Annual Report 2015

Institut für Pharmakologie (PKI) der Universität Bern

Institute of Pharmacology, University of Bern

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1. Introduction

1.1. Vorwort

Dies ist der fünfzehnte umfassende Jahresbericht des Instituts für Pharmakologie (PKI) der Universität Bern. Das PKI hat auch im Jahr 2015 seine Aufgaben in Lehre und Forschung innerhalb der Medizinischen Fakultät vorbildlich erfüllt. Höhepunkt des Jahres war sicherlich unser Umzug in das INO-Gebäude des Inselspitals, in dem wir hervorragende Bedingungen für eine erfolgreiche Forschungstätigkeit erhielten. Mit dem Zentrum für Labormedizin teilen wir uns den Stock F und nutzen gemeinsam die vorhandene Infrastruktur. In Lehre und Forschung wurden inzwischen zahlreiche neue Projekte gestartet, mit dem Ziel die personalisierte Medizin weiter zu entwickeln. Den Verantwortlichen des Inselspitals sei an dieser Stelle nochmals ganz herzlich für die grosse Unterstützung bei der Herstellung der Laborräume und bei der Verwirklichung unseres Umzugs gedankt.

Die Pharmakologie besitzt eine Brückenfunktion zwischen biologischer Grundlagen- und klinischer Forschung. Das PKI arbeitet deshalb eng mit den verschiedensten Kliniken des Inselspitals und mit anderen Forschungseinrichtungen der Universität Bern zusammen. Damit wollen wir helfen, die translationale Forschung sowie die Aus-, Weiter- und Fortbildung an der Medizinischen Fakultät zu stärken. Zum anderen sind wir an der Zusammenarbeit mit Firmen interessiert, wie die weiter hinten aufgeführten gegenwärtigen Kontakte der einzelnen Forschungsgruppen zeigen. Auch im Jahr 2015 trugen wir dazu bei, die Kommunikation zwischen WissenschaftlerInnen und Öffentlichkeit zu fördern.

Neben unserer regulären Lehrtätigkeit im 3. Studienjahr Medizin sowie der Ausbildung der ZahnmedizinerInnen sind einige DozentInnen des Instituts zusätzlich in die Immunologie-Ausbildung von StudentInnen der Biologie (Naturwissenschaftliche Fakultät der Universität Bern) einbezogen. Weiterhin sind wir auch für die Pharmakologie-Ausbildung in B.Sc.- und M.Sc.-Kursen für Biomedizin der Universität Bern verantwortlich. Die DozentInnen des PKI sind ausserdem innerhalb der interfakultären Graduate School for Cellular and Biomedical Sciences aktiv tätig. Prof. Kaufmann ist Mitglied einer Betreuungskommission innerhalb dieses Ausbildungsprogramms für Doktorandinnen und Doktoranden. Dazu kommen zusätzliche Bildungsangebote in Form von Seminaren (Current topics in Pharmacology and Theranostics; gemeinsam organisiert mit dem Zentrum für Labormedizin) und einer Summer School (Prof. Simon). Diese Bildungsangebote werden weitgehend aus eigenen finanziellen Mitteln und Sponsorengeldern bestritten. Im Institut

arbeiten gegenwärtig 22 DoktorandInnen (21 PhD, 1 MD), und 3 DoktorandInnen (3 PhD) haben im Berichtsjahr ihre Arbeit erfolgreich abgeschlossen.

Die Mitarbeiter und Mitarbeiterinnen des Instituts für Pharmakologie publizierten im Jahr 2015 insgesamt 24 Originalarbeiten sowie 12 Übersichtsartikel in internationalen Fachzeitschriften (Summe der „impact factors“ >200). MitarbeiterInnen des Instituts wurden zu insgesamt 36 Vorträgen bzw. Seminaren eingeladen. Mehrere MitarbeiterInnen des PKI wurden mit Forschungspreisen ausgezeichnet. Gegenwärtig werden 6 MitarbeiterInnen mit namhaften Beiträgen des Schweizerischen Nationalfonds unterstützt. Zahlreiche Persönlichkeiten besuchten das Institut und hielten Forschungsseminare. Der Berner Immunologie-Club erfreut sich, auch durch die aktive Hilfe aus dem PKI, einer grossen Beliebtheit. Prof. von Gunten war Mitorganisator des 50 Jahre-Jubiläumskongresses der Schweizerischen Gesellschaft für Pharmakologie und Toxikologie (SGPT). Prof. Kaufmann organisiert gegenwärtig gemeinsam mit Prof. Tschan (Institut für Pathologie, Universität Bern) und Prof. Brunner (Lehrstuhl Biochemische Pharmakologie, Universität Konstanz, Deutschland) das „9th Swiss Apoptosis Meeting (SAM)“ (8.-9.9.2016), zu dem wir ca. 200 TeilnehmerInnen aus dem In- und Ausland erwarten. Seit 2014 ist das Institut für Pharmakologie Bestandteil eines Europäischen Netzwerks für Doktoranden innerhalb des EU-Programms für Forschung und Innovation „HORIZON 2020“. Diese Aufzählung belegt den hohen Stellenwert, den die Forschung in unserem Institut besitzt.

Prof. Simon ist seit 01.08.2012 als Forschungsdekan der Medizinischen Fakultät der Universität Bern tätig. Er wurde im September 2015 von den Mitgliedern der Medizinischen Fakultät als neuer Dekan gewählt (Stellenantritt: 01.08.2016). Daneben nimmt das PKI auch ausserhalb der Universität wissenschaftspolitische Verantwortung für die Medizin und die Biowissenschaften wahr. Prof. Simon amtete bis Juli 2015 als Präsident der International Eosinophil Society (IES) und ist Vice-Chair der Immunopharmacology Section der International Union of Basic and Clinical Pharmacology (IUPHAR). Prof. von Gunten ist Sekretär der Schweizerischen Gesellschaft für Experimentelle Pharmakologie (SGEP).

Ich danke allen Mitarbeiterinnen und Mitarbeitern für ihren Einsatz, welcher auch im Jahr 2015 zu einer Bilanz beitrug, die internationalen Massstäben gerecht wird. Ebenso danke ich allen Sponsoren und Freunden des Instituts.

Prof. Dr. med. Hans-Uwe Simon
Direktor

Bern, Februar 2016

1.2. Foreword

This is the fifteenth comprehensive annual report for our Institute of Pharmacology of the University of Bern. We have worked hard to fulfil optimally our tasks in teaching and research within the Medical Faculty in 2015. The highlight of the year has obviously been our move to the INO-building of the University Hospital (Inselspital), where we have found excellent conditions for successful research. We share this floor F of the building with the Center of Laboratory Medicine and have jointly developed the available infrastructure. We have already organized multiple joint teaching and research projects with the goal to further accentuate the field of “Stratified Medicine”. At this time, we would like to express our deep appreciation for the support we have received from the leadership of the Inselspital in setting up of the new laboratory facilities and during the actual move.

Pharmacology plays important roles in both clinical research and basic biological science. The Institute of Pharmacology wants to succeed in both areas and, therefore, maintains close contacts with several clinics at the Inselspital as well as with different research institutes of the University. In doing so, we hope to strengthen both translational research and teaching at the Medical Faculty. Furthermore, we are very much interested in collaborating with industry on new developments. Our current activities are listed in this report. In addition, we have also worked to promote communication between scientists and the public in 2015.

In addition to the regular teaching in the third year medical student curriculum and in the teaching of dental students, we are responsible for teaching Pharmacology in both B.Sc. and M.Sc. courses in Biomedicine. Some of the PKI staff is additionally involved in Immunology M.Sc. programmes within the Natural Science Faculty of our university. Of course, we also actively participate in the graduate program for MD/PhD students of the University of Bern (Graduate School for Cellular and Biomedical Sciences). Prof. Kaufmann is a member of the tutoring committee “Cell Biology” within this school. Furthermore, additional teaching activities outside the medical curriculum, such as seminars (Current topics in Pharmacology and Theranostics; jointly organized with the Center of Laboratory Medicine) and a Summer School (Prof. Simon) were carried out. Importantly, these additional events were financed exclusively by external sponsors. Currently, 21 PhD students and 1 MD student work at the PKI, and three PhD students (3 PhD) successfully completed their doctoral studies in 2015.

Research is our other main activity. In 2015, staff members of the PKI published 24 original and 12 review articles in international peer-reviewed journals (the sum of the "impact factors" is more than 200). Co-workers of the institute were invited to present 36 lectures or seminars. Several PKI members received research prizes. Six co-workers are currently supported by grants from the Swiss National Science Foundation. Several internationally prominent researchers visited the institute and presented seminars. The Bern Immunology Club (BIC) is, thanks in part to our contribution, highly active and successful. Prof. von Gunten was part of the organizing committee for the 50 year anniversary meeting of the Swiss Society of Pharmacology and Toxicology (SSPT). Prof. Kaufmann, together with Prof. Tschan (Institute of Pathology, University of Bern) and Prof. Brunner (Department of Biochemical Pharmacology, Univ. of Konstanz, Germany), is currently organizing an international congress (9th Swiss Apoptosis Meeting; September 8-9, 2016), which will attract approximately 200 scientists interested in the field of "Cell Death". Moreover, since 2014, the Institute of Pharmacology has been part of a Training Network for PhD students within the EU Framework Program for Research and Innovation „HORIZON 2020". In summary, research plays a very important role at the PKI and is being carried out at a high level.

Prof. Simon serves as Vice-Dean for Research in the Medical Faculty of the University of Bern (2012-2016). In September 2015, he was elected as the new Dean of the Medical Faculty (starting date: August 1, 2016). He also served as the President of the International Eosinophil Society (IES) until July 2015 and is currently the Vice-Chair of the Immunopharmacology Section of the International Union of Basic and Clinical Pharmacology (IUPHAR). Prof. von Gunten serves as secretary of the Swiss Society of Experimental Pharmacology (SSEP).

I thank all co-workers in the institute for their hard work. These efforts have contributed in an important way to the success of the PKI in 2015. I am grateful to all the sponsors and friends of the institute for their support.

Prof. Hans-Uwe Simon, MD, PhD
Director

Bern, February 2016

2. Staff 2015

Director

Prof. Dr.	Simon, Hans Uwe	MD, PhD

Deputy Director

Prof. Dr.	Huwiler, Andrea	PhD

Principal Investigators

Prof. Dr.	Huwiler, Andrea	PhD
Prof. Dr.	Kaufmann, Thomas	PhD
Prof. Dr.	Simon, Hans Uwe	MD, PhD
Prof. Dr.	von Gunten, Stephan	MD, PhD, MME
Prof. Dr.	Yousefi, Shida	PhD
Prof. Dr.	Zangemeister-Wittke, Uwe	PhD
Prof. Dr.	Friis, Robert	PhD*
PD Dr.	Späth, Peter	PhD*

Scientific Staff

	Ademi, Hyrije	M.Sc. student*, Lab Technician* (Jan-Sept 2015)
	Aeschlimann, Salome	Lab Technician (since Nov 2015)
Dr.	Amini, Poorya	PhD student
	April, Simon	M.Sc. student*
	Bachmann, Daniel	Research Assistant
	Blanchard, Olivier	PhD student
	Brandl, Fabian	PhD student*
	Büchler, Flavia	Lab Technician (since Oct 2015)
Dr.	de Graauw, Elisabeth	PhD student*
	Eastline, Jonathan	MMed student* (Feb-March 2015)
	Eastline, Michael	MMed student* (Feb-March 2015)
	Farombi, Oluvatobi	M.Sc. student* (Oct-Dec 2015)
	Fernandez Marrero, Yuniel	PhD student*
	Filipenko, Julia	PhD student
	Frangez, Ziva	PhD student*
Dr.	Frias Boligan, Kayluz	PhD student*, Postdoctoral fellow*
	Fuchs, Katharina	MMed student*
	Gallasz, Christine	MD student*
	Germic, Nina	PhD student
Dr.	He, Zhaoyue	Postdoctoral fellow
	Jenni, Aurelio Leandro	PhD student
	Kostresevic, Danijela	M.Sc. pharm. student* (Jan-June 2015)
	Kozlowski, Evelyne	Lab Technician
	Krähenbühl, Debora	M.Sc. pharm. student* (since Sep 2015)
	Lauber, Emanuel	M.Sc. student* (until Jan 2015)
Dr.	Liu, He	Postdoctoral fellow*
	Maillard-van Laer, Marianne	Lab Technician
	Maneva, Timcheva	PhD student*
	Meister, Ariane	MMed student*
	Merten, Hannes	PhD student*
Dr.	Moravcikova, Erika	Postdoctoral fellow* (until July 2015)
	Moret, Fabienne	MMed student* (March-April 2015)

