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**UNIVERSITÄT  
BERN**

**UNIVERSITY OF BERN / SWITZERLAND  
FACULTY OF MEDICINE  
FACULTY OF SCIENCE  
VETSUISSE FACULTY**

# **REPORT 2012**

**gcb**

Graduate School  
for Cellular and  
Biomedical Sciences

## **GRADUATE SCHOOL FOR CELLULAR AND BIOMEDICAL SCIENCES**

### **PHD PROGRAMME**

- ▶ **CELL BIOLOGY**
- ▶ **MOLECULAR BIOLOGY & BIOCHEMISTRY**
- ▶ **IMMUNOLOGY**
- ▶ **NEUROSCIENCE**
- ▶ **EPIDEMIOLOGY**
- ▶ **BIOMEDICAL SCIENCES**
- ▶ **BIOMEDICAL ENGINEERING**

**DETAILED INFORMATION: [www.gcb.unibe.ch](http://www.gcb.unibe.ch)**



Graduate School  
for Cellular and  
Biomedical Sciences



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BERN

# ANNUAL REPORT 2012

## Office Address:

Theodor Kocher Institute, University of Bern  
Freiestrasse 1  
Ch-3012 Bern  
Switzerland  
[www.gcb.unibe.ch](http://www.gcb.unibe.ch)

PD Dr. Marlene Wolf, Coordinator  
[marlene.wolf@tki.unibe.ch](mailto:marlene.wolf@tki.unibe.ch), Tel +41 31 631 41 50

Gabrielle Favre, Secretary  
[gabrielle.favre@gcb.unibe.ch](mailto:gabrielle.favre@gcb.unibe.ch), Tel +41 31 631 53 77

Mira Delea, Secretary  
[mira.delea@gcb.unibe.ch](mailto:mira.delea@gcb.unibe.ch), Tel +41 31 631 53 77

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## INTRODUCTION

During the last decades, the boundaries between basic research and medically oriented research began to dissolve and historically separated scientific disciplines like genetics, biochemistry, molecular biology, cell biology, physiology and anatomy have merged into today's modern molecular life sciences. The future generation of researchers in molecular life sciences therefore needs a good overview of all these topics and of the rapid development of new techniques therein, and at the same time remain highly specialized experts in one specific area of the molecular life sciences. The interfaculty Graduate School for Cellular and Biomedical Sciences (GCB) represents an important step in adapting the training of our best young researchers to these new requirements by unifying the PhD training in molecular life sciences at the University of Bern under one roof. The PhD students carry out their research project in a laboratory of the Faculty of Medicine, the Faculty of Science, or the Vetsuisse Faculty, whereas the GCB provides an advisory committee, oversees the progress of the research, offers theoretical and practical training and sets the minimal standards required for a PhD. An invaluable side effect of the GCB is that it efficiently connects researchers across the three faculties and enhances information exchange and collaborations among them. These connections take place at different levels and on various occasions, for example within the PhD advisory committees and among the PhD students during common meetings. As the president of the GCB, I aim at promoting these connections across the three faculties and thereby contributing to the consolidation of a thriving Bernese life science community.

The GCB has now been running for eight years and represents with approximately 350 enrolled students the largest Graduate School of the University of Bern. The GCB is by now well established and the daily business runs smoothly and efficiently, but two big goals are still ahead of us. Firstly, together with the deans of the Faculty of Medicine, the Faculty of Science and the Vetsuisse Faculty, and a few representatives of the Bernese medical and biotech industry, we have been working hard towards establishing the PhD fellowship program to support the brightest and most promising of our PhD students. Secondly, we pursue our plans setting up a central recruiting system in which open PhD positions would be announced internationally through the GCB twice per year, and evaluation and selection of the applicants will be carried out by the expert panels of the GCB together with the group leaders who want to recruit a student for their project. Direct recruiting of PhD students by group leaders according to the current scheme will of course still be possible, but we strongly believe that with a well-organized central recruiting system, we will be able to increase the international visibility of the GCB, attract more applications and hence be able to select on average better students than individual labs can on their own.

Thanks to the support of the rector and the deans of the three involved faculties, the dedication of all committee members, advisors, co-advisors, mentors, co-referees and course instructors, the GCB can reach its ambitious goals, namely to provide high quality training for the next generation of innovative and original life scientists.



Prof. Oliver Mühlemann,  
GCB President

Bern, June 17, 2013

## PHD PROGRAMME

The *Graduate School for Cellular and Biomedical Sciences of the University of Bern (GCB)* offers structured training in experimental research in the fields of biochemistry, cell and molecular biology, immunology, biomedical sciences, epidemiology, neuroscience, and biomedical engineering, leading to a PhD, MD,PhD, or DVM,PhD degree. Its administration is jointly assured by the Faculty of Medicine, the Faculty of Science and the Vetsuisse Faculty.

Since 1 July 2011, the new regulations (*Organisationsreglement, Promotionsreglement, Studienplan*) of the GCB have been in effect, and a number of graduates have already completed their PhD according to the new regulations. Their PhD thesis was assessed by an *external* co-referee, and their PhD title indicates more specifically their area of research (see “GCB GRADUATES (ALPHABETICAL ORDER)”, pp. 17–22).

By the end of 2012, 329 students were enrolled in the PhD programme. The thesis projects are carried out at laboratories of the three participating faculties or at affiliated institutions; in 2012, these included the Institute of Virology and Immunology (IVI) in Mithelhäusern, the Institute for Research in Biomedicine (IRB) in Bellinzona, and the EMPA St. Gallen.

Each student is supervised by a thesis committee consisting of the **supervisor**, a **co-advisor** and a member of the appropriate Expert Committee (**mentor**).

The **supervisor** is responsible for the research project, adequate supervision, the laboratory infrastructure and the salary of the student.

The **co-advisor** must not be affiliated with the same institute as the supervisor, but should be an expert in the research area of the thesis project. He meets with the student at least twice a year to discuss and assess progress of the thesis work, as well as advising and supporting him/her.

The **mentor** decides, together with the student and the supervisor, on the individual training programme, taking into account the student's previous education.

The training programme requires a certain number of learning credits which can be obtained by participating in approved, project-related and interdisciplinary courses, workshops, seminars, and lectures during the doctoral training period. Prior to graduation, candidates must (i) pass the exams of the individual training programme, and (ii) in the course of the second year, present their work in a scientific seminar in the presence of the thesis committee, to document in-depth knowledge of the research field.

The GCB actively supports the participation of students in national and international congresses and in special training courses offered by recognized institutions in Switzerland and abroad, by granting a financial contribution which covers a substantial part of the costs in each case.

A further aim of the structured doctoral programme of the GCB lies in the promotion of a lively scientific exchange between PhD students and senior scientists, and the stimulation of networking activities such as regular discussions with the thesis committee, exchange among peers during the annual GCB Symposium, the opportunities to attend external courses and congresses, and to invite internationally renowned scientists for a GCB seminar.

