

HOMAGE TO AUGUST KROGH

CELEBRATING THE 90TH ANNIVERSARY OF HIS NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE

The Royal Danish Academy of Sciences and Letters

June 1 – June 4, 2010

H.C. Andersens Boulevard 35
DK-1553 Copenhagen V



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August Krogh Symposium 2010

Tuesday June 1:

8.00-9.00 Registration at the Academy (doors of the Lecture Hall close at 9.15)

Welcome and Microcirculation

09.15-09.30: Welcome address – Erik H. Larsen, University of Copenhagen

Capillary anatomy and growth

Chairs: Stuart Egginton and Michael Mulvany

09.30-10.00: Vascular growth and remodelling by intussusceptive angiogenesis – Valentin Djonov, University of Fribourg

10.00-10.30: Physiological factors influencing capillary growth – Stuart Egginton, University of Birmingham

10.30-11.00: *Coffee/tea break*

11.00-11.30: Arterial structure and remodeling – Michael Mulvany, University of Århus

11.30-12.00: Pericytes and their physiological role in the microcirculation – Claire Peppiatt-Wildman, The Royal Veterinary College, London

12.00-12.30: Gap junctions in vascular cell – Brian Duling, University of Virginia

12.30-13.30: *Lunch*

Microcirculatory flow

Chairs: Bengt Saltin and Ylva Hellsten

13.30-14.00: Vasomotion and calcium oscillations – Christian Aalkjaer, University of Århus

14.00-14.30: Regulation of microcirculatory flow: conducted vasodilation – Steven Segal, University of Missouri

14.30-15.00: Regulation of microcirculatory flow: role of the red blood cell – Randy Sprague, Saint Louis University School of Medicine

15.00-15.30: *Coffee/tea break*

Skeletal muscle oxygenation

Chairs: Brian Duling and Roland Pittman

15.30-16.00: Capillary hemodynamics and microvascular oxygenation – David.C. Poole, Kansas State University

16.00-16.30: Oxygen gradients in microvessels – Roland Pittman, Virginia Commonwealth University, Richmond

16.30-18:30 Reception at the Royal Academy

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Wednesday June 2:

8.00-8.45 Registration at the Academy (doors of the Lecture Hall close at 9.00)

Insulin

Insulin Signalling

Chairs: Pierre De Meyts and Allan Vaag

09.00-09.30: Structure-based systems biology of insulin receptor signalling – Pierre De Meyts, Hagedorn Research Institute, Gentofte

09.30-10.00: DNA methylation in type 2 diabetes – Juleen Zierath, Karolinska Institute, Stockholm

10.00-10.30: Insulin action in the CNS – Jens Brüning, University of Cologne

10.30-11.00: *Coffee/tea break*

Insulin Action, the Genes and the Environment

Chairs: Oluf Pedersen and Jens Juul Holst

11.00-11.30: Is genetically determined insulin resistance at all involved in the pathogenesis of T2D? An update on the molecular genetics of T2D in the post-GWAS era – Oluf Pedersen, Steno Diabetes Center, Gentofte

11.30-12.00: Exercise – a potent and natural modulator of insulin action – Erik Richter, University of Copenhagen

12.00-12.30: Type 2 diabetes: Individual aetiological and molecular pathways to a common phenotype – Allan Vaag, Steno Diabetes Center, Copenhagen

12.30-13.30: *Lunch*

Targeting Insulin Action

Chairs: Henning Beck Nielsen and Erik Richter

13.30-14.00: Insulin resistance in obesity – role of the adipose tissue – Ulf Smith, Sahlgrenska University Hospital, Gothenburg.

14.00-14.30: Can optimal glycemic control in diabetes be obtained with "modern" insulin treatment? – Jan Erik Henriksen, Odense University Hospital

14.30-15.00: *Coffee/tea break*

15.00-15.30: The gut – a player in diabetes? – Jens Juul Holst, University of Copenhagen.

15.30-16.00: Diabetes – Future treatment strategies – Peter Kurtzhals, Novo Nordisk, Copenhagen

17.30- Boat trip in the Harbor area of Copenhagen.

August Krogh Symposium 2010

Thursday June 3:

8.00-8.45 Registration at the Academy (doors of the Lecture Hall close at 9.00)

AM: August Krogh: Historic Perspectives

Chairs: Bodil Schmidt-Nielsen and Erik Hviid Larsen

09.00-09.45: August Krogh and the skeletal muscle microcirculation – Bengt Saltin, Copenhagen Muscle Research Centre, Rigshospitalet, Copenhagen

09.45-10.30: Insulin treatment - from August Krogh to the artificial pancreas – Henning Beck Nielsen, Odense University Hospital.

