



**u<sup>b</sup>**

b  
**UNIVERSITÄT  
BERN**

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

# REPORT 2013

**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



---

<sup>b</sup>  
UNIVERSITÄT  
BERN

# ANNUAL REPORT 2013

## 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

Corina Moser, Secretary  
[corina.moser@gcb.unibe.ch](mailto:corina.moser@gcb.unibe.ch), Tel +41 31 631 53 77

## TABLE OF CONTENTS

INTRODUCTION .....	5
PHD PROGRAMME .....	7
ORGANIZATION .....	8
GCB ORGANIZATION CHART .....	9
CHANGES IN COMMITTEE MEMBERSHIPS DURING 2013 .....	10
DOCTORAL STUDENTS .....	11
COURSES AND SEMINARS .....	13
SPECIAL COURSES FOR GCB STUDENTS .....	13
LECTURES, TUTORIALS AND BOOK CLUBS .....	13
PRACTICAL COURSES, WORKSHOPS, SUMMER SCHOOLS .....	14
GCB SEMINAR SERIES .....	15
GCB STUDENTS' SYMPOSIUM 2013 .....	16
GRADUATIONS .....	17
GCB GRADUATES (ALPHABETICAL ORDER) .....	18
CONGRATULATIONS .....	24
GCB AWARD FOR BEST PHD THESIS .....	24
FURTHER PRIZES AWARDED TO GCB STUDENTS IN 2013.....	25
MD-PHD PROGRAMME .....	26
SUPPORT AND ACKNOWLEDGMENTS .....	27
INFORMATION .....	27



## INTRODUCTION

The Graduate School for Cellular and Biomedical Sciences has developed at a stable pace also in its ninth year of existence. The GCB is an important merger of three different faculties and keeps managing to deliver academic opportunities to all three of them in a successful manner. More than 360 graduate students are enrolled in the Graduate School; the track record of education as well as scientific output is outstanding. The interdisciplinary opportunities for graduate students offered by the school are well accepted and utilized by many different senior researchers of the three faculties.

The spirit of successful collaborative work culminates in the annual symposium of the GCB allowing a platform for students to present their work and themselves as well as discussing theirs and other projects with peers.

The GCB greatly enjoys ongoing support and funding from the University of Bern enabling its functioning. This support thankfully continues and is highly appreciated by staff, mentors and students alike. In addition to funding, the GCB even more depends and relies on its enthusiastic staff as well as the plethora of faculty members of all disciplines mentoring, supervising, judging and grading the students. Many thanks go out to all these wonderful people making the GCB happen!

The GCB has developed into a valuable asset of the University of Bern. We will strive to keep it this way.

Best regards

A handwritten signature in blue ink, appearing to read 'Frank Stüber'.

Prof. Dr. med. Frank Stüber,  
GCB President

Bern, March 31, 2014



## 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.

By the end of 2013, **358 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 2013, these included the Institute of Virology and Immunology (IVI) in Mithelhäusern (to be merged with the Institute of Veterinary Virology of the Vetsuisse Faculty on January 1, 2014), 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 ("Mid-term Evaluation").

The GCB actively supports the participation of students in national and international conferences 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. This support is very much appreciated by both students and supervisors; accordingly, the budget for this support was completely used up in 2013.

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 conferences, 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.

In August 2013, **Prof. Dr. med. Frank Stüber** (Faculty of Medicine) took over the presidency from **Prof. Dr. Oliver Mühlemann** (Faculty of Science), who had exceptionally served as president of the GCB for three years, in order to complete certain tasks. Our warmest thanks go to Oliver's unconditional commitment and dedication to the concerns of the GCB, and we are very pleased to be able to continue the important work of the GCB under Frank's leadership.