## **ORGANIZATION**

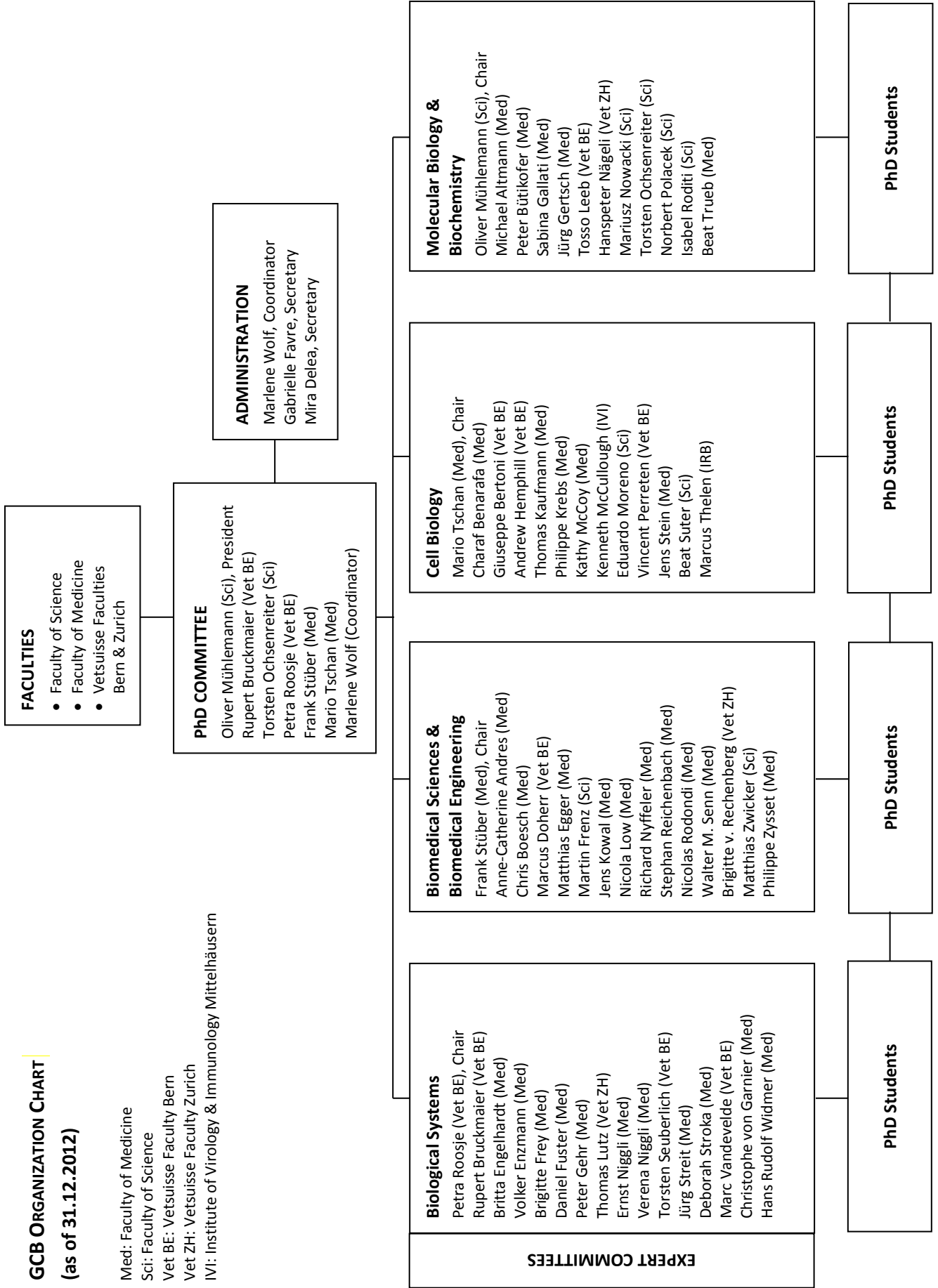
The GCB is headed by the PhD Committee (executive committee), which is composed of two members each of the Faculty of Medicine, the Faculty of Science, and the Vetsuisse Faculty Bern, and the Programme Coordinator. Taking turns, each faculty member acts as President.

Four Expert Committees – Molecular Biology & Biochemistry, Cell Biology, Biological Systems, and Biomedical Sciences & Biomedical Engineering – ensure that the different research fields are represented by experts in the respective areas.

Thanks to the generous financial support from the Faculty of Medicine, it has been possible to keep an adequate level of employment in the administration office of the GCB throughout the year 2012 – an indispensable necessity, in view of the continuously rising numbers of PhD students enrolled in the GCB.

**GCB ORGANIZATION CHART**  
**(as of 31.12.2012)**

Med: Faculty of Medicine  
 Sci: Faculty of Science  
 Vet BE: Vetsuisse Faculty Bern  
 Vet ZH: Vetsuisse Faculty Zurich  
 IVI: Institute of Virology & Immunology Mittelhäusern



## CHANGES IN COMMITTEE MEMBERSHIPS DURING 2012

### PhD Committee

<b>Leaving:</b>	Prof. Primus Mullis (Med)	January 2012
	Prof. Dirk Dobbelaere (Vet BE)	May 2012
<b>Joining:</b>	Prof. Frank Stüber (Med)	February 2012
	Prof. Rupert Bruckmaier (Vet BE)	June 2012

### Expert Committee Biological Systems

<b>Joining:</b>	Prof. Rupert Bruckmaier (Vet BE), Chair	June 2012
	PD Dr. Volker Enzmann (Med)	August 2012
	PD Dr. Torsten Seuberlich (Vet BE)	August 2012

### Expert Committee Biomedical Sciences & Biomedical Engineering

<b>Leaving:</b>	Prof. Primus Mullis (Med), Chair	January 2012
<b>Joining:</b>	Chair: Prof. Frank Stüber (Med)	February 2012
	PD Dr. Stephan Reichenbach (Med)	February 2012
	Prof. Philippe Zysset (Med)	February 2012
	Prof. Marcus Doherr (Vet BE)	August 2012
	Prof. Nicola Low (Med)	August 2012
	Prof. Nicolas Rodondi (Med)	August 2012

### Expert Committee Cell Biology

<b>Leaving:</b>	Prof. Stephan Christen (Med)	May 2012
	Prof. Clemens Dahinden (Med)	May 2012
	Prof. Dirk Dobbelaere (Vet BE)	May 2012
<b>Joining:</b>	Dr. Philippe Krebs (Med)	May 2012
	Dr. Charaf Benarafa (Med)	August 2012
	Prof. Vincent Perreten (Vet BE)	August 2012
	Prof. Eduardo Moreno (Sci)	October 2012

