Wednesday May 16th

Arrival in the late afternoon for dinner. In addition to the excellent dinner and the enthusiastically expectant atmosphere, combined with the joy of meeting old and new friends, we have arranged for a light-hearted lecture on the history of Sandbjerg estate and the dreadful events in 1864 where Prussian and Austrian troops humiliated the glorious and brave Danish army. This depressing story may require that all attendants meet afterwards for a nightcap before retiring to bed to obtain all the rest needed for the coming days of science.

18.00 Dinner
19.00 Ditte Kock (Historiecenter Dybbøl Banke)

*1864 - a Pivotal War in Danish History*
Thursday May 17th

9.00 Tobias Wang
welcome and introduction

9.10 Steve Wood (The University of Texas Rio Grande Valley School of Medicine)
Down memory lane: early days of Department of Zoophysiology in Aarhus

Hypoxia at altitude, under ground and during development

9.40 Kevin Campbell (University of Manitoba)
Moles, mammoths, and myoglobin: mad adventures with Roy

9.40-10.00 Jay Storz (University of Nebraska, Lincoln)
Mechanisms of hemoglobin adaptation in high-flying geese and dreadful crocodilians

9.40-10.00 Angela Fago (Aarhus University)
Molecular adaptations of hemoglobin to high altitude in bar-headed geese

10.00-10.20 Heimo Mairbäurl (University Hospital Heidelberg)
Hb-O₂ binding at high altitude

10.00-10.20 Lauren James (Aarhus University)
Regulation of the cardiovascular system during anaesthesia

10.40-11.00 Discussion of reviews for Acta Physiologica (and coffee)

12.00 Lunch

Evolution of air-breathing

13.00 Warren W. Burggren (University of Northern Texas, Denton)
Air Breathing Fishes: A Case Study in Developmental Plasticity

13.20 Patricia Wright (University of Guelph)
Fish out of water: evolution and phenotypic plasticity of amphibious fishes

13.40 Mark Bayley (Aarhus University)
Gill remodeling in air-breathing fish

14.00 David McKenzie (CNRS, Montpellier)
Does it take personality for fishes to breathe air?

14.20 Ted Taylor (Birmingham University)
Cardiorespiratory interactions in lungfish resemble mammals

14.30 coffee and cake
Gas-binding proteins in animals
15.00  
**Tom Hankeln** (University of Mainz)  
Respiration in arthropods: the evolution & functional relevance of globins

15.20  
**Sylvia Dewilde** (University of Antwerpen)  
Fish cytoglobins: a structural and functional study

15.40  
**Thorsten Burmester** (University of Hamburg)  
Evolution and function of vertebrate globins

16.00  
**Nadja Hellmann** (University of Mainz)  
Keeping control of large assemblies

16.20  
**Birgitte Jensen** (Aarhus University)  
A novel physiological role of ferric hemoglobin in H₂S transport?

16.30  
coffee

Oxygen binding and sensing
17.00  
**William K. Milsom** (University of British Columbia, Vancouver)  
Evolution of peripheral O₂ chemoreceptors

17.20  
**Katie Gilmour** (University of Ottawa)  
The role of TASK-2 channels in CO₂ sensing in developing zebrafish

17.40  
**Christian Damsgaard** (University of British Columbia, Vancouver)  
The evolution of air-breathing changed blood’s affinity for oxygen

18.00  
**Frank Powell** (University of California, San Diego)  
Why are changes in haemoglobin a universal feature of adaptation to high altitude?

18.20  
**Mikkel Thomsen** (Aarhus University)  
Lactate stimulates ventilation in fish

19.00  
Dinner
Friday May 18th

**Mitochondrial Function and regulation**

8.30  **Gina Galli** (University of Manchester)  
*Reptilian mitochondrial function in low oxygen environments*

8.50  **Lene Juel Rasmussen** (Copenhagen University)  
*Replication stress induces age-related disorders via PARP1 activation and impaired mitochondrial homeostasis*

9.10  **Goran E. Nilsson** (University of Oslo)  
*Carp without oxygen: a tale of brain damage, lost memory and strange mitochondria*

9.30  **Amanda Bundgaard** (Aarhus University)  
*How mitochondrial regulation during anoxia prevents oxidative damage in freshwater turtles*

9.50  **Kasper Hansen** (Forensic Medicine, Aarhus University)  
*Hyperpolarized C13-DNP-MR for in vivo imaging of feast’n’famine metabolism*