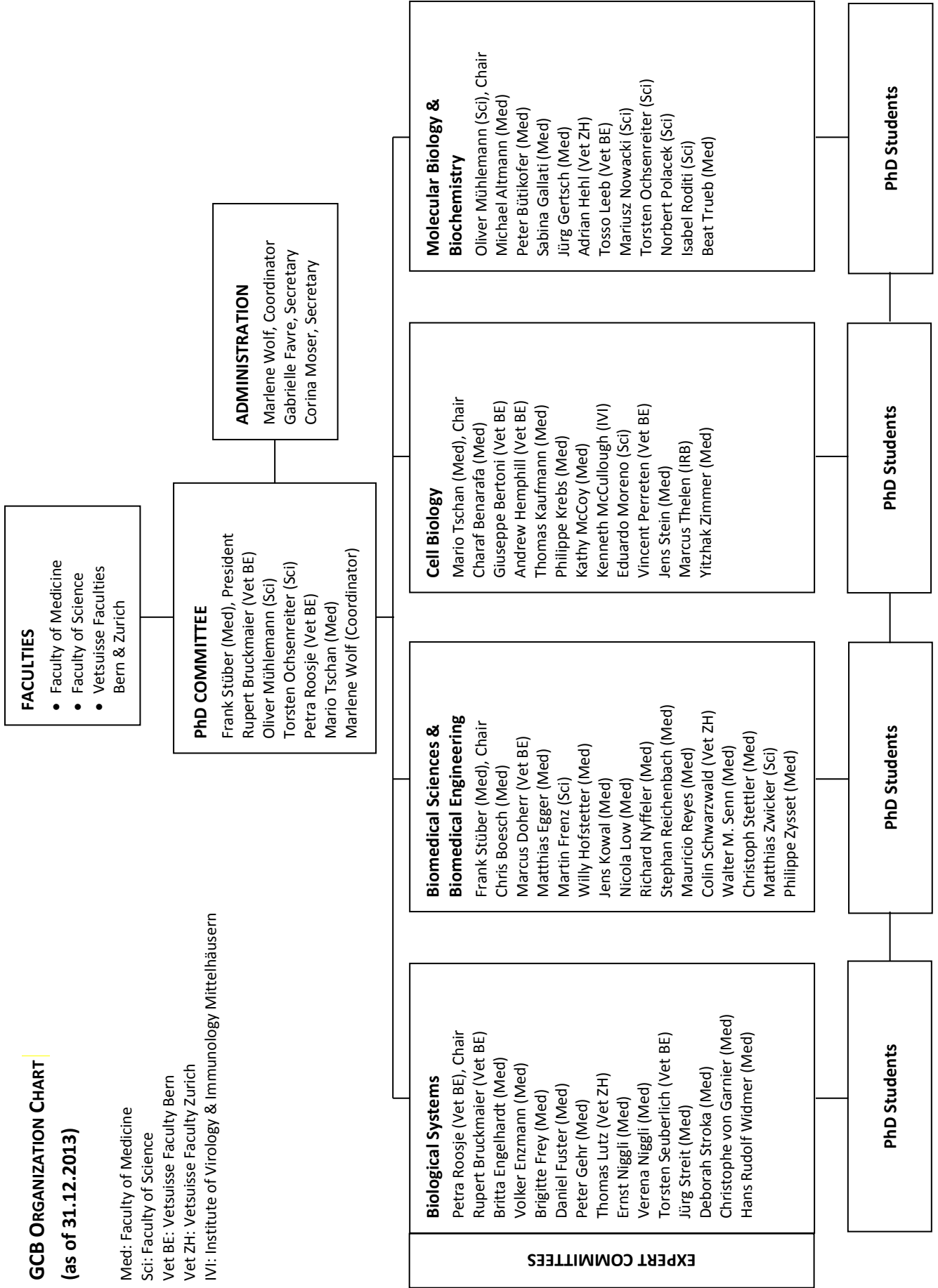
Four Expert Committees—Molecular Biology & Biochemistry, Cell Biology, Biological Systems, and Biomedical Sciences & Biomedical Engineering—ensure that the different research fields are represented by experts in the respective areas.

In November 2013, **Mira Delea** resigned from her post as secretary of the GCB (50%) and moved to Lyon, France, with her family, while **Corina Moser** has taken over Mira's administrative responsibilities within the GCB and is currently employed in a 40% position.



**GCB ORGANIZATION CHART**  
**(as of 31.12.2013)**

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 2013

### PhD Committee

**President:** Prof. Oliver Mühlemann until July 2013  
Prof. Frank Stüber from August 2013

### Expert Committee Biological Systems

**Resigned:** Prof. Marc Vandavelde (Vet BE) December 2013

### Expert Committee Biomedical Sciences & Biomedical Engineering

**Resigned:** Prof. Anne-Catherine Andres (Med) January 2013  
Prof. Brigitte von Rechenberg (Vet ZH) February 2013  
Prof. Marcus Doherr (Vet BE) December 2013

**Joined:** Prof. Colin C. Schwarzwald (Vet ZH) March 2013  
Prof. Willy Hofstetter (Med) June 2013  
Prof. Christoph Stettler (Med) June 2013  
PD Dr. Mauricio Reyes (Med) October 2013