	Nussbaum, Sinuhe	MMed student* (Jan-July 2015)
	Oberson, Kevin	Lab Technician
Dr.	Rabachini de Almeida, T.	Postdoctoral fellow*
	Reinhart, Ramona	PhD student*
	Roos, Noëmi	M.Sc. pharm. student* (Jan-June 2015)
	Rožman, Saša	PhD student (until Jan 2015)
	Ruchti, Daniela	MD, M.Sc. student* (April-Nov 2015)
	Schmid, Ines	Lab Technician
	Schneider, Christoph	PhD student
	Schneider, Nadia	MMed student* (March-May 2015)
	Schorer, Myriam Fabiola	PhD student*
	Sekeres, Nina	M.Sc. pharm. student* (since Oct 2015)
	Sever, Ema	M.Sc. pharm. student* (since Oct 2015)
	Stojkov, Darko	PhD student
	Strässle, Rebecca	MMed student* (Jan-Feb 2015)
	Timcheva, Maneva	PhD student* (until Aug 2015)
	Trefny, Marcel	M.Sc. student*
	Wang, Xiaoliang	PhD student*
	Wicki, Simone	PhD student*

External University Teachers

Dr.	Bürgi, Sibylle	PhD*
PD Dr.	Cachelin, Armand	MD, PhD*
Prof. Dr.	Milinaric, Irena	PhD (Visiting Professor, Univ. of Ljubljana, Slo)*

Guest scientists

	Dorvignit Pedroso, Denise	PhD student, University of Havanna (Cuba)*
	Grimaldi, Maddalena	PhD student, University of Pavia (Italy)*
Dr.	Fabbro, Doriano	PhD*
Prof. Dr.	Simon, Dagmar	MD, Dept. Dermatology, Inselspital, Univ. Bern*
Dr.	Sokollik, Christiane	MD, Dept. Pediatrics, Inselspital, Univ. Bern*
Dr.	Schwalm, Stephanie	PhD
PD Dr.	Spirk, David	MD*

External Computer Support

M.A.	Wyss Anne*

Office

	Dähler, Anita	Secretary, 70% (until March 2015)
	Krebs, Aniko	Secretary, 80% (since March 2015)
M.A. CSP	Scherrer, Debora	Secretary, 40% (since Dec 2015)
	Schranz, José	Secretary, 80% (since June 2015)
	Suter, Sandra	Secretary, 100% (until May 2015)

Workshop

Andres Hans

House Keeping

Conforti Isa

*at least partially paid from external sources, often research grants

Meeting of the Swiss Society of Pharmacology and Toxicology (SSPT):
Progress in Pharmacology – Allergy and Autoimmunity,
Bern, February 5th, 2015

Members of the Institute of Pharmacology of the University of Bern together with participants of our International Summer School in Bönigen; July 26 – 28, 2015.
Our guest speakers from Slovenia (Prof. Irena Mlinaric-Rascan) and Germany (Prof. Peter Ruth) are seen.

3. Teaching Activities

3.1. Lectures

Lectures for Medical Students: Pharmacology

Date	Lecturer	Titel of the lecture
Mar 23, 2015	Prof. Stephan von Gunten	Hormone aus pharmakol. Sicht (Teil 1)
Mar 23, 2015	Prof. Stephan von Gunten	Hormone aus pharmakol. Sicht (Teil 2)
Mar 25, 2015	Prof. Andrea Huwiler	Pharmakologie von Narkosemitteln und Muskelrelaxantien I
Mar 25, 2015	Prof. Andrea Huwiler	Pharmakologie von Narkosemitteln und Muskelrelaxantien II
Mar 30, 2015	Prof. Stephan von Gunten	Lipidsenker + Behandlung der Gicht
Mar 30, 2015	Prof. Stephan von Gunten	Antidiabetika
Apr 20, 2015	Prof. Andrea Huwiler	Therapie von M. Parkinson und Demenz
Apr 22, 2015	Prof. Andrea Huwiler	Antiepileptika
Apr 22, 2015	Prof. Andrea Huwiler	Lokalanästhetika
Apr 29, 2015	Prof. Andrea Huwiler	Neurologie-Blocksynthese
May 04, 2015	Prof. Andrea Huwiler	Psychopharmakologie
May 06, 2015	Prof. Andrea Huwiler	Antidepressiva, Anxiolytika und Stimmungsstabilisatoren
May 06, 2015	Prof. Andrea Huwiler	Antipsychotika
May 13, 2015	Prof. Andrea Huwiler	Schmerz und Analgesiologie (Teil 1)
May 13, 2015	Prof. Andrea Huwiler	Schmerz und Analgesiologie (Teil 2)
June 03, 2015	Prof. Hans-Uwe Simon	Immunmodulation
Sep 16, 2015	Prof. Hans-Uwe Simon	Pharmakodynamik (Teil 1)
Sep 21, 2015	Prof. Hans-Uwe Simon	Pharmakodynamik (Teil 2)
Sep 21, 2015	Prof. Hans-Uwe Simon	Entzündungshemmung
Sep 21, 2015	Prof. Hans-Uwe Simon	Einführung in die Toxikologie
Oct 26, 2015	Prof. Hans-Uwe Simon	Pharmakotherapie bei Lungenkrankheiten
Oct 28, 2015	Prof. U. Zangemeister-Wittke	Pharmakologie des vegetativen Nervensystems
Oct 28, 2015	Prof. U. Zangemeister-Wittke	Antihypertensiva
Oct 28, 2015	PD Dr. David Spirk	Pharmakologie der Hämostase
Nov 04, 2015	PD Dr. David Spirk	Behandlung der Herzinsuffizienz und Angina pectoris
Nov 10, 2015	Prof. U. Zangemeister-Wittke	Antiarrhythmika
Dec 07, 2015	Prof. U. Zangemeister-Wittke	Diuretika (Teil 1)
Dec 07, 2015	Prof. U. Zangemeister-Wittke	Diuretika (Teil 2)

All lecturers additionally participated in the “Wochensynthese”.

Seminars for Medical Students: Pharmacology

Date	Lecturer	Titel of the lecture
May 18, 2015	Prof. Stephan von Gunten	Functional Glycomics - Neue Optionen für die Tumor- und Entzündungspharmakologie
May 28, 2015	Prof. Thomas Kaufmann	Modulation des Zelltodes - aktueller Stand und neue Entwicklungen
June 01, 2015	Prof. Hans-Uwe Simon	Personalisierte Arzneimitteltherapie
June 01, 2015	Prof. U. Zangemeister-Wittke	Gezielte Tumortherapie mit Antikörpern und Immunkonjugaten

Lectures for Medical Students: Pathology

Date	Lecturer	Title of the lecture
Sep 14, 2015	Dr. Christina Merz-Stöckle	Adaptation und Zellschäden

Lectures for Dental Medicine Students: Pharmacology (Coordinator: Prof. Uwe Zangemeister-Wittke)

Date	Lecturer	Title of the lecture
Feb 02, 2015	Prof. U. Zangemeister-Wittke	Einführung in die Pharmakokinetik
Feb 11, 2015	Prof. U. Zangemeister-Wittke	Pharmakologie des VNS
Feb 16, 2015	Prof. Hans-Uwe Simon	Rezeptoren, Dosis-Wirkungskurven, Antagonisten, Applikationsarten
Mar 11, 2015	Prof. Stephan von Gunten	Psychopharmaka
Mar 16, 2015	PD Dr. Armand Cachelin	Analgetika
Mar 18, 2015	Prof. Stephan von Gunten	Magensäurehemmung
Mar 25, 2015	Prof. Thomas Kaufmann	Pharmakogenetik, Interaktionen
Mar 30, 2015	PD Dr. David Spirk	Herz-Kreislauf Medikamente, Antithrombotika
Apr 01, 2015	Prof. Andrea Huwiler	Pharmakol. von Atemwegserkrankungen
Apr 15, 2015	Prof. Andrea Huwiler	Narkose, Beruhigungsmittel
Apr 20, 2015	Dr. S. Bürgi	Antidiabetika, Lokalanästhetika
May 04, 2015	Dr. S. Bürgi	Antibiotika

Oral examinations: Prof. Zangemeister-Wittke, Prof. Huwiler, Prof. von Gunten, Prof. Simon

Lecture for Dental Medicine Students: Pathology (Coordinator: Dr. Anja Schmitt-Kurrer)

Date	Lecturer	Title of the lecture
Sep 29, 2015	Prof. Thomas Kaufmann	Zellschäden

Lectures for Natural Sciences Faculty and Biomedical Sciences students: Clinical Immunology (Coordinator: Prof. Hans-Uwe Simon)

Date	Lecturer	Title of the lecture
Feb 19, 2015	Prof. Hans-Uwe Simon	Introduction
Feb 19, 2015	Prof. Hans-Uwe Simon	Immunopharmacology
May 21, 2015	Prof. Hans-Uwe Simon	Eosinophilic diseases

Written examination and oral tests: Prof. Simon

Lecture for Natural Sciences Faculty: Cellular and Molecular Immunology (Coordinator: Dr. Leslie Saurer)

Date	Lecturer	Title of the lecture
Nov 19, 2015	Prof. Thomas Kaufmann	Cell death in the immune system

Lectures for Natural Sciences Faculty: Molecular Biology of Inflammation (Coordinator: Prof. Britta Engelhardt)

Date	Lecturer	Title of the lecture
April 16, 2015	Dr. Stephanie Schwalm	Lipid mediators in inflammation
May 7, 2015	Prof. Shida Yousefi	Inflammation - good or bad? Resolution of inflammation - apoptosis

Practical work for Natural Science Faculty: Immunology II (Coordinator: Prof. Thomas Kaufmann)

Date	Lecturer	Title of the lecture
Dec 3, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Immunological Methods (1 day)
Dec 4, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Immunological Methods (1 day)
Dec 10, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Immunological Methods (1 day)
Dec 11, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Immunological Methods (1 day)
Dec 17, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Immunological Methods (1 day)
Dec 18, 2015	Prof. Hans-Uwe Simon Prof. Stephan von Gunten Prof. Thomas Kaufmann	Evaluation (4 h)

Lectures for Biomedical Sciences Students (M.Sc. program, Bern) and Graduate School for Cellular and Biomedical Sciences: Pharmacology of Major Organ Systems (Coordinator: Prof. Thomas Kaufmann)

Date	Lecturer	Title of the lecture
Sep 18, 2015	PD Dr. David Spirk	Haemopoietic system and haemostasis
Sep 25, 2015	Prof. U. Zangemeister-Wittke	Heart and vascular system
Oct 2, 2015	Prof. Shida Yousefi	Antiinfectious therapy
Oct 9, 2015	Prof. Stephan von Gunten	Gastrointestinal tract
Oct 23, 2015	Prof. Stephan von Gunten	Endocrine and reproductive system
Oct 30, 2015	Dr. Stephanie Schwalm	Nervous system
Nov 6, 2015	Prof. Shida Yousefi	Lungs and kidneys
Nov 13, 2015	Prof. Thomas Kaufmann	Immune system

Lecture for Natural Sciences Faculty and Biomedical Sciences students (M.Sc. program, Cell Biology, Bern) and Graduate School for Cellular and Biomedical Sciences: General Pathology & Histology (Coordinator: Dr. Philippe Krebs)

Date	Lecturer	Title of the lecture
Sep 21, 2015	Prof. Thomas Kaufmann	Cell damage

Lecture for Biomedical Sciences students (M.Sc. program, Bern): Cutting Edge Laser Scanning Microscopy (Coordinator: Prof. Britta Engelhardt)

Date	Lecturer	Title of the lecture
Oct 16, 2014	Prof. Shida Yousefi	Laser scanning microscopy and specific applications (FRET, FRAP, spectral unmixing) and digital image restoration (Huygen and Imaris software)

External teaching activities: University of Zurich (Molecular Medicine)

Date	Lecturer	Title of the lecture
May 2015 (total 6h)	Prof. U. Zangemeister- Wittke	Molecular Cell Biology for students of human and dental medicine

External teaching activities: University of Ljubljana (Swiss-European Mobility Program, Pharmacology/Pharmacy)

Date	Lecturer	Title of the lecture
April 2015 (total 8h)	Prof. Hans-Uwe Simon	Pharmacology, Cell Biology, and Immunology for Pharmacy students

3.2. Coordination PBL Medical Students, 3rd year (2015/2016)

Core group:
Prof. Andrea Huwiler

Representatives of Pharmacology in teaching blocks:
Prof. Hans-Uwe Simon (blocks I, II, and IX)
Prof. Uwe Zangemeister-Wittke (blocks III and IV)
Prof. Stephan von Gunten (block V)
Prof. Andrea Huwiler (blocks VI, VII and VIII)

3.3. Tutorials (study year 2015/2016)

Medical students 3rd year:
Prof. Thomas Kaufmann
Dr. Zhaoyue He
Christoph Schneider, M.Sc.
Dr. Christina Merz-Stöckle
Dr. He Liu

