

Stem Cell Biology and Regenerative Medicine
October 2nd -6th

Aiming for 24 students

43 hours of active lectures and discussion, 30 hours of preparation

Suggested program:

Monday October 2nd:

9:00-10:30 Initial discussion and introduction by the organizers.

(By Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

- Expectations from participants
- Leveling of knowledge
 - o What do we know?
 - o What do we think we know?
 - o What is a stem cell?

10:30-11:00 Coffee break

11:00-12:30 Participant introduction (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

11:00-11:30 Speed dating

11:30-12:30 Round table

Introduction 2 minutes per participant – relating their individual projects to stem cells

12:30-13:30 Lunch break

13:30-18:00 How does it all start? (Elisabetta Ferretti)

13:30-15:00 Elisabetta Ferretti, DanStem

Embryogenesis including gastrulation and germ line separation.

15:00-15:15 Coffee break

15:15-16:00 Cord Brakebush, Transgenic Core Facility

What embryonic stem cells could be used for.

Generation of new mouse models, ES cells

16:00-17:45 Josh Brickman, DanStem

Transcriptional networks maintaining stem cell states

18:00-20:00 Pizza, Student networking

Tuesday October 3rd:

9:00-9:30 Debriefing from yesterday lectures (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

- What did we learn and are there any outstanding questions

9:30- 10:30 Methods used in stem cell research: (Anne Grapin-Botton and Kim Jensen)

Fate mapping, Cell culture, Organoids, Single cell analysis, FACS, Sequencing

10:30-11:00 Coffee break

11:00-12:00 Student tasks in groups (Anne Grapin-Botton and Elisabetta Ferretti)

Set up an experiment to prove the existence of stem cells in your favorite tissue.

12:00-12:30 5 minutes presentation by the different groups

(Anne Grapin-Botton and Elisabetta Ferretti)

12:30-13:30 Lunch break

13:30-18:00 Tissue formation and homeostasis (Kim Jensen and Anne Grapin-Botton)

13:30-15:00 Kim Jensen Jensen, BRIC (Kim Jensen)

Tissue specification and the formation of the first stem cells intestine and skin

15:00-15:15 Coffee break

15:15-17:00 Anne Grapin-Botton Grapin-Botton, Danstem (Anne Grapin-Botton)

Organ Maintenance, Stem cells or not?

17:00-18:00 Group work the judicial court case on Friday

Begin preparing the arguments (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

Wednesday October 4th:

9:00-9:30 Debriefing from yesterday lectures (Kim Jensen, and Anne Grapin-Botton)

- What did we learn and are there any outstanding questions

9:30-12:30 Blood stem cells and regeneration (Kim Jensen and Elisabetta Ferretti)

9:30-10:15 Bo Porse, BRIC (Kim Jensen)

Hematopoietic stem cells and cell transplantation

10:15-10:30 Coffee break

10:30-11:15 Kim Jensen Jensen, BRIC (Kim Jensen)

Regenerative strategies for solid tissues

11:30-12:00 Debriefing from yesterday lectures (Kim Jensen, and Elisabetta Ferretti)

- What did we learn and are there any outstanding questions

12:30-13:30 Lunch break

13:30-15:00 Group work on selected papers related to the topic (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

Papers will be chosen from some of the PIs presenting at the symposium to make the students familiar with their work and get acquainted with the field. The students will be given these papers in advance of the course.

15:00-15:30 Coffee break

15:30-18:00 Presentations by the different groups topics (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

Thursday October 5th: Symposium with invited speakers on stem cell biology (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

Introduction to the topics:

9:00-11:00 Germ cells– Petra Hajkova

10.00-10.30 Coffee break

10.30-11.30 Epidermal stem cells- Fiona Watt

11.30-12.30 A systems approach to stem cell biology- Prisca Liberali

12:30-13:30 Lunch break

14:00-17:30- Specific research topics of invited speakers (open to public)

- Petra Hajkova, Epigenetic reprogramming events in the germ cells and zygote

- Fiona Watt, Self-renewal and lineage selection in epidermal stem cells

- Prisca Liberali, systems biology and organoids

15:00-15:15 Coffee break

19.00 Dinner with students and speakers

Friday October 6th:

9:00-9:30 Debriefing from yesterday's lectures (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

What did we learn and are there any outstanding questions?

9:30-12:30 Stem Cell Applied Research and Bioethics

9:30-10:30 Agnete Kirkeby, Danstem

Translational stem cell biology- Towards Parkinson therapy

10:30-11:00 Coffee break

11:00-12:00 Henrik Semb, Danstem

Translational stem cell biology in Diabetes

12:00-13:00 Peter Sandøe, KU

Bioethics

13:00-13:30 Lunch break

13:30-15:00 Judicial court case for and against the existence of stem cells

Students divided into 2 groups (Anne Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)

15:00-15:15 Coffee break

15:00-16:00 Evaluation (Anne, Grapin-Botton, Kim Jensen, and Elisabetta Ferretti)