

SCHOOL OF PHARMACEUTICAL SCIENCES
GENEVA - LAUSANNE

ANNUAL REPORT 2014



UNIVERSITÉ
DE GENÈVE

Ecole de Pharmacie
EPGL
Genève – Lausanne

Unil

UNIL | Université de Lausanne

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Mr. Loïc MANET (auxiliary : 15 august to 31 december 2014)
Mr. Yann MANET

ABBREVIATIONS

<i>PO</i>	<i>Full Professor</i>
<i>PAS</i>	<i>Associate Professor</i>
<i>PAST</i>	<i>Assistant Professor</i>
<i>PT</i>	<i>Adjunct Professor</i>
<i>PI</i>	<i>Visiting Professor</i>
<i>PD</i>	<i>Privat-Docent</i>
<i>MER / CC</i>	<i>Senior Lecturer</i>
<i>CE</i>	<i>Lecturer</i>
<i>CS</i>	<i>Research Associate and Senior Research Associate</i>
<i>MA</i>	<i>Senior Research and Teaching Assistant</i>
<i>POSTDOC</i>	<i>Postdoctoral Scholar</i>
<i>ASS</i>	<i>Research and Teaching Assistant</i>

RESEARCH UNITS

BIOPHARMACEUTICS

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Dr Olivier JORDAN, MER

PHARMACEUTICAL ANALYSIS CHEMISTRY

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Prof Serge RUDAZ, PAS
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PHARMACEUTICAL TECHNOLOGIES

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STAFF



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Alessandra RECCHIA
Maria SEBASTIAN MORELLO
Francesca TESSARO
Barbara THEILER
Elena TRATTA
Katleen VAN BUTSELE
Yogesh VEGUNTA

BUDGET

*STAFF SALARY ¹	11'888'002.--	(TABLE 1)
OPERATIONAL BUDGET OF THE SECTION	1'203'002.--	(TABLE 2)
TOTAL BUDGET SALARY AND OPERATIONAL	13'091'004.--	1
FACULTY INVESTMENT	219'975.--	
SECTION INVESTMENT	268'596.--	
TOTAL INVESTMENT FUNDS	488'571.--	(TABLE 3)
SWISS NATIONAL SCIENCES FOUNDATION	718'531.--	
OTHERS FUNDS	2'567'286.--	
TOTAL EXTERNAL FUNDS	4'075'792.--	(TABLE 2)
TOTAL BUDGET EPGL	17'655'367.--	2

*STAFF 2014

NUMBER OF PEOPLE WORKING AT EPGL DURING 2014 : 227

¹ With social security contributions

² including :

- contribution Etat VD CHF 5'071'005.--
- subsidies "universitaire intercantonale" AIU CHF 1'450'000.--

TABLE 1

TOTAL BUDGET STAFF (11.88 Mio)

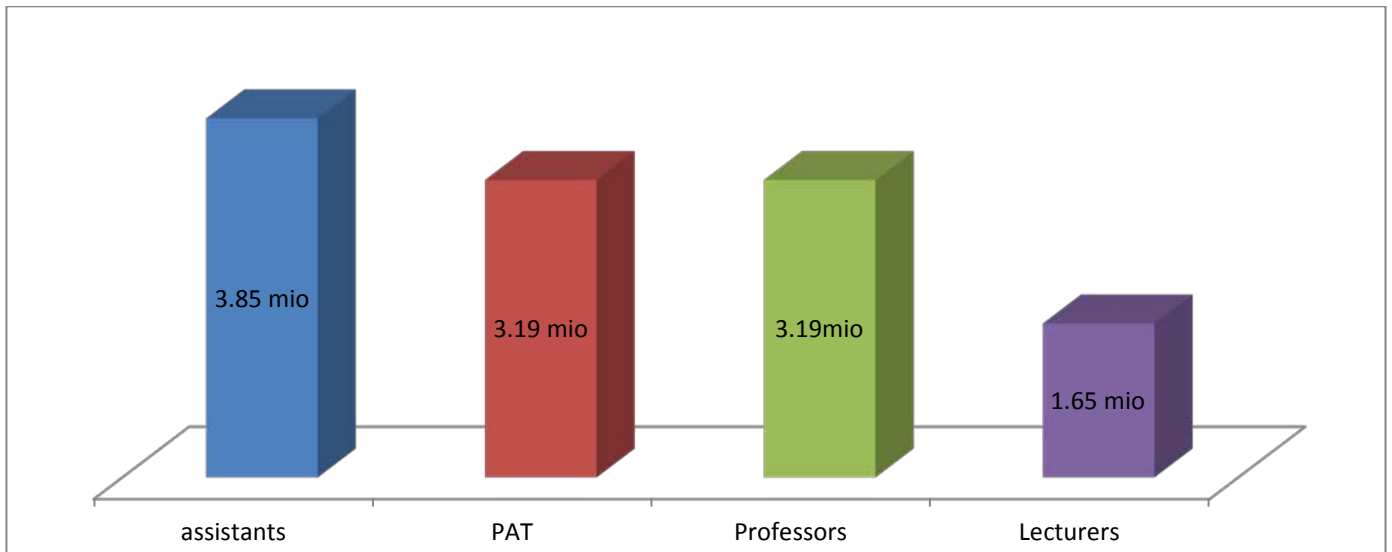


TABLE 2

TOTAL PUBLIC AND EXTERNAL FUNDS

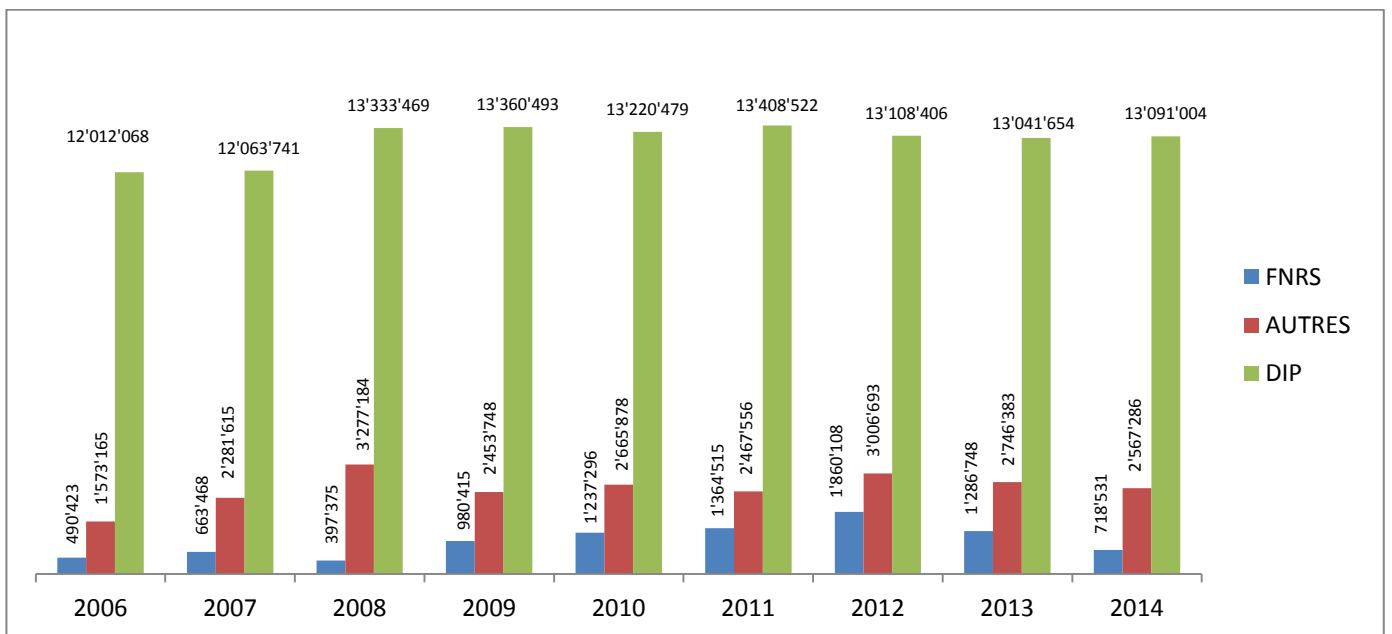
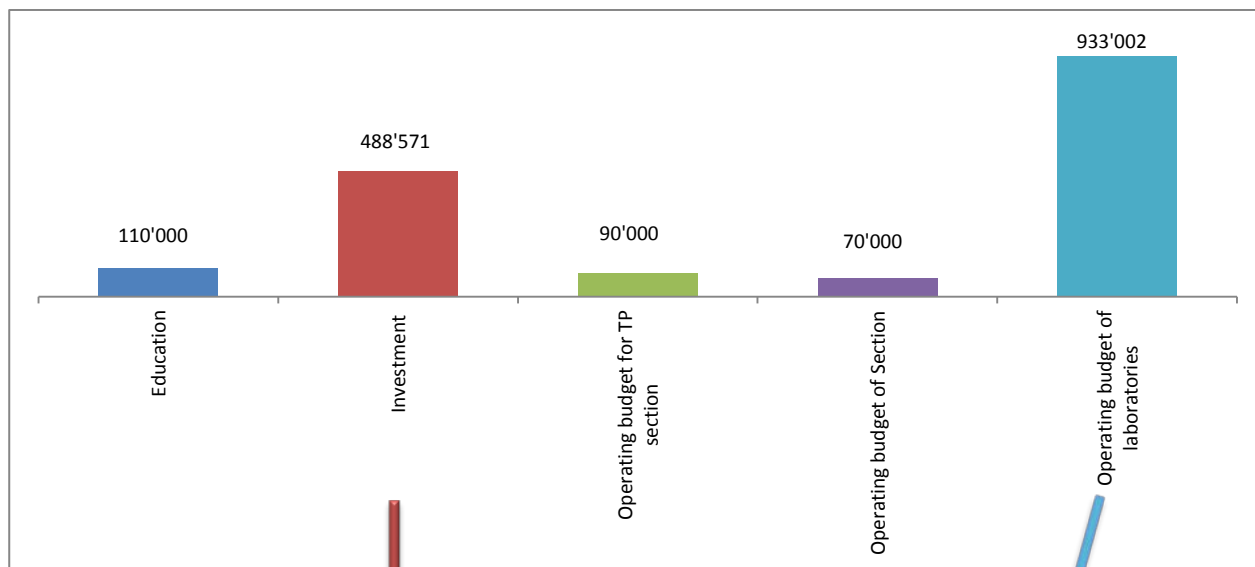


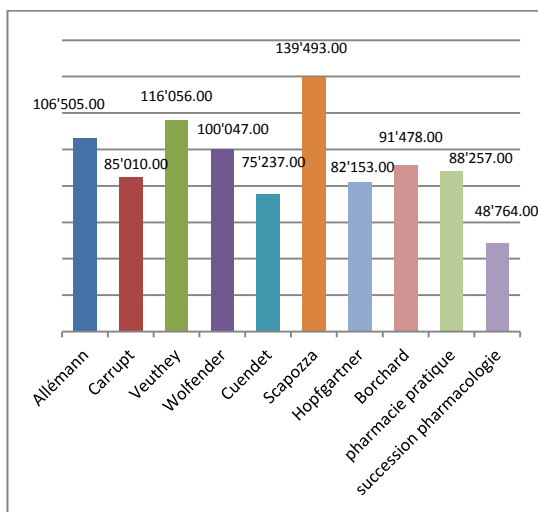
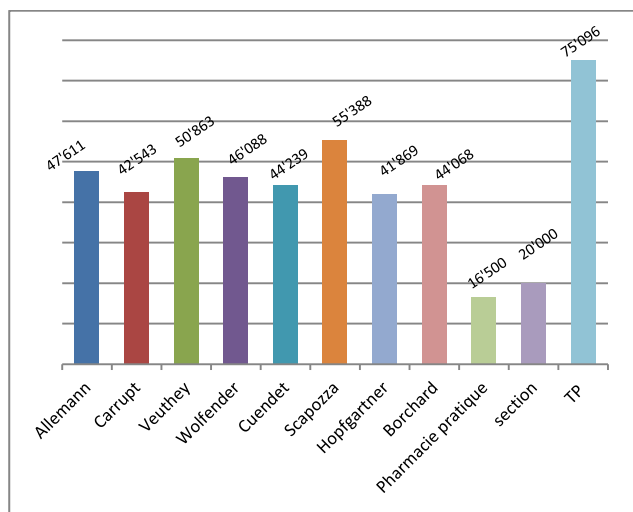
TABLE 3

OPERATIONAL BUDGET (1.20 MIO) AND INVESTMENT (0.48 MIO)



ALLOCATION INVESTMENT BUDGET
(CHF 488'571)

ALLOCATION OPERATIONAL BUDGET
(CHF 880'243)



2014 AT A GLANCE

Staff (headcount)	222
Students:	368
- Bachelor	242
- Master	121
- Master of advanced studies	5
Ph.D. students	105

Total budget CHF	17.5 Mio
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Publications with impact factor	135
Publications without impact factor	27
Presentations & posters	180
Congress	148
Books and chapters	13
Number of projects at FNRS and assimilated	23
Projects of collaboration with the industry	28
Ph.D. Thesis presented in 2014	12
Patents	3
Awards	7

GENERAL DESCRIPTION OF THE UNIT

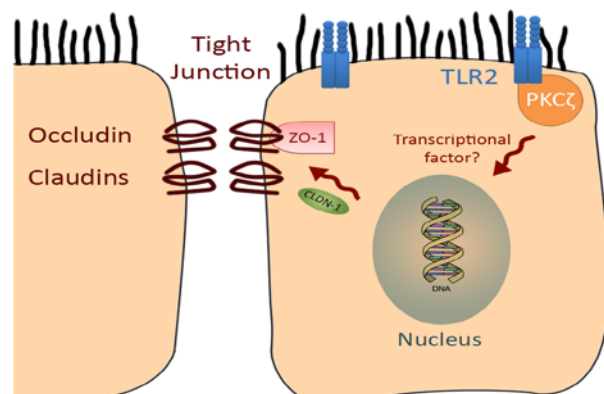
The Biopharmaceutics group of EPGL in 2014 is a multidisciplinary and international group of mostly young scientists dedicated to the study of interaction of drugs and drug carrier systems with their biological environment, especially the immune system. Scientific projects include the physicochemical characterization of such drugs and carriers, the optimization of formulation methods, the establishment of cell based-assays, the utilization of suitable ex-vivo and in vivo models, and translational research to allow for clinical testing. The Biopharmaceutics group has gained expertise in the treatment and prevention of infectious diseases through its work on vaccines, and has accumulated considerable knowledge in interventional cancer therapy. The former line of research is dedicated to the development of particle-based vaccines against tuberculosis, which are equipped with novel adjuvants addressing the innate immune system (e.g., Toll-like and NOD-like receptors). Work in cancer therapy is focused on a superparamagnetic iron oxide nanoparticle (SPIONs) based combined approach of heat induction and chemotherapy, and on chemoembolization using (biodegradable) beads loaded with anti-angiogenic drugs. In addition, a program on the elucidation of factors driving the biodeposition of iron carbohydrate nanoparticles has been initiated in 2014. More fundamental work is done in the area of drug interaction with the (innate) immune system. Here, we are attempting to elucidate the mechanisms underlying the inflammatory and immune response to aggregates of therapeutic proteins, especially observed after subcutaneous injection (injection site reactions, ISR). We have also recently unraveled the interplay of epithelial tight junction regulation and ligation of receptors of the innate immune system (e.g., Toll-like receptors). The Biopharmaceutics group has access to all equipment necessary for the execution of the projects described above, either in-house or through cooperation within EPGL, the University of Geneva or with outside partners. The Biopharmaceutics group entertains a multitude of cooperative projects with academic institutions (basic research and clinical) as well as with industrial partners. Through the active participation in various learned societies and scientific committees, FABIO has the opportunity to shape the future of biopharmaceutical sciences and science policies.

SPECIFIC RESEARCH FIELDS

Modulating and strengthening epithelial barrier defense

Tissue barriers are essential for the survival of multicellular organisms. Next to other factors, such as enzymatic activity and presence of a mucus layer, intercellular junctions (tight junctions) restrict transepithelial permeation of compounds and pathogens, thus forming a highly regulated physical barrier to protect the internal environment. Epithelia are also the location of the common mucosal immune system (CMIS), whose cells are involved in immediate reaction against infectious pathogens and will stage an immune response to avoid pathogen invasion.

Innate immune reaction, however, is not restricted to immune cells, but also involves epithelial cells that have been shown to express specific receptors of the innate immune system.



Tight junction protein expression in epithelial cells is regulated by stimulation of TLR2 through the activity of atypical protein kinase C Zeta, which may be used in treatment of inflammatory diseases. Inhibition of PKC Zeta by short peptides offers the opportunity to reversibly enhance paracellular permeability for the purpose of macromolecular drug delivery and mucosal vaccination.

Among these, the family of Toll-like receptors (TLRs) plays a pivotal role in identifying pathogenic structures and initiates a cascade of events leading to an immune response at the local as well as systemic level.

In inflammatory diseases of epithelia, such as asthma, Crohn's disease and ulcerative colitis, disruption of tight junctions and thus higher permeability has been reported, leading to pathological aggravation in such diseases. Using a human bronchial epithelial cell line, we were able to show that by stimulating TLR2 (expressed at apical membranes), the tight junction associated epithelial barrier function is enhanced. We were able to unravel the mechanism implied, showing that the expression of claudin-1 and ZO-1 tight junction proteins was significantly enhanced through the activity of the atypical protein kinase C Zeta. This phenomenon of strengthening the barrier defense has also been shown in primary human bronchial cells obtained from normal and asthmatic individuals.