PhD students,
Graduate School for Cellular and Biomedical Sciences, course "Happy Cell":
Prof. Shida Yousefi
Prof. Thomas Kaufmann

3.4. Elective Module Supervision

Biomedical Sciences students:
Isabel Büchi (Prof. Hans-Uwe Simon)

3.5. Seminars of Invited Speakers

Date	Teacher	Title of the seminar	Host
Jan 19, 2015	Dr. Georgia Konstantinidou, Dept. of Molecular Biology, Université de Genève	A multifaceted approach unravels vulnerabilities of KRAS-driven tumors	H.-U. Simon
Jan 26, 2015	PD Dr. David Spirk, Antrittsvorlesung	PCSK-9 Inhibition: Novel Therapeutic Approach for the Management of Dyslipidemia	H.-U. Simon
Jan 28, 2015	Dr. David Dombrowicz, Institut Pasteur de Lille, Univ. Lille - Nord de France	Expression of lymphoid receptors on eosinophils	H.-U. Simon
Feb 4, 2015	Dr. Lukasz Skora, Novartis Inst. Biomedical Research, Center for Proteomic Chemistry, Basel	Structural studies of Abelson tyrosine kinase, a drug target in leukemia	T. Kaufmann
Mar 12, 2015	Promega	Discover Glo 2015 Bioluminescent Cell-based Assay Agenda	S. Yousefi
June 17, 2015	Dr. Evžen Křepela, Inst. Biochem. and Exp. Oncology, Fac. Med., Charles University Prague, Czech Republic	Granzyme B mediated activation of procaspase-3 and its regulation in non-small cell lung carcinoma	T. Kaufmann
July 1, 2015	Prof. Wolfgang Eberhardt, Pharmazentrum Frankfurt/ZAFES, Universitätsklinikum Frankfurt am Main, Germany	Caspase-2 regulation by the translation and turnover-regulatory RNA-binding protein HuR: implications for apotosis resistance of colon carcinoma cells	A. Huwiler
Aug 4, 2015	Dr. Amy Klion Head, Human Eosinophil Section, Laboratory of Parasitic Diseases, National Institutes of Health (NIH), Bethesda	Eosinophil pathogenesis: a translational approach	H.-U. Simon

Aug 14, 2015	Prof. Jana Pachlopnik, Div. of Immunology, University Children's Hospital Zürich	Immune dysregulation in inherited T cell deficiencies	H.-U. Simon
Sep 21, 2015	Prof. Hamsa Puthalakath, Dept. Biochemistry, La Trobe University, Melbourne, Australia	Identifying drugs targets for treating sepsis and cardiomyopathy	T. Kaufmann
Oct 22, 2015	Prof. Angela Haczku, Translational Lung Biology Center, Univ. of California, Davis	Dendritic cell migration in airway inflammation	H.-U. Simon
Nov 2, 2015	Prof. Thomas Brunner, University of Konstanz, Biochemical Pharmacology	Regulation of TNF-induced tissue damage in the gastrointestinal tract	H.-U. Simon
Nov 4, 2015	Prof. George Kokotos, Dept. Organic Chemistry, University of Athen	Design and Synthesis of Phospholipase A2 Inhibitors as Tools and New Medicinal Agents	A. Huwiler
Dec 10, 2015	Dr. Julijana Ivanisevic, Metabolomics Platform, Université de Lausanne Dr. Aurélien Thomas, Centre Universitaire Romand de Médecine Légale	Metabolomics and MS imaging	Clinical Metabolomics Facility, Zentrum für Labormedizin

3.6. Inaugural Lecture (Venia docendi)

Date	Lecturer	Title
Jan 26, 2015	PD Dr. David Spirk	PCSK-9 Inhibition: Novel Therapeutic Approach for the Management of Dyslipidemia

3.7. Bern Immunology Club (BIC)

Date	Teacher	Title of the seminar
Feb 25, 2015	Prof. Thomas Hünig, Institute of Virology and Immunobiology, Universität Würzburg	Immunotherapy with CD28 superagonists: Before, during and after the storm
Mar 25, 2015	Dr. Mario Noti, Institut für Pathologie, Univ. Bern	A bad alliance: TSLP and basophils make food hard to swallow
Apr 29, 2015	Dr. Stephanie Hugues, Departement of Pathology and Immunology	Lymph node stromal cells and CD4+ T cell responses
May 27, 2015	Dr. Nozomi Takahashi, VIB Inflammation Research Center, University of Gent	Survival, apoptosis and necroptosis: molecular cross-talk and therapeutic potential
June 24, 2015	Prof. Constanze Vorwerg, Center for the Study of Language and Society, Universität Bern	Lecture and grill party
Sep 23, 2015	Dr. Christian Sadik, Klinik Dermatologie, Allergologie und Venerologie, Universität zu Lübeck	Regulation of neutrophil recruitment in organ-specific, autoantibody-driven diseases
Oct 28, 2015	*Clin.-Immunol. Conference* Organizer: Prof. K. McCoy:	
	Dr. Jo Spencer, King's College London	B cells in gut-associated lymphoid tissue at the interface between the microbiota and the host
	Dr. Dominique Velin, CHUV, Lausanne	IL-22-induced antimicrobial peptides are key determinants of mucosal vaccine-Induced protection against *Helicobacter* in mice
	Dr. Reiner Wiest & Dr. Markus Geuking, Inselspital Bern	Microbiota analysis from endoscopic biopsies using 16S amplicon analysis
Nov 25, 2015	Prof. Martin Bachmann, RIA, Inselspital	Vaccination against chronic diseases

For the current program of the Bern Immunology Club (BIC), please consult the following website: http://www.bic.unibe.ch/content/teaching/bic_lectures_2016/index_eng.html

3.8. Academic Degrees

von Gunten, Stephan, Associate Professor, University of Bern
(since Feb 1, 2016)

Pastukov, Oleksandr, PhD, University of Bern
Thesis: The role of ceramide kinase and its product ceramide 1-phosphate in proliferative and inflammatory diseases (March 2015)
Supervisor: Prof. Andrea Huwiler

Boligan, Kayluz Frias, PhD, University of Bern
Thesis: Siglec-7 and -9 interactions with their ligands inhibit the NK cell-mediated tumor immunosurveillance (May 2015)
Supervisor: Prof. Stephan von Gunten

Wang, Xiaoliang, PhD, University of Bern
Thesis: Adhesion molecules in neutrophil death signaling (December 2015)
Supervisor: Prof. Hans-Uwe Simon

Lauber, Emanuel, M.Sc., University of Bern
Thesis: Negative regulation of the putative tumor suppressor BOK in cancer (January 2015)
Supervisors: Prof. Thomas Kaufmann, Daniel Bachmann

Ademi, Hyrije, M.Sc., University of Bern
Thesis: The role of autophagy-related protein 12 in mitochondrial biogenesis (February 2015)
Supervisors: Prof. Hans-Uwe Simon, Dr. He Liu

Strässle, Rebecca, MMed, University of Bern
Thesis: Aktualisierung der Medikamentendatenbank MediOnline (February 2015)
Supervisors: Prof. Stephan von Gunten, Dr. Ulrich Woermann

Eastline, Michael, MMed, University of Bern
Thesis: Comparison of IgG and IgA binding repertoire against glycans (March 2015)
Supervisors: Prof. Stephan von Gunten, Christoph Schneider

Moret, Fabienne Angelika, MMed, University of Bern
Thesis: Modulation of the binding ability of influenza virosome through immunoglobulins (April 2015)
Supervisors: Prof. Stephan von Gunten, Christoph Schneider

Schneider, Nadia, MMed, University of Bern
Thesis: Characterization of the expression of Siglec-7 and -9 ligands in LCLs and their effect on NK cells functionality (May 2015)
Supervisors: Prof. Stephan von Gunten, Dr. Kayluz Frias Boligan

Eastline, Jonathan, MMed, University of Bern
Thesis: Siglec-9 on NK cells: Its impact on immunological synapse formation with cancer cells (May 2015)
Supervisors: Prof. Stephan von Gunten, Dr. Kayluz Frias Boligan

Roos, Noëmi, M.Sc. pharm., University of Basel
Thesis: Proteomic analysis of autophagy network in cancer cells (June 2015)
Supervisors: Prof. Hans-Uwe Simon, Dr. Zhaoyue He

Kostresevic, Danijela, M.Sc. pharm., University of Basel
Thesis: Eosinophilic esophagitis and epithelial barrier function (June 2015)
Supervisors: Prof. Hans-Uwe Simon, Prof. Dagmar Simon

Frangez, Ziva, M.Sc. pharm., University of Ljubljana
Thesis: Evaluation of ATG12 mitochondrial localization on Bcl-2 expression (January 2015)
Supervisors: Prof. Hans-Uwe Simon, Dr. He Liu, Dr. Zhaoyue He

4. Research Activities

4.1. Research Projects and Publications

Group Prof. Andrea Huwiler

Group members: Olivier Blanchard, PhD student[1]
Iuliia Filipenko, PhD student[1]
Aurelio Jenni, PhD student[1]
Oleksandr Pastukhov, PhD student[1]
Maneva Timcheva, PhD student[1]
Marianne Maillard-van Laer, Technician[1]
Dr. Stephanie Schwalm, Postdoc[1,2]
Isolde Römer, Technician[2]

[1]Institute of Pharmacology, University of Bern
[2]Institut für Allgemeine Pharmakologie und Toxikologie, Universität Frankfurt/Main

Our research is focused on sphingolipids and their contribution to physiological processes and pathological diseases. On the one side sphingolipids including ceramide, sphingosine 1-phosphate, sphingosylphosphorylcholine and the therapeutically used FTY720 are used to identify signal transduction pathways mediated by these lipids which may point to novel functions of these lipids. On the other side the regulation of sphingolipid-generating and -degrading enzymes (ceramidases, sphingosine kinases, ceramide kinase) are investigated to understand under which conditions a certain sphingolipid is accumulating in the cell to exert a function. The major goal is it to identify novel therapeutic targets within the sphingolipid cascades which may turn useful in the treatment of diseases characterized by abnormal cell growth and/or death.

FTY720 and two novel butterfly derivatives exert a general anti-inflammatory potential by reducing immune cell adhesion to endothelial cells through activation of S1P3 and phosphoinositide 3-kinase
Imeri F, Blanchard O, Jenni A, Schwalm S, Wünsche C, Zivkovic A, Stark H, Pfeilschifter J, Huwiler A
Abstract: Sphingosine-1-phosphate (S1P) is a key lipid regulator of a variety of cellular responses including cell proliferation and survival, cell migration, and inflammatory reactions. Here, we investigated the effect of S1P receptor activation on immune cell adhesion to endothelial cells under inflammatory conditions. We show that S1P reduces both tumor necrosis factor (TNF)-α- and lipopolysaccharide (LPS)-stimulated adhesion of Jurkat and U937 cells to an endothelial monolayer. The reducing effect of S1P was reversed by the S1P1+3 antagonist VPC23019 but not by the S1P1 antagonist W146. Additionally, knockdown of S1P3, but not S1P1, by short hairpin RNA (shRNA) abolished the reducing effect of S1P, suggesting the involvement of S1P3. A suppression of immune cell adhesion

was also seen with the immunomodulatory drug FTY720 and two novel butterfly derivatives ST-968 and ST-1071. On the molecular level, S1P and all FTY720 derivatives reduced the mRNA expression of LPS- and TNF-α-induced adhesion molecules including ICAM-1, VCAM-1, E-selectin, and CD44 which was reversed by the PI3K inhibitor LY294002, but not by the MEK inhibitor U0126.In summary, our data demonstrate a novel molecular mechanism by which S1P, FTY720, and two novel butterfly derivatives acted anti-inflammatory that is by suppressing gene transcription of various endothelial adhesion molecules and thereby preventing adhesion of immune cells to endothelial cells and subsequent extravasation.
See original publication No. 1

Sphingosine kinase 2 deficiency increases proliferation and migration of renal mouse mesangial cells and fibroblasts
Schwalm S, Timcheva TM, Filipenko I, Ebadi M, Hofmann LP, Zangemeister-Wittke U, Pfeilschifter J, Huwiler A
Abstract: Both of the sphingosine kinase (SK) subtypes SK-1 and SK-2 catalyze the production of the bioactive lipid molecule sphingosine 1-phosphate (S1P). However, the subtype-specific cellular functions are largely unknown. In this study, we investigated the cellular function of SK-2 in primary mouse renal mesangial cells (mMC) and embryonic fibroblasts (MEF) from wild-type C57BL/6 or SK-2 knockout (SK2ko) mice. We found that SK2ko cells displayed a significantly higher proliferative and migratory activity when compared to wild-type cells, with concomitant increased cellular activities of the classical extracellular signal regulated kinase (ERK) and PI3K/Akt cascades, and of the small G protein RhoA. Furthermore, we detected an upregulation of SK-1 protein and S1P3 receptor mRNA expression in SK-2ko cells. The MEK inhibitor U0126 and the S1P1/3 receptor antagonist VPC23019 blocked the increased migration of SK-2ko cells. Additionally, S1P3ko mesangial cells showed a reduced proliferative behavior and reduced migration rate upon S1P stimulation, suggesting a crucial involvement of the S1P3 receptor. In summary, our data demonstrate that SK-2 exerts suppressive effects on cell growth and migration in renal mesangial cells and fibroblasts, and that therapeutic targeting of SKs for treating proliferative diseases requires subtype-selective inhibitors.
See original publication No. 2

Original publications

1. Imeri F, Blanchard O, Jenni A, Schwalm S, Wünsche C, Zivkovic A, Stark H, Pfeilschifter J, **Huwiler A**: FTY720 and two novel butterfly derivatives exert a general anti-inflammatory potential by reducing immune cell adhesion to endothelial cells through activation of S1P3 and phosphoinositide 3-kinase.
Naunyn Schmiedebergs Arch Pharmacol 388 (2015),1283-1292.