### Expert Committee Molecular Biology & Biochemistry

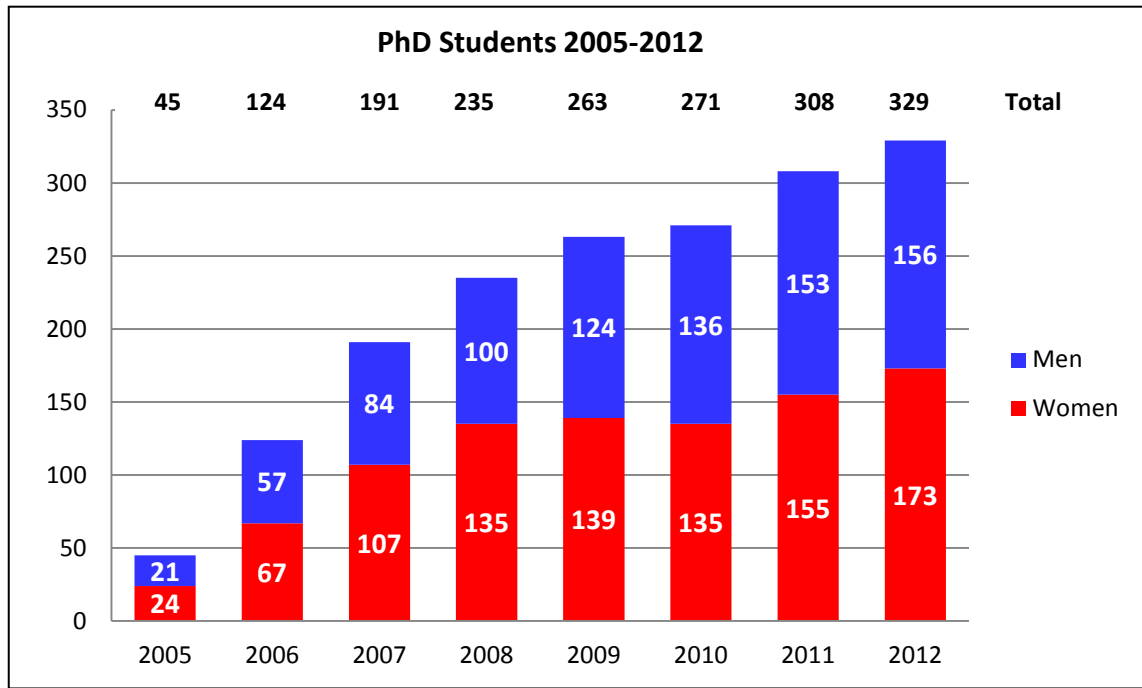
<b>Leaving:</b>	Prof. Daniel Schümperli (Sci)	May 2012
<b>Joining:</b>	Prof. Mariusz Nowacki (Sci)	February 2012
	Prof. Norbert Polacek (Sci)	February 2012
	Prof. Michael Altmann (Med)	March 2012



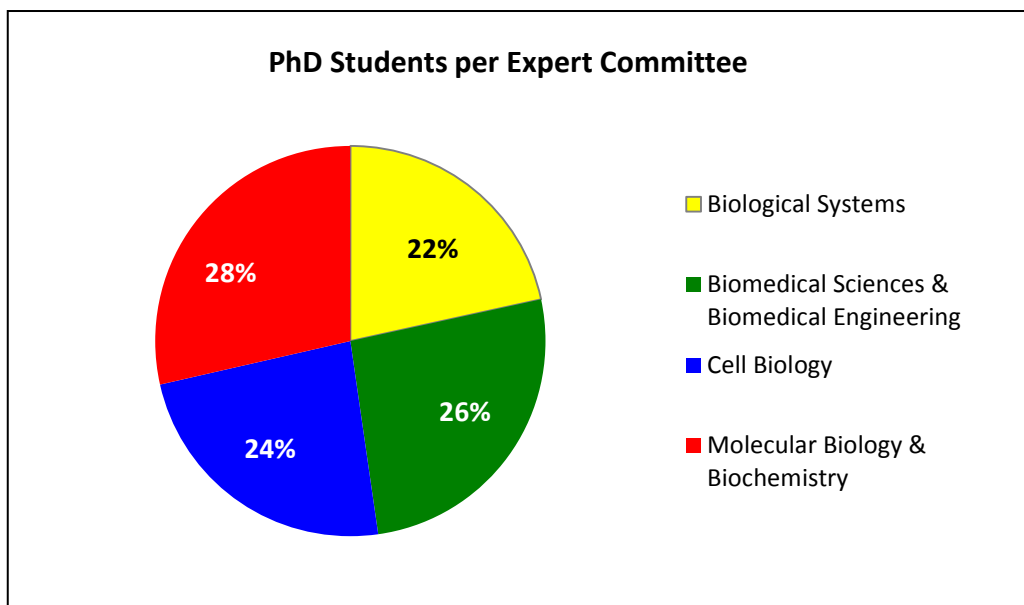
## DOCTORAL STUDENTS

Students can apply three times per year for admission to the Graduate School: on 15 April, 15 August, and 15 December.

The GCB is internationally oriented and represented by doctoral students with master diplomas from 35 different countries. 175 students (53.2%) have a degree from a foreign university.



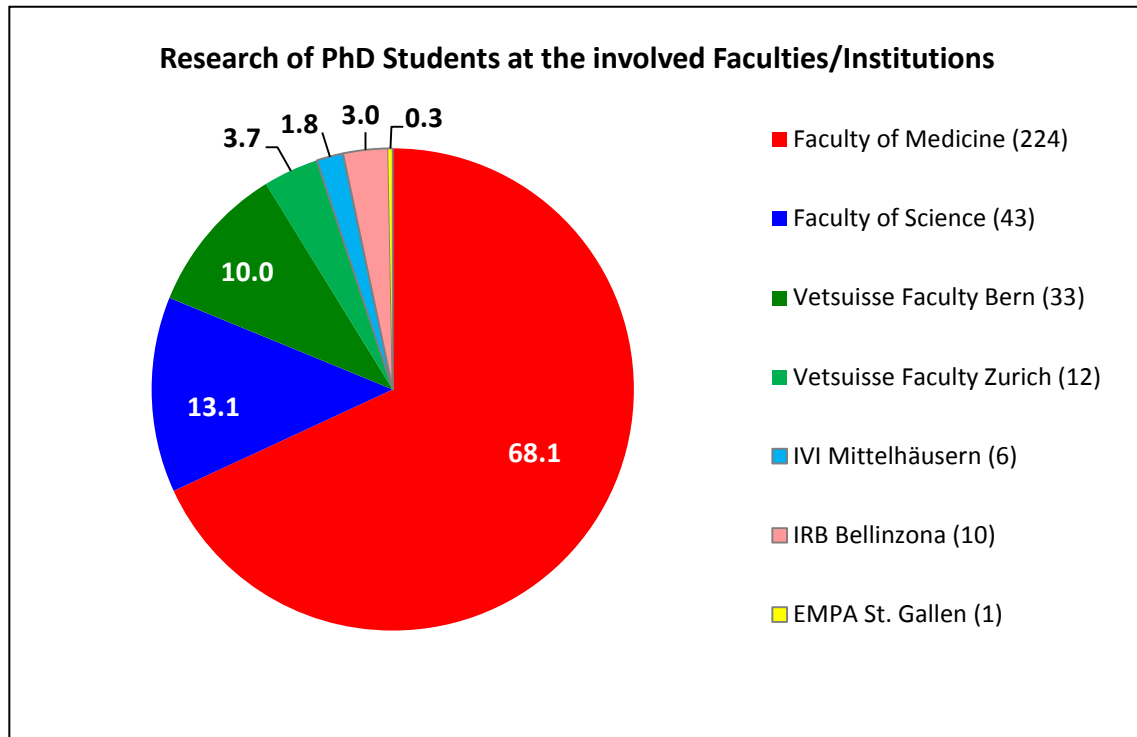
Since the start of the PhD programme in 2005, the GCB has experienced a more than 7-fold increase of doctoral students