The elucidation of the pathway for tight junction regulation in these epithelial cell layers has led to the identification of potential targets that may be addressed for strengthening compromised tight junction associated barrier function. As mentioned above, two targets would be inflammatory diseases of the lung and intestinal tract, asthma and inflammatory bowel disease (IBD), respectively. Another application may be related to the avoidance of metastasis in epithelial cancers of such organs. In addition, we have investigated the effect of PKC Zeta inhibition on epithelial permeability in terms of reduction of tight junction protein expression. Through molecular modeling we have developed short cell-permeable peptidic PKC Zeta inhibitors able to reversibly enhance paracellular permeability in epithelial cell layers. We are now performing studies to evaluate these peptides as potential enhancers for macromolecular drug delivery at mucosal surfaces, offering the option of needle-free application of such drugs by convenient oral and/or pulmonary administration. At the same time, studies are underway to test this permeation enhancer as an adjuvant for mucosal vaccine application, enhancing antigen access to subepithelial immune cells.

2014 AT A GLANCE

Publications with impact factor	11
Publications without impact factor	1
Posters presentations	21
Congresses & Symposia	20
Patents	1
Awards	3
Number of projects at FNRS and assimilated	1
Projects of collaboration with the industry	5

STAFF

SENIOR RESEARCH ASSOCIATE	Michael MÖLLER	
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RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)

SWISS RESEARCH PROGRAM

NANO TERA MAGNETO “From superparamagnetic nano-particles until tools for detection and treatment of cancer” SNSF reference number: 20NA21145919
Co-investigators: O. JORDAN
Allocation 2014: CHF 100'700.-
Duration: 4 years
Starting date: 01.04.2013

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
Aptissen	Research	10'000.-
Innogap fund	Research	30'000.-
Meritmedical	Research	16'000.-
UNINE-Turlings	Research	18'360.-
Vifor	Research	364'370.-
	total	438'730.-

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Journal of Controlled Release	8.09
Drug Discovery Today	6.69
Annals of the New York Academy of Sciences	4.31
Molecular Pharmaceutics	4.38
International Journal of Pharmaceutics	3.65
Journal of Vascular Surgery	3.62
European Journal of Pharmaceutics and Biopharmaceutics	3.38
Journal of Vascular Interventional Radiology	2.40
Journal of Ocular Pharmacology and Therapeutics	1.47

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. K. FUCHS, P.E. BIZE, O. DORMOND, A. DENYS, E. DOELKER, G. BORCHARD, O. JORDAN: "Drug-eluting beads for transarterial chemoembolization: Sunitinib loading, release properties and in vivo pharmacokinetics of DC bead® microspheres." *J. Vascul. Intervent. Radiol.* 25 (2014) 379-387. 2.40
2. S. TINKLE, S.E. MCNEIL, S. MÜHLEBACH, R. NALUBOLA, R. BAWA, G. BORCHARD, Y. BARENHOLZ, L. TAMARKIN, N. DESAI: "Nanomedicines: addressing the scientific and regulatory gap." *Ann. NY Acad. Sci.* 1313 (2014) 35-56. 4.31
3. S. RAGUPATHY, F. ESMAEILI, S. PASCHOUD, E. SUBLET, S. CITI, G. BORCHARD: "TLR2 regulates bronchial epithelial permeability through atypical protein kinase C zeta and increase in claudin-1 expression." *Tissue Barriers* (2014) e29166-1-8, doi: 10.4161/tisb.29166. NN
4. G. BORCHARD: "Complex molecules - current developments." *GaBI J.* 3 (2014) 53-54. NN
5. A.G. SARRAF, S. CHERKAOUI, O. JORDAN, R. GURNY, E. DOELKER: "Controlled drug release from melt-extrudates through processing parameters: A chemometric approach." *Int. J. Pharm.* (2014) doi:10.1016/j.ijpharm.2014.12.046. 3.65
6. J.J. VERHOEF, J.F. CARPENTER, T.J. ANCHORDOQUY, H. SCHELLEKENS: "Potential induction of anti-PEG antibodies and complement activation toward PEGylated therapeutics." *Drug Discov. Today* 19 (2014) 1945-52. 6.69
7. K. FUCHS, P.E. BIZE, A. DENYS, G. BORCHARD, O. JORDAN: "Sunitinib-Eluting Beads for Chemoembolization: Methods for In Vitro Evaluation of Drug Release." *Int. J. Pharm.* doi: 10.1016/j.ijpharm.2014.11.041. 3.65
8. M. LAPTEVA, V. SANTER, K. MONDON, I. PATMANIDIS, G. CHIRIANO, L. SCAPOZZA, R. GURNY, M. MÖLLER, Y. KALIA: "Targeted cutaneous delivery of ciclosporin A using micellar nanocarriers and the possible role of inter-cluster regions as molecular transport pathways." *J. Control. Rel.* 196 (2014) 9-18. 8.09
9. M. LAPTEVA, K. MONDON, M. MÖLLER, R. GURNY, Y. KALIA: "Polymeric micelle nanocarriers for the cutaneous delivery of tacrolimus: A targeted approach for the treatment of psoriasis." *Mol. Pharm.* 11 (2014) 2989-3001. 4.38
10. M. VEURINK, G. MANGIORIS, B. KAUFMANN, L. ASMUS, M. HENNIG, A. HEILIGENHAUS, R. GURNY, M. MÖLLER, C. POURNARAS: "Development of an intravitreal peptide (BQ123) sustained release system based on poly(2-hydroxyoctanoic acid) aiming at a retinal vasodilator response." *J. Ocular Pharmacol. Therap.* 30 (2014) 517-523. 1.47
11. W. MRÓWCZYŃSKI, D. MUGNAI, S. DE VALENCE, J.C. TILLE, E. KHABIRI, M. CIKIRIKCIOGLU, M. MÖLLER, B.H. WALPOTH: "Porcine carotid artery replacement with biodegradable electrospun poly-ε-caprolactone vascular prosthesis." *J. Vasc. Surgery* 59 (2014) 210-219. 3.62

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. S. EHRENBERGER, G. BORCHARD, O. JORDAN. "Lokal applizierte,superparamagnetische Nanopartikel für die Hyperthermie-Behandlung beim Prostatakarzinom", pharmaJournal No 24, November 2014

PRESENTATIONS

POSTERS PRESENTATIONS

1. P. MAUDENS, O. JORDAN, E. ALLÉMANN. "Temperature-sensitive hybrid hydrogels charged with PLGA particle as parenteral extended release system" Globalization of Pharmaceuticals Education Network (GPEN), Helsinki, Finland, 27-30 August 2014
2. M.M. MNATSAKANYAN, O. JORDAN, G. BORCHARD, J.-L. WOLFENDER. "Preparation and characterization of chito-oligosaccharides by MALDI-TOF MS and size exclusion chromatography (SEC-MALLS) for biomedical applications" 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014
3. P. MAUDENS, O. JORDAN, E. ALLÉMANN. "SCIO-469 loaded Microparticles for Osteoarthritis treatment: fluorescence imaging and drug delivery" 41st meeting of the Controlled Release Society, Chicago, USA, 13-16 July 2014
4. M. MOHAMED, H. HOFMANN, G. THALMANN, B. VON RECHENBERG, G. BORCHARD, O. JORDAN. "Composite bone cement for bone metastases treatment combining local chemotherapy and hyperthermia" 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology. Lisbon, Portugal, 31 March to 3 April 2014
5. M. MOHAMED, G. BORCHARD, O. JORDAN. "Local thermo-chemotherapy of bone metastases – novel nanocomposite cement" PhD day 2014, Archamps, France, 13 June 2014
6. C. REICHERT, G. BORCHARD. "A novel approach to non-covalent PEGylation by coiled-coil technology." 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology. Lisbon, Portugal, 31 March – 3 April 2014
7. V. PATRULEA, O. JORDAN, V. OSTAFE, G. BORCHARD. "Efficient Chitosan Carboxymethylation for Biomedical Applications." Swiss Pharma Science Day 2014 - Bern (Switzerland), 20 August 2014
8. V. PATRULEA, O. JORDAN, V. OSTAFE, G. BORCHARD. "An improved synthesis of carboxymethylated chitosan for biomedical applications." 17th International Pharmaceutical Technology Symposium-IPTS 2014, Antalya (Turkey) 8 – 10 September 2014
9. O. S. SAKR, O. JORDAN, G. BORCHARD. "Intracellular co-delivery of proteins and small molecule drugs using double chambered LbL nanoparticles". 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 3 April 2014
10. Y. DHIF, O. S. SAKR, K. FUCHS, T. JBILOU, O. JORDAN, G. BORCHARD. "Layer-by-Layer (LbL) coated biodegradable microspheres for chemoembolization of liver tumors". 7th Swiss Pharma Science Day, Bern, Switzerland, August 2014
11. S. EHRENBERGER, G. BORCHARD, O. JORDAN. "From superparamagnetic nanoparticles to cancer detection and treatment." Nano-Tera Annual Plenary Meeting 2014, Lausanne, 20 May 2014
12. S. EHRENBERGER, G. BORCHARD, O. JORDAN. "Local delivery of superparamagnetic nanoparticles for application of hyperthermia in Cancer" 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014
13. K. FUCHS, P.E. BIZE, O. DORMOND, A. DENYS, E. DOELKER, G. BORCHARD, O. JORDAN. "Drug-eluting beads loaded with anti-angiogenic agents for chemoembolization: In vitro sunitinib loading, release and biological efficacy in a cell culture model." 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 31 March – 4 April 2014

14. F. LOELIGER, K. FUCHS, O. SAKR, V. NGUYEN, T. JBILLOU, G. BORCHARD, O. JORDAN. "Sunitinib- and sorafenib-eluting biodegradable microspheres for transarterial chemoembolization" 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014
15. F. GROELL, O. JORDAN, G. BORCHARD. "Multi-parametric evaluation of therapeutic protein aggregation." 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 31 March – 4 April 2014
16. F. GROELL, O. JORDAN, G. BORCHARD. "Multi-parametric evaluation of therapeutic protein aggregation." American Association of Pharmaceutical Scientist (AAPS), National Biotechnology Conference, San Diego, USA, 19-21 May 2014
17. F. GROELL, O. JORDAN, G. BORCHARD. "Multi-parametric evaluation of therapeutic protein aggregation" 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014
18. F. GROELL, O. JORDAN, G. BORCHARD. "Multi-parametric evaluation of therapeutic protein aggregation" 10th biennial meeting of The Globalization of Pharmaceutics Education Network (GPEN), Helsinki, Finland, 27-30 August 2014
19. T. DI FRANCESCO, O. JORDAN, G. BORCHARD. "Nanocomplexes of a RGD-functionalized biopolymer for the promotion of cell migration Preparation and evaluation of bioactivated polyelectrolyte nanocomplexes for favoured cell migration" 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 31 March – 4 April 2014
20. T. DI FRANCESCO, O. JORDAN, G. BORCHARD. "Nanocomplexes of a RGD-functionalized biopolymer for the promotion of cell migration Preparation and evaluation of bioactivated polyelectrolyte nanocomplexes for favoured cell migration" 10th biennial meeting of The Globalization of Pharmaceutics Education Network (GPEN), Helsinki, Finland, 27-30 August 2014
21. J. POECHEIM, C. BARNIER-QUER, N. COLLIN, G. BORCHARD. "An Adjuvanted Nanoparticle-based DNA Vaccine Simultaneously Enhances Immune Responses Against Mycobacterium tuberculosis." 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014

CONGRESSES & SYMPOSIA

1. G. BORCHARD. "Nanomedicines: fundamental science to regulatory strategy." Current Science and Technology in Pharmaceutical Products Development Symposium, Naresuan University, Phitsanulok, Thailand, December 2014.
2. G. BORCHARD. "The potential of nanotechnology." Educational Course, NanoTechnology – Requirements and Trends, Novartis Campus, Basel, Switzerland, November 2014.
3. G. BORCHARD. "NanoMedicine" European Federation of Pharmaceutical Sciences, Science Day, University of Vienna, Austria, October 2014.
4. G. BORCHARD. "Plenty of Room" for Nanomedicines?" Technology Aperitif, Eidgenössische Materialprüfungs-anstalt (EMPA), St. Gallen, Switzerland, October 2014.
5. G. BORCHARD. "Non-biological complex drugs and nanosimilars: Complexity is in the details." 17th International Pharmaceutical Technology Symposium, Antalya, Turkey, September 2014.
6. G. BORCHARD. "Delivery of biopharmaceuticals using layer-by-layer technology: The do's and don't's." Controlled Release Society Nordic Chapter Drug Transport and Delivery Symposium, Helsinki, Finland, August 2014.
7. G. BORCHARD. "Komplexizität in kleinen und grossen Wirkstoffen." online academy 10th Anniversary Symposium, Zurich, Switzerland, July 2014.
8. G. BORCHARD. "Particle interaction with the immune system." Keynote Lecture, Annual Conference of Clinical Nanomedicine (CLINAM), Basel, Switzerland, June 2014.
9. G. BORCHARD. "Research in Biopharmaceutical Sciences." Virbac, Carros, France, June 2014.
10. G. BORCHARD. "Non-biological complex drugs (NBCDs): measuring complexity and regulatory consequences." Glatiromoid Educational Workshop, Brussels, Belgium, May 2014.

11. G. BORCHARD. "Complexity on the Nano-Scale: Science-Based Approaches to Assessing Therapeutic Equivalence of Nano-Similars." Annual Meeting of the Austrian Pharmaceutical Society, Graz, Austria, April 2014.
12. G. BORCHARD. "Master of pharmaceutical sciences: Excellence bottom-up." Kick-off Meeting of the Swiss Academy of Pharmaceutical Sciences, Inselspital Berne, Switzerland, January 2014.
13. O. JORDAN. "Chitosan and hyaluronate injectable hydrogels: compared performances in selected tissue engineering applications." Invited talk at the West University of Timisoara, Romania, 26 May 2014.
14. V. PATRULEA, O. JORDAN, V. OSTAFE, G. BORCHARD. "Enhanced carboxymethyl-trimethyl-chitosan for wound healing applications." Biopharmaceutical Sciences: Where worlds meet. Zermatt, Switzerland, 1 – 5 September 2014
15. V. PATRULEA, O. JORDAN, V. OSTAFE, G. BORCHARD. "Peptides for skin repair." Sciex Science Slam, Bern, Switzerland, 17 November 2014
16. C. REICHERT. "A novel approach to non-covalent PEGylation by coiled-coil technology." Workshop on protein aggregation and immunogenicity, 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 3 April 2014
17. C. REICHERT. "A novel approach to non-covalent PEGylation by coiled-coil technology." PhD-Day 2014, Archamps, France, 13 June 2014
18. C. REICHERT. "Non-covalent protein modification by coiled-coil technology." 29th Symposium école doctorale, Zermatt, Switzerland, 4 September 2014
19. K. FUCHS, P.E. BIZE, O. DORMOND, A. DENYS, E. DOELKER, G. BORCHARD, O. JORDAN. "Sunitinib-Eluting Beads for Chemoembolization." 9th European Workshop on Particulate Systems - Utrecht, The Netherlands, 13-14 March 2014
20. J. POECHEIM. "Cationic nanoparticles for DNA delivery: Comparison of three nanovaccine formulations for their potential to enhance immune responses against M. tuberculosis." 9th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Lisbon, Portugal, 3 April 2014

PATENTS

O. JORDAN, S. KADERLI, R. GURNY. Hybrid hydrogels. World patent WO 2014/032780, publ. 6 March 2014

AWARDS & DISTINCTIONS

2nd poster award: S. EHRENBERGER, G. BORCHARD, O. JORDAN. Local Delivery of Superparamagnetic Nanoparticles for Application of Local Hyperthermia in Cancer. 7th Swiss Pharma Science Day, Bern, Switzerland, 20 August 2014

Best paper award 2012 in the Journal of Drug Delivery Science and Technology (G. VACHER, C. GREMION, C. MOSER, S.A. STOFFEL, M. AMACKER, R. GURNY and G. BORCHARD, Virosomal C. albicans vaccine for vaginal application: Formulation development and toxicity/immunogenicity studies. J. Drug Del. Sci. Tech. 22 (2012) 447-452.).

Best paper award, Outstanding Laboratory Investigation for 2014 published in the Journal of Vascular and Interventional Radiology, December 2014 (K. FUCHS, P.E. BIZE, O. DORMOND, A. DENYS, E. DOELKER, G. BORCHARD and O. JORDAN, Drug-eluting beads for transarterial chemoembolization: Sunitinib loading, release properties and in vivo pharmacokinetics of DC bead[®] microspheres. J. Vascul. Intervent. Radiol. 25 (2014) 379-387.).

PHARMACEUTICAL ANALYSIS CHEMISTRY

PROFESSOR SERGE RUDAZ

PROFESSOR JEAN-LUC VEUTHEY

DR DAVY GUILLARME, SENIOR LECTURER

GENERAL DESCRIPTION OF THE UNIT

The group focuses its activities on separation techniques mainly liquid chromatography (LC), capillary electrophoresis (CE) and supercritical fluid chromatography (SFC) coupled with various detectors, including mass spectrometry (MS) for the analysis of pharmaceutical and biopharmaceutical compounds. New chromatographic supports are evaluated and original strategies to gain selectivity and/or sensitivity of the analytical process are developed. Reduction of the analysis time is also studied. Special focus is given to environmentally friendly analytical and sample preparation techniques (green chemistry). The research of this group also focuses on the development and the use of methods for mathematical and statistical analysis of data produced from chemical instrumentation. The use of chemometric tools for developing analytical methods, determining optimized or robust conditions, as well as for treating data with pattern recognition techniques are applied in many projects within the School of Pharmaceutical Sciences and numerous external academic and/or industrial collaborations. Three main fields are currently developed, namely Design of experiments (DOE), method validation, and data mining (exploratory data analysis). For the latter, numerous important collaborations are under progress, particularly in the field of metabolism, metabolomics, and toxicology.