### Expert Committee Cell Biology

**Resigned:** Prof. Beat Suter February 2013  
Dr. Emi Nagoshi (Sci) May 2013

**Joined:** PD Dr. Yitzhak Zimmer (Med) September 2013

### Expert Committee Molecular Biology & Biochemistry

**Resigned:** Prof. Hanspeter Nägeli (Vet ZH) February 2013

**Joined:** Prof. Adrian Hehl (Vet ZH) March 2013

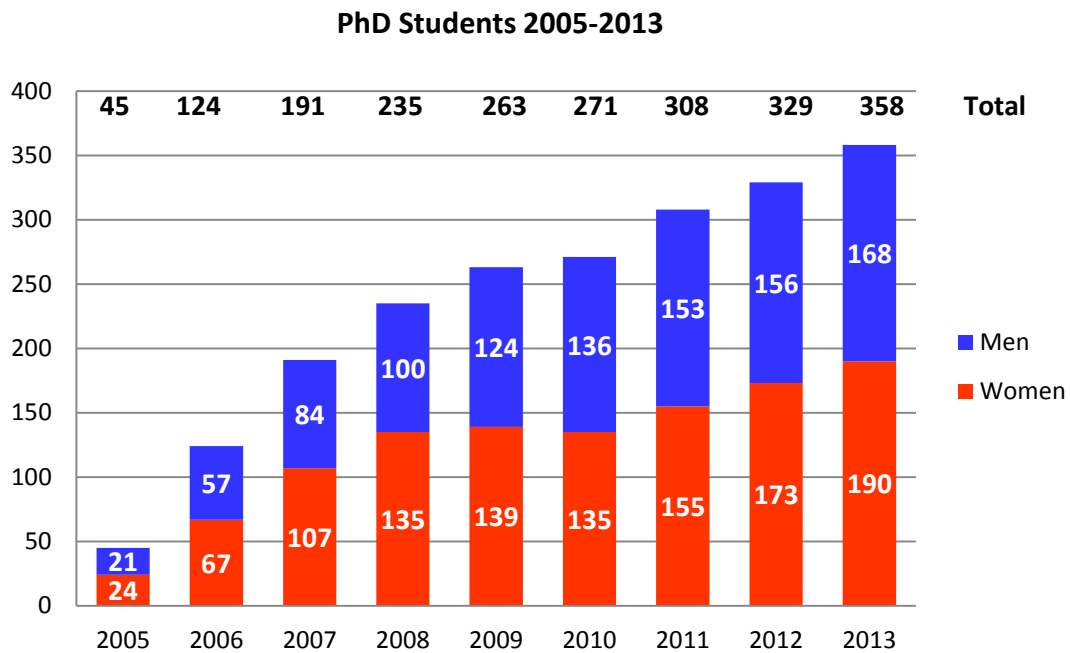
### Obituary

We deeply regret to report that one of our long-time GCB committee members, **Prof. Dr. Dirk Dobbelaere, Vetsuisse Faculty Bern**, tragically passed away after a bike tour on May 19, 2013. Dirk served as a member of the PhD Committee and the Expert Committee Cell Biology for several periods of time, lastly until May 2012. He was deeply committed to the cause of the GCB, and with single-minded dedication he supervised the research work of several doctoral students enrolled in the GCB, acting for each of them as supervisor, co-advisor, or mentor. He is sadly missed by all of us.

## DOCTORAL STUDENTS

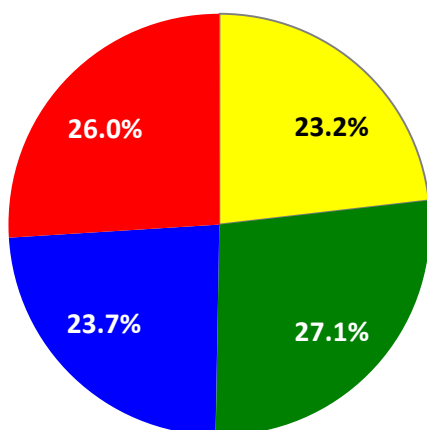
Students can apply three times per year for admission to the Graduate School: on 15 April, 15 August, and 15 December.

The GCB is internationally oriented and represented by doctoral students with master diplomas from 38 different countries. In December 2013, 186 students (52.0%) were holding a degree from a foreign university. 53.1% of the doctoral students are women.



**Figure 1: Since the start of the PhD programme in 2005, the GCB has experienced an almost 8-fold increase of doctoral students.**

## PhD Students per Expert Committee in 2013



	Expert Committee	F	M	Total
■	Biological Systems	52	31	83
■	Biomedical Sciences & Biomedical Engineering	41	56	97
■	Cell Biology	48	37	85
■	Molecular Biology & Biochemistry	49	44	93
	<b>Total</b>	<b>190</b>	<b>168</b>	<b>358</b>

**Figure 2 and Table 1: As in previous years, the students were distributed equally among the four Expert Committees (F = women, M= men).**

### Research of PhD Students at the Involved Faculties/Institutions

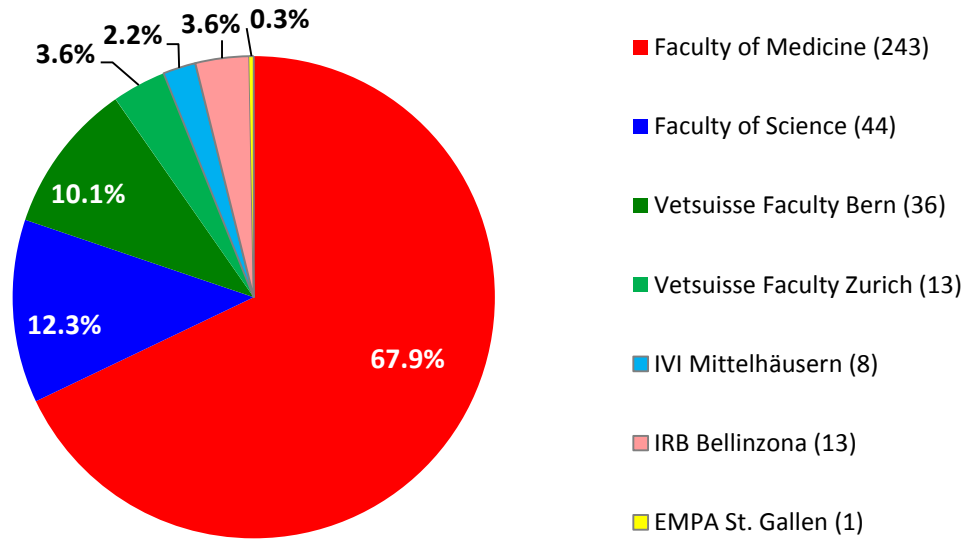


Figure 3: In parentheses: number of students; in chart: students' ratio (%).

## 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
- *From Air Pollution to Human Health: 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
- *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
- *Epidemiology/Critical Appraisal* (journal club/seminar), organized by S. Trelle, 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

- *Paediatric Epidemiology* (journal club/seminar), organized by C. Kuehni, ISPM
- *Writing a Grant Application* (tutorial), organized by C. Kuehni, M. Egger, and M. Zwahlen, ISPM

