interrelationships of secretory pathway endomembranes during cell division [SAT.8]
- 15:45** **Refreshment Break**
- Chair:** **Prof. Iris Meier (Ohio State University)**
- 16:15** **Dr Imogen Sparkes (Oxford Brookes University)**
In vivo imaging of *Arabidopsis* myosins: class XI myosins perturb organelle movement [SAT.9]
- 16:45** **Dr Patrick Moreau (CNRS UMR5200, Université Bordeaux 2)**
Golgi targeting of SYP31: requirement of a di-acidic motif [SAT.10]
- 17:15** **Dr Annkatrin Rose (Appalachian State University)**
Computational identification of plant nuclear envelope and Golgi coiled-coil proteins [SAT.11]
- 17:45** **General discussion and future plans**
- 18:00** **Close**
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Satellite Symposium to the SEB Annual Main Meeting in Marseille 2008 4th–5th July 2008

Causes and Consequences of Intra-specific Diversity in Marine Fishes

Station Méditerranéenne de l'Environnement Littoral, Sète

Friday 4 July 2008

Chair: Guy Claireaux

9:00 Welcome

9:05 **Mr F Bonhomme (Université Montpellier)**
Why is it so difficult to delimit reproductive units from genetic data in marine broadcasting species? [SETE.4]

9:25 **Mr J Chopelet (University College Dublin, Ireland)**
Does sex-change increase population genetic structure in marine fish? [SETE.5]

9:45 **Dr F Lecomte (INRA)**
Glacial cycles promote the evolution of the intra-specific diversity in high latitude marine fishes [SETE.6]

10:05 **Mrs N Quere (Université Montpellier II)**
Regulation of gene expression by polymorphism at non-coding regions? Prolactin and growth hormone genes in sea bass (*Dicentrarchus labrax*) [SETE.7]

10:25 Coffee Break

10:50 **Ms Ilaria Coscia (University College Dublin)**
Resolving subtle stock structure in Atlantic sea bass: a perspective shift [SETE.8]

11:10 **Prof. J Hutchings (Dalhousie University)**
Genetic variability in life history reaction norms among populations of Atlantic cod, *Gadus morhua* [SETE.9]

11:30 **Dr B Ernande (IFREMER, Laboratoire Ressources Halieutiques/ IIASA, Evolution and Ecology Program)**
Fisheries-induced evolution of maturation schedule in exploited stocks: empirical and theoretical evidence, expected demographic implications and potential mitigation measures [SETE.10]

11:50 **Prof. H Poertner (AWI Bremerhaven)**
Cod and climate: deciphering functional differences between fish populations in a latitudinal cline [SETE.11]

12:10 **Miss A Darnaude (CNRS)**
Coupled use of data storage tags and otolith microchemistry to assess population dispersal and intra-specific diversity in migratory behaviour in North Sea plaice (*Pleuronectes platessa* L.) [SETE.12]

12:30 Lunch

Chair: David McKenzie

14:10 **Prof. G Claireaux (Université Européenne de Bretagne-Brest)**
Understanding phenotypic selection in marine fishes: linking individual performance to ecological performance and population dynamics [SETE.13]

14:30 **Dr W Waser (University of Turku)**
Population studies vs. physiology: methodological approach to resting metabolic rate determination in fish populations [SETE.14]

14:50 **Dr J Nelson (Towson University)**
Intra-specific variation in genotype, morphology and performance: contribution to ecological performance and mortality selection in cultured and wild European sea bass (*Dicentrarchus labrax*) [SETE.15]

15:10 **Dr J Steffensen (University of Copenhagen)**
Variation in oxygen consumption and temperature preference of Atlantic cod, *Gadus morhua*, from Denmark and Greenland. [SETE.16]

15:30 Coffee Break

16:00 **Prof. A Farrell (University of British Columbia)**
Why hypoxic bradycardia in fishes? [SETE.17]

16:20 **Prof. G Nilsson (University of Oslo)**
Temperature tolerance and respiration in coral reef fishes [SETE.18]

16:40 **Prof. I A Johnston (University of St Andrews)**
Intra-specific variation in muscle fiber phenotype [SETE.19]

17:00 **Dr. M Berenbrink (University of Liverpool)**
Haemoglobin polymorphism and red blood cell sickling in marine fishes [SETE.20]

17:20 End of session

17:30 Poster session

Molecular characterisation of boldness in rainbow trout**J Thomson (University of Liverpool)** [SETE.29]**Saturday 5th July 2008**

- Chair:** David McKenzie
- 9:10** **Dr P Domenici (CNR-IAMC Oristano Italy)**
Repeatability in the startle order of schooling grey mullet (*Mugil auratus*) [SETE.21]
- 9:30** **Mr S Marras (Université Montpellier 2)**
Is the fast-start escape response in fish repeatable? A short and medium term analysis in juvenile European Sea bass [SETE.22]
- 9:50** **Dr L Sneddon (University of Liverpool)**
Transcript profiling of boldness in rainbow trout: identifying candidate genes linked to behavioural profiles [SETE.23]
- 10:10** **Dr K Sloman (University of Plymouth)**
The effects of conspecific presence on between-individual variation in salmonids. [SETE.24]
- 10:30** **Coffee Break**
- 11:00** **Dr Ø Overli (Norwegian University of Life Sciences)**
Melanin-based skin spots reflect stress coping style in salmonid fish [SETE.25]
- 11:20** **Dr E Höglund (Technical University of Denmark, DTU-Aqua)**
Larval developmental rate, stress responsiveness and life history traits in salmonids [SETE.26]
- 11:40** **Ms L Grime (Ifremer Palavas/INRA LGP)**
Is it possible to select for feed efficiency in farmed fish? [SETE.27]
- 12:00** **Mrs A Dupont-Prinet (I-SEM CNRS)**
The physiology of energetic strategies in European sea bass (*Dicentrarchus labrax* L.) [SETE.28]
- 12:20** **Concluding remarks**
- 12:30** **Lunch**
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