Research areas consist in:

- Pharmaceutical and drugs of abuse analysis
- Doping substances analysis
- Chiral separation of pharmaceutical products
- Study of the impact of sample preparation procedures in the analytical process
- Characterization of chromatographic supports for pharmaceuticals analysis
- Drug metabolism
- Affinity chromatography
- UHPLC and SFC
- Separation techniques
- Screening method for metabolomic purpose
- Data mining

2014 AT A GLANCE

Publications with impact factor	42
Publications without impact factor	8
Posters presentations	28
Congresses & Symposia	40
Continuing education & open to the public lectures	15
Ph.D. Thesis presented in 2014	4
Co-tutelle Thesis presented in 2014	2
Awards	2
Number of projects at FNRS and assimilated	4
Projects of collaboration with the industry	6

STAFF

LECTURERS	Julie SCHAPPLER	
RESEARCH ASSOCIATE	Laurent GEISER	
EXCELLENCE FELLOWSHIP	Cristina DIEZ (Marie Curie)	
SENIOR RESEARCH AND TEACHING ASSISTANTS	Julien BOCCARD	
POSTDOCTORAL SCHOLARS	Szabolcs FEKETE Anne-Laure GASSNER Florence MEHL	Marco RANDAZZO David TONOLI
RESEARCH AND TEACHING ASSISTANTS	Marco ANASTASI Leire AZURMENDI Grégoire BONVIN Alban BUJARD Vincent DESFONTAINE Nicolas DROUIN Yoric GAGNEBIN Alexandre GRAND-GUILLAUME-PERRENOUD	Linnéa LAGERSTEDT Marsousi NILOUFAR Nils OBERHAUSER Aurélie PERIAT Marta RODRIGUEZ-ALLER Stéphanie ROMAND Dany SPAGGIARI
INTERNSHIP STUDENTS – CO-SUPERVISION (CO-TUTELLE)	El-Hadji Assan DIOP Cecilia FORTUGNO	Samia OUERTANI
ADMINISTRATIVE STAFF	Nicole DECREY	
TECHNICAL STAFF	Christophe FRANCEY Etienne JACOT-DESCOMBES <i>(apprentice laborant)</i> Jessica ORTELLI	Emilie REGINATO Cédric SCHELLING

RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)

✚ SCAHT

Swiss Center for Applied Human Toxicology (SCAHT). An untargeted steroidomic approach for toxicological studies. In core project: Endocrine disruptors and steroid modulation. 2012-2014
total project : CHF 380'000.--

✚ SWISS NATIONAL SCIENCES FOUNDATION

Targeted and non-targeted metabolomic study of the wound response in Arabidopsis: investigation of the role of 13-lipoxygenases in long distance signaling . N° 200020-146200-1. 2013-2014.
Total project : CHF 230'000.--

✚ MARIE CURIE ACTIONS INTRA EUROPEAN FELLOWSHIPS (IEF)

Contaminant analysis in Food by Liquid Chromatography Mass Spectrometry towards a generic extraction and screening for pesticides and veterinary drugs. Project N° 299455 / Call (part) identifier FP7-PEOPLE-2011-IEF. 2012-2014.
Total project : EURO 184'000.--

Neurospectrum: in vitro assay for neurotoxicity assessment. Collaboration with Neurix (Minibrain) no 13759.1 / Risky innovation.

Total project CHF 579'000.--

Allocation 2014 : CHF 150'000.--

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
Teoxane SA Geneva-Switzerland	Service – Analytical investigations and dosages	73'872.50
Industrial funds	Confidential – Collaboration with prof. Wolfender	50'000
Département de la santé – Geneva	Analyse	10'000
Stragen	Service	10'141
Pharmelp	Prestation de service	6'084
Nestlé	Contrat de prestation	90'389
	total	240'486.50

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Trends in Analytical Chemistry	6.61
Anal Chem	5.82
Analytica Chimica Acta	4.51
J. Chromatography A	4.25
Analyst	3.90
Anal Bioanal Chem	3.57
Talanta	3.51
J Am Soc Mass Spectro	3.19
Electrophoresis	3.16
Bioanalysis	3.02

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. A. GRAND-GUILLAUME-PERRENOUD, J.-L. VEUTHEY, D. GUILLARME, The use of columns packed with sub-2µm particles in supercritical fluid chromatography, Trends in Analytical Chemistry, 63, 44-54 (2014) 6.61
2. S. FEKETE, J. SCHAPPLER, J.-L. VEUTHEY, D. GUILLARME, Current and future trends in UHPLC, Trends in Analytical Chemistry, 63, 2-14 (2014) 6.61
3. S. FEKETE, D. GUILLARME, Ultra-high-performance liquid chromatography for the characterization of therapeutic proteins, Trends in Analytical Chemistry, 63, 76-84 (2014) 6.61
4. D. SPAGGIARI, L. GEISER, S. RUDAZ, Coupling ultra-high-pressure liquid chromatography with mass spectrometry for in vitro drug metabolism studies, Trends in Analytical Chemistry, 63, 129-139 (2014) 6.61
5. S. FEKETE, J. SCHAPPLER, J.-L. VEUTHEY, D. GUILLARME, Current and future trends in UHPLC, Trends in Analytical Chemistry, 62, 2-13 (2014) 6.61
6. G. BONVIN, J. SCHAPPLER, S. RUDAZ, Nonaqueous capillary electrophoresis for the analysis of acidic compounds using negative electrospray ionization mass spectrometry, J. Chromatogr A, 1323, 163-173 (2014) 4.25

7. [G. BONVIN, S. RUDAZ, J. SCHAPPLER, In-spray supercharging of intact proteins by capillary electrophoresis-mass spectrometry using a sheath liquid interface, *Analytica Chimica Acta*, 813, 97-105 \(2014\)](#) 4.51
8. [L. NOVAKOVA, A. GRAND-GUILLAUME-PERRENOUD, I. FRANÇOIS, C. WEST, E. LESELLIER, D. GUILLARME, Modern analytical supercritical fluid chromatography using columns packed with sub-2µm particles: A tutorial, *Analytica Chimica Acta*, 824, 18-35 \(2014\)](#) 4.51
9. [A. GRAND-GUILLAUME-PERRENOUD, J.-L. VEUTHEY, D. GUILLARME, Coupling state-of-the-art supercritical fluid chromatography and mass spectrometry: from hyphenation interface optimization to high-sensitivity analysis of pharmaceutical compounds, *J. Chromatogr A*, 1339, 174-184 \(2014\)](#) 4.25
10. [E. TYTECA, A. PÉRIAT, S. RUDAZ, G. DESMET, D. GUILLARME, Retention modeling and method development in hydrophilic interaction chromatography, *J. Chromatogr A*, 1337, 116-127 \(2014\)](#) 4.25
11. [A.L. GASSNER, J. SCHAPPLER, M. FEINBERG, S. RUDAZ, Derivation of uncertainty functions from validation studies in biological fluids: Application to the analysis of caffeine and its major metabolites in human plasma samples, *J. Chromatogr A*, 1353, 121-130 \(2014\)](#) 4.25
12. [A. PÉRIAT, I. KOHLER, A. BUGEY, S. BIERI, F. VERSACE, C. STAUB, D. GUILLARME, Hydrophilic interaction chromatography versus reversed phase liquid chromatography coupled to mass spectrometry: Effect of electrospray ionization source geometry on sensitivity, *J. Chromatogr A*, 1356, 211-220 \(2014\)](#) 4.25
13. [E. TYTECA, D. GUILLARME, G. DESMET, Use of individual retention modeling for gradient optimization in hydrophilic interaction chromatography: Separation of nucleobases and nucleosides, *J. Chromatogr A*, 1368, 125-131 \(2014\)](#) 4.25
14. [D. SPAGGIARI, F. MEHL, V. DESFONTAINE, A. GRAND-GUILLAUME-PERRENOUD, S. FEKETE, S. RUDAZ, D. GUILLARME, Comparison of liquid chromatography and supercritical fluid chromatography coupled to compact single quadrupole mass spectrometer for targeted in vitro metabolism assay, *J. Chromatogr A*, 1371, 244-279 \(2014\)](#) 4.25
15. [A. GRAND-GUILLAUME-PERRENOUD, W. P. FARRELL, C.M. AURIGEMMA, N.C. AURIGEMMA, S. FEKETE, D. GUILLARME, Evaluation of stationary phases packed with superficially porous particles for the analysis of pharmaceutical compounds using supercritical fluid chromatography, *J. Chromatogr A*, 1360, 275-287 \(2014\)](#) 4.25
16. [E. DAHMANE, J. BOCCARD, C. CSAJKA, S. RUDAZ, L. DECOSTERD, E. GENIN, B. DURETZ, M. BROMIRSKI, K. ZAMAN, B. TESTA, B. ROCHAT, Quantitative monitoring of tamoxifen in human plasma extended to 40 metabolites using liquid-chromatography high-resolution mass spectrometry: new investigation capabilities for clinical pharmacology, *Anal Bioanal Chem.*, 406, 2627-2640 \(2014\)](#) 3.57
17. [D. SPAGGIARI, L. GEISER, Y. DAALI, S. RUDAZ, Phenotyping of CYP450 in human liver microsomes using the cocktail approach, *Anal. Bioanal. Chem.*, 406, 4875-4887 \(2014\)](#) 3.57
18. [F. JEANNERET, J. BOCCARD, F. BADOUD, O. SORG, D. TONOLI, D. PELCLOVA, S. VLCKOVA, D.N. RUTLEDGE, C.F. SAMER, D. HOCHSTRASSER, J.H. SAURAT, S. RUDAZ, Human urinary biomarkers of dioxine exposure: Analysis by metabolomics and biologically driven data dimensionality reduction, *Toxicology Letters*, 230, 234-243 \(2014\)](#) 3.35
19. [P.J. EUGSTER, J. BOCCARD, B. DEBRUS, L. BRÉANT, J.-L. WOLFENDER, S. MARTEL, P.-A. CARRUPT, Retention time prediction for dereplication of natural products \(CxHyOz\) in LC-MS metabolite profiling, *Phytochemistry*, 108, 196-207 \(2014\)](#) 3.35
20. [G. MARTI, J. BOCCARD, F. MEHL, B. DEBRUS, L. MARCOURT, PH. MERLE, E. DELORS, L. BAROUX, H. SOMMER, S. RUDAZ, J.-L. WOLFENDER, Comprehensive profiling and marker identification in non-volatile citrus oil residues by mass spectrometry and nuclear magnetic resonance, *Food Chemistry*, 150, 235-245 \(2014\)](#) 3.25

21. F. MEHL, G. MARTI, J. BOCCARD, B. DEBRUS, PH. MERLE, E. DELORT, L. BAROUX, V. RAYMO, M.I. VELAZCO, H. SOMMER, J.-L. WOLFENDER, Differentiation of lemon essential oil based on volatile and non-volatile fractions with various analytical techniques: a metabolomic approach, *Food Chemistry*, 143, 325-335 (2014) 3.02
22. I. KOHLER, D. GUILLARME, Multi-target screening of biological samples using LC-MS/MS: focus on chromatographic innovations, *Bioanalysis*, 6(9), 1255-1273 (2014) 3.02
23. J. BOCCARD, F. BADOUD, N. JAN, R. NICOLI, C. SCHWEIZER, F. PRALONG, J.-L. VEUTHEY, N. BAUME, S. RUDAZ, M. SAUGY, Untargeted profiling of urinary steroid metabolites after testosterone ingestion: opening new perspectives for antidoping testing, *Bioanalysis*, 6, 2523-2536 (2014) 3.02
24. S. ROMAND, J. SCHAPPLER, J.-L. VEUTHEY, P.-A. CARRUPT, S. MARTEL, cIEF for rapid pKa determination of small molecules: A proof of concept, *European Journal of Pharmaceutical Sciences*, 63, 14-21 (2014) 3.00
25. M. NALDI, J. FIORI, R. GOTTI, A. PÉRIAT, J.-L. VEUTHEY, D. GUILLARME, V. ANDRISANO, UHPLC determination of catechins for the quality control of green tea., *Journal of Pharmaceutical and Biomedical Analysis*, 88, 307-314 (2014) 2.82
26. S. FEKETE, I. KOHLER, S. RUDAZ, D. GUILLARME, Importance of instrumentation for fast liquid chromatography in pharmaceutical analysis, *Journal of Pharmaceutical and Biomedical Analysis*, 87, 105-119 (2014) 2.82
27. R. KORMANY, J. FEKETE, D. GUILLARME, S. FEKETE, Reliability of simulated robustness testing in fast liquid chromatography, using state-of-the-art column technology, instrumentation and modelling software, *Journal of Pharmaceutical and Biomedical Analysis*, 89, 67-75 (2014) 2.82
28. S. FEKETE, A. BECK, J.-L. VEUTHEY, D. GUILLARME, Theory and practice of size exclusion chromatography for the analysis of protein aggregates, *Journal of Pharmaceutical and Biomedical Analysis*, 101, 161-173 (2014) 2.82
29. R. KORMANY, J. FEKETE, D. GUILLARME, S. FEKETE, Reliability of computer-assisted method transfer between several column dimensions packed with 1.3 - 5 um core-shell particles and between various instruments, *Journal of pharmaceutical and biomedical analysis*, 94, 188-195 (2014) 2.82
30. D. SPAGGIARI, L. GEISER, Y. DAALI, S. RUDAZ, A cocktail approach for assessing the in vitro activity of human cytochrome P450s: An overview of current methodologies, *Journal of Pharmaceutical and Biomedical Analysis*, 101, 221-237 (2014) 2.82
31. B. BOBALY, D. GUILLARME, S. FEKETE, Systematic comparison of a new generation of columns packed with sub-2 um superficially porous particles, *J. Sep. Sci.*, 37, 189-197 (2014) 2.59
32. I. KOHLER, M. AUGSBURGER, S. RUDAZ, J. SCHAPPLER, New insights in carbohydrate-deficient transferrin analysis with capillary electrophoresis-mass spectrometry, *Forensic Science International*, 243, 14-22 (2014) 2.11
33. S. CRETTON, T.A. BARTHOLOMEUSZ, F. MEHL, Y. ALLENBACH, A. MATHEEUSSEN, P. COS, L. MAES, PH. CHRISTEN, Synthesis and In Vitro Evaluation of Tropane Halogenated-derivatives against Malaria, Sleeping Sickness, Chagas Disease and Leishmaniasis, *Medicinal Chemistry*, 10 (8), 753-758 (2014) 1.38
34. C. TEMPORINI, R. NICOLI, A. TIENGO, N. BARBARINI, E. CALLERI, M. GALLIANO, P. MAGNI, S. RUDAZ, J.-L. VEUTHEY, L. REGAZZONI, G. ALDINI, G. MASSOLINI, Online Microreactor Titanium Dioxide RPLC-LTQ-Orbitrap MS Automated Platform for Shotgun Analysis of (Phospho) Proteins in Human Amniotic Fluid, *Chromatographia*, 77, 39-50 (2014) 1.37
35. R. KORMANY, I. MOLNAR, J. FEKETE, D. GUILLARME, S. FEKETE, Robust UHPLC Separation Method Development for Multi API Product Containing Amlodipine and Bisoprolol: The Impact of Column Selection, *Chromatographia*, 77, 1119-1127 (2014) 1.37

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| 36. | F. BEEN, L. ROSSI, C. ORT, S. RUDAZ, O. DELÉMONT, P. ESSEIVA, Population Normalization with Ammonium (NH ₄ -N) in Wastewater-Based Epidemiology: Application to Illicit Drugs Monitoring, <i>Environ. Sci. Technol</i> , 48, 8162-8169 (2014) | 1.19 |
| 37. | G. BONVIN, J. SCHAPPLER, S. RUDAZ, Non-aqueous capillary electrophoresis for the analysis of pharmaceutical acidic compounds using negative ESI-MS, <i>Chimia</i> , 68, 665 (2014) | 1.04 |
| 38. | M.W. DONG, D. GUILLARME, S. FEKETE, R. RANGELOVA, J. RICHARDS, D. PRUDHOMME, N.P. CHETWYN, Analysis of Complex Pharmaceuticals by Ultrahigh-Pressure Liquid Chromatography: Case Studies and Quality Control Implications, <i>LCGC North America</i> , 32, 1-8 (2014) | 0.35 |
| 39. | S. FEKETE, M.W. DONG, D. GUILLARME, Superficially Porous Particles: Perspectives, Practices and Trends, <i>LC-GC North America</i> , 32, 420-433 (2014) | 0.35 |
| 40. | D. GUILLARME, M.W. DONG, Editorial for the special issue entitled "UHPLC: where we are 10 years after its commercial introduction?", <i>Trends in Analytical Chemistry</i> , 63, 1 (2014) | 6.61 |
| 41. | J. BOCCARD, S. RUDAZ, Harnessing the complexity of metabolomic data with chemometrics, <i>J. Chemometrics</i> , 28, 1-9 (2014) | 1.80 |
| 42. | S.S. OUERTANI, G. MAZEROLLES, J. BOCCARD, S. RUDAZ, M. HANAFI, Multi-way PLS for discrimination: Compact form equivalent to the tri-linear PLS2 procedure and its monotony convergence, <i>Chemometr. Intell. Lab</i> , 133, 25-32 (2014) | 2.38 |

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. S. FEKETE, A. GRAND-GUILLAUME-PERRENOUD, D. GUILLARME, Evolution and Current Trends in Liquid and Supercritical Fluid Chromatography, *Current Chromatography*, 1, 15-40 (2014)
2. D. GUILLARME, Evolutions majeures en chromatographie liquides, *Techniques de l'ingénieur*, p1494, 1-13 (2014)
3. C. SAMER, N.MARSOUSI, Y. DAALI, S. RUDAZ, L. ALMOND, H. HUMPHRIES, J. DESMEULES, Prediction of metabolic interactions with oxycodone via CYP2D6 and CYP3A inhibition using a physiologically-based pharmacokinetic model, *CPT: Pharmacometrics & Systems Pharmacology* 3, 1-8, (2014)
4. J. SCHAPPLER, E. REGINATO, EL H.A. DIOP. S. RUDAZ, Analyse qualitative et quantitative de contrefaçons par électrophorèse capillaire, une approche intégrée par la technique de la double injection, *Spectra Analyse*, 298, 63-73 (2014)
5. S. FEKETE, D. GUILLARME, The revolution of superficially porous particles in liquid chromatography: Advantages, limitations and applications, *White paper for Perkin-Elmer website*, 1-9, (2014)
6. D. GUILLARME, HILIC : the pros and cons, *The Column*, 10, 16-22, (2014)
7. D. GUILLARME, Application of UHPLC-MS, *Chromedia*, (2014) online article
8. D. GUILLARME, Coupling HPLC with MS, *Chromedia*, (2014) online article

