Schmid Training Course

EXPERIMENTAL DEVELOPMENTAL BIOLOGY OF MARINE METAZOANS

14 – 25 May 2012 Roscoff, FRANCE

Organisers:

Patrick Cormier, Stefano Piraino, Agnès Boutet, Xavier Bailly

Participant: 16-20 students (max)

accommodation fees: 195 euros

Registration / application Send a short CV to

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Objectives / presentation

The aim of the forthcoming Schmid Training Course will be to present and discuss modern experimental and scientific approached used for basic and applied research on marine organisms. The wildlife resources of the Roscoff Biological Station will be available for observation and direct experimentation by the students. Students will be actively involved in practical course in order to improve their technical and methodological skills. They will also participate to discussions and debates on selected topics from newly published scientific articles (journal club).

Lecturers

Xavier Bailly (CNRS, Roscoff)

Loriano Ballarin (Università di Padova)

Agnès Boutet (UPMC, Roscoff)

Matteo Cammarata (Università di Palermo)

Daniela Candia Carnevali (Universita di Milano)

Patrick Cormier (UPMC, Roscoff)

Bertrand Cosson (UPMC, Roscoff)

Michael Eitel (University of Hong Kong)

Walter Gehring (Basel University)

Adriana Giangrande (Università del Salento, Lecce)

Volker Hartenstein (UCLA)

Sven Leininger (Sars Molecular Marine Center, Bergen)

Roberta Pennati (Università di Milano)

Stefano Piraino (Universita del Salento, Lecce)

Nicolas Rabet (UPMC, Paris)

Heinrich Reichert & Ricardo Neves (Basel University)

Bernd Shierwater / Karolin von des Chevallerie (Hannover)

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Akademie der Naturwissenschaften
Accademia di scienze naturali
Académie des sciences naturelles

VECTORS

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Station Biologique
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Course topics

Part 1- Basic science on marine organisms

1 - Model organisms and non-conventional models: presentation

Life cycle, anatomy, embryogenesis (fecondation, early development)

Genetic networks underlying tissue morphogenesis and organogenesis.

2 - Functional approaches, tools for molecular and cellular analyses

Genetic engineering, tools for molecular analysis and functional exploration

Cell lineage study

Genomic resources or databases from marine organisms

Advantages, limits of model organisms in research

3 - Exploring the Evo-Devo question

Comparative analysis of genetic networks across taxa

The evolution of morphogenesis: loss or gain

Genetic plasticity

Genetic robustness

4 - Exploring the Eco-Evo-Devo question

How does ecology or environment impact embryogenesis and can lead to evolutionary changes?

The epigenetic "seascape" (how environmental and genetic variations dynamically interplay to give origin to the biological diversity?)

Evolution of life cycles

Evolution of adaptative mechanisms

Part 2- Applied research on marine organisms

1 - Regeneration mechanism studies on marine organisms

Nervous system and muscle tissues regeneration: insights from the acoela S. roscoffensis.

Kidney regeneration on lower vertebrate: the cartilaginous fish S. canicula as a model

Mutable collagenous tissues of invertebrates and biomedical applications

2 - Drug design from marine organism research

Possible biomedical outcomes from research on marine organisms (drug development, patent, etc…)

Requirements : Participation to the course requires knowledge of fundamental principles of molecular and cellular biology and developmental genetics. Knowledge in organism phylogeny and evolution is also desirable.

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