

## **PhD specialization: Stem Cells and Regenerative Medicine**

The new PhD specialization **Stem Cells and Regenerative Medicine** is jointly offered by the Graduate School for Cellular and Biomedical Sciences (GCB) and the Platform for Stem Cells in Regenerative Medicine (SCRM).

Administrative coordinators: Prof. Dr. Benjamin Gantenbein & Dr. Amiq Gazdhar

Scientific coordinator: Prof. Dr. Volker Enzmann

The **Stem Cells and Regenerative Medicine** (SCRM) curriculum will be embedded in the Graduate School for Cellular and Biomedical Sciences of the University of Bern (GCB) and will benefit from the existing framework of the Platform for Stem Cells in Regenerative Medicine. PhD students registered to the program will profit from:

- Basic knowledge in stem cell culture (iPS and adult stem cells) and differentiation.
- Know-how about basic concepts of tissue engineering.
- Overview on the different regenerative approaches researched on at the University of Bern and the Inselspital.
- Interaction of biomaterials and cells to mimic different micro-environments.
- Workshops and practical courses that can individually be chosen.
- Networking with other PhD students applying specialized methods for tissue repair or regeneration.
- Personal contact to advanced scientists with special know-how in regenerative medicine.
- Cost-free participation at the PhD retreat with excellent networking opportunities.

The SCRM curriculum is embedded in already existing lectures, practical courses in the field of stem cells, regenerative medicine and tissue engineering at the Faculty of Medicine and the Phil.-Nat. Faculty. Additional activities are offered to especially amend the needs of the proposed program.

The program is divided in two sections: a basic module with mandatory courses (4 ECTS) and an elective module (4 ECTS) allowing the students to choose courses and set a focus on specific topics considered advantageous to the individual PhD projects.

### **Mandatory courses (4 ECTS):**

Out of the 6 ECTS being needed for achieving the PhD from the GCB, the PhD students of the Stem Cells and Regenerative Medicine specialization can acquire 4 ECTS from the basic module of the program (Code "BM"). The "Stem Cells and Regenerative Medicine" lecture is mandatory to ensure that all students have a basic knowledge in the field that allows them to profit from the rest of the program. In case the Stem Cell and Regenerative Medicine lecture has been taken during the Master education of the respective PhD student, this student will choose in consultation with the coordinators suitable courses

from the elective modules allowing him or her to score 4 ECTS as a basic education. The annual PhD retreat, to which is free, is compulsory for SCRUM PhD students!

### Elective modules (4 ECTS):

For the specialized education in the Stem Cells and Regenerative Medicine PhD program, each student will choose courses from the elective modules (Code “EM”) to obtain another 4 ECTS.

The additional specialization of the Stem Cells and Regenerative Medicine PhD program will be honored with a certificate supplementing the PhD degrees to be awarded by the University of Bern according to the regulations of the GCB.

**We highly encourage PhD students of the University of Bern with a research interest in regenerative medicine to enroll in this program as they will definitely profit from this special education.**

### List of courses for the specialization:

Basic (BM) / Elective (EM)	Lecture / Workshop	Topics	Responsible	When	ECTS
BM	Stem cell lecture series	Basics SC & regenerative medicine, Organoids, SC niche, IPS, ESC, Adult SC in different tissues	Volker Enzmann	SS	3
BM	Practical courses for stem cell techniques	SC Culture, Sorting, Differentiation, IHC, Microscopy, PCR	Platform SC & RM	Summer	1 / each wet lab
BM	PhD retreat	Academic & industry keynote lectures, student presentations	Eliane Müller	Summer	0.5
EM	Tissue Engineering	<a href="http://www.bme.master.unibe.ch/studies/curriculum/list_of_courses/tissue_engineering/">http://www.bme.master.unibe.ch/studies/curriculum/list_of_courses/tissue_engineering/</a>	Benjamin Gantenbein	WS	3
EM	Tissue Engineering practical course	<a href="http://www.bme.master.unibe.ch/studies/curriculum/list_of_courses/tissue_engineering_practical_course/">http://www.bme.master.unibe.ch/studies/curriculum/list_of_courses/tissue_engineering_practical_course/</a>	Benjamin Gantenbein	WS	2
EM	CNS – Disease and Repair	Basics, BBB, CNS repair strategies, cell-free approaches, meningitis, retina repair, inner ear repair	Hans Ruedi Widmer / Volker Enzmann	SS	1.5
EM	Journal club	Presentation of SC and RM literature by the students	Amiq Gazdhar	Monthly	1
EM	Stem cell lunch seminar	New developments in SC research	Amiq Gazdhar	Monthly	-