As in previous years, the students were distributed equally among the four Expert Committees

Expert Committee	F	M	Total
Biological Systems	53	18	71
Biomedical Sciences & Biomedical Engineering	30	56	86
Cell Biology	43	35	78
Molecular Biology & Biochemistry	47	47	94
<b>Total</b>	<b>173</b>	<b>156</b>	<b>329</b>

Number of students per Expert Committee (F = women, M= men)



In parentheses: number of students; in chart: students' ratio (%)

## COURSES AND SEMINARS

The PhD programme involves theoretical training in addition to the experimental work on the research project. For each student, seminars and courses are individually selected from courses organized and supported by the GCB, from the teaching units of the faculties, and also from courses offered by other Swiss Universities, in particular by the ETHZ or the EPFL for the field of Biomedical Engineering, or by interuniversity programmes like StarOmics (CUSO), the Doctoral Program in Population Genomics (Universities of Basel, Bern, Fribourg & Lausanne), the Forum for Genetic Research (sc | nat, Swiss Academy of Sciences), the BENEFRI Neuroscience Programme (Universities of Bern, Neuchâtel & Fribourg), or the Swiss Institute of Bioinformatics (SIB). Some students also take part in internationally organized Summer Schools which provide high quality training in specific fields.

### SPECIAL COURSES FOR GCB STUDENTS

#### LECTURES, TUTORIALS AND BOOK CLUBS

- *Scientific Integrity*, organized by T. Ochsenreiter, Institute of Cell Biology (mandatory lecture for all GCB students)
- *Immunology* (book club: Abul K. Abbas, *Cellular and Molecular Immunology*), coordinated by M. Wolf & G. Favre, GCB
- *Molecular Biology of the Cell ("Happy Cell")*, (book club: Bruce Alberts et al.), coordinated by M. Wolf & G. Favre, GCB
- *Stem Cells & Regenerative Medicine* (lecture), organized by V. Enzmann and G. Karoubi, DCR
- *Topics in Tumor Biology* (lectures and discussions of scientific publications), organized by D. Stroka, M. Tschan, and Y. Zimmer, DCR
- *Molecular Aspects of Psychoactive Drugs* (lecture), organized by J. Gertsch, Institute of Biochemistry & Molecular Medicine IBMM
- *Evolution and Physiology of Adaptive Mechanisms in Mammals* (lecture), organized by R. Bruckmaier, Division of Veterinary Physiology, Vetsuisse Faculty Bern
- *Challenges of our modern world to human health: Climate change, pollution, ultrafine particles and nanomaterials*, organized by H. Krug, EMPA St. Gallen & Institute of Anatomy
- *Excitation-Contraction Coupling and Cardiac Contractile Force* (book club: Donald M. Bers), organized by E. Niggli, Dept. of Physiology
- *Lecture Course: International PhD Program in Immunology, Cell Biology and Biochemistry*, organized by IRB in Bellinzona, for IRB students
- *Childhood Cancer Epidemiology* (discussions of scientific publications), organized by C. Kuehni, ISPM
- *Classical Papers in Public Health* (discussions of scientific publications), organized by M. Egger, ISPM
- *Critical Review of Scientific Manuscripts* (epidemiology field), organized by C. Kuehni and M. Egger, ISPM
- *Epidemiology* (book club: Leon Gordis), organized by C. Kuehni, ISPM
- *Essential Medical Statistics* (book club: B.R. Kirwood and J.A.C. Sterne, Blackwell Publishing), organized by M. Zwahlen, ISPM

- *Infectious Diseases* (discussions of scientific publications), organized by N. Low, ISPM
- *Writing a Grant Application* (Tutorial), organized by C. Kuehni, M. Egger, and M. Zwahlen, ISPM

#### **PRACTICAL COURSES, WORKSHOPS, SUMMER SCHOOLS**

- *Introduction to Epidemiology & Biostatistics*, organized by M. Doherr and G. Schuepbach, Vetsuisse Faculty Bern
- *Cell Migration*, organized by B. Engelhardt and J. Stein, Theodor Kocher Institute
- *Vascular Cell Biology*, organized by B. Engelhardt, U. Deutsch and R. Lyck, Theodor Kocher Institute
- *Transgenic Mouse Technology*, organized by C. Benarafa and U. Deutsch, Theodor Kocher Institute
- *Molecular Biological Methods in Clinical Research*, organized by A.-C. Andres, DCR
- *Stereology Workshop*, organized by S. Tschanz, Microscopy Imaging Center (MIC) and Institute of Anatomy
- *Microscopy: Basic and Advanced/Special Modules*, organized and coordinated by S. Tschanz, Microscopy Imaging Center (MIC)
- *Microscopy Applications for Immunological Research*, organized by M. Thelen, IRB Bellinzona
- *DNA Sequencing and Mutation Analysis: Basics of Sanger and Next Generation Sequencing*, organized by T. Leeb, D. Becker, and V. Jagannathan, Vetsuisse Faculty Bern
- *Flow Cytometry Course*, organized by S. Müller, DCR
- *Concepts and Methods in Programmed Cell Death*, organized by Th. Kaufmann, Institute of Pharmacology, and N. Corazza, Institute of Pathology
- *International Summer School on Inflammation, Immunomodulation, Inspiration*, organized by H.-U. Simon and S. Yousefi, Institute of Pharmacology

#### **GCB SEMINAR SERIES**

The GCB Seminar Series is organized by the PhD students, who have the opportunity to invite internationally renowned specialists from their field of research for an interactive teaching lecture and a research seminar intended for a broad audience.

15 March 2012: **Paul Nathan**, Associate Professor, University of Toronto, Director, Aftercare Program, Haematology/Oncology, Hospital for Sick Children, Toronto, Canada  
**“Using multiple overlapping research designs to study a clinical topic”**  
**Host:** Stefan Essig, PhD student, Institute of Social and Preventive Medicine

20 November 2012: **Stefan J. Erkeland**, PhD, Dept. of Hematology, Erasmus University Medical Center, Rotterdam, The Netherlands  
**“Unravelling miRNA-controlled pathways involved in normal and malignant myelopoiesis”**  
**Hosts:** Anna Schläfli, PhD student, Institute of Pathology, and Regula Burkhard, PhD student, DCR, Oncology/Haematology (Adults)

*Unfortunately, the students of the GCB still take advantage far too infrequently of this great opportunity of meeting distinguished scientists, learning from them and exchanging ideas. It is to be hoped that the number of GCB seminars hosted by GCB students will increase with time.*

