



## Danish Cardiovascular Research Academy

### PhD-course in Vascular Signalling: Mechanisms and Methods

to be held at the University of Aarhus, Aarhus, 16-19 November 2009

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10/11-2009

#### Programme

**Purpose:** To provide the participant with all the relevant knowledge on vascular function at the cellular level and the techniques used to study this. This means that the participant interested in cellular and molecular physiology and pharmacology will get an overview and an opportunity to understand details of relevance for his/her project and the participant interested in integrative cardiovascular physiology will get a unique opportunity to understand the cellular background for his/hers key observations.

**Course directors:** prof. Christian Aalkjær, (ca@fi.au.dk), consultant Kent Lodberg Christensen (klch@mail.dk), prof. Michael Mulvany, (mm@farm.au.dk), prof. Ulf Simonsen (us@farm.au.dk) University of Aarhus

**Guest lectures:** prof. Anders Arner, Karolinska Institute, Stockholm, prof. Cor de Wit, University of Lübeck, lector Maria Gomez, Malmö, prof. Mark Nelson, University of Vermont, prof Holger Nilsson, University of Gothenborg, prof. Niels-Henrik Holstein-Rathlou, University of Copenhagen, ass. prof. Vladimir Matchkov, University of Aarhus

**Location:** The course will be held in the Blue Auditorium, Victor Albeck Building, Faculty of Health Sciences, University of Aarhus, Vennelyst Boulevard 4, 8000 Aarhus C.

**Format:** Each lecture will be followed by a discussion of a paper relevant for the lecture. In the afternoon there will be a group exercise. The group will prepare a summary of the day's lectures.

#### Monday 16<sup>th</sup> *Vascular function and structure (chairmen: Holger Nilsson, Kent Lodberg Christensen)*

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|-------------|-----------------------------------------------------------------------|
| 8.30-8.45   | Introductory remarks                                                  |
| 8.45-9.30   | Lecture 1. Vascular function (Holger Nilsson, Gothenborg)             |
| 9.30-10.15  | Discussion (on basis of previously distributed article and questions) |
| 10.15-10.45 | Coffee                                                                |
| 10.45-11.30 | Lecture 2. Vascular structure (Michael Mulvany, Aarhus)               |
| 11.30-12.15 | Discussion (on basis of previously distributed article and questions) |
| 12.15-13.15 | Lunch                                                                 |

- 13.15-14.00 Lecture 3. Modeling vascular structure and function (Niels-Henrik Holstein-Rathlou, Copenhagen)
- 14.00-14.45 Discussion (on basis of previously distributed article and questions)
- 14.45-15.00 Coffee
- 15.00-15.45 Lecture 4. Manipulating vascular genes (Christian Aalkjær, Aarhus).
- 15.45-16.30 Discussion (on basis of previously distributed article and questions)
- 16.30-17.15 Group exercise
- 18.00-21.00 Symposium. Presentation of results from participating laboratories. Light dinner will be provided. To be held in the conference room, 6<sup>th</sup> floor, Bartholin Building

**Tuesday 17<sup>th</sup> *Channels and transporters* (chairmen: Niels-Henrik Holstein-Rathlou, Ulf Simonsen,)**

- 8.30- 9.15 Lecture 5. Ion translocation (Mark Nelson, Vermont)
- 9.15-10.00 Discussion (on basis of previously distributed article and questions)
- 10.00-10.30 Coffee
- 10.30-11.15 Lecture 6. Electrophysiology (Vladimir Matchkov, Aarhus)
- 11.15-12.00 Discussion (on basis of previously distributed article and questions)
- 12.00-13.00 Lunch
- 13.00-15.00 Group exercise. Coffee
- 15.00-15.45 Lecture 7. Fluorescence, calcium measurements, intracellular calcium (Mark Nelson, Vermont)
- 15.45-16.30 Discussion (on basis of previously distributed article and questions)

**Wednesday 18<sup>th</sup> *Calcium, endothelium and immunohistochemistry* (chairmen: Mark Nelson, Cor de Wit)**

- 8.30- 9.15 Lecture 8. Calcium sensitivity (Anders Arner, Stockholm)
- 9.15-10.00 Discussion (on basis of previously distributed article and questions)

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| 10.00-10.30 | Coffee                                                                                                          |
| 10.30-11.15 | Lecture 9. Endothelium (Ulf Simonsen, Aarhus)                                                                   |
| 11.15-12.00 | Discussion (on basis of previously distributed article and questions)                                           |
| 12.00-13.00 | Lunch                                                                                                           |
| 13.00-13.45 | Lecture 10. Immunohistochemistry (Maria Gomez, Malmö)                                                           |
| 13.45-14.30 | Discussion (on basis of previously distributed article and questions)                                           |
| 14.30-16.30 | Group exercise. Coffee                                                                                          |
| 16.30-17.30 | Lecture 11 How does integrative and cellular oriented scientist interact?<br>(Kent Lodberg Christensen, Aarhus) |
| 19.00       | Restaurant in downtown Aarhus.                                                                                  |

**Thursday 19<sup>th</sup> *Intercellular communication* (chairmen: Anders Arner, Maria Gomez)**

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|-------------|-----------------------------------------------------------------------|
| 8.30- 9.15  | Lecture 12. Neurovascular interactions (Holger Nilsson, Göthenborg)   |
| 9.15-10.00  | Discussion (on basis of previously distributed article and questions) |
| 10.00-10.30 | Coffee                                                                |
| 10.30-11.15 | Lecture 13. Studying cellular function in vivo (Cor de Wit, Lübeck)   |
| 11.15-12.00 | Discussion (on basis of previously distributed article and questions) |
| 12.00-13.00 | Lunch                                                                 |
| 13.00-14.00 | Group exercise.                                                       |
| 14.00-15.45 | Presentation of summaries produced by the groups. Coffee              |
| 15.45-16.00 | Course evaluation                                                     |

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Registration. By e-mail or FAX to the course secretary. Registration forms may be downloaded from <http://www.dacra.dk>.