PRESENTATIONS

POSTERS PRESENTATIONS

1. J. SCHAPPLER, E. REGINATO, EL H.A. DIOP, S. ROTH, P. BONNABRY, C. ROHRBASSER, S. RUDAZ. Quality control of drugs and counterfeit medicines in emerging countries with capillary electrophoresis. 7th Techlunch of the Geneva Creativity Center (GCC), 27 November 2014 - Geneva, Switzerland
2. V. DESFONTAINE, D. SPAGGIARI, F. MEHL, S. RUDAZ, D. GUILLARME. Comparison of LC and SFC coupled to compact single quadrupole mass spectrometer for in vitro metabolism assay. SFC2014, 9 - 10 October 2014 -Basel, Switzerland

3. [J. SCHAPPLER, E. REGINATO, EL H.A. DIOP, S. ROTH, P. BONNABRY, C. ROHRBASSER, S. RUDAZ. Quality control of drugs and counterfeit medicines in emerging countries with capillary electrophoresis. World Innovative Day \(WID-14H\), 28 - 29 August 2014 - Geneva, Switzerland](#)
4. [D. TONOLI, C. FURSTENBERGER, J. BOCCARD, D. HOCHSTRASSER, F. JEANNERET, A. ODERMATT, S. RUDAZ. Evaluation of endocrine disruptors in H295R cells culture media with high-resolution mass spectrometry using a qualitative and quantitative steroidomic approach. 20th International Mass Spectrometry Conference, 24 - 29 August 2015 - Geneva, Switzerland](#)
5. [F. JEANNERET, D. TONOLI, J. BOCCARD, O. SORG, J.H. SAURAT, D. HOCHSTRASSER, S. RUDAZ. Chemical and biological study of human urinary biomarkers of dioxin exposure previously highlighted by metabolomics with high-resolution mass spectrometry. 20th International Mass Spectrometry Conference, 24 - 29 August 2014 - Geneva, Switzerland](#)
6. [D. SPAGGIARI, L. GEISER, Y. DAALI, S. RUDAZ. In vitro phenotyping of microsomal cytochromes P450: New insights with the cocktail approach. Swiss Pharma Day, 20 August 2014 - Berne, Switzerland](#)
7. [N. DROUIN, J. SCHAPPLER, S. RUDAZ. Analysis of Neopterin and Analogous Compounds by CE-MS. Swiss Pharma Science Day 2014, 20 August 2014 - Berne, Switzerland](#)
8. [D. TONOLI, C. FURSTENBERGER, P. STRAJHAR, F. JEANNERET, D.V. KRATSCHMAR, J. BOCCARD, D. HOCHSTRASSER, S. RUDAZ, A. ODERMATT. Screening of potential endocrine disrupting chemicals by metabolomics analysis of adrenal H295R cell supernatants. Swiss Pharma Science Day, 20 August 2014 - Berne, Switzerland](#)
9. [A. PÉRIAT, I. KOHLER, A. BUGHEY, S. BIERI, F. VERSACE, CH. STAUB, D. GUILLARME. HILIC-MS vs. RPLC-MS: effect of electrospray ionization source geometry on sensitivity. Drug Analysis, 23 - 25 June 2014 - Liège, Belgium](#)
10. [N. DROUIN, J. SCHAPPLER, S. RUDAZ, M. GREINER. Analysis of pteridines by CE-MS/MS. 62nd American Society for Mass Spectrometry Conference \(ASMS 2014\), 15 - 19 June 2014 - Baltimore, USA](#)
11. [P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. HRMS dereplication, MS/MS network and epigenetic modifiers: tool to decipher cryptic metabolite pathways in fungal microorganisms. 8^{ème} Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19 - 21 May 2014 - Lyon, France](#)
12. [N. BOHNI, O. SCHUMPP, F. MEHL, S. SCHNEE, S. BERTRAND, M. MONOD, K. GINDRO, J.-L. WOLFENDER. Targeted isolation of biomarkers highlighted by MS-based metabolomics in fungal co-cultures. 8^{ème} Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19 - 21 May 2014 - Lyon, France](#)
13. [A.L. MARIE, J. SCHAPPLER, F. SALLER, R. URBAIN, D. BORGEL, S. RUDAZ, M. TAVERNA, N.THUY TRAN. Detection and characterization of different conformers in therapeutic antithrombin by CE and CE-ESI-MS. MSB 2014, 27 April - 1 May 2014 - Pécs, Hungary](#)
14. [N. DROUIN, J. SCHAPPLER, S. RUDAZ. First insights of pteridines analysis by CE-MS. MSB 2014, 27 April - 1 May 2014 - Pécs, Hungary](#)
15. [M. RODRIGUEZ-ALLER, S. GUINCHARD, D. GUILLARME, J.-L. VEUTHEY, R. GURNY. Cyclodextrins for stability improvement of a prostaglandin F2a analogue formulation for ocular treatment. 9th World Meeting on Pharmaceutics Biopharmaceutics and Pharmaceutical Technology, 31 March - 3 April 2014 - Lisbon, Portugal](#)
16. [A. PÉRIAT, I. KOHLER, J. BOCCARD, J. SCHAPPLER, D. GUILLARME. Evaluation of matrix effects in HILIC-MS/MS and RPLC-MS/MS. HTC 2014, 29 - 31 January 2014 - Bruges, Belgium](#)
17. [A. GRAND-GUILLAUME PERRENOUD, L. NOVAKOVA, R. NICOLI, M. SAUGY, J.-L. VEUTHEY, D. GUILLARME. UHPSFC-ESI/MS/MS: a powerful platform for high sensitivity doping agents analysis in urine. Drug Analysis 2014, June 2014, Liège, Belgium.](#)
18. [A. PERIAT, I. KOHLER, A. BUGHEY, S. BIERI, F. VERSACE, C. STAUB, D. GUILLARME. HILIC-MS vs. RPLC-MS: effect of electrospray ionization source geometry on sensitivity. Drug Analysis 2014, June 2014, Liège, Belgium.](#)

19. S. FEKETE, J.-L. VEUTHEY, D. GUILLARME. Possibilities of state-of-the-art column technology in reversed-phase separation for proteins characterization. Drug Analysis 2014, June 2014, Liège, Belgium.
20. S. FEKETE, A. BECK, D. GUILLARME. Systematic method development approach for the separation of monoclonal antibody charge variants in ion exchange chromatography. Drug Analysis 2014, June 2014, Liège, Belgium.
21. A. AZZOLINI, J. JIAOZHEN, Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, D. RIGHI, D. GUILLARME, P. FAN, H. LOU, J.-L. WOLFENDER. Development of an LC-MS-based purification strategy for the Mass Spectrometry targeted isolation of bioactive compounds. IMSC 2014, August 2014, Geneva, Switzerland.
22. A. AZZOLINI, M. GROESSL, P.J. EUGSTER, B. BLET, D. GUILLARME, R. KNOCHENMUSS, J.-L. WOLFENDER. High Resolution IMS_MS and UHPLC_MS for the analysis of natural products and complex natural extracts. IMSC 2014, August 2014, Geneva, Switzerland.
23. L. NOVAKOVA, M. RENTSCH, A. GRAND-GUILLAUME PERRENOUD, R. NICOLI, M. SAUGY, J.-L. VEUTHEY, D. GUILLARME. Optimization and application of UHPSFC-MS/MS method for screening of doping agents. IMSC 2014, August 2014, Geneva, Switzerland.
24. A. GRAND-GUILLAUME PERRENOUD, V. DESFONTAINE, P. FRANCO, T. ZHANG, J. VERNE, B. DULERY, A. PRADINES, G. GUILLARME. Evaluation of a new prototype sub-2µm immobilized polysaccharide stationary phase in chiral supercritical fluid chromatography. SFC 2014, October 2014, Basel, Switzerland.
25. A. GRAND-GUILLAUME PERRENOUD, W.P. FARRELL, C.M. AURIGEMMA, N.C. AURIGEMMA, S. FEKETE, D. GUILLARME. Evaluation of stationary phases packed with polar superficially porous particles in SFC. SFC 2014, October 2014, Basel, Switzerland.
26. A. GRAND-GUILLAUME PERRENOUD, L. NOVAKOVA, R. NICOLI, M. SAUGY, J.-L. VEUTHEY, D. GUILLARME. UHPSFC-ESI/MS/MS: a powerful platform for high sensitivity doping agents analysis in urine. SFC 2014, October 2014, Basel, Switzerland.
27. B. BOBALY, J. FEKETE, D. GUILLARME, S. FEKETE. . Héjszerű, szén-polimer-nanogyémánt kompozit kolonna alkalmazása fehérjék elválasztásában. Elválasztástudományi Vándorgyűlés, , November 2014, Egerszalók, Hungary.
28. S. FEKETE, A. BECK, J. FEKETE, D. GUILLARME. Monoklonális antitest variánsok elválasztása ioncserés kromatográfiával; só és pH gradiens alkalmazásával. Elválasztástudományi Vándorgyűlés, November 2014, Egerszalók , Hungary

CONGRESSES & SYMPOSIA

1. J. SCHAPPLER, S. RUDAZ. CE-MS for low to high molecular weight molecules: the interface impact. 9^e Club des Utilisateurs de la Spectrométrie de Masse des laboratoires Pierre Fabre (CIPF), 8 October 2014 - Saint-Julien-en-Genevois, France
2. J. SCHAPPLER, S. RUDAZ. Capillary Electrophoresis for the analysis of counterfeit drugs. Citizen Sciences seminar, e-health and counterfeit medicine in Africa, 30 September 2014 - Geneva, Switzerland
3. M. RODRIGUEZ-ALLER, D. GUILLARME, J.L. VEUTHEY, R. GURNY. Prodrugs of Cyclosporine: Pros and Cons. 11th International Symposium on Ocular Pharmacology and Therapeutics, 19 - 21 June 2014 - Reykjavic, Iceland
4. I. KOHLER, J. SCHAPPLER, S. RUDAZ. Sensitivity improvements in CE-MS: application to clinical and forensic toxicology. CE Gebruikersdag, 28 May 2014 - Oss, The Netherlands
5. J. BOCCARD, D.N. RUTLEDGE, S. RUDAZ. A consensus OPLS-DA strategy for multiblock data fusion: Application to plant metabolomics. 8^e Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19 - 21 May 2014 - Lyon, France

6. [F. MEHL, G. MARTI, P. MERLE, E. DELORT, L. BAROUX, H. SOMMER, J.-L. WOLFENDER, S. RUDAZ, J. BOCCARD. Integrating metabolomic data from multiple analytical platforms for a comprehensive characterisation of lemon essential oils. 8^e Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19 - 21 May 2014 - Lyon, France](#)
7. [G. BONVIN, S. RUDAZ, J. SCHAPPLER. In-spray supercharging of intact proteins by capillary electrophoresis-mass spectrometry using a sheath liquid interface. 30th International Symposium on Micro-Scale Bioseparations \(MSB 2014\), 27 April - 1 May 2014 - Pécs, Hungary](#)
8. [M. RODRIGUEZ-ALLER, D. GUILLARME, J.-L. VEUTHEY, R. GURNY. Advantages of a novel water-soluble Cyclosporine A prodrug for ocular application: Improved availability and reduced side effects. 9th World Meeting on Pharmaceutics Biopharmaceutics and Pharmaceutical Technology, 31 March - 3 April 2014 - Lisbon, Portugal](#)
9. [J. SCHAPPLER, I. KOHLER, S. RUDAZ. Préparation des fluides biologiques en microvolumes; micro-extractions. Journée Club Lyonnais de l'AfSep, 23 January 2014 - Lyon, France](#)
10. [D. GUILLARME, Analytical tools for the characterization of biopharmaceuticals. Part I: Focus on chromatographic method, Live webcast LC-GC North America, January 14, 2014, Geneva, Switzerland](#)
11. [D. GUILLARME, Critical evaluation of HILIC and HILIC-MS, HTC-13, 29-31 January, Bruges, Belgium](#)
12. [S. FEKETE, D. GUILLARME, Possibilities and limitations of current state-of-the-art column technology, HTC-13, 29-31 January, 2014, Bruges, Belgium](#)
13. [E. TYTECA, A. PERIAT, S. RUDAZ, G. DESMET, D. GUILLARME, Computer-assisted method development for HILIC separations, HTC-13, 29-31 January, 2014, Bruges, Belgium](#)
14. [A. GRAND-GUILLAUME-PERRENOUD, L. NOVAKA, R. NICOLI, M. SAUGY, J.-L. VEUTHEY, D. GUILLARME, UHPSFC-MS/MS: from hyphenation optimisation to high sensitivity doping agents analysis in urine, HTC-13, 29-31 January, 2014, Bruges, Belgium](#)
15. [D. GUILLARME, Les solutions technologiques en chromatographie pour augmenter sa productivité au laboratoire. Invited conference at "Club de chromatographie du Val de Seine" 3 April 2014, Rouen, France](#)
16. [K. HORVATH, S. FEKETE, D. GUILLARME, P. HAJOS, Analysis of Chromatographic Efficiencies of Pressure-Induced Gradient Separations, HPLC 2014, 11-15 May 2014, New Orleans, USA](#)
17. [E. TYTECA, G. DESMET, D. GUILLARME, Improved isocratic retention relationship in the HILIC separation mode, HPLC 2014, 11-15 May 2014, New Orleans, USA](#)
18. [E. TYTECA, D. GUILLARME, G. DESMET, Possibilities of retention modelling for HILIC and SFC separations, Drug Analysis, 23-25 June 2014, Liège, Belgium](#)
19. [D. GUILLARME, S. FEKETE, J.-L. VEUTHEY, Analysis of large biomolecules: new strategies, Drug Analysis, June 23-25, 2014, Liège, Belgium](#)
20. [A. GRAND-GUILLAUME-PERRENOUD, J.-L. VEUTHEY, D. GUILLARME, The potential of modern SFC and SFC-MS in pharmaceutical analysis, Drug Analysis, June 23-25, 2014, Liège, Belgium](#)
21. [A. GRAND-GUILLAUME-PERRENOUD, J.-L. VEUTHEY, D. GUILLARME, Short course on SFC and SFC-MS, Drug Analysis, 23-25 June, 2014, Liège, Belgium](#)
22. [D. GUILLARME, HPLC Techniques in Biopharmaceutical Analysis, Webinar Chromacademy \(conférence par internet\) 21 August 2014, Geneva, Switzerland](#)
23. [D. GUILLARME, Enhanced method development workflow for modern LC and SFC, Applica 2014, 18 September 2014, Basel, Switzerland](#)
24. [D. GUILLARME, Apport de la chromatographie liquide pour l'analyse de macromolécules d'intérêt thérapeutique, ccCTA annual meeting 2-3 September 2014, Les Diablerets, Switzerland](#)
25. [J.-L. VEUTHEY, A. GRAND-GUILLAUME-PERRENOUD, D. GUILLARME, The use of SFC and SFC-MS in pharmaceutical analysis, ISC 2014, 14-18 September 2014, Salzburg, Austria](#)

26. [A. GRAND-GUILLAUME-PERRENOUD, V. DESFONTAINE, L. NOVAKOVA, J.-L. VEUTHEY, D. GUILLARME, Possibilities of modern SFC-MS for life sciences applications, SFC 2014, 9-10 October 2014, Basel, Switzerland](#)
27. [B. BOBALY, J. FEKETE, D. GUILLARME, S. FEKETE, Héjszerű, szén-polimer-nanogyémánt kompozit kolonna alkalmazása fehérjék elválasztásában Elválasztástudományi Vándorgyűlés, 12-14 November 2014, Egerszalók, Hungary](#)
28. [J. FEKETE, S. FEKETE, D. GUILLARME, N. RACZ, R. KORMANY, Gyors elválasztási módszerek alkalmazása napjainkban, Elválasztástudományi Vándorgyűlés, 12-14 November 2014, Egerszalók, Hungary.](#)
29. [S. FEKETE, D. GUILLARME, Hosszirányú hőmérséklet-gradiensek hatása az ultra-nagynyomású folyadékkromatográfiában, 12-14 November 2014, Elválasztástudományi Vándorgyűlés - Egerszalók, Hungary](#)
30. [S. RUDAZ, Evaluation of a potential adrenal endocrine disrupting chemical using and "-omics" approach, SCAHT scientific meeting, Ramada Plaza Basel Hotel, 24-25 November 2014, Bern, Switzerland](#)
31. [S. RUDAZ, Steroid profiling in humans as biomarkers for toxicity, Swiss Society of Toxicology annual meeting, Ramada Plaza Basel Hotel, 13-14 November 2014, Basel, Switzerland](#)
32. [S. RUDAZ, A Metabolomic Approach to extend the Steroid Profile Monitoring, MS Technology Day, 30 September 2014, Lausanne, Switzerland](#)
33. [S. RUDAZ, Matrix effects and uncertainty functions from MS-based validation studies, Congress of French societies of Mass Spectrometry and Proteomics analysis, SMAP 2014, 30 June – 1st July 2014, Lyon, France](#)
34. [S. RUDAZ, In-vitro phenotyping for toxicological purposes: new insights with cocktail approaches, 10th International Symposium on Drug Analysis, 22-25 June 2014, Liège, Belgium](#)
35. [D. SPAGGIARI, L. GEISER, Y. DAALI, S. RUDAZ, In vitro phenotyping of microsomal cytochromes P450, 2014 Geneva, Switzerland: New insights with the cocktail approach. Swiss Pharma Day, 20 August 2014, Bern, Switzerland.](#)
36. [D. SPAGGIARI, L. GEISER, Y. DAALI, S. RUDAZ, Cocktail approach for microsomal CYP450 phenotyping using UHPLC-QTOF, International Mass Spectrometry Conference \(IMSC2014\), 24-29 August 2014, Geneva, Switzerland](#)
37. [C. DIEZ, A. STAUB SPORRI, E. COGNARD, D. ORTELLI, P. EDDER, S. RUDAZ, Determination of highly polar compounds in food by LC-MS/MS, ISEAC-38, June 17-20, 2014, Lausanne, Switzerland](#)
38. [S. BIERI, Y. JANIN, P. EDDER, S. RUDAZ, P.J. MARRIOTT, A. BUGEY, Detection of adulterated natural food aroma by enantioselective GCxGC-TOFMS, 38th International Symposium on Capillary Chromatography \(ISCC\), 18-23 May 2014, Riva del Garda, Italy](#)
39. [G. BONVIN, S. RUDAZ, J. SCHAPPLER, In-spray supercharging of intact proteins by capillary electrophoresis-mass spectrometry using a sheath liquid interface, 30th International Symposium on MicroScale Bioseparations \(MSB\), 27 April – 1st May 2014, Pécs, Hungary](#)
40. [C. DIEZ, A. STAUB-SPORRI, E. COGNARD, D. ORTELLI, P. EDDER, S. RUDAZ, Liquid separation cell vs. hydrophilic interaction chromatography, a novel strategy for the simultaneous determination of 13 aminoglycoside residues in animal derived foods by LC-MS/MS. Seventh International Symposium on Hormone and Veterinary Drug Residue Analysis, 2-5 June 2014, Ghent, Belgium](#)