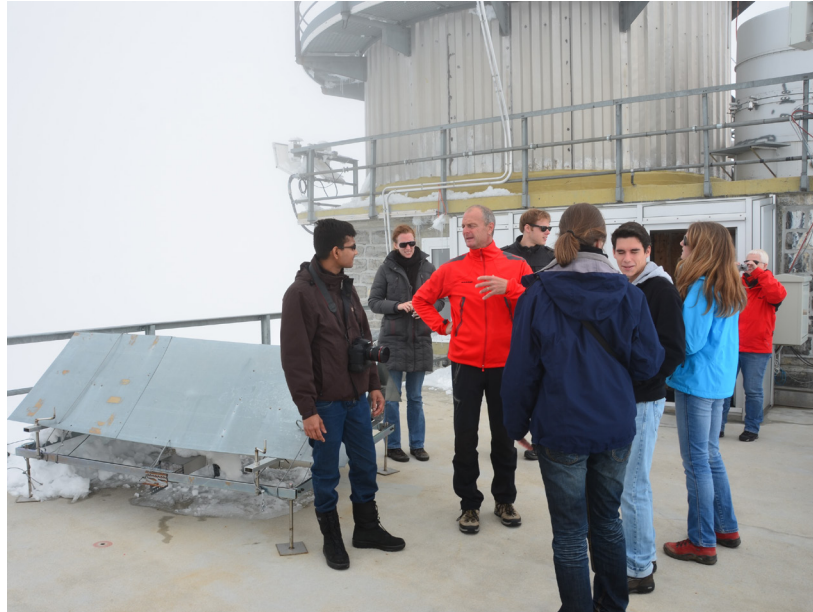
#### **PRACTICAL COURSES, WORKSHOPS, SUMMER SCHOOLS**

- *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 and V. Jagannathan, Vetsuisse Faculty Bern
- *Flow Cytometry Course*, organized by S. Müller, DCR
- *Concepts and Methods in Programmed Cell Death* (bi-annually, next course in 2014), 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



**Figure 4: Excursion to the High Altitude Research Station on Jungfrauoch on June 12, 2013, during the course *From Air Pollution to Human Health: Ultrafine Particles and Nanomaterial* (H. Krug): Listening to the explanations of the custodian Martin Fischer.**





**Figure 5: High Altitude Research Station on Jungfrauojoch:  
exterior view on a foggy day (June 12, 2013).**

#### **GCB SEMINAR SERIES**

The GCB Seminar Series gives PhD students 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.

In 2013, the students of the GCB did not take advantage of this attractive possibility to meet distinguished scientists, to learn from them and exchange ideas.

## GCB STUDENTS' SYMPOSIUM 2013

On 30 January 2013, the GCB Students' Symposium 2013 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 **138 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. Dr. Walter J. Gehring**, Prof. em., Biozentrum, University of Basel, gave a highly acclaimed talk on **"The Evolution of Vision"**. The breaks were extensively used for further informal discussions and active networking, and the Symposium once more closed with an apéro during the second poster session, which gave further opportunity for lively exchange among participants.

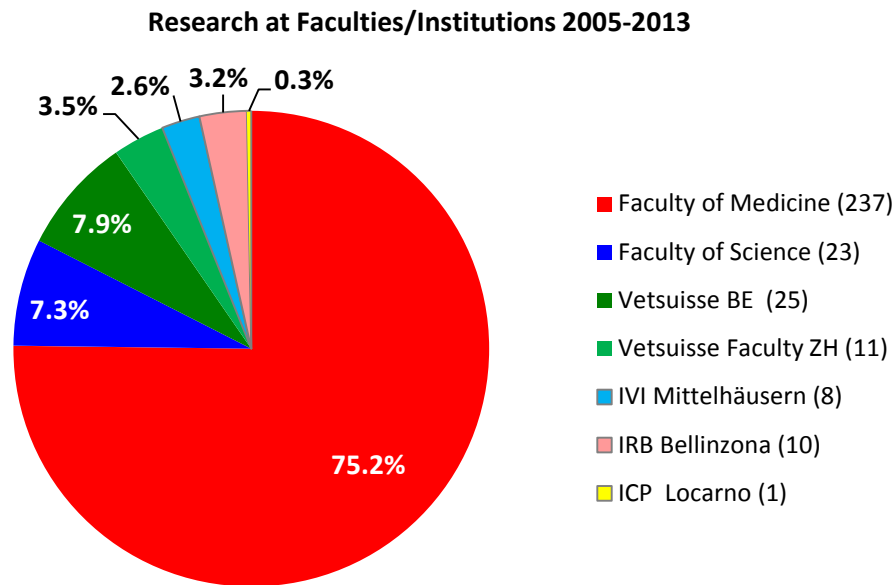


**Figure 6: Prof. Dr. Walter J. Gehring giving his keynote lecture on occasion of the GCB Students' Symposium 2013.**

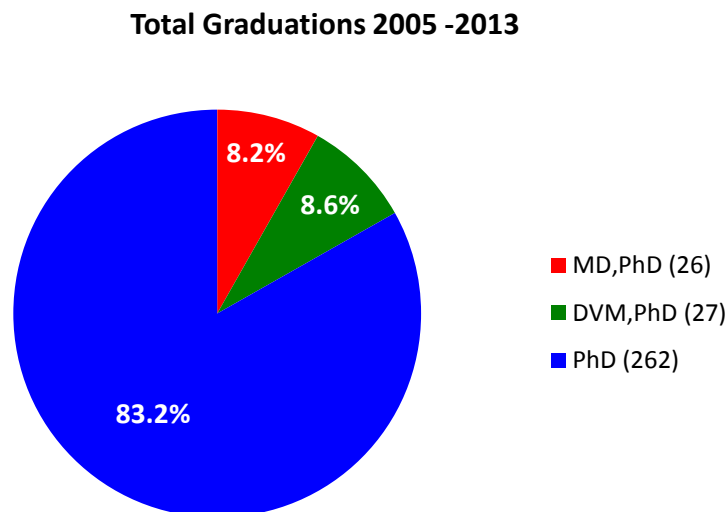
## GRADUATIONS

In the course of 2013, **67 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, 35—i.e., 52.2%—were students with a master diploma from a foreign University who joined the GCB for their PhD studies.