10.30-11.15: *Coffee/tea break*

11:15-12.00: August Krogh and osmoregulation – Malcolm S. Gordon, University of California, Los Angeles

12.00-13.00: *Lunch*

PM: Membrane Transport and Osmoregulation

Osmotic and Ionic Regulation

Chairs: Malcolm S. Gordon and Klaus W. Beyenbach

13.00 -13.30: Fish gill ion uptake: August Krogh to morpholinos and micropores – David H. Evans, University of Florida & Mt. Desert Island Biological Laboratory

13.30 - 14.00: Urine concentrating mechanism in the inner medulla of the mammalian kidney: Role of three-dimensional architecture – William H. Dantzler, University of Arizona, Tucson

14.00-14.30: On the function of mammalian renal pelvis – Bodil Schmidt-Nielsen, Gainesville

14.30-15.00: *Coffee/tea break*

Cellular and Organ functions

Chairs: David H. Evans and Erik Skadhauge

15.00-15.30: The August Krogh Principle in Insects: Dynamic Regulation of the Paracellular Pathway in Epithelia – Klaus W. Beyenbach, Cornell University, Ithaca

15.30-16.00: Survival in extreme environments – what we know about ion and water regulation in tardigrades – Nadja Møbjerg, University of Copenhagen

16.00-16.30: Salt and water absorption by the marine teleost fish intestine: from cellular mechanisms to oceanic carbon cycle implications – Martin Grosell, University of Miami

16.30-17.00: Reconciling Krogh's and Ussing's interpretations of epithelial ion transport – Erik H. Larsen, University of Copenhagen

19.00: Dinner at Tivoli

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Friday June 4:

AM: Membrane Transport and Osmoregulation Continued Signalling in Membrane and Epithelial Transport

Chairs: Stine F. Pedersen and John W. Hanrahan

09.00-09.30: Cell volume homeostatic mechanisms – Else K. Hoffmann, University of Copenhagen

09.30-10.00: Signalling in fish gill ion transport – William S. Marshall, St Francis Xavier University, Nova Scotia

10.00-10.30: Purinergic signalling in epithelial transport – Ivana Novak, University of Copenhagen

10.30-11.00: *Coffee/tea break*

Specialized Epithelial Functions

Chairs: Nadja Møbjerg and Martin Grosell

11.00-11.30: Ion and fluid transport in secretory epithelia – John W. Hanrahan, McGill University, Montreal

11.30-12.00: Chemosensory function of amphibian skin – Stanley D. Hillyard, University of Nevada, Las Vegas

12.00-13.00: *Lunch*

PM: Adaptations to Environmental Oxygen

Energy Metabolism and Gas Exchange

Chairs: M. Berenbrink and Roy E. Weber

13.00-13.30: Hypoxia in invertebrates – Thomas Gorr, University of Zürich

13.30-14.00: Oxygen-binding globins of invertebrates – Thomas Hankeln, Johannes Gutenberg University Mainz

14.00-14.30: Control and mechanisms of gas exchange in vertebrates – Tobias Wang, University of Aarhus

14.30-15.00: *Coffee/tea break*

Hemoglobin

Chairs: Thomas Gorr and Frank Bo Jensen

15.00-15.30: Evolution of the Bohr and Root effects – Michael Berenbrink, University of Liverpool

15.30-16.00: Evolution and regulation of haemoglobin function – Roy E. Weber, University of Aarhus

16:00-17:30 Closing Remark and Beer

August Krogh Symposium 2010

General information

The venue

The venue is The Royal Danish Academy of Sciences and Letters located in central Copenhagen on HC Andersens Boulevard 35 (please see (1) on map next page).

Hotel

The main symposia hotel is The Square Copenhagen Hotel located at Rådhuspladsen 14 (please see (2) on map next page).

Getting from the Airport into Copenhagen Central

From the airport there are convenient trains going directly into Copenhagen main central station (Hovedbanegården) (3) in the center of Copenhagen. The trip takes about 15 min. Tickets for the trains can be bought at the airport. A Taxi from the Airport to Copenhagen central is about 15-20 Euro.

Currency

Currency in Denmark is the Danish *Krone*. ~7.5 kroner equals 1 Euro. Credit cards are accepted in most stores and restaurants.

Weather

Hopefully the weather will be sunny and warm but it may be advisable to bring a light jacket and an umbrella.

Registration

You may register at the venue all mornings: Tuesday from 8-9, wed-fri from 8-8:45.

Scientific presentations

Speakers are asked to bring their presentations on a USB key. Please bring your presentation for uploading at the latest 30 min before the morning or afternoon session in which you present. If there are components of the presentations that may require your own lab-top to be used then we ask that you, if possible, try your presentation out in good time before the session.

Speakers and Chairpersons are kindly asked to adhere strictly to the allocated times. Also, please be aware of that, due to the small lecture hall, entrance and exit during lectures can be disturbing.

Manuscripts

We look forward to receiving your manuscript during the symposium. Please either bring your manuscript on a USB key or send it by mail to one of the organizers:

Erik Hviid Larsen: ehlarsen@bio.ku.dk; Jørgen Wojtaszewski : jwojtaszewski@ifi.ku.dk

Ylva Hellsten: yhellsten@ifi.ku.dk

Travel reimbursements

If you have receipts for travel reimbursement: please collect all your receipts and send together with your personal information and bank account information to: Per Ankær, ICS - International Conference Services a/s, P.O. Box 41 - DK-2900 Hellerup- Denmark. E-mail: per@ics.dk

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Social arrangements

Tuesday the 1st of June at 16:30-18:00 o'clock: Welcome Reception held at the symposium venue

Wednesday, 2nd of June at 17:30. Boat trip for all. We meet at Gammel Strand in Central Copenhagen where the boat departs at 17:30 (please see (4) on map next page).

Thursday the 3rd of June at 19:00: Symposia dinner:

The dinner is held at *Restaurant På fuglen* in The amusementpark Tivoli. Please show your Tivoli ticket at the main entrance of Tivoli (opposite the main train station) to be let in (please see (5) on map this page).

Friday June 4th: After the closing remark, farewell beer is served for everyone at the symposium venue