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. [D. GUILLARME. Introduction à la chromatographie en phase liquide \(HPLC\), DAC course, 4 March 2014, Geneva, Switzerland](#)
2. [D. GUILLARME, Choix technologiques et développement de méthodes en HPLC, DAC course, 29 April 2014, Geneva, Switzerland](#)

3. D. GUILLARME, Les nouvelles tendances HPLC; comment améliorer sa productivité au laboratoire ?, DAC course, 20 May 2014, Geneva, Switzerland
4. S. RUDAZ, Validation des méthodes analytiques, formation générale (16 H), Service de la sécurité alimentaire et des affaires vétérinaires SAAV, 4-5 December 2014, Fribourg, Switzerland
5. S. RUDAZ, Validation des méthodes analytiques II, formation sur logiciel, (7 H), cours de formation du Centre de Compétence en Chimie et Toxicologie Analytique (CCCTA), 28 March 2014, Geneva, Switzerland
6. S. RUDAZ, Validation des méthodes analytiques, Généralités et Protocoles de Validation (7 H), Cours de formation du Centre de Compétence en Chimie et Toxicologie Analytique (CCCTA), 27 February 2014, Geneva, Switzerland
7. S. RUDAZ. Introduction on plant metabolomics, Fast Analysis in LC, Basics in Data. Swiss interuniversity Doctoral Program in Organismal Biology, 6 - 7 March 2014 - Neuchâtel, Switzerland
8. A. GRAND-GUILLAUME-PERRENOUD, D. GUILLARME, Possibilities and limitations of state-of-the-art UHPSFC and UHPSFC-MS technologies for the analysis of various classes of achiral compounds. Nestlé research center, 8 May 2014, Lausanne, Switzerland
9. S. FELETE, D. GUILLARME, The use of UHPLC in pharmaceutical analysis, Novartis, 13 May 2014, Basel, Switzerland
10. D. GUILLARME, Les outils analytiques pour l'analyse de protéines thérapeutiques et anticorps monoclonaux. Séminaire MAS, 17 June 2014, Geneva, Switzerland
11. D. GUILLARME, Complementarity of SFC and LC techniques for pharmaceutical analysis, Roche Open Day, 5 September 2014, Basel, Switzerland
12. D. GUILLARME, La chromatographie en phase supercritique: notions de base et nouveautés instrumentales, European directory for quality of medicine (EDQM), 10 September 2014, Strasbourg, France
13. D. GUILLARME, UPC2 and the impact on the pharmaceutical industry, 2014 method development workshop series at Novartis, 27 November 2014, Basel, Switzerland
14. D. GUILLARME, Combining UPC2 and MS: interface and possible pharmaceutical applications, 2014 method development workshop series at Novartis, 27 November 2014, Basel, Switzerland
15. D. GUILLARME, Possibilities and limitations of modern SFC and SFC-MS, Swiss anti-doping laboratory, 7 November 2014, Epalinges, Switzerland

THESIS PRESENTED

INTRA-MUROS THESIS

1. Grégoire BONVIN
Aspects Fondamentaux du Couplage de l'Electrophorèse Capillaire à la Spectrométrie de Masse.
Thesis n°4673,
University of Geneva,
supervisors: Profs J.-L. VEUTHEY, and S. RUDAZ
2. Alexandre GRAND-GUILLAUME-PERRENOUD
Chromatographie en phase supercritique: Nouvelles perspectives dans le domaine de l'analyse pharmaceutique.
Thesis n°4717,
University of Geneva,
supervisors: Prof J.-L. VEUTHEY, and Dr D. GUILLARME

3. Marta RODRIGUEZ ALLER
Strategies for the Delivery of Insoluble Drug to the Eye. Thesis n°4741,
University of Geneva,
supervisors: Profs R. GURNY and J.-L. VEUTHEY
4. Nils OBERHAUSER
Lipophilicity in computer-aided drug design: new tools and applications.
Thesis N° 4751
University of Geneva,
Supervisors: Profs P.-A. CARRUPT and J.-L. VEUTHEY and Dr. A. NURISSO

CO-TUTELLE THESIS

1. Cecilia FORTUGNO
Multimethodological study of molecular recognition phenomena. Thesis no 4659,
Supervisors : Profs J.-L. VEUTHEY and P.-A. CARRUPT and C. BERTUCCI,
University of Geneva and University of Bologna, Italy.
2. Samia Samar OUERTANI
Méthodologie statistique pour un traitement différentiel et intégratif des données « omiques».
Thesis n°4682,
Supervisors: Prof S. RUDAZ and Dr M. HANAFI-
University of Geneva – University of Nantes, France

THESIS JURY

1. Jérémy JEUDI,
Quantification de biomarqueurs protéiques dans des matrices biologiques complexes par spectrométrie de masse: développements et applications.
Scientific supervisor: Prof. J. LEMOINE, University Claude Bernard 1, Lyon, France
2. Lucie DUBUGNON,
Master of Advanced Studies in Toxicology Biological monitoring of workers exposed to PCBs using the DR CALUX assay. Scientific
director: Dr. O. SORG, University of Geneva, Switzerland
3. Elena TOBOLKINA,
New analytical tools combining gel electrophoresis and mass spectrometry.
Scientific supervisor: Prof H. GIRAULT, EPFL, Lausanne, Switzerland
4. Samar AZZI,
Etude de l'évolution du profil aromatique des moûts de Syrah issus de deux régions libanaises au cours de la fermentation par analyse GC-MS et Chimométrie.
Scientific supervisor: Prof D. RUTLEDGE, AgroParisTech, Paris ,France, N. OUAINI, Holy Spirit University of Kaslik, Beirut, Lebanon

AWARDS & DISTINCTIONS

- D. GUILLARME, S. FEKETE. Elected among the “TOP 40 under 40” most influential people in analytical sciences – ranking reported in the analytical scientist, 2014, 21, 22-28
- S. FEKETE, A. BECK, J. FEKETE, D. GUILLARME. Best award poster, 1st price, Elvázasttudományi Vándorgyűlés, Egerszalók, Hungary, November 2014

PYTOCHEMISTRY AND BIOACTIVE NATURAL PRODUCTS

PROFESSOR JEAN-LUC WOLFENDER

DR EMERSON FERREIRA-QUEIROZ, SENIOR LECTURER

GENERAL DESCRIPTION OF THE UNIT

The main research activities of the unit are related to the development of methodologies for the rapid isolation identification and bioactivity characterisation of natural products (NPs) at the microgram scale. State-of-the-art LC-MS and LC-MS/MS as well as microNMR techniques are used for dereplication purposes or de novo identification of NPs in crude extracts from different origins (plants, fungi, and microorganisms). Microfractionation methods in 96 well plates allow bioassays to be performed on LC peak in crude extracts, quantitative estimation of the well content and further structural determination by CapNMR. Rational large scale isolation strategies are developed for the rapid obtention of pure NPs in the mg scale for further testing bioactivities and mode of action. The range of biological activities studied in house or in collaboration covers mainly antifungal, antiprotozoal, antiinflammatory and antiepileptic activities. The interest of the group is also focused on plant metabolomics, in this respect the focus is on the investigation of bioactive NPs dynamically induced in various stress situations (fungi confrontation, biotic and abiotic stresses, metabolite elicitation...). With the idea to generate original sources of bioactive NPs other strategies including biotransformation or chemical derivatisation of crude extracts from common sources are also investigated. Finally the analytical and metabolomic methods are also used for studying the metabolisation of crude extracts in view of a better understanding of the mode of action (synergy, prodrugs) and the potential toxicity of phytopharmaceuticals or nutraceuticals.

SPECIFIC RESEARCH FIELDS

- Search for new lead compounds from natural sources
- On-line identification of natural products by LC-UV-NMR-MS (dereplication)
- Rapid microfractionation of crude extracts for chemical and bioactivity profiling
- Plant metabolomics
- Search for original bioactive stress-induced natural products of various origin
- Study of antifungal compounds from pathogen fungi in co-culture
- Qualitative quantitative analysis of phytotherapeutics
- Study of the metabolisation of phytopreparation by metabolomics in relation with their mode of action
- Investigation of natural products involved in diseases associated with problems of ageing
- Search for new lead compounds for use against tropical parasitic diseases
- Investigation of methods for isolation of natural products using preparative chromatographic techniques

2014 AT A GLANCE

Publications with impact factor	19
Books and chapters	3
Posters presentations	33
Congresses & Symposia	28
Continuing education & open to the public lectures	6
Ph.D. Thesis presented in 2014	2
Patents	1
Number of projects at FNRS and assimilated	3
Projects of collaboration with the industry	3

STAFF

CONFEDERATION FELLOWSHIP

Mariam MNATSAKANYAN (1.1. to 30.9.14)

EXCELLENCE FELLOWSHIP

Claudia CARPENTIER
Emmanuelle DORLA
Noraini Binti KASIM
Nurhuda MANSHOOR (CE)

Syed Ghulam MUSHARRAF (CC)
Claudia QUINTINO da ROCHA
Luis Leonardo SALDANHA
Rodrigo SANT'ANA CABRAL

POSTDOCTORAL SCHOLARS

Pierre-Marie ALLARD
Lise BREANT (*until 31.3.14*)
Paul COULERIE (*since 1.7.14*)

Marcos M. FERREIRA-QUEIROZ
Mariam MNATSAKANIAN
(*since 1.10.14*)

RESEARCH AND TEACHING ASSISTANTS

Adlin AFZAN
Antonio AZZOLLINI
Nadine BOHNI
Théo BRILLATZ (*since 1.10.14*)
Soura CHALLAL
Adeline CHAUVIN

Joëlle HOURIET (*since 1.3.14*)
Quentin FAVRE-GODAL
Daniel MAAG
Vera OLDRATI (*since 1.10.14*)
Charlotte PETIT
David RIGHI (*since 1.3.14*)

INTERNSHIP STUDENTS – CO-SUPERVISION (CO-TUTELLE)

Assane DIOP

TECHNICAL STAFF

Laurence MARCOURT

ADMINISTRATIVE STAFF

Natalie SCHREGLE

RESEARCH FUNDS

✚ SWISS NATIONAL SCIENCE FOUNDATION

“Identification of novel modes of action of plant natural products targeting fungal human and phytopathogens” (CR2313_143733)

Main applicant: J.-L. WOLFENDER

Co-applicant: D. SANGLARD, CHUV - Co-applicant: K. GINDRO, ACW-Changins - Co-applicant: E. FERREIRA QUEIROZ, UNIGE

Total funding: CHF 500'000.-

Allocation 2014: CHF 165'000.-

Duration: 2 years

Starting date: 2013

“Targeted and non-targeted metabolomic study of the wound response in Arabidopsis: investigation of the role of 13 lipoxygenases in long distance signalling” (200020_146200)

Main applicant: J.-L. WOLFENDER

Co-applicant: S. RUDAZ

Total funding: CHF 229'857.-

Allocation 2014: CHF 65'300.-

Duration: 2 years

Starting date: 2013

SINO SWISS SCIENCE AND TECHNOLOGY COOPERATION - SSSTC

Collaboration between the School of Pharmaceutical Sciences of the University of Shandong and Geneva Sino Swiss Science and Technology Cooperation Program (SSSTC) IP18-092011

Main applicant: J.-L. WOLFENDER

Total funding: CHF 31'100.-

Allocation 2014: CHF 11'700.-

Duration: 3 years

Starting date: 2012

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
S17072	Fonds Industrie (J.L. Wolfender, M. Cuendet) – Research & Services	60'752.91
S18245	Industry Partner from the Ar Lemanic (J.-L. Wolfender)	50'311.49
S18306	Industry Partner from the Ar Lemanic (NIHS) (J.-L. Wolfender)	47'137.59
	Total	158'201.99

DEVICES IN LEND

Device	Enterprise /Laboratory	Lending period	Localisation	Insurance Contrat
Puriflash 4100 MS	Interchim	2014	3-333	150'000

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Trends Plant Sci.	12.92
Natural Product Reports	10.11
Metabolomics	3.85
J. Nat. Prod.	3.79
Food Chem.	3.39
Mol. Biosyst.	3.21
Phytochemistry	2.54
Molecules	2.41
Phytochem. Rev	2.40
Phytochem. Anal.	2.34

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. S. BOYCHEVA, L. DAVIET, J.-L. WOLFENDER, T.B. FITZPATRICK. "The rise of operon-like gene clusters in plants". Trends Plant Sci. 19, 447-459 (2014). 12.92
2. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ., M.L. ZERAIK, S.N. EBRAHIMI, L. MARCOURT, M. CUENDET, I. CASTRO-GAMBOA, M. HAMBURGER, V. DA SILVA BOLZANI, J.-L. WOLFENDER. "Chemical composition of the bark of Tetrapteryx mucronata and identification of acetylcholinesterase inhibitory constituents". J. Nat. Prod. 77, 650-656 (2014). 3.79
3. S. BERTRAND, N. BOHNI, S. SCHNEE, O. SCHUMPP, K. GINDRO, J.-L. WOLFENDER. "Metabolite induction via microorganism co-culture: A potential way to enhance chemical diversity for drug discovery". Biotechnol. Adv. 32, 1180-1204 (2014). 9.01
4. S. BERTRAND, C. PETIT, L. MARCOURT, R. HO, K. GINDRO, M. MONOD, J.-L. WOLFENDER. "HPLC Profiling with At-line Microdilution Assay for the Early Identification of Anti-fungal Compounds in Plants from French Polynesia". Phytochem. Anal. 25, 106-112, (2014) 2.34

5. S. CHALLAL, O.E.M. BUENAFE, E.FERREIRA QUEIROZ, S. MALJEVIC, L. MARCOURT, M. BOCK, W. KLOETI, F.M. DAYRIT, A. L.HARVEY, H. LERCHE, C.V. ESGUERRA, P.A.M. DE WITTE, J.-L. WOLFENDER, A.D. CRAWFORD. "Zebrafish Bioassay-Guided Microfractionation Identifies Anticonvulsant Steroid Glycosides from the Philippine Medicinal Plant *Solanum torvum*". *ACS Chemical Neuroscience* 5, 993-1004 (2014) 4.36
6. S. BERTRAND, A. AZZOLLINI, O. SCHUMPP, N. BOHNI, J. SCHRENZEL, M. MONOD, K. GINDRO, J.-L. WOLFENDER. "Multi-well fungal co-culture for de novo metabolite-induction in time-series studies based on untargeted metabolomics". *Mol. BioSyst.* 10, 2289-2298 (2014). 3.21
7. D. CREEK, W. DUNN, O. FIEHN, J. GRIFFIN, R. HALL, Z. LEI, R. MISTRIK, S. NEUMANN, E. SCHYMANSKI, L. SUMNER, R. TRENGOVE, J.-L. WOLFENDER. "Metabolite identification: are you sure? And how do your peers gauge your confidence?". *Metabolomics* 10, 350-353, (2014). 3.85
8. C.Q. DA ROCHA, E. FERREIRA QUEIROZ, C.S. MEIRA, D.R. MAGALHAES MOREIRA, M.B. PEREIRA SOARES, L. MARCOURT, W. VILEGAS, J.-L. WOLFENDER. "Dimeric Flavonoids from *Arrabidaea brachypoda* and Assessment of their Anti-Trypanosoma cruzi Activity". *J. Nat. Prod.* 77, 1345-1350 (2014). 3.79
9. Q. FAVRE-GODAL, S. DORSAZ, E. FERREIRA QUEIROZ, C. CONAN, L. MARCOURT, B.P.E. WARDOJO, F. VOINESCO, A. BUCHWALDER, K. GINDRO, D. SANGLARD, J.-L. WOLFENDER. "Comprehensive approach for the detection of antifungal compounds using a susceptible strain of *Candida albicans* and confirmation of in vivo activity with the *Galleria mellonella* model". *Phytochemistry* 105, 68-78 (2014). 2.54
10. H. GHANEM, H. HABA, L. MARCOURT, M. BENKHALED J.-L. WOLFENDER. "Microphynolides A and B, new spiro- γ -lactone glycosides from *Thymelaea microphylla*". *Nat. Prod. Res.* 1-7 (2014). 0.91
11. M. GROESSL, A. AZZOLLINI, P.J. EUGSTER, B. PLET, J.-L. WOLFENDER, R. KNOCHENMUSS. "Comparison of UHPLC-ESI-MS and Hadamard Transform Atmospheric Pressure Ion Mobility-ESI-MS for Rapid Profiling of Isomeric Flavonoids". *Chimia* 68, 135-139 (2014). 1.34
12. M. HALABALAKI, S. BERTRAND, A. STEFANO, K. GINDRO, S. KOSTIDIS, E. MIKROS, L. A. SKALTSOUNIS, J.-L. WOLFENDER. "Sample Preparation Issues in NMR-based Plant Metabolomics: Optimisation for *Vitis* Wood Samples". *Phytochem. Anal.* 25, 350-356 (2014). 2.34
13. D. MAAG, C. DALVIT, D. THEVENET, A. KOEHLER, F.C. WOUTERS, D.G. VASSAO, J. GERSHENZON, J.-L. WOLFENDER, T.C.J. TURLINGS, M. ERB, G. GLAUSER. "3-beta-D-Glucopyranosyl-6-methoxy-2-benzoxazinone (MBOA-N-Glc) is an insect detoxification product of maize 1,4-benzoxazin-3-ones". *Phytochemistry* 102, 97-105 (2014). 2.54
14. G. MARTI, J. BOCCARD, F. MEHL, B. DEBRUS, L. MARCOURT, P. MERLE, E.DELORT, L. BAROUX, H. SOMMER, S. RUDAZ, J.-L. WOLFENDER. "Comprehensive profiling and marker identification in non-volatile citrus oil residues by mass spectrometry and nuclear magnetic resonance". *Food Chem.* 150, 235-245 (2014). 3.39
15. G. MARTI, S. SCHNEE, Y. ANDREY, C. SIMOES-PIRES, P.-A. CARRUPT, J.-L. WOLFENDER, K. GINDRO. "Study of Leaf Metabolome Modifications Induced by UV-C Radiations in Representative *Vitis*, *Cissus* and *Cannabis* Species by LC-MS Based Metabolomics and Antioxidant Assays". *Molecules* 19, 14004-14021 (2014). 2.41
16. F. MEHL, G. MARTI, J. BOCCARD, B. DEBRUS, P. MERLE, E. DELORT, L. BAROUX, V. RAYMO, M.I. VELAZCO, H. SOMMER, J.-L. WOLFENDER, S. RUDAZ. "Differentiation of lemon essential oil based on volatile and non-volatile fractions with various analytical techniques: a metabolomic approach". *Food Chem.* 143, 325-335. 3.39