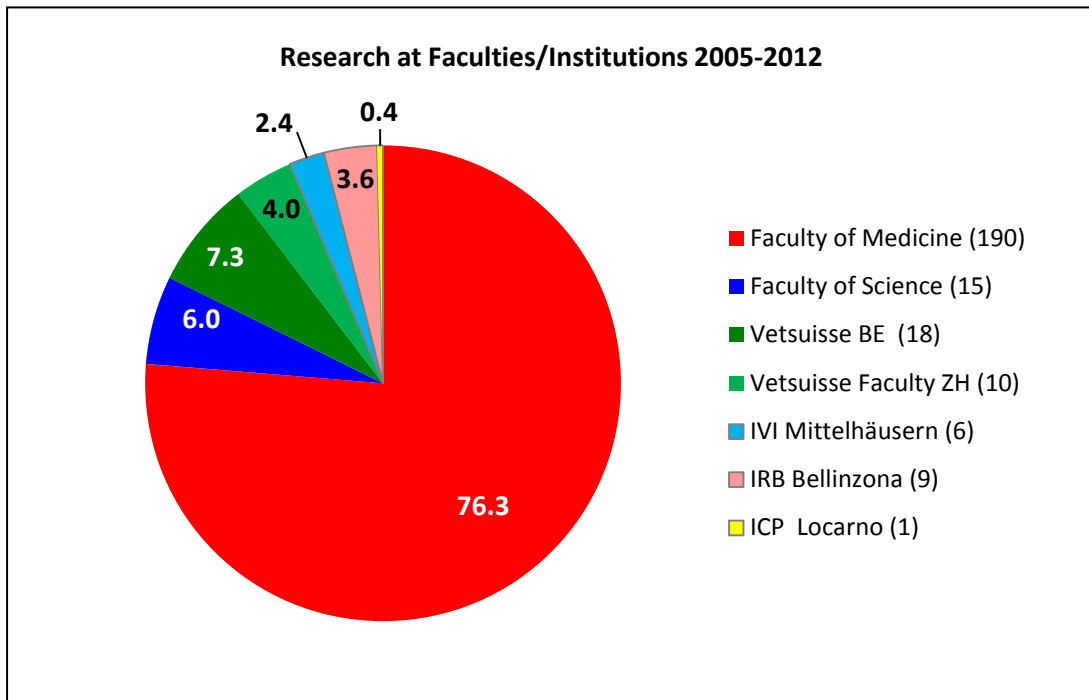
## **GCB STUDENTS' SYMPOSIUM 2012**

On 1 February 2012, the GCB Students' Symposium 2012 was held once again on the premises of the Department of Chemistry and Biochemistry. During a whole day, the different research projects of the GCB doctoral students were presented in 48 short talks in four parallel sessions and 117 posters (two sessions). The presentations illustrated the wide range of topics covered by the GCB and demonstrated the students' consistently high level of competence in the fields of cellular and biomedical sciences, epidemiology and biomedical engineering. The symposium offered an excellent opportunity for both GCB students and their supervisors to engage in a reciprocally rewarding and highly stimulating discussion on the research work going on at the GCB. The invited guest speaker, Prof. Giovanni Galizia, Director Zukunftskolleg, and Chair of Zoology and Neurobiology, University of Konstanz (Germany), gave a highly acclaimed talk on "What is evidence in the biological sciences? Examples from olfactory research". The breaks were extensively used for further informal discussions and active networking, and the Symposium for the first time concluded with an apéro during the second poster session, which gave further opportunity for lively exchange among participants.

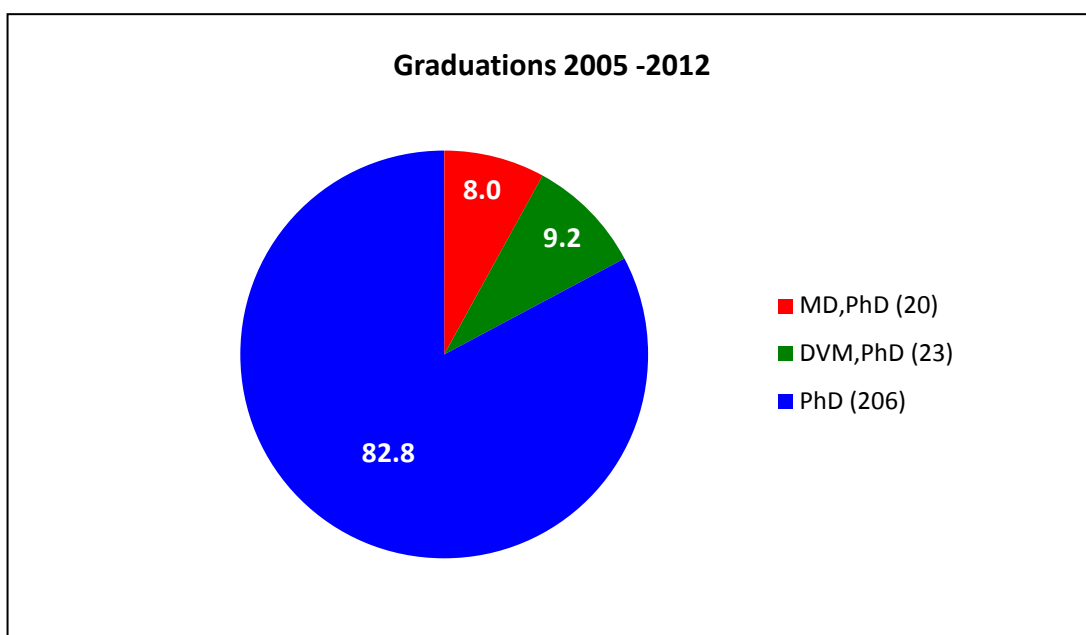
## GRADUATIONS

In the course of 2012, 64 students successfully completed the PhD programme of the GCB and obtained their doctoral degree, jointly issued by the Faculty of Medicine, the Faculty of Science, and the Vetsuisse Faculty.

Of the graduates, 32 (i.e., exactly 50%) were students with a master diploma from a foreign University who joined the GCB for their PhD studies.



In parentheses: number of research projects completed at each Faculty or affiliated institution since the start of the GCB in 2005; in chart: research projects' ratio (%)



Since the start of the PhD programme of the GCB in 2005, 249 students have successfully completed their studies and obtained a doctoral degree. In parentheses: number of graduates; in chart: graduates' ratio (%)

## **GCB GRADUATES (ALPHABETICAL ORDER)**

**Jacqueline Adam, PhD** (14 June)

University Clinic of Rheumatology, Clinical Immunology & Allergology (Prof. Dr. W. J. Pichler)

**“Drug interactions with the human immune system: The abacavir model”**

**Delphine Autheman, PhD** (6 July)

Institute for Infectious Diseases ifik (Prof. Dr. S. Christen)

**“Redox-dependence of ERK signaling in hypoxic preconditioning and mechanism of C. perfringens beta toxin-induced cell death”**

**Deepak Haresh Balani, PhD in Biomedical Sciences** (8 May)

Dept. of Clinical Research, Rheumatology (Prof. Dr. M. Seitz, Prof. Dr. W. Hofstetter)

**“Role of inflammatory cytokines in osteoclast development”**

**Maria Luisa Balmer, MD, PhD** (15 February)

Dept. of Clinical Research, Gastroenterology/Mucosal Immunology (Prof. Dr. A. J. Macpherson)