2. Schwalm S, Timcheva TM, Filipenko I, Ebadi M, Hofmann LP, Zangemeister-Wittke U, Pfeilschifter J, **Huwiler A**: Sphingosine kinase 2 deficiency increases proliferation and migration of renal mouse mesangial cells and fibroblasts.
Biol Chem 396 (2015), 813-825.

3. Chen B, Roy SG, McMonigle RJ, Keebaugh A, McCracken AN, Selwan E, Fransson R, Fallegger D, **Huwiler A**, Kleinman MT, Edinger AL, Hanessian S: Azacyclic FTY720 analogues that limit nutrient transporter expression but lack S1P receptor activity and negative chronotropic effects offer a novel and effective strategy to kill cancer cells in vivo.
ACS Chem Biol 14 (2015), Epub ahead of print

4. Urtz N, Gaertner F, von Bruehl ML, Chandraratne S, Rahimi F, Zhang L, Orban M, Barocke V, Beil J, Schubert I, Lorenz M, Legate KR, **Huwiler A**, Pfeilschifter JM, Beerli C, Ledieu D, Persohn E, Billich A, Baumruker T, Mederos y Schnitzler M, Massberg S: Sphingosine 1-phosphate produced by sphingosine kinase 2 intrinsically controls platelet aggregation in vitro and in vivo.
Circ Res 117 (2015), 376-387.

5. Schröder M, Arlt O, Schmidt H, **Huwiler A**, Angioni C, Pfeilschifter JM, Schwiebs A, Radeke HH: Subcellular distribution of FTY720 and FTY720-phosphate in immune cells - another aspect of Fingolimod action relevant for therapeutic application.
Biol Chem 396 (2015), 795-802.

6. Koch A, Jäger M, Völzke A, Grammatikos G, zu Heringdorf DM, **Huwiler A**, Pfeilschifter J: Downregulation of sphingosine 1-phosphate (S1P) receptor 1 by dexamethasone inhibits S1P-induced mesangial cell migration.
Biol Chem 396 (2015), 803-812.

7. Wünsche C, Koch A, Goldschmeding R, Schwalm S, Meyer zu Heringdorf D, **Huwiler A**, Pfeilschifter J: Transforming growth factor β2 (TGF-β2)-induced connective tissue growth factor (CTGF) expression requires sphingosine 1-phosphate receptor 5 (S1P5) in human mesangial cells.
Biochim Biophys Acta 1851 (2015), 519-526.

Group Prof. Thomas Kaufmann

Group members: Dr. Tatiana Rabachini de Almeida, Postdoc
Dr. Erika Moravcikova, Postdoc
Simone Wicki, PhD student
Ramona Reinhart, PhD student
Yuniel Fernandez Marrero, PhD student
Emanuel Lauber, M.Sc. student
Daniel Bachmann, research assistant

Our group is interested in the molecular mechanisms of programmed cell death (PCD), in particular apoptosis and necroptosis, and the link between cell death and innate immune signaling. A focus in the latter lies on myeloid cells, in particular granulocytes (neutrophils and basophils) and mast cells, which are central players of innate immunity. Apoptosis is recognized as the most relevant (patho-) physiological form of PCD, whereas the physiological role of necroptosis is less well understood. Given that apoptosis suppresses necroptosis, the latter is hypothesized to serve as backup, proinflammatory, PCD upon infection with pathogens that actively block apoptosis.

We observed that upon activation of death receptors (Fas/CD95 or TNF-R1) on the surface of neutrophils the outcome ranges from activation of the cells and production of proinflammatory cytokines to PCD by apoptosis or by necroptosis. This outcome is tightly regulated and - among others - depends on the so-called inhibitor of apoptosis (IAPs) family. Our ongoing projects in the lab identify the IAP member XIAP as an antagonist of necroptosis downstream of death receptors. Interestingly, XIAP, which was initially identified as an inhibitor of apoptotic caspases and also carries E3 ligase activity (RING domain), clearly has important functions beyond blocking caspases. Our data indicate that XIAP may act more upstream in death receptor signaling pathways than previously assumed; the exact molecular functions of XIAP's E3 ligase activity are under investigation. Taken together, XIAP can be placed at the intersection of cell death and inflammation.

Granulocytes isolated from mice can only be obtained in low numbers, which makes biochemical analyses difficult, and – in the case of basophils – almost impossible. We have established a protocol to generate conditionally immortalized progenitor cells ("Hoxb8 cells") that are committed to the macrophage/neutrophil- or the basophil lineages. Those cells can be differentiated in vitro into mature granulocytes in nearly unlimited numbers. An advantage of "Hoxb8" cells over primary granulocytes lies in the straightforward possibility of further genetic manipulation, such as overexpression of genes of interest reconstitution of gene deficient cells lines with particular mutants of that same gene. Regarding basophils and mast

cells, we are interested how cytokines, such as IL-3, or binding of IgE and subsequent crosslinking of the high affinity IgE receptor by antigen, activate these cells, and if/how those stimuli increase cellular viability. On the other hand, selective killing of activated basophils or mast cells (or activated immune cells in general) is an intriguing concept to target immunological disorders, including allergies. Newly developed drugs aiming at inducing apoptosis in cancer cells (so called BH3-mimetics) are tested in our lab for their potential to kill activated leukocyte populations selectively.

Currently of great interest to our group is the pro-apoptotic family member BOK. BOK has raised much interest recently, as it is deleted in human cancers with surprisingly high frequency. Several cancer models with our newly developed Bok-deficient mouse strain are ongoing in our lab and in collaboration with others to test the potential tumour suppressor potential of Bok. Other BOK related projects focus on the molecular function of this still rather enigmatic protein. So far we have demonstrated that BOK is much more widely expressed than previously reported and, intriguingly, we found that although it has the potential to induce apoptosis when highly expressed, BOK localizes preferentially to the membranes of the ER and Golgi apparatus rather than to mitochondria. The subcellular localization of BOK correlates with its association with IP3 receptors (Ca^{2+} channels on the ER) and a deregulated ER stress response of Bok-deficient cells. Interestingly, BOK is prominently also found in nuclear fractions. We are currently testing the biophysical properties of recombinant BOK on artificial lipid vesicles and isolated organelles, the role of BOK at the ER/Golgi and the role of BOK in the nucleus, for which we hypothesize a role in the regulation of cellular proliferation.

Original publications

1. Fernandez-Marrero Y, Ke F, Echeverry N, Bouillet P, Bachmann D, Strasser A, **Kaufmann T**: Is BOK required for apoptosis induced by endoplasmic reticulum stress? PNAS, *in press*.

2. Rožman S, Yousefi S, Oberson K, **Kaufmann T**, Benarafa C, Simon HU: The generation of neutrophils in the bone marrow is controlled by autophagy. Cell Death Differ 22 (2015), 445-456.

3. Yousefi S, Morshed M, Amini P, Stojkov D, Simon D, von Gunten S, **Kaufmann T**, Simon HU: Basophils exhibit antibacterial activity through extracellular trap formation. Allergy 70 (2015), 1184-1188.

4. Amini P, Stojkov D, Wang X, Wicki S, **Kaufmann T**, Wong WW, Simon HU, Yousefi S: NET formation can occur independently of RIPK3 and MLKL signaling. Eur J Immunol 46 (2016), 178-184.

Review articles/Editorials

1. **Kaufmann T**, Simon HU: Targeting disease by immunomodulation. Cell Death Differ 22 (2015), 185-186.

2. Galluzzi T, Bravo San Pedro JM, Vitale I, …, **Kaufmann T**, …, and Kroemer G.: Essential versus accessory aspects of cell death. Recommendations of the NCCD 2015. Cell Death Differ 22 (2015), 58-73.

Book chapter

1. Reinhart R, Wicki S, **Kaufmann T**: In vitro differentiation of mouse granulocytes. Programmed Cell Death: Methods and Protocols. Springer, *in press.*

Group Prof. Hans-Uwe Simon

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Flavia Büchler, Technician*,***
Dr. Elisabeth Louisa de Graauw, PhD student**
Oluvatobi Farombi, M.Sc. student
Ziva Frangez, PhD student
Nina Germic, PhD student
Dr. Zhaoyue He, Postdoc
Danijela Kostresevic, M.Sc. student**
Evelyne Kozlowski, Technician (60%)*
Debora Krähenbühl, M.Sc. student**
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*Joint supervision together with Prof. S. Yousefi.
**Joint supervision together with Prof. D. Simon.
***Joint supervision together with Dr. C. Sokollik.

We are interested in the role of apoptosis and autophagy in inflammatory diseases and cancer. Several diseases serve as models to study such processes. In particular, we investigate pathogenic mechanisms of the following diseases: Atopic dermatitis, hypereosinophilic syndromes, eosinophilic esophagitis, cystic fibrosis, sepsis, and malignant melanoma. Our research goal is the identification of new drug targets for future therapeutic approaches in these diseases. Besides the pathogenic aspects of our research, we have developed several *in vitro* and *in vivo* test systems to determine potential effects of a given drug on the immune system. Moreover, we are involved in several clinical drug studies. Our research requires a network of physician-scientists from many different clinics. Most of the participating groups are located at the Medical Faculty of the University of Bern. Results of these collaborative interactions are seen in the following abstracts, which briefly describe our research activities in 2015.

Toxicity of eosinophil MBP is repressed by intracellular crystallization and promoted by extracellular aggregation

Soragni A, Yousefi S, Stoeckle C, Soriaga AB, Sawaya MR, Kozlowski E, Schmid I, Radonjic-Hoesli S, Boutet S, Williams GJ, Messerschmidt M, Seibert MM, Cascio D, Zatsepin NA, Burghammer M, Riekel C, Colletier JP, Riek R, Eisenberg D, Simon HU

Abstract: Eosinophils are white blood cells that function in innate immunity and participate in the pathogenesis of various inflammatory and neoplastic disorders. Their secretory granules contain four cytotoxic proteins, including the eosinophil major basic protein (MBP-1). How MBP-1 toxicity is controlled within the eosinophil itself yet activated upon extracellular release is unknown. Here we show how intragranular MBP-1 nanocrystals restrain toxicity enabling its safe storage and characterize them with an x-ray free electron laser. Following eosinophil activation, MBP-1 toxicity is triggered by granule acidification followed by extracellular aggregation which mediates damage to pathogens and host cells. Larger non-toxic amyloid plaques are also present in tissues of eosinophilic patients, in a feedback mechanism which likely limits tissue damage under pathological conditions of MBP-1 oversecretion. Our results suggest that MBP-1 aggregation is important for innate immunity and immunopathology mediated by eosinophils and clarify how its polymorphic self-association pathways regulate toxicity intra- and extracellularly.