**Figure 6:** 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 (%).



**Figure 7:** Since the start of the PhD programme of the GCB in 2005, 315 students have successfully completed their studies and obtained a doctoral degree. In parentheses: number of graduates; in chart: graduates' ratio (%).

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

**Anastasia Badmann, PhD in Immunology** (27 February)

Institute of Pathology (PD Dr. N. Corazza)

**“Role of liver sinusoidal endothelial cells in various forms of liver diseases”**

**Mark Bauer, PhD of Science in Biochemistry and Molecular Biology** (14 February)

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

**“Identification and quantification of a new family of peptide endocannabinoids (Pepcans) showing negative allosteric modulation at CB<sub>1</sub> receptors”**

**Stefan Bauer, PhD in Biomedical Engineering** (22 March)

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

**“Medical image analysis and image-based modeling for brain tumor studies”**

**Mathias Baumann, PhD** (1 July)

Theodor Kocher Institute (Dr. C. Benarafa)

**“SerpinB1 is critical for neutrophil survival through cell-autonomous inhibition of cathepsin G”**

**Doreen Becker, DVM, PhD** (18 December)

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

**“A genome-wide association study to identify QTL affecting commercially important traits in pork”**

**Christine Bolliger, PhD in Biomedical Sciences** (15 November)

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

(Prof. Dr. R. Kreis)

**“Novel combinations of acquisition and processing methods for the quantification of brain metabolites by in vivo <sup>1</sup>H magnetic resonance spectroscopy”**

**Anjan Bongoni, PhD** (20 December)

Dept. of Clinical Research, Cardiovascular Research (Prof. Dr. R. Rieben)

**“Functional evaluation of multiple human transgenes to overcome immunological and coagulation barriers associated with pig-to-human xenotransplantation”**

**Andreas Boss, PhD** (22 May)

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

(Prof. Dr. C. Boesch)

**“Application of multinuclear magnetic resonance spectroscopy for the non-invasive investigation of skeletal muscle and liver metabolism”**

**Peter Bou Dib, PhD** (22 October)

Institute of Cell Biology (Dr. E. Nagoshi)

**“Revealing novel roles of *Fer2* in the development and maintenance of dopaminergic neurons in *Drosophila melanogaster*”**

**Jamal-Eddine Bouameur, PhD** (1 July)

Dept. of Dermatology, Inselspital, Bern University Hospital (Prof. Dr. L. Borradori)

**“Characterization of the interaction of plectin with intermediate filaments and its regulation by phosphorylation”**

**Vaclav Brandejsky, PhD in Biomedical Sciences** (9 April)

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

(Prof. Dr. C. Boesch)

**“Studies of metabolism by means of <sup>1</sup>H magnetic resonance spectroscopy”**

**Jennifer Brasseit, PhD** (28 January)

Institute of Pathology (Prof. Dr. C. Müller)

**“Effects of CD8 $\alpha\alpha$  TCR $\alpha\beta$  intraepithelial lymphocytes and innate lymphoid cells on intestinal immune responses during homeostasis and inflammation”**

**Barbara Büchel, PhD** (29 May)

University Institute of Clinical Chemistry, Inselspital, Bern University Hospital  
(Prof. Dr. C. R. Largiadèr)

**“Towards personalized chemotherapy: Predicting 5-fluorouracil-related toxicity by phenotypic characterization of dihydropyrimidine dehydrogenase”**

**Olivera Cirovic, PhD of Science in Biochemistry and Molecular Biology** (19 September)

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

**“Characterization of *Trypanosoma brucei* proteins that regulate development”**

**Tiziana Patrizia Cremona, PhD** (25 November)

Theodor Kocher Institute (Dr. C. Benarafa)

**“Role of serpinB1 in emphysema and *Pseudomonas* clearance in the lungs after cigarette smoke exposure”**

**Elena Daskalaki, PhD in Biomedical Engineering** (29 July)

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

**“Towards the external artificial pancreas: Design and development of a personalized control system for glucose regulation in individuals with type 1 diabetes”**

**Carolina Duart Garcia, PhD in Biomedical Sciences** (22 November)

DCR-VPH, Institute of Genetics, Vetsuisse Bern (PD Dr. M. Braunschweig)

**“Functional analysis of insulin-like growth factor-II antisense transcripts in mouse”**

**Claudia Dührkop-Sisewitsch, PhD** (18 October)

Dept. of Clinical Research, Cardiovascular Research (Prof. Dr. R. Rieben)

**“Anti-inflammatory treatment prevents local and systemic effects of skeletal muscle ischemia/reperfusion injury”**

**Nina Eickel, PhD of Science in Cell Biology** (13 September)

Institute of Cell Biology (Prof. Dr. V. Heussler)

**“Autophagic events in *Plasmodium*-infected hepatocytes”**

**Marcelo Elias de Oliveira, PhD in Biomedical Engineering** (28 March)

Institute for Surgical Technology & Biomechanics ISTB (PD Dr. P. Büchler, Prof. Dr. L.-P. Nolte)

**“A non-invasive technique for assessing the spinal flexibility in adolescent idiopathic scoliosis”**

**Hans Jürg Engel, PhD** (30 August)

Institute for Infectious Diseases ifik (Dr. L. J. Hathaway, Dr. M. Hilty)

