



Danish Cardiovascular Research Academy

Cell Biological Methods in Water and Salt Research

6 - 10 december 2004

Aims and content: This course aims at providing the students with the theoretical aspects of methods and techniques used to evaluate transport of salt and water. The course will also focus on practical aspects of the techniques used with demonstrations of some of the techniques.

A faculty of experts will be involved in teaching the course, not only by giving lectures but also by their active participation in the discussion and demonstrations. Some lecturers will be present for a large part of the course, providing maximum possibility for interaction.

Participants: 10-20 Ph.D. students.

Language: English

Director: Christian Aalkjær and Jens Leipziger, Dept. Physiology, University of Aarhus.

Place: "Kolloquium Vest", Victor Albeck Building, Aarhus University.

Monday, 06.12.04, Day 1:

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| 8.30-8.45 | Welcome |
| 8.45-9.30 | Regulation of body water and salt homeostasis – the basics (Niels-Henrik Holstein Rathlou, Copenhagen, DK) |
| 9.30-10.00 | <i>Coffee</i> |
| 10.00-10.55 | siRNA (Jørgen Kjems, Aarhus, DK) |
| 11.00-12.00 | What can you do with PCRs? (Boye Jensen, Odense, DK) |
| 12.00-13.00 | <i>Lunch</i> |
| 13.00-14.00 | Quantitative PCR (Boye Jensen, Odense, DK) |
| 14.00-14.30 | <i>Coffee</i> |
| 14.30-15.30 | Manipulation of genes in mice (Ernst Martin Füchtbauer, Aarhus, DK) |
| 15.30-16.30 | Presentation of students' projects |

Tuesday, 07.12.04, Day 2:

- 8.30-9.25 Regulation of Na⁺ and Cl⁻ homeostasis (Jens Leipziger, Aarhus, DK)
- 9.30-10.30 Localization of proteins (Sebastian Frische, Aarhus, DK)
- 10.30-11.00 *Coffee*
- 11.00-12.00 Gene arrays (Mogens Kruhøffer, Aarhus, DK)
- 12.00-13.00 *Lunch*
- 13.00-13.55 Finding gene abnormalities in humans diseases (Peter Deen, Nijmegen, Holland)
- 14.00-14.45 *Coffee*
- 14.45-16.00 Presentation of student project

Wednesday, 08.12.04, Day 3:

- 8.30-9.25 Water transport (Søren Nielsen, Aarhus, DK)
- 9.30-10.45 The microscope (Arvid Maunsbach, Aarhus, DK)
- 10.45-11.15 *Coffee*
- 11.15-12.00 Fluorescence (Holger Nilsson, Aarhus, DK)
- 12.00-13.00 *Lunch*
- 13.00-14.00 Imaging (Roland Nitschke, Freiburg, Germany)
- 14.00-14.45 Electrophysiology and patch clamp (R Warth, Regensburg, Germany)
- 14.45-15.15 *Coffee*
- 15.15-16.45 Student presentation.

Dinner downtown

Thursday 09.12.04, Day 4:

- 8.30-9.25 Acid/base homeostasis (Chr Aalkjær, Aarhus, DK)

- 9.30-12.30 Detailed discussions and problem oriented analysis of different experimental approaches.
1) Isolated perfusion of renal tubules(Jens Leipziger, Mikkel Juul Jensen)
2) Quantitative PCR (Jan Alsner)
3) Generation of antibodies (Jeppe Praetorius)
4) Immunohistochemistry (Jeppe Praetorius)
- 12.00-13.00 *Lunch*
- 13.00-14.00 Ussing chamber (Jens Leipziger, Aarhus, DK).
- 14.00-15.00 Transport of other solutes (PO_4^{2-} , K^+ , glucose, urea, aminoacids, etc.) (Markus Bleich, Kiel, Germany)
- 15.00-15.15 *Coffee*
- 15.15-16.00 Proteomic techniques (Bent Honore, Aarhus, DK)

Friday, 10.12.04, Day 5:

- 8.30-10.25 Water, salt, cardiac output and blood pressure – an integrated view (Thomas Jonassen, Copenhagen, DK, Jørgen Frøkjær, DK)
- 10.30-11.00 *Coffee*
- 11.00-12.00 Evaluation and Farewell