See original publication No. 1

The generation of neutrophils in the bone marrow is controlled by autophagy

Rozman S, Yousefi S, Oberson K, Kaufmann T, Benarafa C, Simon HU

Abstract: Autophagy has been demonstrated to play an essential function in several cellular hematopoietic differentiation processes, e.g. the differentiation of reticulocytes. In order to investigate the role of autophagy in neutrophil granulopoiesis, we studied neutrophils lacking autophagy-related (ATG) 5, a gene encoding a protein essential for autophagosome formation. Using Cre-recombinase mediated gene deletion, ATG5-deficient neutrophils showed no evidence of abnormalities in morphology, granule protein content, apoptosis regulation, migration, or effector functions. In such mice, however, we observed an increased proliferation rate in the neutrophil precursor cells of the bone marrow as well as an accelerated process of neutrophil differentiation, resulting in an accumulation of mature neutrophils in the bone marrow, blood, spleen, and lymph nodes. To directly study the role of autophagy in neutrophils, we employed an in vitro model of differentiating neutrophils that allowed modulating the levels of ATG5 expression, or, alternatively, intervening pharmacologically with autophagy-regulating drugs. We could show that autophagic activity correlated inversely with the rate of neutrophil differentiation. Moreover, pharmacological inhibition of p38 MAPK or mTORC1 induced autophagy in neutrophilic precursor cells and blocked their differentiation, suggesting that autophagy is negatively controlled by the p38 MAPK – mTORC1 signaling pathway. On the other hand, we obtained no evidence for an involvement of the PI3K-AKT or ERK1/2 signaling pathways in the regulation of neutrophil differentiation. Taken together, these findings show that, in contrast to erythropoiesis, autophagy is not essential for neutrophil granulopoiesis, having instead a negative impact on the generation of neutrophils. Thus, autophagy and differentiation exhibit a reciprocal regulation by the p38 – mTORC1 axis.

See original publication No. 2

Active eosinophilic esophagitis is characterized by epithelial barrier defects and eosinophil extracellular trap formation

Simon D, Radonjic-Hösli S, Straumann A, Yousefi S, Simon HU

Abstract: Eosinophilic esophagitis (EoE) exhibits esophageal dysfunction owing to an eosinophil-predominant inflammation. Activated eosinophils generate eosinophil extracellular traps (EETs) able to kill bacteria. There is evidence of an impaired barrier function in EoE

that might allow pathogens to invade the esophagus. This study aimed to investigate the presence and distribution of EETs in esophageal tissues from EoE patients and their association with possible epithelial barrier defects. Anonymized tissue samples from 18 patients with active EoE were analyzed. The presence of DNA nets associated with eosinophil granule proteins forming EETs and the expression of filaggrin, the protease inhibitor lympho-epithelial Kazal-type-related inhibitor (LEKTI), antimicrobial peptides, and cytokines were evaluated by confocal microscopy following immune fluorescence staining techniques. EET formation occurred frequently and was detected in all EoE samples correlating with the numbers of infiltrating eosinophils. While the expression of both filaggrin and LEKTI was reduced, epithelial antimicrobial peptides (human beta-defensin-2, human beta-defensin-3, cathelicidin LL-37, psoriasin) and cytokines (TSLP, IL-25, IL-32, IL-33) were elevated in EoE as compared to normal esophageal tissues. There was a significant correlation between EET formation and TSLP expression (P = 0.02) as well as psoriasin expression (P = 0.016). On the other hand, a significant negative correlation was found between EET formation and LEKTI expression (P = 0.016). Active EoE exhibits the presence of EETs. Indications of epithelial barrier defects in association with epithelial cytokines are also present which may have contributed to the activation of eosinophils. The formation of EETs could serve as a firewall against the invasion of pathogens.
See original publication No. 3

Basophils exhibit antibacterial activity through extracellular trap formation
Yousefi S, Morshed M, Amini P, Stojkov D, Simon D, von Gunten S, Kaufmann T, Simon HU
Abstract: Basophils are primarily associated with immunomodulatory functions in allergic diseases and parasitic infections. Recently, it has been demonstrated that both activated human and mouse basophils can form extracellular DNA traps (BETs) containing mitochondrial DNA and granule proteins. In this report, we provide evidence that, in spite of an apparent lack of phagocytic activity, basophils can kill bacteria through BET formation.
See original publication No. 4

p73 regulates basal and starvation-induced liver metabolism in vivo
He Z, Agostini M, Liu H, Melino G, Simon HU
Abstract: As a member of the p53 gene family, p73 regulates cell cycle arrest, apoptosis, neurogenesis, immunity and inflammation. Recently, p73 has been shown to transcriptionally regulate selective metabolic enzymes, such as cytochrome c oxidase subunit IV isoform 1, glucose 6-phosphate dehydrogenase and glutaminase-2, resulting in significant effects on metabolism, including hepatocellular lipid metabolism, glutathione homeostasis and the pentose phosphate pathway. In order to further investigate the metabolic effect of p73, here, we compared the global metabolic profile of livers from p73 knockout and wild-type mice under both control and starvation conditions. Our results show that the depletion of all p73 isoforms cause altered lysine metabolism and glycolysis, distinct patterns for glutathione synthesis and Krebs cycle, as well as an elevated pentose phosphate pathway and abnormal lipid accumulation. These results indicate that p73 regulates basal and starvation-induced fuel metabolism in the liver, a finding that is likely to be highly relevant for metabolism-associated disorders, such as diabetes and cancer.
See original publication No. 5

Original publications

1. Soragni A, Yousefi S, Stoeckle C, Soriaga AB, Sawaya MR, Kozlowski E, Schmid I, Radonjic-Hoesli S, Boutet S, Williams GJ, Messerschmidt M, Seibert MM, Cascio D, Zatsepin NA, Burghammer M, Riekel C, Colletier JP, Riek R, Eisenberg D, **Simon HU**: Toxicity of eosinophil MBP is repressed by intracellular crystallization and promoted by extracellular aggregation.
Mol Cell 57 (2015), 1011-1021.

2. Rožman S, Yousefi S, Oberson K, Kaufmann T, Benarafa C, **Simon HU**: The generation of neutrophils in the bone marrow is controlled by autophagy.
Cell Death Differ 22 (2015), 445-456.

3. Simon D, Radonjic-Hösli S, Straumann A, Yousefi S, **Simon HU**: Active eosinophilic esophagitis is characterized by epithelial barrier defects and eosinophil extracellular trap formation.
Allergy 70 (2015), 443-452.

4. Yousefi S, Morshed M, Amini P, Stojkov D, Simon D, von Gunten S, Kaufmann T, **Simon HU**: Basophils exhibit antibacterial activity through extracellular trap formation.
Allergy 70 (2015), 1184-1188.

5. He Z, Agostini M, Liu H, Melino G, **Simon HU**: p73 regulates basal and starvation-induced liver metabolism in vivo.
Oncotarget 6 (2015), 33178-33190.

6. Hurrell BP, Schuster S, Grün E, Coutaz M, Williams RA, Held W, Malissen B, Malissen M, Yousefi S, **Simon HU**, Müller AJ, Tacchini-Cottier F: Rapid sequestration of *Leishmania mexicana* by neutrophils contributes to the development of chronic lesion.
PLoS Pathog 11 (2015), e1004929.

7. Schneider C, Smith DF, Cummings RD, Boligan KF, Hamilton RG, Bochner BS, Miescher S, **Simon HU**, Pashov A, Vassilev T, von Gunten S: The human IgG anti-carbohydrate repertoire exhibits a universal architecture and contains specificity for microbial attachment sites.
Sci Transl Med 7 (2015), 269ra1.

8. Geering B, Zokouri Z, Hürlemann S, Gerrits B, Ausländer D, Britschgi A, Tschan MP, **Simon HU**, Fussenegger M: Identification of novel death-associated protein kinase 2 interaction partners by proteomic screening coupled with bimolecular fluorescence complementation.
Mol Cell Biol 36 (2015), 132-143.

9. Amini P, Stojkov D, Wang X, Wicki S, Kaufmann T, Wong WW, **Simon HU**, Yousefi S: NET formation can occur independently of RIPK3 and MLKL signaling.
Eur J Immunol 46 (2016), 178-184.

10. Dhayade S, Kaesler S, Sinnberg T, Naumann U, Liu H, Hunger RE, Thunemann M, Biedermann T, Schittek B, **Simon HU**, Feil S, Feil R: A CNP-cGMP-cGKI-MAPK pathway promotes melanoma growth.
Cell Rep, in press.

Review articles/Editorials

1. Radonjic-Hoesli S, Valent P, Klion AD, Wechsler ME, **Simon HU**: Novel targeted therapies for eosinophil-associated diseases and allergy.
Ann Rev Pharmacol Toxicol 55 (2015), 633-656.

2. Liu H, He Z, **Simon HU**: Protective role of autophagy and autophagy related protein 5 in early tumorigenesis.
J Mol Med 93 (2015), 159-164.

3. Kaufmann T, **Simon HU**: Targeting disease by immunomodulation.
Cell Death Differ 22 (2015), 185-186.

4. Leu T, **Simon HU**, Hebestreit H, Kunzmann S: The hypereosinophilic syndromes in childhood.
Klin Pädiatr 227 (2015), 308-313.

5. de Graauw E, Beltraminelli H, **Simon HU**, Simon D: Eosinophilia in dermatologic disorders.
Immunol Allergy Clin North Am 35 (2015), 545-560.

6. Tiligada E, Ishii M, Riccardi C, Spedding M, **Simon HU**, Teixeira MM, Cuervo ML, Holgate ST, Levi-Schaffer F: The expanding role of immunopharmacology: IUPHAR Review 16.
Br J Pharmacol 172 (2015), 4217-4227.

7. Boyman O, Kaegi C, Akdis M, Bavbek S, Bossios A, Chatzipetrou A, Eiwegger T, Firinu D, Harr T, Knol E, Matucci A, Palomares O, Schmidt-Weber C, **Simon HU**, Steiner UC, Vultaggio A, Akdis CA, Spertini F: EAACI IG Biologicals task force paper on the use of biologic agents in allergic disorders.
Allergy 70 (2015), 727-754.

8. Galluzzi L, Bravo-San Pedro JM, Vitale I,…. **Simon HU**,… Kroemer G: Essential versus accessory aspects of cell death: recommendations of the NCCD 2015.
Cell Death Differ 22 (2015), 58-73.

9. Galluzzi L, Pietrocola F, Bravo-San Pedro JM, Amaravadi RK, Baehrecke EH, Cecconi F, Codogno P, Debnath J, Gewirtz DA, Karantza V, Kimmelman A, Kumar S, Levine B, Maiuri MC, Martin SJ, Penninger J, Piacentini M, Rubinsztein DC, **Simon HU**, Simonsen A, Thorburn AM, Velasco G, Ryan KM, Kroemer G: Autophagy in malignant transformation and cancer progression.
EMBO J 34 (2015), 856-880.

10. Simon D, **Simon HU**: Leserbrief zum Beitrag Hypereosinophilie.
Swiss Medical Forum 16 (2016), 104.

11. Metcalfe D, Pawankar R, Ackerman SJ, ..., **Simon HU**, ..., Triggiani M: Biomarkers of the involvement of mast cells, basophils and eosinophils in asthma and allergic diseases.
WAO J 9 (2016), 7. doi: 10.1186/s40413-016-0094-3

12. Simon D, Cianferoni A, Spergel JM, Aceves S, Holbreich M, Venter C, Rothenberg ME, Terreehorst I, Muraro A, Lucendo AJ, Schoepfer A, Straumann A, **Simon HU**: Eosinophilic esophagitis is characterized by a non-IgE-mediated food hypersensitivity. Allergy 71 (2016), doi: 10.1111/all.12846. [Epub ahead of print]

Book chapters

1. **Simon HU:** Regulation of inflammation by cell death in allergic rhinitis. In: Global Atlas of Allergic Rhinitis and Chronic Rhinosinusitis (Eds. C.A. Akdis, P.W. Hellings, and I. Agache). European Academy of Allergy and Clinical Immunology (EAACI), 2015, p. 43-44.

2. Radonjic-Hoesli S, **Simon HU:** Eosinophile Granulozyten. In: Allergologie (Eds. T. Biedermann, W. Heppt, H. Renz, M. Röcken); 2. Auflage. Springer-Verlag Berlin Heidelberg, 2016, p. 77-85. doi: 10.1007/978-3-642-37203-2_7

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Christoph Schneider, PhD student
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Katharina Fuchs, MMed student
Christine Gallasz, MD student
Ariane Meister, MMed student
Jonathan Eastline, MMed student
Michael Eastline, MMed student
Rebecca Strässle, MMed student
Sinuhe Nussbaum, MMed student
Daniela Ruchti, MD, M.Sc. student
Fabienne Moret, MMed student
Nadia Schneider, MMed student

*Joint supervision together with Dr. C. Mesa (Center of Mol. Immunology, Univ. Havanna).

Our laboratory is interested in molecular mechanisms that control inflammation and cancer. In particular, we focus on protein-carbohydrate interactions in the immune system and on anti-inflammatory effects mediated by Siglec receptors. Siglecs are carbohydrate-binding receptors (lectins) that have recently received particular attention in light of the capacity to mediate cell death, anti-proliferative effects, and inhibition of cellular activities. We recently identified natural autoantibodies within human intravenous immunoglobulin (IVIG) as endogenous Siglec receptor ligands. The group leader Dr. S. von Gunten is a participating investigator at the Consortium of Functional Glycomics (www.functionalglycomics.org) that aims at defining paradigms by which protein-carbohydrate interactions mediate cell communication. Our group has collaborations with scientists and clinicians from many international and local academic institutions, companies and hospitals.