**“Mechanisms of heteroresistance in *Streptococcus pneumoniae*”**

**Caroline Erös de Bethlenfalva-Hora, MD, PhD** (19 December)

Institute of Clinical Pharmacology and Visceral Research (Prof. Dr. J.-F. Dufour)

**“Sorafenib in the treatment of hepatocellular carcinoma: Effects on liver regeneration and combination with radiofrequency ablation”**

**Janne Estill, PhD** (25 February)

Institute of Social and Preventive Medicine ISPM (Prof. Dr. M. Egger, Dr. O. Keiser)

**“Monitoring and outcomes of antiretroviral therapy in HIV-infected patients: A mathematical model”**

**Ismael Fernández-Hernández, PhD** (13 December)

Institute of Cell Biology (Prof. Dr. E. Moreno)

**“Adult neurogenesis and brain regeneration in *Drosophila melanogaster*”**

**Tanja K. Froehlich, PhD** (30 October)

University Institute of Clinical Chemistry, Inselspital, Bern University Hospital  
(Prof. Dr. C. R. Largiadèr)

**“Genetic variation in the context of the chemotherapeutic agent 5-fluorouacil in cancer therapy. Assessment of polygenic profiles as predictive biomarkers for drug response and severe toxicity”**

**Neha Gadhari, PhD in Biomedical Sciences** (2 October)

School of Dental Medicine, Dept. of Orthodontics and Dentofacial Orthopedics (Prof. Dr. M. Chiquet)

**“Geometry, mechanical input, and the cells”**

**Nicolas Gerber, PhD in Biomedical Engineering** (25 February)

Institute for Surgical Technology & Biomechanics ISTB (Prof. Dr. S. Weber, Prof. Dr. L.-P. Nolte)

**“Computer assisted planning and image guided surgery for hearing aid implantation”**

**Franziska Maria Gisler, PhD** (1 February)

Dept. of Clinical Research, Human Genetics (Prof. Dr. S. Gallati)

**“Heterogeneity in cystic fibrosis: Analyses of phenotype modifications on interactomic levels in cystic fibrosis”**

**Micah Gross, PhD in Biomedical Sciences** (11 September)

Institute of Anatomy (Dr. M. Vogt)

**“Beta-alanine supplementation and high-intensity training: Effects on supramaximal performance and mechanisms”**

**Jérémie Guignard, PhD in Biomedical Engineering** (2 August)

ARTORG Center for Biomedical Engineering Research, Artificial Hearing Research (Prof. Dr. C. Stieger)

**“Biomedical implants in the temporal bone: Anatomy, physics, and surgical procedure aspects”**

**Claudia Guldemann, DVM, PhD** (22 April)

DCR-VPH, Division of Experimental Clinical Research, Vetsuisse Bern (Prof. Dr. A. Oevermann)

**“Ruminant brain-slice cultures as a model for *Listeria monocytogenes* neurovirulence”**

**Ursina Regula Gurzeler, PhD** (28 May)

Institute of Pharmacology (PD Dr. T. Kaufmann)

**“Regulation of cell death in murine granulocytes”**

**Daniel Arturo Gutiérrez Pineda, PhD** (27 September)

Department of Physiology (Prof. Dr. E. Niggli)

**“The molecular mechanisms of the  $\beta$ -adrenergic stimulation: Activation of CaMKII by nitric oxide during  $\beta_1$ -adrenergic stimulation of cardiomyocytes increases the frequency of  $\text{Ca}^{2+}$  sparks”**

**Stefanie Hausammann, PhD** (26 June)

University Institute of Immunology (Prof. Dr. B. Stadler, Dr. M.P. Horn)

**“DARPs as molecular mimicry for a complex antigen—A study with a FVIII inhibitor”**

**Tamara Hilmenyuk, PhD in Biomedical Sciences** (28 May)

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

**“Malignant lymphoma B cells induce dysfunctional cytotoxic T cells”**

**Tamara Horn Lang, PhD** (14 May)

Department of Physiology (Prof. Dr. M. Egger)

**“Inositol 1,4,5-trisphosphate receptor  $\text{Ca}^{2+}$  signaling in atrial myocytes”**



**Marie-Luise Humpert, PhD of Science in Biochemistry and Molecular Biology** (18 October)

Institute for Research in Biomedicine IRB, Bellinzona (Prof. Dr. M. Thelen)

**“Functional role of CXCR7 on late germinal center B cells and molecular mechanisms of CXCR7 sorting”**

**Qing Huo, PhD of Science in Biochemistry and Molecular Biology** (29 November)

Institute of Cell Biology (Prof. Dr. D. Schümperli)

**“Investigation of splicing defects in spinal muscular atrophy (SMA) and progress towards a somatic gene therapy”**

**Christopher Benjamin Jackson, PhD** (20 June)

Dept. of Clinical Research, Human Genetics (Prof. Dr. S. Gallati)

**“Characterisation of molecular pathomechanisms in mitochondrial disorders”**

**Tatiana Küster, PhD** (16 May)

Institute of Parasitology, Vetsuisse Bern (Prof. Dr. A. Hemphill)

**“Alternative treatments against Alveolar Echinococcosis”**

**Nils Lannes, PhD in Immunology** (15 January)

Institute of Virology and Immunology IVI, Mittelhäusern (Prof. Dr. A. Summerfield)

**“Plasmacytoid dendritic cells in FMDV immunity: Responsiveness, activation and regulation by cytokines and vaccine induced antibodies”**

**Jiongming Lu, PhD** (9 December)

Institute of Cell Biology (Prof. Dr. B. Suter)

