

MLS-PhD course “Cell biology” 25. – 27. August 2010

Location: ETH-Hönggerberg, IBC, HPM D7.2

About the course:

Each day focuses on a different major topic in cell biology and is organized by the two listed laboratory heads. To enhance the knowledge of the scientific activities in Zürich, aspects of the work of the individual laboratory heads will be presented in interactive morning lectures. In the afternoon, the students will discuss topic-related research papers in an in plenum discussion high-lightning the concepts. The papers will be made available minimally 10 days before the course starts and the participants are expected to have them read in time.

Overview:

25. August 2010:

Matthias Peter - Ruth Kroschewski

Topic of the day:

Cell polarization: From single cells to multicellular aggregates

26. August 2010:

Vikram Panse – Claus Azzalin

Topic of the day: Ribosomes >> RNA >> Telomeres

27. August 2010

Helge Ewers – Huber Hilbi

Topic of the day:

Membrane dynamics and trafficking of bacteria and viruses

Including: PALM-Microscope demonstration

MLS-Course 2010 - Wednesday, 25th August 2010

Matthias Peter and Ruth Kroschewski

Topic of the day: Cell polarization: From single cells to multicellular aggregates

Program:

09.00 - 10.30 Matthias Peter: "Cell polarity in single cells"

10.30 – 10.45 Coffee

10.45 – 12.15 Ruth Kroschewski: "Cystogenesis and Cdc42"

12.15 – 13.30 Lunch

13.30 – 14.30 Paper preparation (the students divide into two groups; each group presents one original research article, responds to given tasks).

14.30 – 16.30 Paper discussion (in HPM D7.2)

Literature

1) The role of Far1p in linking the heterotrimeric G protein to polarity establishment proteins during yeast mating.

Butty AC, Pryciak PM, Huang LS, Herskowitz I, Peter M.
Science. 1998 Nov 20;282(5393):1511-6.

2) Tuba, a Cdc42 GEF, is required for polarized spindle orientation during epithelial cyst formation.

Yi Qin, Walter H Meisen, Yi Hao, Ian G Macara
The Journal of Cell Biology 2010 vol. 189 (4) pp. 661-9

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MLS-Course 2010 - Thursday, 26th August 2010

Vikram G. Panse and Claus M. Azzalin

Topic of the day: Ribosomes >> RNA >> Telomeres

Program:

09.30 - 10.15 Vikram: "Eukaryotic Ribosomes"

10.15 - 10.45 Stefan Kemmler: "Late maturation steps in the 60S biogenesis pathway"

10.45 - 11.15 Coffee

11.15 – 11.45 Claus M. Azzalin: "Telomeres and RNA"

11.45 – 12.15 Rajika Arora: "Role of transcription in telomere dynamics"

12.15 – 13.30 Lunch

13.30 – 15.30 Paper preparation (the students divide into two groups and each group prepares to present one original research article, with the help of the overview provided by the review article).

15.30 – 17.00 Paper discussion (in HPM D7.2)

Literature

Panse

Review: Panse and Johnson 2010 TIBS, Vol.35 No.5: p 260

Original Article: Lo et al. 2010 Mol Cell, in press

Azzalin

Review: Martinez and Blasco 2010 Aging Cell, PMID: 20569239.

Original article: Deng et al. 2009 Mol Cell 35: 403-13.

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MLS-Course 2010 - Friday, 27th August 2010

Hubert Hilbi & Helge Ewers

Topic of the day: Membrane dynamics and trafficking of bacteria, viruses and toxins

Program:

09.00 - 10.00 H. Ewers "Lipid-mediated endocytosis of SV40"

10.00 - 11.00 H. Hilbi "Trafficking of the vacuolar pathogen *Legionella pneumophila*"

11.00 - 12.00 L. Johannes "Induced nanodomains drive membrane invagination and scission in clathrin-independent endocytosis"

12.00 - 13.30 Lunch

13.30 - 15.00 Paper preparation

15.00 - 16.00 Paper discussion (in HPM D7.2)

16.00 - 17.00 visit in the laboratory of Helge Ewers

Literature

Paper:

Self-Organization of the *Escherichia coli* Chemotaxis Network Imaged with Super-Resolution Light Microscopy, Derek Greenfield, Ann L McEvoy, Hari Shroff, Gavin E Crooks, Ned S Wingreen, Eric Betzig, Jan Liphardt, PLOS Biology (2009) vol. 7 (6) pp. e1000137

Review:

Photoactivatable fluorescent proteins for diffraction-limited and super-resolution imaging. Jennifer Lippincott-Schwartz and George H. Patterson Trends in Cell Biology (2009)

Prof. Dr. Hubert Hilbi

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