10.00  *coffee*

**Red cell function, acid-base and blood gas transport**

10.30  **Colin J. Brauner** (University of British Columbia, Vancouver)  
*Red blood cell potentiation of haemoglobin-oxygen unloading in fish*

10.50  **Hans Malte** (Aarhus University)  
*Assessing the physiological importance of the Bohr-Haldane effect*

11.10  **Frank Bo Jensen** (University of Southern Denmark, Odense)  
*Keeping hemoglobin “In the Mood” inside red blood cells*

11.30  **Michael Berenbrink** (University of Liverpool)  
*From test tube to whole organisms in their environments: Emergent functions of haemoglobin and myoglobin at higher levels of biological organization*

11.50  **Niels Kristensen** (Aarhus University)  
*Can blood CO2 binding properties predict ventilation in marine mammals?*

12.00  *Lunch*

**Diving physiology**

13.00  **Birgitte McDonald** (California State University, Moss Landing)  
*Wild porpoises exhibit an exercise modulated surface heart rate response*

13.20  **Chris McKnight** (University of St Andrews)  
*Shining new light on diving physiology with near-infrared spectroscopy*

13.40  **Lars Folkow** (University of Tromsø)  
*Into the deep - how the seal brain copes with diving-induced hypoxemia*

14.00  **Andreas Fahlman** (Fundación Oceanografic de la Comunidad Valenciana)  
*Applying dynamic gas models to the diving physiology in marine vertebrates*

14.20  **Julie Marie van der Hoop** (Aarhus University)  
*Pulmonary ventilation of cetaceans measured with acoustic bio-logging tags*

14.30  *coffee and cake*
Size and age matter

15.00  Jon Harrison (Arizona State University, Tempe)
Why does aerobic metabolic rate scale hypometrically?

15.20  Steve Perry (University of Ottawa)
Do larval zebrafish require internal convection to sustain normal rates of gas transfer?

15.40  John Fleng Steffensen (University of Copenhagen)
OXYGEN consumption of juvenile Greenland sharks - and the estimated longevity

16.00  Catherine Williams (Aarhus University)
Using MRI to visualize blood flows and shunt patterns in tortoises

16.10  coffee

Matching oxygen delivery to demand

16.40  James W. Hicks (University of California, Irvine)
Regulating Arterial O₂ and CO₂ during elevated metabolic demands in vertebrates

17.00  Michael Hedrick (California State University, Hayward)
Limits to Maximal Oxygen Transport in Vertebrates

17.20  Tobias Wang (Aarhus Institute of Advanced Sciences)
A graphical solution of optimal blood P₅₀ with focus on VO₂max

17.40  Nina Kerting Iversen (Functionally Integrative Neuroscience, Aarhus University)
Heterogenity of capillary blood flow and oxygen availability

18.00  William Joyce (Aarhus University)
Maximum heart rate does not limit cardiac output in alligators

19.00  Festive Dinner including “dinner talk” by Professor emeritus Roy E. Weber
Saturday May 19th

**Comparative physiology**

8.30  **Colleen Farmer** (University College Dublin)
*Fluidic devices in reptile lungs*

8.50  **Dane Crossley** (University of Northern Texas, Denton)
*Developmental phenotypic plasticity of Cardiorespiratory functions in reptiles*

9.10  **Peter Skov** (Technical University of Denmark)
*Inhibitory effects of CO₂ on oxygen uptake in intensively farmed salmon*

9.30  **Johannes Overgaard** (Aarhus University)
*Necrophysiology: the death of an insect*

9.50  **Mathias Ravn** (Aarhus University)
*Anoxic stress in insects*

10.00  **Coffee**

**A link between oxygen supply and thermal tolerance?**

10.30  **Wilco Verberk** (Radboud University)
*Interactive effects of oxygen and temperature: a mechanism setting heat tolerance?*

10.50  **Sjannie Lefèvre** (University of Oslo)
*Global warming and future fish size (or how not to interpret aerobic scope)*

11.10  **Rasmus Ern** (Aalborg University)
*Oxygen dependence of upper thermal limits in water-breathing ectotherms*

11.30  **Fredrik Jutfeldt** (Norwegian University of Science and Technology, Trondheim)
*How pervasive is oxygen limitation to thermal performance?*

11.50  **Mads Kuhlmann** (Aarhus University)
*The air-breathing fish Pangasius thrives well as high temperatures*

12.00  **Lunch**

13.00  **Departure and tearful goodbyes**
Participants

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Brauner, Colin
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Burmester, Thorsten
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Campbell, Kevin
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