**“Phenylalanyl-tRNA synthetase: Functions in and beyond aminoacylation”**

**Camille Luyet, DVM, PhD** (3 December)

Institute of Animal Pathology, Div. of Molecular Dermatology, Vetsuisse Bern (Prof. Dr. E. J. Müller, Dr. A. Galichet)

**“Desmoglein 3 adhesion signaling in keratinocytes at cell cycle exit and onset of differentiation”**

**Ghislain Maquer, PhD in Biomedical Engineering** (27 May)

Institute for Surgical Technology & Biomechanics ISTB (Prof. Dr. P. Zysset)

**“Image-based biomechanical assessment of vertebral body and intervertebral disc in the human lumbar spine”**

**Stefanie Metze, PhD** (18 October)

Department of Chemistry and Biochemistry (Prof. Dr. O. Mühlemann)

**“In vitro and in vivo analysis of nonsense-mediated mRNA decay in the human system”**

**Thierry Monney, PhD** (17 January)

Institute of Parasitology, Vetsuisse Bern (Prof. Dr. A. Hemphill)

**“Chimeric antigens for vaccination against *Neospora caninum* infection: Studies in the mouse model”**

**Md. Mahbubul Morshed, PhD in Immunology** (5 November)

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

**“Eosinophils and basophils form extracellular DNA traps”**

**Aloïs Pfenniger, PhD in Biomedical Engineering** (19 August)

ARTORG Center for Biomedical Engineering Research, Cardiovascular Engineering (Prof. Dr. R. Vogel)

**“Intracorporeal energy harvesting with a focus on the human cardiovascular system”**

**Tohid Pirbodaghi, PhD in Biomedical Engineering** (15 March)

ARTORG Center for Biomedical Engineering Research, Cardiovascular Engineering (PD Dr. S. Vandenberghe)

**“Speed modulation of rotary blood pumps: Experimental evaluation”**

**Simone Portmann, PhD in Biomedical Sciences** (16 August)

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

**“Inhibition of SIRT1 impairs primary liver cancer growth”**

**Mina Rezaei, PhD in Biomedical Sciences** (30 July)

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

**“Regulation of 11 $\beta$ -hydroxysteroid dehydrogenase type 2 by miRNA”**

**Daniela Ross, PhD of Science in Biochemistry and Molecular Biology** (18 January)

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

**“Properties of p20, an eIF4E-binding protein from the yeast *Saccharomyces cerevisiae*”**

**Saliha Beyza Sayar, PhD** (24 April)

Institute of Animal Pathology, Div. of Molecular Dermatology, Vetsuisse Bern (Prof. Dr. E. J. Müller, Dr. A. Galichet)

**“Cross-talk between desmoglein 3 and epidermal growth factor receptor in epidermal renewal and *Pemphigus vulgaris*”**

**Remo Samuel Schmidt, PhD** (17 December)

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

**“Autophagy in *Trypanosoma brucei*: Insights into amino acid requirement, the regulation during different growth phases, and localization of involved proteins”**

**Sarah Christina Schneider, MD, PhD** (24 June)

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

**“Aspiration toxicology of hydrocarbons and lamp oils studied by in vitro technology”**

**Hadi Seyed Hosseini, PhD in Biomedical Engineering** (27 May)

Institute for Surgical Technology & Biomechanics ISTB (Prof. Dr. P. Zysset)

**“Constitutive modeling of trabecular bone in large strain compression”**

**Rajni Sharma, PhD** (21 October)

Institute of Virology and Immunology IVI, Mithelhäusern (Dr. K. McCullough)

**“Synthetic virus-like particle—vaccine carrier endocytosis and processing by dendritic cells for vaccine delivery”**

**Andrea Rahel Sieber, PhD in Neuroscience** (28 June)

Department of Physiology (Prof. Dr. T. Nevian)

**“Inhibitory long-term plasticity in the thalamus”**

**Florian Singer, MD, PhD** (26 March)

Department of Paediatrics, Division of Respiratory Medicine, Inselspital, Bern University Hospital (Prof. Dr. U. Frey, Prof. Dr. P. Gustafsson, Prof. Dr. T. Geiser)

**“Inert gas washout to assess airway function: From bench to bedside”**

**Karin Stettler, PhD** (25 October)

Institute of Cell Biology (Prof. Dr. B. Suter)

**“Modeling and analyzing human XPD mutations in *Drosophila*”**

**Peter Studer, MD, PhD** (19 April)

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

**“A20: The cross road of survival, cell cycle and metabolism in the liver”**

**Dagmar Senta Trachsel, DVM, PhD** (30 April)

Equine Department, Vetsuisse Zurich (Dr. M. Weishaupt)

**“Investigations on the use of cardiac biomarkers in the evaluation of exercise intolerance in athletic horses”**

**Stephan Lloyd Watkins, PhD** (17 October)

Dept. of Rheumatology, Clinical Immunology and Allergology, Inselspital, Bern University Hospital  
(Prof. Dr. W. J. Pichler)

**“Computational and cellular analysis of non-covalent pharmaceutical interactions with immune receptors [p-i] causing adverse drug reactions: T cell receptors and sulfamethoxazole as a case study”**

**Marc Wehrli, MD,PhD** (25 June)

Institute of Pharmacology (PD Dr. S. von Gunten)

**“Neutrophil death regulation by IgA and its receptor FcαRI”**

**Natascha Wuillemin, PhD** (4 October)

Dept. of Rheumatology, Clinical Immunology and Allergology, Inselspital, Bern University Hospital  
(Prof. Dr. W. J. Pichler)

**“Development of an *in vitro* model for flucloxacillin-induced liver injury”**

**James J. S. Yun, MD,PhD** (16 October)

Dept. of Rheumatology, Clinical Immunology and Allergology, Inselspital, Bern University Hospital  
(Prof. Dr. W. J. Pichler)

**“T cell responses in HLA associated drug hypersensitivity: Allopurinol model”**

**Denise Corinne Zysset-Burri, PhD** (18 December)

Institute of Parasitology, Vetsuisse Bern (Prof. Dr. N. Müller)

**“Identification of potential pathogenicity factors of the free-living amoeba *Naegleria fowleri* by genomic, transcriptomic and proteomic approaches”**

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.