17. M.M. FERREIRA QUEIROZ, E.FERREIRA QUEIROZ, M.L. ZERAIK, G. MARTI, Q. FAVRE-GODAL, C. SIMÕES-PIRES, L. MARCOURT, P.-A. CARRUPT, M. CUENDET, M.Q. PAULO, V.S. BOLZANI, J.-L. WOLFENDER. "Antifungals and acetylcholinesterase inhibitors from the stem bark of *Croton heliotropiifolius*". *Phytochem. Lett.* 10, lxxxviii–xciii (2014). 1.45
18. L. SACCONNAY, M. ANGLEVIEL, G.M. RANDAZZO, M.M.FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, J.-L. WOLFENDER, P.-A. CARRUPT, A. NURISSO. "Computational Studies on Sirtuins from *Trypanosoma cruzi*: Structures, Conformations and Interactions with Phytochemicals". *PLoS Negl. Trop. Dis.* 8, e2689 (2014). 4.44
19. P.J. EUGSTER, J. BOCCARD, B. DEBRUS, L. BRÉANT, J.-L. WOLFENDER, S. MARTEL, P.-A. CARRUPT. "Retention time prediction for dereplication of natural products (CxHyOz) in LC-MS metabolite profiling". *Phytochemistry*, 108, 196-207 (2014). 2.54

BOOKS OR BOOKS CHAPTERS

1. E. FERREIRA QUEIROZ, J.-L. WOLFENDER, K. HOSTETTMANN, P.C. VIEIRA: "Princípios ativos de plantas superiores" 2ª edição; EduFSCar. Sao Paulo, Brazil (2014)
2. N. BOHNI, E. FERREIRA QUEIROZ, J.-L. WOLFENDER: "On-Line and At-Line LC-NMR and Related Micro-NMR Methods" in: "Handbook of Chemical and Biological Plant Analytical Methods" First Edition. K. HOSTETTMANN, H. STUPPNER, A. MARSTON, S. CHEN, Eds.; John Wiley & Sons, Ltd., Chichester, UK (2014)
3. E. FERREIRA QUEIROZ, J.-L. WOLFENDER: "Innovative Strategies in the Search for Bioactive Plant Constituents", in: "Handbook of Chemical and Biological Plant Analytical Methods" First Edition. K. HOSTETTMANN, H. STUPPNER, A. MARSTON, S. CHEN, Eds.; John Wiley & Sons, Ltd., UK (2014)

PRESENTATIONS

POSTERS PRESENTATIONS

1. M. GROESSEL, A. AZZOLLINI, J.-L. WOLFENDER, R. KNOCHENMUSS. "High Resolution Ion Mobility-TOF MS for the analysis of natural products and complex mixtures". 47rd DGMS-Jahrestagung, 2 - 3 March 2014, Frankfurt (Germany).
2. P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. "HRMS dereplication, MS/MS networks and small molecule epigenetic modifiers : tools to decipher cryptic metabolite pathways in fungal microorganisms". 8^e Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19-21 May 2014. Villeurbanne (France).
3. N. BOHNI, O. SCHUMPP, F. MEHL, S. BERTRAND, M. MONOD, K. GINDRO, J.-L. WOLFENDER. "Targeted isolation of biomarkers highlighted by MS-based metabolomics in fungal co-cultures". 8^e Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19-21 May 2014. Villeurbanne (France).
4. M.M. MNATSAKANYAN, E. FERREIRA QUEIROZ, O. JORDAN, G. BORCHARD, J.-L. WOLFENDER. "Preparation of Chito - Oligosaccharides for Biomedical Applications". 7th Swiss Pharma day, 20 August 2014, Bern (Switzerland).
5. D. MAAG, A. KÖHLER, C. DALVIT, F.C. WOUTERS, D.G. VASSAO, J. GERSHENZON, J.-L. WOLFENDER, T.C.J. TURLINGS, M. ERB, G. GLAUSER. "3-β-D-glucopyranosyl-6-methoxy-2-benzoxazinone - A novel detoxification product of maize benzoxazinoid derivatives in *Spodoptera* spp." 15th International Symposium on Insect-Plant Relationships, 17.-22. August 2014, Neuchâtel (Switzerland).
6. A. AFZAN, L. BREANT, J. KISSLING, J.-L. WOLFENDER. "UHPLC-HRMS metabolomics as a tool to decipher complex chemotaxonomic relationships in plants: the case of the Gentianaceae". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).

7. P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. "HRMS dereplication and HRMS/MS networking to decipher cryptic metabolite pathways in fungal microorganisms". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
8. A. AZZOLLINI, M. GROESSEL, P. EUGSTER, B. PLET, D. GUILLARME, R. KNOCHENMUSS, J.-L. WOLFENDER. "High Resolution IMS-MS and UHPLC-HRMS for the analysis of natural products and complex natural extracts". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
9. A. AZZOLLINI, J. ZHANG, Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, D. RIGHI, D. GUILLARME, P. FAN, H. LOU, J.-L. WOLFENDER. "Development of an LC-MS-based purification strategy for the Mass Spectrometry targeted isolation of bioactive compounds ". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
10. S. CHALLAL, E. FERREIRA QUEIROZ, L. MARCOURT, O.E. BUENAFE, P.A. DE WITTE, A.D. CRAWFORD, J.-L. WOLFENDER. "Combining miniaturized Zebrafish bioactivity-guided fractionation with UHPLC-Orbitrap-MS and NMR dereplication for the early stage anticonvulsant's discovery". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
11. M.M. MNATSAKANYAN, E. FERREIRA QUEIROZ, O. JORDAN, G. BORCHARD, J.-L. WOLFENDER. "Preparation and Characterisation of Chito - Oligosaccharides by MALDI-TOF MS and Size Exclusion Chromatography (SEC-MALLS) for Biomedical Applications". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
12. V. OLDRATI, P.M. ALLARD, G. GLAUSER, N. HULO, D. KOUA, E. BIANCHI, R. STÖCKLIN, J.-L. WOLFENDER. "High-resolution peptidomic and transcriptomic profiling of spider venom: a rapid and comprehensive method for assessment of complex venom composition". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
13. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, G. MARTI, L. MARCOURT, I. GASTRO-GAMBOA, V. DA SILVA, V. S. BOLZANI, J.-L. WOLFENDER. "HPLC-ESI-MS/MS for the determination the alkaloid content of the stem bark of *Tetrapterys mucronata*, a Malpighiaceae occasionally used to prepare the ayahuasca". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
14. D. RIGHI, A. AZZOLLINI, J.-L. WOLFENDER. "Methodological development for the establishment of efficient normal phase MS directed purification of natural products at the preparative scale". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).
15. A. AZZOLLINI, M. GROESSEL, P. EUGSTER, B. PLET, D. GUILLARME, R. KNOCHENMUSS, J.-L. WOLFENDER. "High Resolution Ion Mobility-ESI-MS for efficient profiling of natural products". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
16. A. AZZOLLINI, J. ZHANG, Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, S. WANG, D. GUILLARME, P. FAN, H. LOU, J.-L. WOLFENDER. "Optimized MS-based isolation strategy for rapid targeted purification of antifungal compounds". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
17. R S. CABRAL, E. FERREIRA QUEIROZ, L. MARCOURT, M. CUENDET, M.C.M. YOUNG, J.-L. WOLFENDER. "Bioactive compounds from the stem bark and leaves of *Conchocarpus fontanesianus*". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
18. Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, D. SANGLARD, J.-L. WOLFENDER. "HPLC antifungal activity based profiling of *Swartzia simplex* and targeted MPLC isolation of its antifungal diterpenes". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
19. M.M. MNATSAKANYAN, E. FERREIRA QUEIROZ, N.M. ALEXIS, L. MARCOURT, B. PRAJOGO, J.-L. WOLFENDER. "The potential of *Byophytum Petersianum* Klotzch for menopause treatment". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).

20. M.M. MNATSAKANYAN, E. FERREIRA QUEIROZ, L. MARCOURT, B. PRAJOGO, J.-L. WOLFENDER. "Gendarussa behind the Male Contraception: Standardised extract vs Traditional". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
21. C. PETIT, A. BUJARD, J. SKALICKA WOZNIACK, J.-L. WOLFENDER, P.-A. CARRUPT. "Evaluation of passive permeability through GIT of a set of natural compounds and plant extracts with the Hexadecane Membrane Parallel Artificial Membrane Permeability Assay". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
22. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, M.Q. PAULO, M.B. SOUSA MAIA, J.-L. WOLFENDER. "Isolation of the major compounds from the aerial parts of *Chresta martii* by high speed counter current chromatography (HSCCC)". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
23. C. QUINTINO DA ROCHA, E. FERREIRA QUEIROZ, C. SANTANA MEIRA, D.R. MALGALHAES MOREIRA, M. BOTELHO PERREIRA SOARES, L. MARCOURT, W. VILEGAS, J.-L. WOLFENDER. "Unusual dimeric flavonoids from *Arrabidaea brachypoda* with very significant in vitro and in vivo anti-Trypanosoma cruzi activity". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
24. P.-M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. "HRMS dereplication, MS/MS networks & small molecule epigenetic modifiers: tools to decipher cryptic metabolic pathways in fungal microorganisms". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
25. A. AZZOLLINI, M. GROESSEL, P. EUGSTER, B. PLET, D. GUILLARME, R. KNOCHENMUSS, J.-L. WOLFENDER. "Evaluation of Hadamard Transform Atmospheric Pressure Ion Mobility-ESI-MS for the rapid profiling of isomeric natural products". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
26. A. AZZOLLINI, J. ZHANG, Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, S. WANG, D. RIGHI, D. GUILLARME, P. FAN, H. LOU, J.-L. WOLFENDER. "MS-based isolation strategy for rapid targeted purification of antifungal compounds at the preparative scale". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
27. R.S. CABRAL, E. FERREIRA QUEIROZ, L. MARCOURT, M.C.M. YOUNG, J.-L. WOLFENDER. "HPLC activity based profiling of *Conchocarpus fontanesianus* and targeted MPLC isolation of its antifungal compounds". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
28. Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, S. DORSAZ, S.M. EBRAHIMI, L. MARCOURT, K. GINDRO, M. HAMBURGER, D. SANGLARD, J.-L. WOLFENDER. "HPLC activity based profiling of *Swartzia simplex* and targeted MPLC isolation of its antifungal diterpenes". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
29. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, L. MARCOURT, M.Q. PAULO, M.B.S. MAIA, V.S. BOLZANI, J.-L. WOLFENDER. "Efficient Isolation of the Major Constituents from *Chresta martii* by High Speed Counter Current Chromatography (HSCCC)". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
30. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, M.L. ZERAIK, G. MARTI, Q. FAVRE-GODAL, L. MARCOURT, M. CUENDET, M.Q. PAULO, V.S. BOLZANI, J.-L. WOLFENDER. "Antifungal and acetylcholinesterase inhibitors from *Croton heliotropiifolius*". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
31. C. QUINTINO DA ROCHA, E. FERREIRA QUEIROZ, C. SANTANA MEIRA, D.R. MAGALHAES MOREIRA, M. BOTELHO PERREIRA SOARES, V.S. BOLZANI, J.-L. WOLFENDER. "Unusual Dimeric Antitrypanosomal Flavonoids from *Arrabidaea brachypoda*". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.

32. D. RIGHI, A. AZZOLLINI, J.-L. WOLFENDER. "Optimized strategy for an efficient Normal Phase MS-targeted isolation of natural products". SCS Fall meeting 2014, 20 September 2014, Zurich, Switzerland.
33. A. AZZOLLINI, S. BERTRAND, O. SCHUMPP, N. BOHNI, M. MONOD, K. GINDRO, J.-L. WOLFENDER. "MS-based metabolomics strategy for the search of de novo metabolite induction in mycobiome interactions through multi well fungal co-culture". SGMS meeting 2014, 30-31 October 2014. Beatenberg (Switzerland).
34. A. AZZOLLINI, S. BERTRAND, O. SCHUMPP, N. BOHNI, M. MONOD, K. GINDRO, J.-L. WOLFENDER. "Development and validation of a high throughput metabolomic strategy to reveal fungal interspecies communication". 8^e Journées Scientifiques du Réseau Français de Métabolomique et Fluxomique, 19-21 May 2014, Villeurbane (France).

CONGRESSES & SYMPOSIA

1. J.-L. WOLFENDER. Co-organisation of 2nd Stepping Stone Symposium on Natural Drug Discovery, 10-11 June 2014, ETH Zurich (Switzerland)
2. P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. "HRMS dereplication, MS/MS spectral networks & small molecule epigenetic modifiers". Challenges and advances in the annotation and de novo identification of small molecules of biological origin (AISBM), 23-24 October 2014, Paris (France).
3. P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y. S. WONG, K. GINDRO, J.-L. WOLFENDER. "Exploring the hidden biosynthetic potential of fungi - Evaluation of epigenetic modifications through metabolomics". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept. 2014, Guimarães (Portugal).
4. P.M. ALLARD, M. PERISIC, F. MEHL, J. BOCCARD, Y.S. WONG, K. GINDRO, J.-L. WOLFENDER. "HRMS dereplication, MS/MS spectral networks & small molecule epigenetic modifiers: tools to decipher cryptic metabolic pathways in *Aspergillus* sp". SGMS meeting 2014, 30-31 October 2014. Beatenberg (Switzerland).
5. N. BOHNI, O. SCHUMPP, F. MEHL, S. BERTRAND, M. MONOD, K. GINDRO, J.-L. WOLFENDER. "Targeted isolation of biomarkers highlighted by MS-based metabolomics in fungal co-cultures" SGMS Meeting, 2014, Beatenberg, Switzerland, 30 – 31 October 2014
6. D. MAAG, C. DALVIT, D. THEVENET, A. KÖHLER, F.C. WOUTERS, D.G. VASSAO, J. GERSHENZON, J.-L. WOLFENDER, T.C.J. TURLINGS, M. ERB, G. GLAUSER. "Spodoptera caterpillars neutralize maize chemical defenses by converting a toxic 1,4-benzoxazin-3-one breakdown product to non-toxic 3-β-D-glucopyranosyl-6-methoxy-2-benzoxazolinone (MBOA-N-Glc)". ESA 62nd Annual Meeting, Portland, OR (USA), 16-19 Nov 2014
7. E. FERREIRA QUEIROZ. Drug Discovery from Higher Plants from Latin America: History, Challenges and Perspectives. XI Congresso Latino Americano de Botânica. Salvador, Brazil, 23-25 October 2014.
8. E. FERREIRA QUEIROZ. Innovative strategies for the efficient isolation of natural products at the preparative scale and discovery of potential new leads. Annual meeting of the CEBA-Centre d'études sur la biodiversité Amazoniane. Toulouse, France, 13-14 October 2014.
9. E. FERREIRA QUEIROZ. Technological perspectives in herbal drug development. III SYMPOSIUM - Sindusfarma - IPS/FIP -ANVISA. New frontiers in manufacturing technology, regulatory sciences and pharmaceutical quality system. Brasilia, Brazil, 4-5 August 2014.
10. E. FERREIRA QUEIROZ. Innovative strategies for the efficient isolation of natural products at the preparative scale and discovery of potential new leads. 2nd Stepping Stone Symposium on Natural Drug Discovery. ETH Zurich, Switzerland, 10-11 June 2014.
11. J.-L. WOLFENDER. "Deciphering de novo induction of novel biomarkers in mycobiome interactions by MS-based metabolomics and microNMR". 20th International Mass Spectrometry Conference IMSC, 24-29 August 2014, Geneva (Switzerland).