The human IgG anti-carbohydrate repertoire exhibits a universal architecture and contains specificity for microbial attachment sites
Schneider C, Smith DF, Cummings RD, Frias Boligan K, Hamilton RG, Bochner BS, Miescher S, Simon HU, Pashov A, Vassilev T, von Gunten S
Abstract: Despite the paradigm that carbohydrates are T cell-independent antigens, isotype-switched glycan-specific immunoglobulin G (IgG) antibodies and polysaccharide-specific T cells are found in humans. We used a systems-level approach combined with glycan array technology to decipher the repertoire of carbohydrate-specific IgG antibodies in intravenous and subcutaneous immunoglobulin preparations. A strikingly universal architecture of this repertoire with modular organization among different donor populations revealed an association between immunogenicity or tolerance and particular structural features of glycans. Antibodies were identified with specificity not only for microbial antigens but also for a broad spectrum of host glycans that serve as attachment sites for viral and bacterial pathogens and/or exotoxins. Tumor-associated carbohydrate antigens were differentially

detected by IgG antibodies, whereas non-IgG2 reactivity was predominantly absent. Our study highlights the power of systems biology approaches to analyze immune responses and reveals potential glycan antigen determinants that are relevant to vaccine design, diagnostic assays, and antibody-based therapies.
See original publication No. 1

Original publications

1. Schneider C, Smith DF, Cummings RD, Boligan KF, Hamilton RG, Bochner BS, Miescher S, Simon HU, Pashov A, Vassilev T, **von Gunten S**: The human IgG anti-carbohydrate repertoire exhibits a universal architecture and contains specificity for microbial attachment sites.
Sci Transl Med 7 (2015), 269ra1

2. Yousefi S, Morshed M, Amini P, Stojkov D, Simon D, **von Gunten S**, Kaufmann T, Simon HU: Basophils exhibit antibacterial activity through extracellular trap formation.
Allergy 70 (2015), 1184-1188.

3. Djoumerska-Alexieva I, Roumenina L, Pashov A, Dimitrov J, Hadzhieva M, Lindig S, Voynova E, Dimitrova P, Ivanovska N, Bockmeyer C, Stefanova Z, Fitting C, Bläss M, Claus R, **von Gunten S**, Kaveri S, Cavaillon JM, Bauer M, Vassilev T: Intravenous immunoglobulin with enhanced polyspecificity improves survival in experimental sepsis and aseptic systemic inflammatory response syndromes.
Mol Med, in press. doi: 10.2119/molmed.2014.00224.

Review articles/Editorials

1. Boligan KF, Mesa C, Fernandez LE, **von Gunten S**. Cancer intelligence acquired (CIA): tumor glycosylation and sialylation codes dismantling antitumor defense.
Cell Mol Life Sci 72 (2015), 1231-1248.

2. Cortinas-Elizondo F, **von Gunten S**: MicroRNA-155: microtuning the allergic concert.
Allergy 70 (2015), 1035-1036.

Group Prof. Shida Yousefi

Group members: Dr. Poorya Amini, PhD student*
Salome Aeschlimann, Technician (80%)*
Flavia Büchler, Technician*,**
Evelyne Kozlowski, Technician*
Kevin Oberson, Technician (70%)*
Inès Schmid, Head technician*
Darko Stojkov, PhD student*

*Joint supervision together with Prof. H.-U. Simon.
**Joint supervision together with Dr. C. Sokollik.

We are interested in mechanisms regulating granulocyte functions, such as the release of inflammatory mediators and anti-microbial defense mechanisms. Extracellular DNA trap formation by granulocytes is a newly defined anti-microbial mechanism. Previous reports from our group revealed that extracellular DNA trap formation by neutrophils, eosinophils, and basophils does not require their cell death, and DNA traps are composed of mitochondrial DNA and granule proteins. Our aim is to investigate mouse and human neutrophils with respect to their extracellular DNA trap formation and the molecular events required.

NET formation can occur independently of RIPK3 and MLKL signaling.
Amini P, Stojkov D, Wang X, Wicki S, Kaufmann T, Wong WW, Simon HU, Yousefi S.
Abstract: The importance of neutrophil extracellular traps (NETs) in innate immunity is well established but the molecular mechanisms responsible for their formation are still a matter of scientific dispute. Here, we aim to characterize a possible role of the receptor-interacting protein kinase 3 (RIPK3) and the mixed lineage kinase domain-like (MLKL) signaling pathway, which are known to cause necroptosis, in NET formation. Using genetic and pharmacological approaches, we investigated whether this programmed form of necrosis is a prerequisite for NET formation. NETs have been defined as extracellular DNA scaffolds associated with the neutrophil granule protein elastase that are capable of killing bacteria. Neither Ripk3-deficient mouse neutrophils nor human neutrophils in which MLKL had been pharmacologically inactivated, exhibited abnormalities in NET formation upon physiological activation or exposure to low concentrations of PMA. These data indicate that NET formation occurs independently of both RIPK3 and MLKL signaling. This article is protected by copyright. All rights reserved.
See original publication No. 1

Basophils exhibit antibacterial activity through extracellular trap formation
Yousefi S, Morshed M, Amini P, Stojkov D, Simon D, von Gunten S, Kaufmann T, Simon HU
Abstract: Basophils are primarily associated with immunomodulatory functions in allergic diseases and parasitic infections. Recently, it has been demonstrated that both activated human and mouse basophils can form extracellular DNA traps (BETs) containing mitochondrial DNA and granule proteins. In this report, we provide evidence that, in spite of an apparent lack of phagocytic activity, basophils can kill bacteria through BET formation.
See original publication No. 2

Original publications

1. Amini P, Stojkov D, Wang X, Wicki S, Kaufmann T, Wong WW, Simon HU, **Yousefi S**: NET formation can occur independently of RIPK3 and MLKL signaling.
   Eur J Immunol 46 (2016), 178-184.

2. **Yousefi S**, Morshed M, Amini P, Stojkov D, Simon D, von Gunten S, Kaufmann T, Simon HU: Basophils exhibit antibacterial activity through extracellular trap formation.
   Allergy 70 (2015), 1184-1188.

3. Hurrell BP, Schuster S, Grün E, Coutaz M, Williams RA, Held W, Malissen B, Malissen M, **Yousefi S**, Simon HU, Müller AJ, Tacchini-Cottier F: Rapid sequestration of *Leishmania mexicana* by neutrophils contributes to the development of chronic lesion.
   PLoS Pathog 11 (2015), e1004929.

4. Soragni A, **Yousefi S**, Stoeckle C, Soriaga AB, Sawaya MR, Kozlowski E, Schmid I, Radonjic-Hoesli S, Boutet S, Williams GJ, Messerschmidt M, Seibert MM, Cascio D, Zatsepin NA, Burghammer M, Riekel C, Colletier JP, Riek R, Eisenberg DS, Simon HU: Toxicity of eosinophil MBP is repressed by intracellular crystallization and promoted by extracellular aggregation.
   Mol Cell 57 (2015), 1011-1021.

5. Simon D, Radonjic-Hösli S, Straumann A, **Yousefi S**, Simon HU: Active eosinophilic esophagitis is characterized by epithelial barrier defects and eosinophil extracellular trap formation.
   Allergy 70 (2015), 443-452.

6. Rožman S, **Yousefi S**, Oberson K, Kaufmann T, Benarafa C, Simon HU:
   The generation of neutrophils in the bone marrow is controlled by autophagy.
   Cell Death Differ 22 (2015), 445-456.

Group Prof. Uwe Zangemeister-Wittke

Group members: Julia Filipenko, PhD student
Tankica Timcheva, PhD student
Kevin Oberson, Technician (30%)
Fabian Brandl, PhD student
Hannes Merten, PhD student

We are interested in translational aspects of molecular oncology, biomarker validation and tumor targeting with pharmacologically improved and rationally engineered protein-drug conjugates. Our main focus is on tumor targeting with Designed Ankyrin Repeat Proteins (DARPins) as highly stable non-IgG scaffold proteins for tumor-targeted drug and biotoxin delivery under optimized pharmacokinetic conditions. To this end, affinity-maturated DARPins with specificity for the pan-carcinoma antigen EpCAM were developed and genetically modified to enable site-specific conjugation for functionalization using maleimide and DARPin-compatible bioorthogonal click chemistry together with optimized linker technology. We generated nanomedicines payloaded with cytotoxins of various origins including domain I-truncated Pseudomonas Aeruginosa Exotoxin A (ETA") and Monomethyl Auristatin F (MMAF). In addition, to quantitatively improve tumor targeting the serum half-life of the bioconjugates was extended by site-specific conjugation with serum albumin, PEG or the unstructured synthetic polypeptides PAS and XTEN.

Antibody-Drug Conjugates for Tumor Targeting-Novel Conjugation Chemistries and the Promise of non-IgG Binding Proteins
Merten H, Brandl F, Plückthun A, Zangemeister-Wittke U
Abstract: Antibody-drug conjugates (ADCs) have emerged as a promising class of anticancer agents, combining the specificity of antibodies for tumor targeting and the destructive potential of highly potent drugs as payload. An essential component of these immunoconjugates is a bifunctional linker capable of reacting with the antibody and the payload to assemble a functional entity. Linker design is fundamental, as it must provide high stability in the circulation to prevent premature drug release, but be capable of releasing the active drug inside the target cell upon receptor-mediated endocytosis. Although ADCs have demonstrated an increased therapeutic window, compared to conventional chemotherapy in recent clinical trials, therapeutic success rates are still far from optimal. To explore other regimes of half-life variation and drug conjugation stoichiometries, it is necessary to investigate additional binding proteins which offer access to a wide range of formats, all with molecularly defined drug conjugation. Here, we delineate recent progress with site-specific and biorthogonal conjugation chemistries, and discuss alternative, biophysically more stable protein scaffolds like Designed Ankyrin Repeat Proteins (DARPins), which may provide such additional engineering opportunities for drug conjugates with improved pharmacological performance.
See original publication No. 1

Original publications

1. Merten H, Brandl F, Plückthun A, **Zangemeister-Wittke U**: Antibody-drug conjugates for tumor targeting - novel conjugation chemistries and the promise of non-IgG binding proteins.
Bioconjug Chem 26 (2015), 2176-2185.

2. Schwalm S, Timcheva TM, Filipenko I, Ebadi M, Hofmann LP, **Zangemeister-Wittke U**, Pfeilschifter J, Huwiler A: Sphingosine kinase 2 deficiency increases proliferation and migration of renal mouse mesangial cells and fibroblasts.
Biol Chem 396 (2015), 813-825.

Additional Publications by PKI Members

Original publications

Späth PJ, Granata G, La Marra F, Kuijpers TW, Quinti I: On the dark side of therapies with immunoglobulin concentrates. The adverse events.
Front Immunol 6 (2015), 11.

Engelberger RP, **Spirk D**, Willenberg T, Alatri A, Do DD, Baumgartner I, Kucher N: Ultrasound-assisted versus conventional catheter-dircted thrombolysis for acute iliofemoral deep vein thrombosis.
Circ Cardiovasc Interv 8 (2015), e002027.

Spirk D, Nendaz M, Aujesky D, Hayoz D, Beer JH, Husmann M, Frauchiger B, Korte W, Wuillemin WA, Righini M, Bounameaux H, Kucher N: Predictors of thromboprophylaxis in hospitalised medical patients. Explicit ASsessment of Thromboembolic RIsk and Prophylaxis for Medical PATients in SwitzErland (ESTIMATE).
Thromb Haemost 113 (2015), 1127-1134.

Riebenfeld D, **Spirk D**, Mathis A, Villiger L, Gerber PA, Gasser UE, Lehmann R: Treatment intensification with insulin glargine in patients with inadequately controlled type 2 diabetes improves glycaemic control with a high treatment satisfaction and no weight gain.
Swiss Med Wkly 145 (2015), w14114.

4.2. Congress Invitations

Dr. Kayluz Frias Boligan
Conference on “The Antibody Repertoire as a biomarker”; Stefan Angelov Institute of Microbiology, Bulgarian Academy of Sciences, Sofia (BL), Sept 20-24, 2015;
Poor glycan recognition in patients with primary immunodeficiency.

Prof. Thomas Kaufmann
Workshop on “Cell death, immunity and disease”; Zurich (CH), Oct 5-6, 2015;
The world of BOK.

Prof. Hans-Uwe Simon
Annual Meeting of the American Academy of Allergy Asthma and Immunology (AAAAI); Houston, TX (USA), February 20-24, 2015;
Molecular pathways leading to eosinophil cytolysis.

81st Annual Meeting of the German Society of experimental and clinical Pharmacology and Toxicology (DGPT); Kiel (D), March 10-12, 2015;
Eosinophilic esophagitis.