**“Immune pathology and physiology of commensal bacterial containment”**

**Vanessa Banz Wüthrich, MD, PhD** (29 August)

Dept. of Clinical Research, Visceral and Transplantation Surgery (PD Dr. D. Stroka)

**“CXCR3 and CCR6 mediate recruitment and positioning of Th17 cells in the inflamed liver”**

**Alessandro Bertolo, PhD** (4 April)

Swiss Paraplegic Research, Nottwil & Institute for Surgical Technology and Biomechanics ISTB

(Prof. Dr. S. Ferguson, Dr. Jivko Stoyanov)

**“In vitro models of cell-based therapies for treatment of degenerated human intervertebral discs”**

**Pamela Bianchi, PhD** (16 May)

Institute of Pathology (Prof. Dr. T. Brunner)

**“A novel role of the liver receptor homolog-1 in T cell development and proliferation”**

**Pomme Boissier, PhD** (11 December)

Dept. of Clinical Research, Nephrology and Hypertension (Prof. Dr. U. Huynh-Do)

**“Endocytic regulation and targeting of EphA2 in pancreatic cancer”**

**Serena Bonaretti, PhD in Biomedical Engineering** (26 January)

Institute for Surgical Technology and Biomechanics ISTB (PD Dr. Ph. Büchler, PD Dr. M. Reyes)

**“Statistical models of shape and density for population-based analysis of bone mechanics with applications to fracture risk assessment and implant design”**

**Habib Bou Sleiman, PhD in Biomedical Engineering** (11 December)

Institute for Surgical Technology and Biomechanics ISTB (PD Dr. M. Reyes)

**“A computational anatomy approach to orthopaedic research”**

**Tania Buehler, PhD** (18 April)

Dept. of Clinical Research, Magnetic Resonance Spectroscopy and Methodology AMSM

(Prof. Dr. C. Boesch)

**“Development and application of magnetic resonance spectroscopy methods in studies on insulin resistance and metabolism of human liver and skeletal muscle”**

**Marc Bürzle, PhD** (24 October)

Institute of Biochemistry and Molecular Medicine IBMM (Prof. Dr. M. Hediger)

**“Identification and characterization of the sodium-dependent vitamin C transporter 3 (SVCT3; SLC23A3)”**

**Chun Wai (Samantha) Chan, PhD in Biomedical Sciences** (14 September)

Institute for Surgical Technology and Biomechanics ISTB (Prof. Dr. B. Gantenbein-Ritter)

**“Evolution of in-vitro organ culture models for the intervertebral disc”**

**Renzo Danuser, PhD** (18 September)

Theodor Kocher Institute (Prof. Dr. J. Stein)

**“Assessing the roles of morphogenic factors on lymphoid organ structure and function using 3D imaging”**

**Polychronis Dimitrakis, PhD** (27 June)

Dept. of Clinical Research, Cardiology (Dr. C. Zuppinger)

**“Potential cardiotoxicity of targeted cancer therapy”**

**Nohemy Echeverry Zuluaga, PhD** (24 September)

Institute of Pharmacology (Prof. Dr. T. Kaufmann)

**“Investigation of the subcellular localization and molecular functions of the Bcl-2 family member BOK”**

**Elena Alessandra Federzoni, PhD** (28 June)

Dept. of Clinical Research, Oncology/Haematology (Adults) (PD Dr. M. P. Tschan)

**“Novel transcriptional targets of PU.1 involved in myeloid differentiation and cell survival”**

**Simone Forterre, DVM, PhD** (29 March)

Dept. of Clinical Veterinary Medicine, Clinic for Small Animals (Prof. Dr. D. Spreng)

**“On the pathogenesis of canine cranial cruciate ligament rupture: The role of stress induced ligamentocyte death”**

**Johannes Friedrich, PhD** (22 February)

Dept. of Physiology (Prof. Dr. W. Senn)

**“Reinforcement learning in populations of spiking neurons”**

**Oliver Peter Fuchs, MD, PhD** (5 July)

Dept. of Clinical Research, Pulmonary Medicine (Paediatrics) (Prof. Dr. U. Frey, Prof. Dr. C. Kuehni)

**“The impact of genes and the environment on respiratory disease in infants and children”**

**Michael Gasser, PhD** (17 April)

Dept. of Clinical Research, Pulmonary Medicine (Adults) (Prof. Dr. B. Rothen, Dr. P. Wick)

**“Interactions of different functionalized multi-walled carbon nanotubes with the pulmonary surfactant and implications on potential adverse effects in vitro”**

**Nadine Graubardt, PhD** (23 January)

Dept. of Clinical Research, Visceral and Transplantation Surgery (Prof. Dr. G. Beldi)

**“Impact of extracellular nucleotides on NK cell function and differentiation during liver regeneration”**

**Anne Géraldine Guex, PhD** (12 December)

Dept. of Clinical Research, Cardiovascular Surgery (PD Dr. M.-N. Giraud-Flück)

**“Design and functionalisation of electrospun substrates for muscle repair”**

**Kapila Gunasekera, PhD in Biomedical Sciences** (30 November)

Institute of Cell Biology (PD Dr. T. Ochseneiter)

**“Gene expression profiles of the protozoan parasites *Trypanosoma brucei* and *Trypanosoma cruzi* during development characterized using next generation sequencing and mass spectrometry”**

**Zhaoyue He, PhD in Biomedical Sciences** (24 April)

Institute of Pharmacology (Prof. Dr. H.-U. Simon)

**“Transcriptional regulation of autophagy-related protein 5 (ATG5)”**

**Johanna Cornelia Maria Heijne, PhD in Biomedical Sciences** (20 September)

Institute of Social and Preventive Medicine ISPM (Prof. Dr. N. Low)

**“Control of sexually transmitted *Chlamydia trachomatis* transmission”**



**Sereina Herzog, PhD** (3 December)

Institute of Social and Preventive Medicine ISPM (Prof. Dr. N. Low)

**“Mathematical modelling for the timing of progression from *Chlamydia trachomatis* infection to pelvic inflammatory disease”**

**Nina Hostettler, PhD** (13 January)

Institute of Pathology (Prof. Dr. T. Brunner)

**“Characterization of lung glucocorticoid synthesis in response to immune cell stimulation”**

**Magali Humbert, PhD** (13 July)

Dept. of Clinical Research, Oncology/Haematology (Adults) (PD Dr. M. P. Tschan)

**“Role and regulation of Krüppel-like factor 5 (KLF5) and death-associated protein kinase 2 (DAPK2) in differentiation of acute myeloid leukemia blasts”**

**Sacha Kämpfer, PhD** (24 April)

University Institute of Immunology (Prof. Dr. C. A. Dahinden)

**“Mechanisms of action of interleukin-3 on late functional and phenotypical alterations of human basophils”**

**Elisabeth Kieninger, MD, PhD** (16 March)

Dept. of Clinical Research, Pulmonary Medicine (Paediatrics) (Prof. Dr. N. Regamey)