12. J.-L. WOLFENDER. "High Resolution LC-MS Approaches for Deciphering the Complexity of Natural Extracts - Profiling, Dereplication and Metabolomics Aspects". 8th Pharmaday, Complex Substances for Botanical Drugs Herbal Medicinal Products, 13 June 2014, Aboca - Sansepolcro (Italy).
13. J.-L. WOLFENDER, S. BERTRAND, N. BOHNI, O. SCHUMPP, K. GINDRO. "Search for new stress induced bioactive natural products in plants and fungi using innovative metabolomic strategies". 9th International Symposium on Chromatography of Natural Products, 26 May 2014, Lublin (Poland).
14. J.-L. WOLFENDER. "Deciphering de novo induction of novel antifungal biomarkers in mycobiome interactions by NMR and MS-based metabolomics". 28th International Symposium on the Chemistry of Natural Products and the 8th International Conference on Biodiversity, 21 October 2014, Shanghai (China).
15. J.-L. WOLFENDER. "Metabolomics strategies for the search for biomarkers related to plant defence and microorganism interactions". 47 Doktorandenworkshop am Leibniz-Institut für Pflanzenbiochemie, 9 May 2014, Halle (Germany).
16. J.-L. WOLFENDER. "Metabolomics as an established tool in natural product research: opportunities in phytochemistry / perspectives in pharmacognosy". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research, 1-4 September, 2014, Guimaraes (Portugal).
17. J.-L. WOLFENDER. "Efficient miniaturised strategies to characterise bioactive natural products through HPLC based bioactivity profiling and metabolomics". Amazonian Conference on Emerging and infectious Diseases, 26 September, 2014, Cayenne (French Guayana).
18. J.-L. WOLFENDER. "Characterization of Biomarkers In Natural Products Metabolomics". Analytical Tools for Cutting-edge Metabolomics, Royal Society of Chemistry, 30 April 2014, London (United Kingdom).
19. J.-L. WOLFENDER. "Challenges in natural products characterisation": De novo structure identification versus dereplication strategies". Challenges and advances in the annotation and de novo identification of small biological molecules (AISBM), 23-24 October 2014, Gyf-Sur-Yvette (France).
20. J.-L. WOLFENDER. "Traitement de données en métabolomique". Ecole Spectrométrie de Masse, 31 March-4 April 2014, Paris (France).
21. J.-L. WOLFENDER. "Approches métabolomiques pour la recherche de nouveaux produits naturels induits par des phénomènes de stress". Ecole Thématique CNRS 'SUBNAT-2014', 24 June 2014, Aussois (France).
22. J.-L. WOLFENDER. "Natural products metabolomics: From needles in haystacks to new biological knowledge". Invited Seminar Series, 5 November 2014, Uppsala (Sweden).
23. J.-L. WOLFENDER. "Advanced metabolite identification methods and metabolomics for the search of key biomarkers in complex matrices". Outlooks in Synthetic Biology, Manchester Institute of Biotechnology, 11 April 2014, Manchester (United Kingdom).
24. J.-L. WOLFENDER. "Phytomédicaments et produits naturels entrant dans le traitement de l'inflammation et la douleur". Séminaire Antalgie CHUV, 26 June 2014, Lausanne (Switzerland).
25. J.-L. WOLFENDER. "Découverte de produits naturels bioactifs originaux - Apport de la métabolomique". Seminar of the Faculty of Sciences, 27 January 2014, Geneva (Switzerland).
26. J.-L. WOLFENDER. "Metabolomics for the discovery of bioactive stress-induced natural products - Impact in microorganism interactions and perspective for drug discovery". Seminars on Drug Discovery and Development ETHZ, 16 April 2014, Zurich (Switzerland).
27. J.-L. WOLFENDER. "Metabolomics in natural product research: opportunities in phytochemistry / perspectives in pharmacognosy". Shanghai International Conference on Traditional Chinese Medicine and Natural Medicine, 16 October 2014, Shanghai (China).
28. J.-L. WOLFENDER. "The Quest for High Resolution in Natural Crude Extract Profiling : Implication in Natural Product Research and Metabolomics". XXVIIth International Conference on Polyphenols (ICP2014), 4 September 2014, Nagoya (Japan).

29. A. AZZOLLINI, J. ZHANG, Q. FAVRE-GODAL, E. FERREIRA QUEIROZ, S. WANG, D. GUILLARME, P. FAN, H. LOU, J.-L. WOLFENDER. "Optimized MS-based isolation strategy for rapid targeted purification of antifungal compounds". 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 Sept 2014, Guimarães (Portugal).
30. A. AZZOLLINI, E. FERREIRA QUEIROZ, D. GUILLARME, J.-L. WOLFENDER. "Mass Spectrometry guided purification at the preparative scale: new methodologies for the efficient isolation of target compounds". Club de Chromatographie du Val de Seine, 26 June 2014, Rouen (France).

CONTINUING EDUCATION, WORKSHOPS & OPEN TO THE PUBLIC LECTURES

1. E. FERREIRA QUEIROZ. "Methods in Preparative Chromatography". Course for the Ph.D. school of the Department of Chemistry of Unesp Araraquara, Institute of Chemistry, 25-27 August 2014, Araraquara (Brazil).
2. J.-L. WOLFENDER. "Confirmatory analysis and de novo structural identification". Workshop Plants and Metabolomics 2014 University of Leiden, 9 April 2014, Leiden (Netherlands).
3. J.-L. WOLFENDER. "MS principes généraux et Informations structurales". Workshop, Introduction MS cours entreprise Interchim, 19 March 2014, Montluçon (France).
4. J.-L. WOLFENDER, S. RUDAZ. "Introduction to Metabolomics". University of Florida Metabolomics Workshop and Symposium, 20-23 May 2014, Gainesville (USA).
5. J.-L. WOLFENDER, S. RUDAZ. "Introduction to Natural Products Metabolomics". University of Sao Pedro, 17-20 February 2014, Sao Carlos (Brazil).
6. J.-L. WOLFENDER, S. RUDAZ, J. BOCCARD, G. GLAUSER. "Workshop: Introduction to plant metabolomics". Interuniversity Doctoral Program in Organismal Biology, 6-7 March 2014, University of Neuchâtel (Switzerland).

THESIS PRESENTED

INTRA-MUROS THESIS

1. Nadine BOHNI
"Advanced Strategies for the Study of Bioactive Plant Constituents and Co-culture Induced Fungal Metabolites"
Thesis N° 4695 – University of Geneva
Director : Prof J.-L. WOLFENDER
2. Adeline CHAUVIN
"A 13-LOX Hierarchy For Defence in *Arabidopsis thaliana*"
Thesis N° 4721 – University of Geneva
Director : Prof J.-L. WOLFENDER
Co-director : E. E. FARMER

INTRA-MUROS THESIS JURY

1. Grégoire BONVIN
« Aspects Fondamentaux du Couplage de l'Électrophorèse Capillaire à la Spectrométrie de Masse »
University of Geneva
Director: Prof S. RUDAZ
Jury of thesis : Prof J.-L. WOLFENDER

2. Svetlana BOYCHEVA
 "Regulation of vitamin B6 biosynthesis in *Arabidopsis thaliana*"
 University of Geneva
 Director: Prof T. FITZPATRICK
 Jury of thesis : Prof J.L. WOLFENDER

3. François VERSACE
 «Stratégies de criblage toxicologique par spectrométrie de masse»
 University of Geneva
 Director : Dr C. STAUB
 Jury of thesis : Prof J.-L. WOLFENDER

4. Surekha PIMPLE
 "Synthesis and Biological Evaluation of EGFR/HER-2 inhibitors: Analogs of 5-substituted-4-anilinoquinazoline and 6, 7-disubstituted-4-anilinoquinoline-3-carbonitrile-Screening for development of novel PET tracers"
 University of Geneva
 Director : Prof L. SCAPOZZA
 Jury of thesis : Prof J.-L. WOLFENDER

5. Caroline MATHON
 «Caractérisation, identification et quantification de biomarqueurs et principes actifs dans des compléments alimentaires ou des phytopréparations»
 University of Geneva
 Director : Dr Ph. CHRISTEN
 Co-director : S. BIERI
 Jury of thesis : Prof J.-L. WOLFENDER

6. Marta Ruth RODRIGUEZ ALLER
 "Strategies for the Delivery of Insoluble Drugs to the Eye"
 Université de Genève
 Director : Prof R. GURNY
 Co-director : Prof J.-L. VEUTHEY
 Jury of thesis : Prof J.-L. WOLFENDER

THESIS JURY

1. Manel AOURI «Therapeutic Drug Monitoring and Metabolite Profile Analysis of Antiviral Drugs »
 University of Lausanne
 Director : L. DECOSTERD

2. Niels Hendrik GULDBRANDSEN
 « Screening of Panamanian plant extracts for agricultural and cosmetic activities, and metabolomic study of *Isatis tinctoria* accessions »
 University of Basel
 Director: Matthias HAMBURGER

3. Eirini KOULOURA
 «Phytochemical Investigation of *Acronychia* species using NMR and LC-MS based dereplication and metabolomics approaches»
 University of Athens and University of Paris-Descartes
 Director: Leandros SKALTSOUNIS et Sylvie MICHEL

4. Christina NORD
 « Secondary metabolites from the saprotrophic fungus *Granulobasidium vellereum*»
 Swedish University of Agricultural Sciences, Upsala
 Director: Anders BROBERG

5. Samia Samar OUERTANI
"Méthodologie statistique pour un traitement différentiel des données métabolomiques"
Ecole Nationale Vétérinaire, Agroalimentaire et de l'Alimentation, Nantes Atlantique
Directors: Serge RUDAZ et Hanafi MOHAMED

6. Olivia E. BUENFE
Targeted screening of novel antiseizure compounds from ethnomedical plants using zebrafish.
University of Leuven, Belgium.
Director: Prof. P.A.M. WITTE
Thesis Jury: E. FERREIRA QUEIROZ

7. Fausto C. NETO
Study Chrysobalanaceae species with cytotoxic action: metabolomic analysis aimed at understanding the synergistic associations micromolecular and complexity.
Instituto de Química, University of Sao Paulo (UNESP), Araraquara, Brazil.
Director: I.C. GAMBOA.
Thesis Jury: E.FERREIRA QUEIROZ

8. Tuula SOININEM
Metabolite profiling of Allium species by using modern spectrometric methods.
School of Pharmacy, Faculty of Health Sciences. University of Eastern Finland, Kuopio, Finland.
Director: J. VEPSÄLÄINEN.
Thesis Jury: E. FERREIRA QUEIROZ

PATENTS

M.L. ZERAIK, E.FERREIRA QUEIROZ, J.-L. WOLFENDER, V. BOLZANI, I.C. GAMBOA, D.Q.S. SILVA, M. CUENDET.
Processo de extração e isolamento de substâncias ativas presentes na polpa do umbu, alimentos nutracêuticos e/ou funcionais e cosméticos compreendendo as referidas substâncias ativas e seus usos.
Patent: No BR1020140255877 (2014).

PHARMACEUTICAL TECHNOLOGIES

PROFESSOR ERIC ALLEMANN

PROFESSOR NORBERT LANGE

DR FLORENCE DELIE SALMON, SENIOR LECTURER

GENERAL DESCRIPTION OF THE UNIT

Research at the unit of Pharmaceutical Technology is focused on the delivery of therapeutic agents and contrast agents for medical imaging at the right site on the right time. Eric Allémann has activities in nanomedicine, energy-activated drug delivery systems, targeted-contrast agents for medical imaging. Norbert Lange leads research in photodetection, photodynamic therapy and enzymatically activated prodrugs. In 2014, various collaborations were continued with the University Hospital of Geneva and the EPFL. Collaboration projects with established companies were continued and new ones initiated. Florence Delie leads research in nanomedicine and vectorization.

SPECIFIC RESEARCH FIELDS

- Development of drug formulations for intra-articular delivery
- Development of treatment modality for stroke by sonothrombolysis
- Enzymatically-activated prodrugs and suparmolecular constructs
- Development fo new contrast agents for MRI
- Polymeric photosensitizers projects
- Imaging of β -cells and amyloids

2014 AT A GLANCE

Publications with impact factor	5
Publications without impact factor	1
Posters presentations	5
Congresses & Symposia	8
Continuing education & open to the public lectures	8
Ph.D. Thesis presented in 2014	1
Number of projects at FNRS and assimilated	5
Projects of collaboration with the industry	5

STAFF

LECTURERS	Pascal FURRER	
EXCELLENCE FELLOWSHIP	Imène ATEB	Prakash SAHU
SENIOR RESEARCH AND TEACHING ASSISTANTS	Andrej BABIC	
POSTDOCTORAL SCHOLARS	Karolina JANIKOWSKA Damei KE	Karine MONDON (<i>until 31.03.2014</i>) Cédric THAUVIN
RESEARCH AND TEACHING ASSISTANTS	Jordan BOUILLOUX Vineetha CHELLAKUDAM Viktorija HERCEG Pierre MAUDENS Ioanna MYLONAKI	Bénédicte PETIT Julie PRADAL Nathalie STRANSKY-HEILKRON Céline XAYAPHOUMMINE
ADMINISTRATIVE STAFF	Florence VON OW	
TECHNICAL STAFF	Nathalie BOULENS Brigitte DELAVY	Carole DUPRAZ Marco PERDIGAO

RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)

FNRS

“Targeted photoablation of breast cancer through urokinase-sensitizer prodrugs” (CR3213_147018)

Main applicant : H. Acha-Orbea

Co-applicant : N. Lange

Allocation 2014 : CHF 76'125.-

Duration : 3 years

Starting date : 01.04.2013

“Topical delivery of photosensitizers to atherosclerotic plaques and intra-arterial photodynamic therapy: a pre-clinical (CR3213_150271/1)

Main applicant : S. COOK

Co-applicant : N. LANGE

Total funding : CHF 200'040.-

Duration : 3 years

Starting date : 01.12.2013

“Peptidic scaffolds for targeted delivery of photosensitizer prodrugs in photodynamic therapy” (SNF No. 205320-138309/1)

Main applicant : N. LANGE

Allocation 2014 : CHF 70'040.--

Duration : 3 years and 10 months

Starting date : 01.12.2011

“European Training Network for Excellence in Molecular Imaging in Diabetes” (UE 7-BETATRIN-289932)

Main applicant : E. ALLEMANN

Total funding : 591'000.--

Allocation 2014 : CHF 25'596.--

Duration : 4 years

Starting date : 01.01.2012

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
Divers Intérêts	Service	107'935
Meyer	Service	6'348
total		114'283

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Biomaterials	8.31
Journal of Controlled Release	7.26
Nanomedicine	5.82
Bioconjugate chemistry	4.82
European Journal of Pharmaceutics and Biopharmaceutics	4.25
Pharmaceutical research	3.95
Journal of Pharmacology and experimental Therapeutics	3.86
International Journal of Pharmaceutics	3.79
European Journal of Pharmaceutical Sciences	3.00
Ultrasound in medicine and biology	2.10

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

- G. LEYVA-GOMEZ, M.E. GONZALEZ-TRUJANO, E. LOPEZ-RUIZ, P.O. COURAUD, B. WEKSLER, I. ROMERO, F. MILLER, F. DELIE, E. ALLEMANN, D. QUINTANAR-GUERRERO. “Nanoparticle formulation improves the anticonvulsant effect of Clonazepam on the Pentylentetrazole-induced seizures: behaviour and electroencephalogram”. J Pharm Sci. 103, 2509-2519 (2014) 3.01
- L. VINET, S. LAMPRIANOU, A. BABIC, N. LANGE, F. THOREL, PL. HERRERA, X. MONTET, P. MEDA. “Targeting GLP-1 receptors for repeated magnetic resonance imaging differentiates graded losses of pancreatic beta cells in mice”. Diabetologia, 58(2):304-12 (2015-Epub Nov.2014) 6.88
- D. MANOIL, A. FILIERI, C. GAMEIRO, N. LANGE, J. SCHRENZEL, JC WATAHA, S. BOUILLAGUET. “Flow cytometric assessment of Streptococcus mutans viability after exposure to blue light-activated curcumin”. Photodiagnosis Photodyn Ther. 11(3):372-9 (2014) 2.52
- F. BULIT, I. GRAD, D. MANOIL, S. SIMON, JC WATAHA, A. FILIERI, A. FEKI, J. SCHRENZEL, N. LANGE, S. BOUILLAGUET. “Antimicrobial activity and cytotoxicity of 3 photosensitizers activated with blue light” J. Endod. 40(3):427-31 (2014) 2.78
- E. TURLIN, G. HEUCK, M.I. SIMOES BRANDAO, N. SZILI, JR. MELLIN, N. LANGE, C. WANDERSMAN. “Protoporphyrin (PPIX) efflux by the MacAB-TolC pump in Escherichia coli.” Microbiologyopen 3(6):849-59 (2015-Epub Sep. 2014) 1.55

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. M. COHEN, S. PIERREDON, C. WUILLEMIN, F. DELIE, P. PETITGNAT. "Acellular fraction of ovarian cancer ascites induce apoptosis by activating JNK and inducing BRCA1, Fas and FasL expression in ovarian cancer cells." *Oncoscience*, 1, 4, 262-271 (2014)