Swiss Society of Pharmacology and Toxicology (SSPT) Spring Meeting;
Bern (CH), April 23, 2015;
Current developments in pharmacology.

Innovative approaches in translational melanoma research; Royal College of Surgeons in Ireland; Dublin (Ireland), May 6, 2015;
Role of autophagy in tumorigenesis and anticancer drug therapy.

Annual Meeting of the European Allergy and Clinical Immunology (EAACI),
Barcelona (Spain), June 6-10, 2015;
Eosinophil activation and degranulation.

Annual Meeting of the European Allergy and Clinical Immunology (EAACI),
Barcelona (Spain), June 6-10, 2015;
How to revise an original article.

Annual Meeting of the European Allergy and Clinical Immunology (EAACI),
Barcelona (Spain), June 6-10, 2015;
Plagiarism.

Workshop on “Cell Death in Neurodegeneration, Inflammation and Cancer”, Villa Vigoni, Loveno di Menaggio, Como (I), June 24-27, 2015;
New insights into eosinophil biology.

3rd Global Allergy Forum (GAF) “Atopic Dermatitis/Eczema – Challenges and Opportunities”, Davos (CH), June 28 – July 1, 2015;
Little evidence for a role of IgE in eosinophilic esophagitis.

9th Biennial Symposium of the International Eosinophil Society (IES), Chicago (IL, USA), July 14-18, 2015;
Eosinophil death pathways.

XXIV World Allergy Congress, Seoul (Korea), Oct. 14-17, 2015;
Signaling pathways regulating the life span of eosinophils.

XXIV World Allergy Congress, Seoul (Korea), Oct. 14-17, 2015;
New insights into eosinophil-mediated immunopathology.

7th EADV Dermatological Meeting in Ticino 2015: From the Bench to the Clinic, Bellinzona (CH), November 26, 2015;
Eosinophil cytolysis.

22nd National Congress of Allergy and Clinical Immunology, Antalya (TR), Nov. 28 – Dec. 2, 2015;
What is going on in eosinophils?

1st Type-2 Immunity Meeting Bern, Bern (CH), Dec. 16, 2015;
New insights into eosinophil biology.

Prof. Stephan von Gunten
Animal Science Day, Alumni Biomedical Sciences (ABS), Bern (CH), Sept 11, 2015;
Limitations of animal models.

EMBO Workshop on Cell Biology of Animal Lectins, The Weizmann Institute of Science, Rehovot (Israel), June 21-25, 2015;
Siglecs in tumor immunity: novel insights.

Conference on “The Antibody Repertoire as a biomarker”; Stefan Angelov Institute of Microbiology, Bulgarian Academy of Sciences, Sofia (BL), Sept 20-24, 2015;
Enhanced neutrophil death triggered by modified IVIG.

PD Dr. Peter Späth
20. Tagung der „Deutschen Gesellschaft für Angioödeme e.V.“ Mainz, Deutschland, 18. November 2015;
Erkenntnisse zur Entstehung des hereditären Angioödems (Festvortrag)

Blood Working Party meeting, European Medicines Agency, Committee for Medicinal Products for Human Use, London (UK), Nov 27, 2015;
Secondary Immune Deficiencies (SIDs) and Intravenous/Subcutaneous IgG (IVIG/SCIG) (together with H.-H. Peter, Freiburg, Germany, on behalf of the drafting team of the Kreuth III IVIG Expert Group).

Christoph Schneider
12th Congress of the European Association for Clinical Pharmacology and Therapeutics (EACPT), Madrid (Spain), June 28-30, 2015;
The human IgG anti-carbohydrate repertoire exhibits a universal architecture and contains specificity for microbial attachment sites.

Xiaoliang Wang
23rd Euroconference on Apoptosis, European Cell Death Organization (ECDO); Geneva (CH), Oct 7-10, 2015;
Adhesion molecules in neutrophil death signaling.

Simone Wicki
23rd Euroconference on Apoptosis, European Cell Death Organization (ECDO);
Geneva (CH), Oct 7-10, 2015;
XIAP restricts TNF-induced necroptosis in mouse neutrophils.

Prof. Shida Yousefi
25th Cytomeet, Bern (CH), Jan 27, 2015;
Cytoskeletal regulation of mitochondrial DNA release and NET formation.

4.3. Seminar Invitations

Prof. Thomas Kaufmann
Institute of Biochemistry and Experimental Oncology, Charles University Prague, 1st Medical Faculty, June 2, 2015; guest of Prof. E. Krepela:
Cell death regulation by the Bcl-2 family member BOK.

Department of Cell Physiology and Metabolism, University of Geneva (CH), Feb 11, 2015; guest of Prof. N. Demaurex:
Regulation of programmed cell death by BCL-2 and IAP family members.

Prof. Hans-Uwe Simon
Faculty of Pharmacy, University of Ljubljana, Ljubljana (Slovenia), Jan 14, 2015;
guest of Prof. Irena Mlinaric-Rascan:
Innate immunity and immunopathology mediated by eosinophils.

Institute for Genomics and Proteomics, University of California, Los Angeles (UCLA),
Feb 26, 2015; guest of Prof. David Eisenberg:
Role of autophagy in tumorigenesis and anticancer drug therapy.

Cancer Research UK Beatson Institute, Glasgow (UK), May 5, 2015;
guest of Prof. Kevin Ryan:
ATG5 expression and function in cancer.

Molecular, Cellular, and Clinical Allergology (MCCA) lecture, Medical University of Vienna (A), Nov 24, 2015; guest of Prof. Winfried Pickl:
Hypereosinophilic syndromes.

Clinic of Dermatology, University Hospital Zurich, Zurich (CH), Dec 2, 2015;
guest of Prof. Thomas Kündig:
Eosinophil cytolysis.

Prof. Stephan von Gunten
Cutting Edge Topics: Immunology and Infection Biology, University of Zurich and ETH Zurich, Zurich (CH), Sept 15, 2015; guest of Prof. Christian Münz:
Protein-glycan interactions in humoral and cellular immunity: novel insights.

George S. Wise Faculty of Life Sciences, Dept. of Cell Research and Immunology, Tel Aviv University, Tel Aviv (Israel), June 21, 2015; guest of Prof. Vered Padler-Karavani:
Modification of IVIG by protein destabilizing factors results in more potent neutrophil killing.

Department of Biomedicine, University Hospital Basel, Basel (CH), March 13, 2015;
guest of Prof. Alfred Zippelius & Dr. Hein Läubli:
Cancer intelligence acquired (CIA): how tumor glycosylation affects immune responses.

4.4. Organization of Meetings and Courses

Prof. Hans-Uwe Simon
Symposium of the Swiss Society of Pharmacology and Toxicology (together with task force SSPT): Progress in Pharmacology – Allergy and Autoimmunity,
Bern (CH), Feb. 5, 2015

Inaugural Meeting: Stratified Medicine – Present and Future
zusammen mit einer "Akademischen Feier" anlässlich der Eröffnung der neuen Laborräume im INO-F (http://www.pki.unibe.ch/continuing_education/; together with M. Fiedler),
Bern (CH), June 3, 2015

Workshop on "Cell Death in Neurodegeneration, Inflammation and Cancer" (together with D. Kulms, D. Delia, K. Pfizenmaier and P. Krammer),
Villa Vigoni, Loveno di Menaggio, Como (I), June 24-27, 2015

14th III-Bern International Summer School,
Bönigen/Interlaken (CH), July 26-28, 2015

Prof. Stephan von Gunten
50 year anniversary meeting of the Swiss Society for Pharmacology and Toxicology (together with task force SSPT),
Bern (CH), April 23, 2015

4.5. Invited Chairperson at Congresses

Prof. Thomas Kaufmann
1st Type-2 Immunity Meeting
Bern (CH), Dec 16, 2015

Prof. Hans-Uwe Simon

Symposium of the Swiss Society of Pharmacology and Toxicology:
Progress in Pharmacology – Allergy and Autoimmunity, Morning session;
Bern (CH), Feb 5, 2015

81st Annual Meeting of the German Society of experimental and clinical Pharmacology and Toxicology (DGPT): Symposium 10 - Immunopharmacology;
Kiel (D), March 10-12, 2015

Swiss Society of Pharmacology and Toxicology (SSPT) Spring Meeting:
50 years SSPT: Celebration session;
Bern (CH), April 23, 2015

9th Biennial Symposium of the International Eosinophil Society (IES);
Welcome and Awards Sessions;
Chicago (IL, USA), July 14-18, 2015

23rd ECDO Euroconference on Apoptosis; Session: “Non-apoptotic cell death and autophagy”;
Geneva (CH), October 7-10, 2015

Prof. Stephan von Gunten
Annual Meeting 2015 of the Swiss Society for Pharmacology and Toxicology;
Session “Young Investigator Research”;
Bern (CH), April 23, 2015

Prof. Peter Späth
International Plasma Protein Congress: Innovation Towards Patient Centeredness;
Rome (I), March 10-11, 2015

9th C1 Inhibitor Deficiency Workshop, Closing Ceremony;
Budapest (H), May 28 - June 1, 2015

4.6. Referee Work for Peer-Reviewed Journals

Dr. Zhaoyue He
Allergy
Cell Death Differ.
Cell Death Dis.

Prof. Andrea Huwiler
Biochem. Pharmacol.
Biochim. Biophys. Acta
Blood
Br. J. Pharmacol.
Carcinogenesis
Circ. Res.
Clin. Chem. Lab. Med.
Diabetologica
Eur. J. Pharmacol.
Exp. Cell Res.
Hormone Metabol. Res.
J. Biol. Chem
J. Cell. Biochem.
J. Cell. Physiol.
J. Exp. Pharmacol. Ther.
Kidney and Blood Pressure Research
Kidney Int.
Naunyn Schmiedeb. Arch. Pharmacol.
Planta Medica
FEBS letters

Prof. Thomas Kaufmann
Acta Tropica
Advances in Medicine
Apoptosis
Allergy
BioEssays
Cell Communication and Signaling
Cell Death and Differentiation
Cell Death and Disease
Cellular & Molecular Immunology
European Journal of Immunology
FEBS Letter
FEBS Journal
Frontiers in Molecular and Cellular Oncology
Future Oncology
Immunology and Cell Biology
Journal of Hepatology
Journal of Molecular Cell Biology
Journal of Neuroscience
Methods
Molecular Cancer Therapeutics
Molecular & Cellular Oncology
Oncogene
PLoS One
Hepatology

Dr. He Liu

Allergy
Cell Death Dis.
Cell Death Differ.
Frontiers in Oncology

Prof. Hans-Uwe Simon

Allergy
Apoptosis
Autophagy
Blood
J. Cell Cycle
J. Clin. Invest.
EMBO Journal
EMBO Reports
Science Signaling
Eur. J. Immunol.
FASEB J.
Cell Death Differ.
Cell Death Dis.
Gastroenterology
Gut
J. Allergy Clin. Immunol.
J. Exp. Med.
J. Immunol.
J. Leukoc. Biol.
J. Cell Sci.
Oncogene
Frontiers Oncology
FEBS letters
Mol. Cell. Oncology
Nat. Med.
N. Engl. J. Med.
Cell Reports
Science Translation Medicine

PD Dr. Peter Späth

Allergy
Clin. Exp. Immunol.
Int. Arch. Allergy Immunol
J. Neuroinflammation
PLoS One
Women's Health

Prof. Stephan von Gunten

Allergy
Am J Respir Cell Mol Biol
Ann Sports Med Res
Blood
BMC Biotech
Front Mol Cell Oncol
Cell Death Differ
Cell Death Dis
Frontiers Oncology
Gene Therapy
Immunol Cell Biol
Immunol Lett.
J Allergy Clin. Immunol
J Invest. Dermatol
J Immunol
J Immunotox
Med Inflamm
Respiration
Oncotarget
Pathobiology
PLoS One
Respiratory Research

Prof. Shida Yousefi

Cell Biol. Int.
Cell Death Differ.
Exp. Lung Res.
Immunology
J. Vasc. Intervent. Radiol.
Cell Biochem. Biophys.
Eur. J. Immunol.
Int. J. Mol. Sci.
Respir. Res.
Int. J. Biochem. Cell Biol.