**“Clinical impact and pathophysiology of viral infections and early lung disease in cystic fibrosis”**

**Jonas Kleyer, PhD** (10 May)

Institute of Biochemistry and Molecular Medicine IBMM (Prof. Dr. J. Gertsch)

**“Characterisation of cannabinoid receptor trafficking in peripheral immune cells”**

**Lisa Künzi, PhD** (25 June)

Institute of Anatomy (Prof. Dr. M. Geiser Kamber)

**“Responses of lung cells to realistic exposure of primary and aged carbonaceous aerosols”**

**Melissa Agnes Eve Lawson, PhD in Immunology** (17 September)

Dept. of Clinical Research, Gastroenterology/Mucosal Immunology (Prof. Dr. A. J. Macpherson, Prof. Dr. K. McCoy)

**“The two-way interactions between commensal intestinal bacteria and the mammalian host”**

**Daniel Lienhard, PhD** (21 February)

Dept. of Clinical Research, Nephrology and Hypertension (Prof. Dr. B. Frey)

**“High salt intake down-regulates colonic 11 $\beta$ -HSD2, mineralocorticoid receptors and epithelial sodium channels”**

**He Liu, PhD in Biomedical Sciences** (26 March)

Institute of Pharmacology (Prof. Dr. H.-U. Simon)

**“Downregulation of autophagy-related gene 5 (ATG5) in cutaneous malignant melanoma and its role in melanoma tumorigenesis”**

**Huanxiang Lu, PhD** (26 October)

Institute for Surgical Technology and Biomechanics ISTB (PD Dr. M. Reyes)

**“Multi-modal deformable registration for magnetic resonance image”**

**Erin Leigh MacMillan, PhD in Biomedical Sciences** (21 June)

Dept. of Clinical Research, Magnetic Resonance Spectroscopy and Methodology AMSM (Prof. Dr. R. Kreis)

**“Application of metabolite cycled non-water-suppressed magnetic resonance spectroscopy, and measurement of magnetization transfer between water and metabolites, in the human brain, spinal cord, and skeletal muscles at 3 T and 7 T”**

**Carola Maffioli, PhD** (24 August)

Institute for Infectious Diseases ifik (Prof. Dr. S. Leib)

**“Tick-borne encephalitis: Development of *in vitro* and *in vivo* models and evaluation of siRNA for antiviral therapy”**

**Sarah Mans, PhD** (6 May)

Dept. of Clinical Research, Oncology/Haematology (Adults) (Prof. Dr. T. Pabst)

**“The role of extracellular calreticulin in acute myeloid leukemia (AML)”**

**Janine Marazzi, PhD** (8 October)

Institute of Biochemistry and Molecular Medicine IBMM (Prof. Dr. J. Gertsch)

**“Establishment and application of an analytical tool to study the endocannabinoid lipid network”**

**Petra Minder, PhD in Biochemistry and Molecular Biology** (14 November)

Institute of Biochemistry and Molecular Medicine IBMM (Prof. Dr. E. Sterchi)

**“Function of the astacin metalloprotease meprin in epithelial cells in health and disease”**

**Richard Miron, PhD in Biomedical Sciences** (16 August)

School of Dental Medicine, Dept. of Periodontology (Prof. Dr. A. Sculean)

**“Bone grafting materials in periodontology and oral maxillofacial surgery”**

**Marilisa Novacco, DVM, PhD** (27 January)

Clinical Laboratory, Vetsuisse Faculty Zurich (Prof. Dr. R. Hofmann-Lehmann)

**“*Candidatus Mycoplasma turicensis*” infection: Reactivation, tissue distribution and humoral immune response”**

**Berna Özdemir, MD, PhD** (15 June)

Dept. of Clinical Research, Urology (Prof. Dr. G. Thalmann)

**“The stroma reaction in osteoblastic bone metastases of prostate cancer — Cancer cells reinvent the wheel”**

**David Olivier Raemy, PhD** (21 May)

Dept. of Clinical Research, Pulmonary Medicine (Adults) (Prof. Dr. B. Rothen)

**“A novel aerosol exposure system to study the lung toxicity of engineered nanoparticles *in vitro*”**

**Simone Katja Ringer, DVM, PhD** (23 October)

Equine Department, Vetsuisse Faculty Zurich (Prof. Dr. R. Bettschart-Wolfensberger)

**“Development of new sedation protocols allowing improved and safer standing sedation of horses with a reduced risk for persons involved. Advantages of the addition of butorphanol”**

**Stéphane Rodriguez, PhD** (23 August)

Dept. of Clinical Research, Nephrology and Hypertension (Prof. Dr. U. Huynh-Do)

**“Eph receptors in health and disease states”**

**Corina Silvia Rueegg, PhD in Biomedical Sciences** (5 December)

Institute of Social and Preventive Medicine ISPM (Prof. Dr. C. Kuehni)

**“Physical activity and physical function in long-term survivors of childhood cancer”**

**Luca Scarnato, PhD** (17 December)

ARTORG Center for Biomedical Engineering Research, Diabetes Technology (Prof. Dr. S. Mougiakakou)

**“Food recognition based on computer vision and machine learning methods”**

**Mathieu Schiess, PhD** (7 December)

Dept. of Physiology (Prof. Dr. W. Senn)

**“Reinforcement learning with active dendrites”**

**Christoph Schlapbach, MD,PhD** (1 March)

Dept. of Clinical Research, Dermatology (PD Dr. R. Hunger)

**“Telomerase-specific GV1001 peptide vaccination in patients with cutaneous T cell lymphoma”**

**Andrea Louise Schmitz, DVM,PhD** (16 March)

Div. of Veterinary Pharmacology & Toxicology, Vetsuisse Faculty Bern (Prof. Dr. M. Mevissen)

**“In vitro investigations on phase I biotransformation of ketamine in horses”**

**Christian Martijn Schürch, MD,PhD** (5 March)

Dept. of Clinical Research, Tumor-Immunology (Prof. Dr. A. Ochsenbein)

**“Immune surveillance of cancer stem cells in chronic myeloid leukemia”**

**Steffen Schumann, PhD in Biomedical Engineering** (26 March)

Institute for Surgical Technology and Biomechanics ISTB (PD Dr. G. Zheng)

**“Ultrasound- and X-ray based determination of pelvic orientation and shape – development and clinical evaluation”**

**Pippa Scott, PhD in Biomedical Sciences** (27 August)

Institute of Social and Preventive Medicine ISPM (Prof. Dr. N. Low)

**“Pneumococcal and measles vaccines: Systematic reviews and meta-analyses”**

**Christof Seiler, PhD in Biomedical Engineering** (27 September), joint doctorate

Institute for Surgical Technology and Biomechanics ISTB & INRIA Sophia Antipolis, France

(PD Dr. M. Reyes, Dr. X. Pennec)

**“Trees on geometrical deformations to model the statistical variability of organs in medical images”**

**Mauro Serricchio, PhD** (9 August)

Institute of Biochemistry and Molecular Medicine IBMM (Prof. Dr. P. Bütikofer)

