Programme CSnD Master class

“Membrane traffic in development & disease”

Week 13-17 March 2017

Venue:
Str. 2.106

Organizer:
Dr. Madelon Maurice, Dept. of Cell Biology, UMC Utrecht

Background:
The architecture and homeostasis of all mammalian cells is established and maintained by an elegant system of membranes that organize cells into distinct compartments and regulate transport into, out of, and within cells. Up to a third of the human genome is estimated to encode membrane proteins and proteins which are part of the membrane traffic machinery necessary to direct membrane proteins to the intracellular sites at which they function. The importance of membrane traffic in organismal homeostasis is underscored by the fact that mutations affecting these cellular systems can cause devastating, if not fatal, effects for the whole organism.

The purpose of this Master Class has two aspects:
- Acquire basic and advanced knowledge on membrane traffic and its relationship to disease and development.
- Use this knowledge to read a series of articles on a given subject and produce your integrated view of how the studied membrane traffic defect (due to a given mutation) explains the etiology of the disease or the developmental defect.

Course organization: A minimum of 12 to max 20 students will receive training in reading and interpreting scientific literature dealing with membrane traffic in disease and development.

Lectures and seminars:
- First, students will get 5 introductory lectures on the relationship between different aspects of membrane traffic, diseases and development by Judith Klumperman, Peter van der Sluijs, Catherine Rabouille, Willem Stoorvogel and Madelon Maurice.
- Integrated in the course is seminar of a leading (inter)national scientist on the topic

Student work:
- The students will be divided in 5 groups and each group will prepare one of the subjects. At the end of this week, the students are expected to:

1) provide a concise and coherent oral presentation of two or more research papers in a format of a journal club for 20 min, followed by a 10 min discussion combining several papers (see guidelines) given by the teachers. You need to present primary data to support the facts that you present. It cannot be done as a review with no data.
The presentation will have to integrate the data of these papers to make a single and cohesive story while presenting primary data (See guidelines).

This is an important research exercise, so you learn to read, integrate information and write a introduction/ review/ scriptie etc.

2) After the final presentation on Friday, there will be **an exam**: you will be asked to answer questions about all subjects (5 in total) for 1 hour. This is important for you to gather sufficient information during the presentation of your fellow students but also it is to drive you into presenting the best you can so that others can understand.

Further remarks
The week is meant to be dedicated to this course. The students have to be together all the time, either as a small or large group. The preparation of the presentation has to be made together as a small group. Thursday, however, is dedicated to rehearse your presentation and improve it with all your colleagues of the course who do not deal with the same subject but who are intelligent enough to understand and help.

Grades: The grade will be based on **performance during the week** (interest, participation 20%), **the presentation** itself (with a separate mark for the introduction, result section and answers to questions 40%), and **the exam at the end** (40%)

Location:
STR2.106

Monday 13-03-2017 Group division and lectures

09.00-09.30: Introductory remarks and overview by course coordinator Madelon Maurice.

Students will be divided in 5 groups on the following subjects:

1) Subject Judith Klumperman: ***Lysosome dynamics in Alzheimer's disease***
2) Subject Peter van der Sluijs: ***Endosomes in plasma membrane plasticity and cell migration***
3) Subject Catherine Rabouille: ***Membrane-less compartments and ALS***
4) Subject Madelon Maurice: ***Role of R-spondin in tissue renewal***
5) Subject Willem Stoorvogel: ***The role of extracellular vesicles in tumor growth and metastasis***

09.30-10.45: Lecture **Judith Klumperman**: "**The endo-lysosomal pathway in health and disease"**
11.00-12.15: Lecture **Peter van der Sluijs: "Endosomes and membrane plasticity"**

12.15-13.30: *Lunch*

13.30-14.45: Lecture **Catherine Rabouille: "*Stress and the formation of membrane-less compartments*"**

15.00 – 17.00: *Reading papers*

Tuesday 14-03-2017 Lectures

09.00-10.15: Lecture **Willem Stoorvogel**: **"Extracellular vesicles in health and disease"**

10.45-12.00: Lecture **Madelon Maurice: "Wnt signalling events at the membrane"**

12.00- 13.30 *Lunch*

13.30 – 17.00 Start preparing presentations for Friday

Wednesday 15-03-2017 Preparation presentations

09.00-15.00: Prepare papers for Friday presentation
15.00-17.00: Contact hours for meetings with the teachers for questions etc regarding the papers.
The preparation of the talks has to be made together. 2-3 students will actually present. But the others are meant to answer the questions at the end, so that the workload is shared.

Thursday 16-03-2017 Rehearsal presentations and outside speaker

09.00-12.30: Preparation of talks

12.30-15.30: General rehearsal as a big group without teachers (30-40 min per groups)
Each group presents the oral presentation to the rest of the students and get feedback. This will be important to improve the presentation. This, in turn, is important because on Friday afternoon, the students will have to answer one question of each presentation.
NOTE: General discussion on the subject should be avoided. Point out what you do not understand. Challenge the content, the clarity, the logics, the amount of info etc

16.00-17.00: CSnD Seminar of external keynote speaker:
Sjaak Neefjes, Leiden University.
Title: "Dynamics and positioning of the endosomal system under the control of other compartments… and more"

17.00-17.20: Question time with speaker

Friday 17-03-2017

09.00-13.00**:** 5x30 minutes paper presentation including 10 minutes discussion. 2-3 students will present and the other two answer the questions. Students will be asked to present themselves beforehand. All lecturers are present to grade the talks.

09.00: Presentation of paper 1
09.35: Presentation of paper 2
10.10: Presentation of paper 3
10.45: Break
11.15: Presentation of paper 4
11.50: Presentation of paper 5

12.30-12.45: Feedback on presentations by the teachers

13.00-14.00 Lunch

15.30 -16.30: Exam (questions on presentations + external speaker seminar)

16.30: Filling up of evaluation questionnaire

15.45 -17.00: Drinks