Degree	Biological Systems	Biomed. Sciences & Biomed. Engineering	Cell Biology	Molecular Biology & Biochemistry	Total
PhD	8	14	15	20	57
MD,PhD	2	1	3	0	6
DVM,PhD	1	1	0	2	4
<b>Total</b>	<b>11</b>	<b>16</b>	<b>18</b>	<b>22</b>	<b>67</b>

**Table 2: Number of graduations per GCB Expert Committee in 2013.**

Faculty/Institution	Number of Graduations				%
	PhD	MD,PhD	DVM,PhD	Total	
Faculty of Medicine	41	6	0	47	70.2
Faculty of Science	8	0	0	8	11.9
Vetsuisse Faculty BE	5	0	3	8	11.9
Vetsuisse Faculty ZH	0	0	1	1	1.5
IVI Mittelhäusern	2	0	0	2	3.0
IRB Bellinzona	1	0	0	1	1.5
<b>Total</b>	<b>57</b>	<b>6</b>	<b>4</b>	<b>67</b>	<b>100.0</b>

**Table 3: Graduations in 2013, according to Faculties/Institutions.**

## CONGRATULATIONS

### GCB AWARD FOR BEST PHD THESIS

The **2013 GCB Award for “Best PhD Thesis”** (CHF 3'000.–) was awarded to **Andreas Boss, PhD**, in January 2014 during the GCB Students' Symposium for his work entitled **“Application of multinuclear magnetic resonance spectroscopy for the non-invasive investigation of skeletal muscle and liver metabolism”**. He performed his PhD work under the supervision of Prof. Dr. med. et Dr. sc. nat. ETH Chris Boesch at the Department of Clinical Research, Magnetic Resonance Spectroscopy and Methodology AMMS, University of Bern, and defended his thesis successfully on May 22, 2013.



**Figure 8: Andreas Boss, PhD (right), receiving the “GCB Award for Best PhD Thesis” for 2013 from the hands of Prof. Dr. Frank Stüber, President of the GCB (left) on occasion of the GCB Students' Symposium 2014.**

Our warmest congratulations go to Andreas Boss, PhD, for his outstanding success. After his graduation, the laureate moved to the Netherlands, where he is currently pursuing a career as a postdoctoral fellow at the Department of Radiology, Radboud University Medical Center, Nijmegen, The Netherlands.

### BENOÎT POCHON AWARD 2013

We are very proud to report that **Andreas Boss, PhD**, has also received the **Benoît Pochon Award 2013** for his PhD thesis "Application of multinuclear magnetic resonance spectroscopy for the non-invasive investigation of skeletal muscle and liver metabolism" (more information in the section above).

### **FURTHER PRIZES AWARDED TO GCB STUDENTS IN 2013**

Furthermore, we are very pleased to report that in the course of 2013, a number of GCB students received various important prizes and awards. Here, we are only presenting the ones of which we obtained direct knowledge.

#### **Day of Clinical Research 2013**

On the occasion of the **Day of Clinical Research 2013** at the Department of Clinical Research, the following prizes were awarded to PhD students of the Graduate School for Cellular and Biomedical Sciences:

##### **Poster Prizes**

Among the DCR poster prizes, the prize for the best laboratory-oriented project went to **Stefan Hahnewald**, Department of Ear, Nose and Throat Diseases, Head and Neck Surgery, Inselspital, Bern University Hospital & Audiology Research Group, Department of Clinical Research, University of Bern, —Supervisor: PD Dr. Pascal Senn, —for his work "**First steps towards a gapless interface between auditory neurons and multi-electrode arrays in vitro**".

##### **Research Prize Alumni MedBern:**

The 2013 Alumni MedBern award went to **Michael Jäger**, Gerontechnology and Rehabilitation, ARTORG Center, University of Bern, —Supervisor: PD Dr. Tobias Nef, —for his work "**Methods to reduce simulation adaptation syndrome during simulated driving**".

Our special congratulations go to all our laureates, together with our best wishes for the continuation of their careers.

## 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 2013, the Coordinator Marlene Wolf interviewed and advised about 10 medical students in their second to fourth year. Four of them were interested in the MD-PhD programme, and 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 9 to 13 fellowships every year to outstanding medical candidates (Human as well as Veterinary Medicine) studying at Swiss Universities (for information, see <http://www.samw.ch/de/Forschung/MD-PhD-Programm.html>).

In 2013, the following two MD-PhD students have been awarded one of the prestigious 3-year fellowships:

- **Michael Amrein**, Laboratory of Prof. Dr. Adrian Ochsenbein, Dept. of Clinical Research, Tumor Immunology
- **Elias Daniel Bühler**, Laboratory of Prof. Dr. Adrian Ochsenbein, Dept. of Clinical Research, Tumor Immunology



## 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 (TKI): 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)

Handwritten signatures of Marlene Wolf and Gabrielle Favre in blue ink.

PD Dr. Marlene Wolf, Gabrielle Favre

May 9, 2014