**“Cardiolipin biosynthesis is essential for mitochondrial function and survival of *Trypanosoma brucei*”**

**Mostafa Shakhshi-Niaei, DVM,PhD** (29 August)

DCR-VPH, Institute of Genetics, Vetsuisse Faculty Bern (Prof. Dr. T. Leeb)

**“Analysis of genetic risk factors for recurrent airway obstruction (RAO) in European Warmblood horses”**

**Manuel Simon, PhD** (21 August)

Institute of Pharmacology (Prof. Dr. U. Zangemeister-Wittke)

**“Engineering and preclinical investigation of designed ankyrin repeat proteins as a versatile platform of binding proteins for tumor targeting”**

**Harald Studer, PhD in Biomedical Engineering** (13 January)

Institute for Surgical Technology and Biomechanics ISTB (PD Dr. P. Bächler)

**“Simulation of refractive surgery for optimization of vision correction”**

**Lorianne Vorlet-Fawer, PhD** (2 October)

Institute for Infectious Diseases ifik (Prof. Dr. S. Christen)

**“Investigations into the mechanisms of hippocampal apoptosis and memory dysfunction in pneumococcal meningitis”**

**Madhusudanarao Vuda, PhD in Biomedical Sciences** (13 September)

Dept. of Clinical Research, Intensive Medicine (Prof. Dr. S. Jakob)

**“Mitochondrial function in sepsis: Effects of vasoactive support and analgo-sedation”**

**Li Zhang, PhD** (6 July)

Institute of Veterinary Pharmacology & Toxicology, Vetsuisse Faculty Zurich (Dr. R. Dip, Prof. Dr. F. Althaus)

**“Characterization of nuclear orphan receptors NR4A in inflammatory signaling in human mast cells and their modulation by adenosine receptors”**

We congratulate all graduates on their achievement and wish them all the very best for their future careers. Many of them have already moved on to new, challenging postdoctoral positions at universities all over the world.

<b>Number of Graduations 2012 per Expert Committee</b>					
<b>Degree</b>	Biological Systems	Biomed. Sciences & Biomed. Engineering	Cell Biology	Molecular Biology & Biochemistry	<b>Total</b>
PhD	14	20	14	4	<b>52</b>
MD,PhD	3	2	2	0	<b>7</b>
DVM,PhD	2	1	1	1	<b>5</b>
<b>Total</b>	<b>19</b>	<b>23</b>	<b>17</b>	<b>5</b>	<b>64</b>

<b>Graduations 2012 at Faculties/Institutions</b>					
<b>Faculty/Institution</b>	<b>Number of Graduations</b>				<b>%</b>
	<b>PhD</b>	<b>MD,PhD</b>	<b>DVM,PhD</b>	<b>Total</b>	
Faculty of Medicine	50	7		<b>57</b>	89.0
Faculty of Science	1			<b>1</b>	1.6
Vetsuisse Faculty BE			3	<b>3</b>	4.7
Vetsuisse Faculty ZH	1		2	<b>3</b>	4.7
IVI Mittelhäusern					
IRB Bellinzona					
<b>Total</b>	<b>52</b>	<b>7</b>	<b>5</b>	<b>64</b>	<b>100.0</b>

## CONGRATULATIONS

### GCB AWARD FOR BEST PHD THESIS

The **2012 GCB Award for “Best PhD Thesis”** (CHF 3’000.–) was awarded to **Christian Martijn Schürch, MD,PhD**, in January 2013 during the GCB Students’ Symposium for his work entitled “Immune surveillance of cancer stem cells in chronic myeloid leukemia”. He performed his PhD work under the supervision of Prof. Dr. med. Adrian Ochsenbein at the Department of Clinical Research, Tumor-Immunology, University of Bern, and defended his thesis successfully on March 3, 2012.



**Christian Schürch, MD,PhD (right), receiving the “GCB Award for Best PhD thesis” for 2012 from the hands of Prof. Dr. Oliver Mühlemann, President of the GCB.**

Our special congratulations go to Christian Schürch, MD,PhD, for his outstanding success. The laureate is now pursuing a career as a Postdoctoral Fellow at the same institution where he completed his PhD, i.e. at the DCR, Tumor-Immunology, University of Bern.

## FACHBEREICH BIOLOGIE, FAKULTÄTSPREIS 2013 OF THE FACULTY OF SCIENCE

On occasion of the Graduation Ceremony of the Faculty of Science, which took place at the Kultur Casino Bern on February 20, 2013, the Fachbereich Biologie conferred the **Fakultätspreis 2013** of the Faculty of Science on **Kapila Gunasekera, PhD in Biomedical Sciences**, for his PhD thesis "Gene expression profiles of the protozoan parasites *Trypanosoma brucei* and *Trypanosoma cruzi* during development characterized using next generation sequencing and mass spectrometry". He performed his PhD work in the group of PD Dr. Torsten Ochsenreiter at the Institute of Cell Biology, University of Bern, within the framework of the GCB, and defended his thesis successfully on November 30, 2012.



**Kapila Gunasekera, PhD in Biomedical Sciences (*center right, standing*), receiving the Faculty Prize 2013 of the Faculty of Science for his PhD thesis at the Kultur Casino Bern.**

We congratulate Kapila Gunasekera, PhD in Biomedical Sciences, very warmly on this remarkable success. The laureate is now pursuing a career as Postdoctoral Fellow in the group of Prof. Dr. Isabel Roditi at the Institute of Cell Biology, University of Bern.

## **MD-PHD PROGRAMME**

The MD-PhD programme is intended for medical graduates interested in experimental research and aiming at an academic career. A structured training programme within the framework of the GCB enables them to acquire a high standard of knowledge in natural sciences and physiology. According to the guidelines of the National MD-PhD Programme, candidates should already start their training in the course of their medical studies and follow relevant courses and exams in cell and molecular biology or other related fields simultaneously with their medical curriculum.

In 2012, we interviewed about 5 medical students in their second to fourth year. An individual training programme was put together for each of them. They now attend basic science courses.

The National MD-PhD Programme, which is supported by the Swiss National Science Foundation (SNSF), the Swiss Academy of Medical Sciences (SAMW) and several other foundations, awards 10 to 12 fellowships every year to outstanding medical candidates studying at Swiss Universities (for information, see <http://www.samw.ch/de/Forschung/MD-PhD-Programm.html>).

## **SUPPORT AND ACKNOWLEDGMENTS**

The GCB is supported by the University of Bern and by the Faculty of Medicine of the University of Bern.

Since its inception in September 2005, the GCB has been offered the generous hospitality of the Theodor Kocher Institute: The GCB programme coordination and administration are located in dedicated rooms of the TKI and are allowed to share the full infrastructure of the institute. Moreover, the GCB committees and PhD students are frequent guests at the TKI Clubroom and TKI labs for meetings, interviews, tutorials, practical courses, and exams. Our special thanks go to the director, Prof. Dr. Britta Engelhardt, and the whole team of the TKI, for making this “joint venture” possible and for giving the GCB a perfectly suitable “home” and center.

## **INFORMATION**

[www.gcb.unibe.ch](http://www.gcb.unibe.ch)

M. Wolf, G. Favre

July 12, 2013