

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

10.00 **Jay Storz** (University of Nebraska, Lincoln)

Mechanisms of hemoglobin adaptation in high-flying geese and dreadful crocodilians

10.20 **Angela Fago** (Aarhus University)

Molecular adaptations of hemoglobin to high altitude in bar-headed geese

10.40 **Heimo Mairbäurl** (University Hospital Heidelberg)

Hb-O₂ binding at high altitude

11.00 **Lauren James** (Aarhus University)

Regulation of the cardiovascular system during anaesthesia

11.10 **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

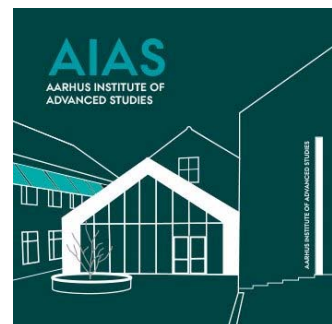
14.30 *coffee and cake*

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 O_2 and CO_2 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 P_{50} with focus on VO_2 max
- 17.40 **Nina Keriting Iversen** (Functionally Integrative Neuroscience, Aarhus University)
Heterogeneity 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 Lefevre** (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

Baatrup, Erik	Zoophysiology, Aarhus University
Bayley, Mark	Zoophysiology, Aarhus University
Berenbrink, Michael	University of Liverpool
Brauner, Colin	University of British Columbia, Vancouver
Buchanan, Rasmus	Zoophysiology, Aarhus University
Bundgård, Amanda	Zoophysiology, Aarhus University
Burggren, Warren	University of Northern Texas, Denton
Burmester, Thorsten	University of Hamburg
Campbell, Kevin	University of Manitoba
Cassidy, Andrew	Physics, Aarhus University
Crossley, Dane	University of Northern Texas, Denton
Damsgaard, Christian	University of British Columbia, Vancouver
Dewilde, Sylvia	University of Antwerpen
Doñate, Laia R.	Zoophysiology, Aarhus University
Dudele, Anete	Center of Functionally Integrative Neuroscience, Aarhus University
Elmegaard, Siri	Zoophysiology, Aarhus University
Ern, Rasmus	Aalborg University
Fago, Angela	Zoophysiology, Aarhus University
Fahlman, Andreas	Fundación Oceanografic de la Comunidad Valenciana
Farmer, Colleen	University College Dublin
Fedak, Mike	University of St Andrews
Folkow, Lars	University of Tromsø
Galli, Gina	University of Manchester
Gilmour, Katie	University of Ottawa
Hankeln, Tom	University of Mainz
Hansen, Kasper	Forensic Medicine, Aarhus University
Harrison, Jon	Arizona State University, Tempe
Hedrick, Michael	California State University, East Bay
Hellmann, Nadja	University of Mainz
Henriksen, Per G.	Zoophysiology, Aarhus University
Henriksen, Peter	Bioscience, Aarhus University
Hicks, James W.	University of California, Irvine
Iversen, Nina Kerting	Center of Functionally Integrative Neuroscience, Aarhus University
James, Lauren	Zoophysiology, Aarhus University
Jensen, Birgitte	Zoophysiology, Aarhus University
Jensen, Frank Bo	University of Southern Denmark, Odense
Jensen, Heidi Melgaard	Zoophysiology, Aarhus University
Joyce, William	Zoophysiology, Aarhus University
Jutfelt, Fredrik	Norwegian University of Science and Technology, Trondheim
Jørgensen, Lisa B	Zoophysiology, Aarhus University
Kristensen, Niels	Zoophysiology, Aarhus University

Kuhlmann, Mads	Zoophysiology, Aarhus University
LeFevre, Sjannie	University of Oslo
Madsen, Peter Teglbjerg	Aarhus Institute of Advanced Sciences
Mairbäurl, Heimo	University Hospital Heidelberg
Malte, Hans	Zoophysiology, Aarhus University
McDonald, Birgitte	California State University, Moss Landing
McKenzie, David	CNRS, Montpellier
McKnight, Chris	University of St Andrews
Milsom, William K.	University of British Columbia, Vancouver
Nilsson, Göran E.	University of Oslo
Overgaard, Johannes	Zoophysiology, Aarhus University
Perry, Steve	University of Ottawa
Petersen, Elin E.	Zoophysiology, Aarhus University
Powell, Frank	University of California, San Diego
Rasmussen, Lene Juel	Copenhagen University
Ravn, Mathias	Zoophysiology, Aarhus University
Skov, Peter	Technical University of Denmark
Steffensen, John Fleng	University of Copenhagen
Storz, Jay	University of Nebraska, Lincoln
Taylor, Ted	Birmingham University
Thomsen, Mikkel	Zoophysiology, Aarhus University
van der Hoop, Julie	Zoophysiology, Aarhus University
Verberk, Wilco	Rodboud University
Wang, Tobias	Aarhus Institute of Advanced Sciences
Weber, Natalie	
Weber, Oliver	
Weber, Roy	Zoophysiology, Aarhus University
Williams, Catherine	Zoophysiology, Aarhus University
Wood, Steve	The University of Texas Rio Grande Valley, School of Medicine
Wood, Linda	The University of Texas Rio Grande Valley, School of Medicine
Wright, Patricia	University of Guelph
Ørskov, Christian	Zoophysiology, Aarhus University