

Vertebrate development and related human pathologies

This is a one-week introduction course to vertebrate development. Most of the topics of the course are covered using the mouse as an animal model, but other vertebrates are also referred to.

Mammalian development is presented from the earliest stages to adulthood. The development of specific organs, such as that of the heart or of the nervous system, is treated in greater details. Examples of human pathologies resulting from developmental abnormalities illustrate specific aspects of embryogenesis. The specific methodologies and techniques used to investigate the molecular and cellular mechanisms operating during development are also presented.

The lectures are given by researchers working in the relevant fields.

Each year, two researchers are the “special guests” of the week. The students will have to analyze articles and prepare relevant questions about the guests’ research topics.

The course is intended for biology and medical students who have a working knowledge of molecular biology.

The course includes a visit to the mouse gene targeting facility at Pasteur Institute.

MONDAY october 4th

Morning:

9:00-11:00: Presentation /elementary developmental biology basis

Délara Sabéran-Djoneidi (delara.saberan@u-paris.fr)

Lunch

Afternoon:

13.30- 15.30

Cell lineage specification in the early mouse embryo

Anna Geiselmann (anna-maria.geiselmann@pasteur.fr)

16:00- 17:00

Work by small groups on the articles

TUESDAY October 5th

Morning:

Nervous system development

9:30-10 :30 a.m

CRISPR/cas9 technology studying vertebrate development

Jean-Paul Concordet (jean-paul.concordet@mnhn.fr)

10:45- 12:15 a.m :

Single RNA-seq cell tracing

Maximilian Haeussler (max@soe.ucsc.edu)

Lunch

Afternoon:

13:30 -15.00

Neuronal migration and cortex formation

Fiona Francis (fiona.francis@inserm.fr)

15:15- 16.30 p.m Work by small groups on the articles (with JP Concordet and D. Sabéran-Djoneidi)

WEDNESDAY October 6th

Morning:

Specific aspects of organogenesis

10:45- 12:15 Skeletal development

Céline Colnot (celine.colnot@inserm.fr)

Lunch

Afternoon:

13:30- 16:30

Student articles presentations on *Vanessa Ribes* topics, by group I

THURSDAY Octobre 7th

Morning:

09:30 -12.30

Invited speaker: *Guest Speaker : Vanessa Ribes* (vanessa.ribes@ijm.fr)

Questions prepared by students from group I

Réseaux transcriptionnels et différenciation neurale

Vanessa RIBES

Lunch

Afternoon:

14:00-17:00

Student articles presentations on *Julien Vermot* topics, by group II

FRIDAY Octobre 8th:

Morning:

9.30-12.30 a.m.:

Invited speaker: *Julien VERMOT* (julien@igbmc.fr)

Questions prepared by students from group II

Lunch

Afternoon:

1.30-.6.00p.m.:

Group I : Mouse embryo observations and visit of a mouse gene targeting facility at Pasteur, *Francina Langa* (francina@pasteur.fr)

Group II : Mouse embryo observations and visit of a mouse gene targeting facility at Cochin, *Marcio Do-Cruzeiro* (marcio.do-cruzeiro@inserm.fr)

ORGANIZERS

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