Prof. Uwe Zangemeister-Wittke

Bioconjug. Chem.
Int. J. Cancer
J. Drug Targeting
Mol. Cell. Biol.
Int. J. Pharmaceutics
Expert Opin. Drug Delivery

4.7. Referee Work for Grant Bodies

Dr. Zhaoyue He
Swiss Cancer League

Prof. Andrea Huwiler
Deutsche Forschungsgemeinschaft (DFG)

Prof. Thomas Kaufmann
Agence Nationale de la Recherche (ANR)
Austrian Science Fund (FWF)
German Research Foundation (DFG)
Swiss Cancer League
Swiss National Science Foundation (SNF)

Dr. He Liu
Swiss Cancer League

Prof. Hans-Uwe Simon
Swiss National Science Foundation (SNF)
Italian Association for Cancer Res.
US-Israeli Binational Science Foundation
Swiss Cancer League
Novartis Foundation

Prof. Stephan von Gunten
Swiss Cancer League
Medical Research Council (UK)

Prof. Uwe Zangemeister-Wittke
Swiss Cancer League
Qatar National Research Fund (QNRF)

4.8. Awards

Kayluz Frias Boligan
Best Poster Award
Spring Meeting of the Swiss Society of Pharmacology and Toxicology (SSPT), Bern (CH), April 23, 2015

Drs. Camilla Jandus and Kayluz Frias Boligan
Research Award
Bern Immunology Club (BIC) Bern (CH), June 24, 2015

Christoph Schneider
EPHAR / EACPT Joint Young Investigator Award in Translational Pharmacology
The Federation of European Pharmacology Societies (EPHAR) and The European Association for Clinical Pharmacology and Therapeutics (EACPT), The XII EACPT Congress, Madrid (Spain), June 30, 2015

Fabiola Schorer-Cortinas
Best Poster Award
1st Type 2 Immunity Meeting, Bern, December 16, 2015

5. Administrative, Advisory, and Honorary Posts

Dr. Zhaoyue He
Coordinator for PC work at the PKI
Webmaster at the PKI

Prof. Andrea Huwiler
Member of the Ernennungs- und Habilitationskommission (EHK), Medical Faculty, University Bern

Member of the Advisory Editorial Board of Naunyn Schmiedeberg's Archives of Pharmacology

Member of the Editorial Board of Experimental Pharmacology and Drug Discovery, Frontiers in Pharmacology

Prof. Thomas Kaufmann
Member of the Supervision commission "Cell Biology" within the Graduate School for Cellular and Biomedical Sciences of the University of Bern, since 2009

Member of the Editorial Board, Allergy

Member of the Editorial Board, Cell Death and Disease

Member of the Editorial Board, Frontiers in Molecular and Cellular Oncology

Member of the Editorial Board, Oncotarget

Member of the World Allergy Organization (WAO) Special Committee on Eosinophils, Mast Cells & Basophils

Coordinator for FACS, Fluorescence Microscope, and Chemicals at the PKI

Coordinator FPLC (Äkta)

Prof. Hans-Uwe Simon
Vice-Dean for Research, Medical Faculty, University of Bern (2012-2016)

Swiss-EU mobility program, Coordinator Pharmacology/Pharmacy, University of Bern

Member of the German National Academy of Sciences (Deutsche Akademie der Naturforscher Leopoldina)

Member of the Swiss Academy of Medical Sciences (SAMW)

Member of the the Scientific Executive Board of SystemsX.ch:
The Swiss Initiative in Systems Biology (2013-2016)

President of the International Eosinophil Society (IES) (2013-2015)

Vice-Chair, Immunopharmacology Section, International Union of Basic and Clinical Pharmacology (IUPHAR), since 2013

Member of the Scientific Committee, Swiss Cancer League

Workshop Representative of the Mechanisms of Allergy/Asthma/ Immunology (MAAI) section of the American Academy of Allergy, Asthma and Immunology (AAAAI)

Chair, Cells and Mediators of Allergic Inflammation Committee, American Academy of Allergy, Asthma and Immunology (AAAAI), 2015-2017

Member of the Advisory Board, Research Foundation, University of Bern

Member of the Advisory Board, Foundation pour la recherche et le traitement des maladies respiratoires, Lausanne

Editor-in-Chief, Allergy

Section Editor, Apoptosis

Member of the Editorial Board, International Archives of Allergy and Immunology

Member of the Scientific Board, Allergologie

Member of the Editorial Board, Int. Journal of Hygiene and Environmental Health

Member of the Advisory Board, Allergo-Journal

Member of the Editorial Board, Cell Death and Differentiation

Section Editor, Cell Death and Disease

Associate Editor, Frontiers in Oncology

Associate Editor, Molecular & Cellular Oncology

PD Dr. Peter Späth
Member of the Scientific Board, 9th C1 Inhibitor Deficiency Workshop, Budapest (H), May 28 - June 1, 2015

Head Jury awarding the “Grant for Young Investigators”, 9th C1 Inhibitor Deficiency Workshop, Budapest (H), May 28 - June 1, 2015

Member of the Kreuth Immunoglobulin Working Group ‘European Consensus Proposal for Immunoglobulin Therapies’; member of the expert group drafting an update of the ‘core Summary of Product Characteristics’ for human immunoglobulin preparations

Prof. Stephan von Gunten
Secretary of the Council of the Swiss Society of Experimental Pharmacology (SSEP)

Board Member of the Swiss Society of Pharmacology and Toxicology (SSPT)

Board Member of the Swiss Society of Experimental Pharmacology (SSEP)

Participating Investigator of the US National Institutes of Health (NIH)-funded ‘Consortium for Functional Glycomics’ (CFG; www. functionalglycomics.org)

Editor of “Literature Highlights”, Immunopharmacology Section, International Union of Basic and Clinical Pharmacology (IUPHAR)

Editorial Board Member of ‘Allergy’, European Journal of Allergy and Clinical Immunology

Coordinator for FACS and library at the PKI

Prof. Shida Yousefi
Editorial Assistant, Editorial Office, Allergy

Coordinator for Radioactive Work at the PKI

Coordinator for Confocal Microscopy and Imaging Analysis at the PKI

Prof. Uwe Zangemeister-Wittke
Consultant of the Human SwissMedic Expert Committee

Consultant of the Scientific Committee of the Facultad de Medicina, Clinica Alemana-Universidad del Desarrollo, Santiago de Chile

Review Editor, Frontiers in Molecular and Cellular Oncology

All PKI principal investigators served as tutors in graduation committes of the Graduate School for Cellular and Biomedical Sciences of the University of Bern.

6. Services

6.1. Confocal Microscopy

The facility hosts three laser scanning microscopes (LSM 5 Exciter, LSM 510 and LSM 700, Carl Zeiss Microimaging GmbH, Jena), which may be used by members of the Medical Faculty at a small charge (CHF 50 per h). The facility for confocal microscopy and image analysis in our institute is part of the Microscopy Imaging Center (MIC) of the University of Bern and operated by Prof. S. Yousefi.

6.2. Flow Cytometry

The Institute of Pharmacology is equipped with Becton-Dickinson FACSCalibur (4 color), and FACSVerse 8 color Flow Cytometer instruments. A service is provided for analyzing potential pathogenic mechanisms of eosinophilic disorders and other inflammatory diseases. Monitoring of patients under immunomodulatory therapy is also included. The costs are currently covered by research grants of the coordinator (Prof. H.-U. Simon, FAMH Clinical Immunology), who can also be consulted for scientific support. Usage of the flow cytometer by non-members of the institute within collaborative projects is also possible.

7. Public work

Art Exhibition

Mumprecht

Vernissage: November 5, 2015

Begrüssung:	Prof. H.-U. Simon / Prof. M. Fiedler
Laudatio:	Frau Dr. des. Y. Schweizer,
	Institut für Kunstgeschichte, Univ. Bern
Musik:	Beatrix Hauri, Contrabass
	Katharina Lienhard, Voice

More information: http://www.pki.unibe.ch/about_us/aktivitaeten/vernissages/index_eng.html

8. Sponsors

8.1. Research Grants

Denise Dorvignit Pedroso
Swiss Government Excellence Scholarship for Foreign Scholars

Prof. Andrea Huwiler
Swiss National Science Foundation (grant No. 310030-153346/1)
Avexxin AS

Prof. Thomas Kaufmann
Swiss National Science Foundation, project grant 31003A_149387
Swiss National Science Foundation, project grant 310030E_150805 (FOR2036)
Swiss Cancer League (KFS-3014-08-2012)
Start-up project grant, Understanding Disease Research Focus Area, La Trobe University (AU), *other chief investigator*.

Dr. He Liu
UniBern Forschungsstiftung

Dr. Erika Moravcikova
SCIEX PostDoc Fellowship (July 2014 – June 2015)

Nina Sekeres
Erasmus/SEMP-Fellowship at the University of Bern (Oct 2015 – Feb 2016)

Ema Sever
Erasmus/SEMP-Fellowship at the University of Bern (Oct 2015 – Feb 2016)

Prof. Hans-Uwe Simon
Swiss National Science Foundation (grant No. 310030-146181)
Swiss Cancer League (KFS-3099-02-2013)
Allergie-Stiftung Ulrich Müller-Gierok, Bern
HORIZON 2020, Marie Sklodowska-Curie Actions, MEL-PLEX

Prof. Stephan von Gunten
Swiss National Science Foundation (SNSF) Grant Nr. 310030_162552 / 1;
Novartis Research Foundation (Novartis, Switzerland)
Foundation Johanna Dürmüller-Bol
Innate Pharma SA, Marseille (France)

Prof. Shida Yousefi
Swiss National Science Foundation (grant No. 310030-146215)

Xiaoliang Wang
State Scholarship Fund of China (CSC Scholarship)

Prof. Uwe Zangemeister-Wittke
Swiss National Science Foundation (grant No. 310030E-132762)
Swiss National Science Foundation (grant No. 310030A-138201)
Sassella-Stiftung of the Zürcher Kantonalbank

8.2. Meetings

Swiss Society of Pharmacology and Toxicology (SSPT): Progress in Pharmacology – Allergy and Autoimmunity, Bern, Feb 5, 2015
Pfizer AG, Zurich
MSD Merck Sharp & Dohme AG, Luzern
AbbVie AG, Baar
Janssen-Cilag AG, Zug
Roche Pharma AG, Reinach
GlaxoSmithKline AG, Münchenbuchsee

14th III-International Summer School, Seehotel, CH 3806 – Bönigen/Interlaken, July 26–28, 2015
BD Biosciences, Allschwil
Carl Zeiss AG, Feldbach
Novartis Pharma AG, Rotkreuz
Member companies of the Kontaktgruppe für Forschungsfragen (KGF), Basel:
Novartis and Roche
Lucerna Chem AG, Luzern
Swiss Committee for Molecular Biology, Geneva
Programm für die Interfakultäre Ausbildung des Forschungsnachwuchses der Universität Bern
Graduate School for Cellular and Biomedical Sciences, Universität Bern

8.3. Seminars „Current topics in Pharmacology and Theranostics“ (organized together with the Center of Laboratory Medicine, University Hospital Bern, Inselspital)

Merck Sharp & Drohme AG, Luzern
Mepha Pharma AG, Basel
CSL Behring AG, Bern

8.4. Seminars „Bern Immunology Club“

Luca Borradori, Britta Engelhardt, Thomas Geiser, Adrian Ochsenbein,
Andrew Macpherson, Christoph Müller, Hans-Uwe Simon, Artur Summerfield, Beda Stadler, Peter Villiger

8.5. Travel Support

Ziva Frangez
CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

Nina Germic
CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

Dr. Elizabeth Louisa de Graauw
Swiss Society of Pharmacology and Toxicology (SSPT) (EAACI Congress, Barcelona (Spain), June 6-10, 2015).

Yuniel Fernandez Marrero
Graduate School for Cellular and Biomedical Sciences, University of Bern, and CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

Dr. Erika Moravcikova
Sciex-NMS^{CH} (International Cell Death Society (ICDS) Meeting 'Implementation of knowledge of cell death'), Prague (CZ), May 28 – 30, 2015.

Ramona Reinhart
Swiss Society of Pharmacology and Toxicology (SSPT) (9th World Immune Regulation Meeting, Davos (CH), March 18-21, 2015).

CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

Christoph Schneider
Swiss Society of Allergology and Immunology (SSAI) (43rd Annual Meeting of the Scandinavian Society for Immunology and Summer School, Turku (Finland), May 10-13, 2015).

Swiss Society for Experimental Pharmacology (SSEP) (12th World Congress on Inflammation, Boston (USA), Aug 8-12, 2015).

Graduate School for Cellular and Biomedical Sciences, University of Bern (12th World Congress on Inflammation, Boston (USA), Aug 8-12, 2015).

Fabiola Schorer-Cortinas
Graduate School for Cellular and Biomedical Sciences, University of Bern, and International Eosinophil Society (IES) (9th Biennial Symposium of the International Eosinophil Society (IES), Chicago (USA), July 14-18, 2015).

Xiaoliang Wang
Graduate School for Cellular and Biomedical Sciences, University of Bern (4th European Congress of Immunology, Vienna (A), Sep 6-9, 2015).

CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

Simone Wicki
Graduate School for Cellular and Biomedical Sciences, University of Bern, and CUSO (23rd ECDO Conference, Geneva (CH), Oct 7-10, 2015).

8.6. Other Support

Bürgi Fonds Seminar series of the institute