PRESENTATIONS

POSTERS PRESENTATIONS

1. P. MAUDENS, O. JORDAN, E. ALLEMANN. SCIO-469 loaded microparticles for osteoarthritis treatment: fluorescence imaging and drug delivery. Controlled Release Society, Chicago, USA, 12-15 July 2014
2. C. XAYAPHOUMMINE, A.S. CHAUVIN, L. HELM, A. BABIC, E. ALLEMANN. Synthesis and characterization of a self-assembling amphiphilic chelating molecule for molecular MRI, 11th European Workshop on Particulate Systems in Nanomedicine, Utrecht, the Netherlands, 13-14 March 2014
3. N. STRANSKY-HEILKRON, M. PLISSONNEAU, P. MOWAT, F. LUX, O. TILLEMENT, C. MARQUETTE, V. FORGE, X. MONTET, E. ALLEMANN. Development of a nanoparticulate imaging agent for pancreatic amyloids in type 2 diabetes, 11th European Workshop on Particulate Systems in Nanomedicine, Utrecht, the Netherlands 13-14 March 2014
4. I. MOTTAS, A. MILOSEVIC, C. THAUVIN, F. DELIE, E. ALLEMANN, A. FINK, B. ROTHEN-RUTISHAUSER, C. BOURQUIN. Nanoparticles (NP) for cancer immunotherapy: How to assess them ?, 6th Autumn School Current Concepts in Immunology, Merseburg, Germany, 5-10 October 2014
5. I. MYLONAKI, F. STRANO, S. DEGLISE, F. SAUCY, J.-A. HAEFLIGER, O. JORDAN, F. DELIE. Microparticle-Gel Formulation for Perivascular Statin Delivery, AAPS Meeting, San Diego, USA, 3-7 November 2014
6. S. MEYNIER, M. KRAMER, P. RIBAU, J.C. TILLE, F. DELIE, P. PETIGNAT, M. COHEN. Role of prostate apoptosis response-4 in ovarian cancer cells, EACR23 Meeting, Munich, Allemagne, 5-8 July 2014
7. J. PANSIERI, E. CHARTIER, P. MOWAT, M. PLISSONNEAU, N. STRANSKY-HEILKRON, E. ALLEMANN, X. MONTET, M. DUMOULIN, C. LOUIS, F. LUX, O. TILLEMENT, C. MARQUETTE, V. FORGE. In vitro targeting of amyloid fibrils with functionalized nanoparticles, Euronanomed 2, Oslo, Norway, 2 December 2014
8. P. MOWAT, M. PLISSONNEAU, N. STRANSKY-HEILKRON, E. ALLEMANN, X. MONTET, M. DUMOULIN, C. LOUIS, F. LUX, O. TILLEMENT, C. MARQUETTE, V. FORGE. In vitro targeting of amyloid fibers with functionalized Gd nanoparticles, Euronanomed 2, Düsseldorf, Germany, 29-30 January 2014
9. C. MARQUETTE, P. MOWAT, M. PLISSONNEAU, N. STRANSKY-HEILKRON, E. ALLEMANN, X. MONTET, M.-J. SARAIVA, M. DUMOULIN, C. LOUIS, F. LUX, O. TILLEMENT, V. FORGE. In vitro targeting of amyloid fibrils with functionalized nanoparticles, EuroNanoMed II – 2nd review Seminar, Düsseldorf, Germany, 29-30 January 2014
10. M. PLISSONNEAU, P. MOWAT, L. HEINRICH-BALARD, P. RIVORY, N. STRANSKY-HEILKRON, C. MARQUETTE, F. LUX, R. COHEN, E. ALLEMANN, C. LOUIS, V. FORGE, X. MONTET, M. DUMOULIN, O. TILLEMENT. Synthesis and characterization of multimodal Gd-Nanoparticles vectorised for Amyloidosis diagnosis, and their affinity evaluation using Biacore, COST Action TD1004, Istanbul, Turkey, 3-4 October, 2014
11. C. MARQUETTE, P. MOWAT, M. PLISSONNEAU, N. STRANSKY-HEILKRON, E. ALLEMANN, X. MONTET, M.J. SARAIVA, M. DUMOULIN, C. LOUIS, F. LUX, O. TILLEMENT, V. FORGE. Amyloid peptide grafted to Gd-Nanoparticle for Amyloidosis diagnosis, Nanohybrides 11, centre IGESA, Porquerolles, France, 2-5 June, 2014

CONGRESSES & SYMPOSIA

1. E. ALLEMANN. "Ultrasound imaging and more". Biopharmaceutical sciences: Where the world Meet. 29th Seminar in Pharmaceutical sciences, Zermatt, Switzerland, 1-5 September 2014
2. E. ALLEMANN. "Intra-articular delivery of microparticles for the improved treatment of arthritic diseases", 4th annual World Symposium of Drug Delivery, Suzhou, China, 18-20 November 2014
3. N. LANGE. "Silent Probes for Optical Imaging: an Overview", 37th ASP meeting, San Diego, USA, June 14-19, 2014
4. N. LANGE. "Coming from the Dark Side: Nanoparticulate quenched photosensitizer prodrugs", 8th meeting of the Society of Porphyrins and Phthalocyanines, Istanbul, Turkey, 22-27 June 2014
5. N. LANGE. "Is there a future in optical imaging", OPT-XUV – Workshop, Prague, Czech Republic, 27-28 May 2014
6. J. BOUILLOUX, N. LANGE. "Proteolytically triggered drug delivery systems for selective photodynamic therapy", Instrument & Methods for Biology & Medicine 2014 – Student Conference, Prague, Czech Republic, 29 May 2014
7. J. BOUILLOUX. "New proteolytically triggered compounds for selective photodynamic therapy? Where cyclopeptides meet copper-free "click-chemistry"", 29th Seminar in Pharmaceutical Sciences, Zermatt, Switzerland, 1-5 September 2014
8. N. LANGE. "On the Cutting Edge: Proteolytically-Induced drug delivery in imaging and photodynamic therapy", SCT-SFNano Joint, Paris, France, 8 April 2014

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. P. FURRER. Cours de formation continue pour le Groupement des Pharmaciens Hospitaliers Romands. Se mettre aux choses qu'un doigt dans l'œil, le nez ou l'oreille : du bon usage des médicaments en ORL ». Hôpital Pourtalès, Neuchâtel, Switzerland, 16 January 2014.
2. P. FURRER. "Cours de formation continue pour le Groupement des Pharmaciens Hospitaliers Romands, du bon usage des médicaments en ORL". Centre hospitalier universitaire vaudois, Lausanne, Switzerland, 11 February 2014.
3. P. FURRER. «Cours et atelier de formation continue pour le CAP (Centre d'Animation des Pharmaciens de Suisse) : cosmétologie», University of Geneva, Geneva, Switzerland, 4 March 2014.
4. P. FURRER. « Atelier pratique de formation continue pour le CAP (Centre d'Animation des Pharmaciens de Suisse) : dermopharmacie ». University of Geneva, Geneva, Switzerland, 18 March 2014.
5. P. FURRER. « Cours préparatoire à l'année d'assistantat pour pharmaciens d'officine Université de Genève et pharmaSuisse », Hôtel Best Western Plus, Lausanne, Switzerland, 14 May 2014.
6. P. FURRER. « Cours de formation MAS en pharmacie hospitalière : La chimie analytique à l'hôpital ». Hôpitaux universitaires de Genève, Geneva, Switzerland, 17 June 2014.
7. P. FURRER. « Cours de master en pharmacie et master en pharmacie industrielle MIP (Drug Delivery and Drug Targeting): Ophthalmic devices/dermopharmacy ». EPFZ, Zürich, Switzerland, 2 December 2014
8. N. LANGE. « Optical Imaging ». Prague, Czech Republic, January, 2014

THESIS PRESENTED

INTRA-MUROS THESIS

1. Bénédicte PETIT “Microbubble-mediated Sonothrombolysis: an *in Vitro* Mechanistic Study”
Thesis n° 4694,
University of Geneva
Director : E. ALLEMANN

THESIS JURY

1. Alexandre GRAND-GUILLAUME-PERRENOUD, University of Geneva
2. Julien MARQUIS, University of Geneva

PHARMACOGNOSY

PROFESSOR MURIEL CUENDET

DR PHILIPPE CHRISTEN, SENIOR LECTURER

GENERAL DESCRIPTION OF THE UNIT

The pharmacognosy research unit is focused on the discovery of bioactive natural products. Compounds with cancer chemopreventive and antiparasitic activity are of particular interest. In these areas, the development of new and better drugs remains a principal need. As established by ample precedent, nature provides broad chemical diversity. Prevention is well developed in the field of cardiovascular disease, but similar drugs that could prevent cancer on this scale are still a long way off. A panel of in vitro bioassays indicative of inhibiting major stages of carcinogenesis (initiation, promotion and progression) is used. Mechanistic studies are then pursued with the most promising compounds. Also, most antiparasitic drugs available on the market (when available) have a limited efficacy and strong side effects. Some plant extracts having shown good in vitro and in vivo activity are currently being investigated to uncover the compounds responsible for the activity and their mechanism of action. The absorption and the metabolism of pure compounds and phytopreparations are also being evaluated in vitro and in vivo. Another area of interest is the appearance of botanical preparations on the market with medicinal claims which escape to registration because they are voluntarily sold as conventional food derived products. Nowadays, such herbal remedies are sold in health food stores, supermarkets or over the internet without seriously questioning their potential activity, side effects or toxicity. Furthermore, there is a misconception and general belief that these plant derived preparations are natural and therefore are perceived as "safe", regardless of potential dangers. Thus there is an urgent need to assess the safety of botanicals and establish a compendium of botanical ingredients which may be of health concerns when used in food derived products. To support food safety authorities, adequate screening approaches and analytical methods are being developed to provide chemical evidence of the presence of an undesired botanical or toxicant. The authenticity of the ingredients is also checked.

SPECIFIC RESEARCH FIELDS

- Cancer chemopreventive screening of natural products: quinone reductase induction, epigenetic modulation, anti-inflammatory and anti-angiogenic activity
- Antiparasitic activity
- Activity-guided fractionation
- Absorption and metabolization studies of phytopreparations and pure natural products using Caco-2 cells and in vivo models
- In depth studies to uncover the mechanism of action of pure natural products and phytopreparations
- Development of a LC-MS/MS method able to screen simultaneously for 62 species whose presence in food might be problematic

2014 AT A GLANCE

Publications with impact factor	16
Publications without impact factor	2
Books and chapters	1
Poster presentations	10
Congresses & Symposia	9
Ph.D. Thesis presented in 2014	1
Patents	1
Awards	1
Number of projects at FNRS and assimilated	2
Projects of collaboration with the industry	1

STAFF

CONFEDERATION FELLOWSHIP	Constant AHOUA	
EXCELLENCE FELLOWSHIP	Elodie BOUJU (RKK)	
POSTDOCTORAL SCHOLARS	Sarah BERNDT	Sylvian CRETTON
RESEARCH AND TEACHING ASSISTANTS	Olivier CICLET Caroline MATHON Chantal WALTER	Mark ISSA Aymeric MONTEILLIER Vincent ZWICK
ADMINISTRATIVE STAFF	Natalie SCHREGLE	
TECHNICAL STAFF	Frédéric BORLAT	Colette SAUTY

RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)



« Peptides based on animal venom constituents as new active ingredients for cosmetic products » (CTI-Projet 14334.1 PFLS-LS)

Main applicant: M. CUENDET

Co-applicant: Y. KALIA

Total allocation: CHF 194'400.00

Allocation 2014: --

Duration: 2 years

Starting date: 2012

« Peptides based on animal venom constituents as new active ingredients for cosmetic products » (CTI-Projet 14334.1 ACTIVEN)

Main applicant: M. CUENDET

Co-applicant: Y. KALIA

Total allocation: CHF 27'000.00.

Allocation 2014: CHF 10'000.00

Duration: 2 years.

Starting date: 2012.

PROJET NIGER

“Contribution à la sauvegarde des savoirs traditionnels sur les plantes médicinales nigériennes: analyse et validation des données ethnobotaniques ».

Applicant: P. CHRISTEN

Allocation 2014: CHF 87'600

Duration: 1 year.

Starting date: 2014.

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
S17246	Fonds Intérêts (M. Cuendet) – Research & Services	23'176.22
S17072	Fonds Industrie (J.-L. Wolfender, M. Cuendet) – Research & Services	407'446.09
	total	430'622.31

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Cancer Res	9.32
Cancer Prev Res	4.44
J Nat Prod	3.79
J Ethnopharmacol	2.99
J Agr Food Chem	2.91
Phytochemistry	2.54
Bioorg Med Chem Lett	2.42
Molecules	2.41
Phytochem Analysis	2.34
Planta Med	2.15

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. S. BERKOV, B. MUTAFOVA, PH. CHRISTEN: “Molecular biodiversity and recent analytical developments: a marriage of convenience” *Biotechnology Advances* 32, 1102-1110 (2014) 9.15
2. B. BILOA-MESSI, R. HO, A. MELI LANNANG, D. CRESSSEND, K. PERRON, A.E. NKENGFAK, P.-A. CARRUPT, K. HOSTETTMANN, M. CUENDET: “Isolation and biological activity of compounds from *Garcinia preussii*” *Pharmaceutical Biology* 52, 706-711 (2014) 1.24
3. PH. CHRISTEN, C. MATHON, S. BIERI: “Targeted analysis of biomarkers for the screening of botanicals in herbal food supplements by LC-MS/MS” *Natural Products Chemistry & Research* 2, 47 (2014) 3.79

4. S. CRETTON, T.A. BARTHOLOMEUSZ, F. MEHL, Y. ALLENBACH, A. MATHEEUSSEN, P. COS, L. MAES, PH. CHRISTEN. "Synthesis and in vitro evaluation of tropane halogenated-derivatives against malaria, sleeping sickness, Chagas disease and leishmaniasis" *Medicinal Chemistry (Bentham)* 10, 753-758. (2014) 1.36
5. S. CRETTON, L. BREANT, L. POURREZ, CH. AMBUEHL, L. MARCOURT, S.N. EBRAHIMI, M. HAMBURGER, R. PEROZZO, S. KARIMOU, M. KAISER, M. CUENDET, PH. CHRISTEN. "Antitrypanosomal quinoline alkaloids from the roots of *Waltheria indica*" *Journal of Natural Products*, 77, 2304-2311 (2014) 3.79
6. F. EL BAHHAJ, J. DESIRE, CH. BLANQUART, N. MARTINET, V. ZWICK, C. SIMOES-PIRES, M. CUENDET, M. GREGOIRE, PH. BERTRAND. "Superacid and thiol-ene reactions for access to psammaphin analogues with HDAC inhibition activities" *Tetrahedron*, 70, 9702-9708 (2014) 2.64
7. N. KACEM, J.-F. GOOSSENS, N. DUHAL, V. ROUMY, T. HENNEBELLE, PH. CHRISTEN, K. HOSTETTMANN, S. RHOUATI. "Determination of alkaloids in endemic *Genista quadriflora* Munby (Fabaceae)" *Biochemical Systematics and Ecology* 56, 83-87 (2014) 0.96
8. E. KOULOURA, E. DANIKA, S. KIM, M. HOERLE, M. CUENDET, M. HALABALAKI, L.A. SKALTSOUNIS. "Rapid identification of coumarins from *Micromelum falcatum* by UPLC-HRMS/MS and targeted isolation of three new derivatives", *Molecules*, 19, 15042-15057 (2014) 2.41
9. C. MATHON, A. ANKLI, E. REICH, S. BIERI, PH. CHRISTEN: "Screening and determination of sibutramine in adulterated herbal slimming supplements by HPTLC-UV densitometry" *Food Additives & Contaminants: Part A* 31, 15-20 (2014) 1.80
10. C. MATHON, P. EDDERS, S. BIERI, PH. CHRISTEN: "Survey of pyrrolizidine alkaloids in teas and herbal teas on the Swiss market using HPLC-MS/MS" *Analytical & Bioanalytical Chemistry* 406, 7345-7354 (2014) 3.43
11. C. MATHON, P. EDDER, PH. CHRISTEN, S. BIERI: "Unexpected occurrence of caffeine in sleep-inducing herbal teas" *Chimia* 68, 705-709 (2014) 1.34
12. R. NELSON, V. KESTERNICH, M. PÉREZ-FEHRMANN, F. SALAZARA, L. MARCOURT, PH. CHRISTEN, P. GODOY: "Synthesis and antifungal activity of phenacyl azoles" *Journal of Chemical Research* 38, 549-552 (2014) 0.63
13. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, M. ZERAIK, S. EBRAHIMI, L. MARCOURT, M. CUENDET, I. GAMBOA : "Chemical composition of the bark of *Tetrapterys mucronata* and identification of acetylcholinesterase inhibitory constituents", *Journal of Natural Products*, 77, 650-656 (2014) 3.79
14. M.M. FERREIRA QUEIROZ, E.FERREIRA QUEIROZ, M.L. ZERAIK, G. MARTI, Q. FAVRE-GODAL, C. SIMOES-PIRES, L. MARCOURT, P.-A. CARRUPT, M. CUENDET, M.Q. PAULO, V.S. BOLZANI, J.-L. WOLFENDER: "Antifungals and acetylcholinesterase inhibitors from the stem bark of *Croton heliotropiifolius*" *Phytochemistry Letters*, 10, 88-93 (2014) 1.45
15. C. SIMOES-PIRES, K. HOSTETTMANN, A. HAOUALA, M. CUENDET, J. FALQUET, B. GRAZ, PH. CHRISTEN: "Reverse pharmacology for developing an anti-malarial phytomedicine. The example of *Argemone Mexicana*", *Journal for Parasitology: Drugs and Drug Resistance*, 4, 338-346, (2014) 1.22
16. V. ZWICK, A.O. CHATZIVASILEIOU, N. DESCHAMPS, M. ROUSSAKI, C. SIMOES-PIRES, A. NURISSO, I. DENIS, Ch. BLANQUART, N. MARTINET, P.-A. CARRUPT, A. DETSI, M. CUENDET: "Aurones as histone deacetylase inhibitors: identification of key features", *Bioorganic & Medicinal Chemistry Letters*, 24, 5497-550 (2014) 2.42

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. S. CRETTON, L. BRÉANT, L. POURREZ, L. MARCOURT, C. AMBUEHL, R. PEROZZO, S. EBRAHIMI, M. HAMBURGER, S. KARIMOU, M. KAISER, M. CUENDET, PH. CHRISTEN. "Alcaloïdes quinoléiques à activité antitrypanosomale isolés des racines de *Waltheria indica*" *Pharma Journal* 11, 11-13 (2014)
2. C. MATHON, A. ANKLI, E. REICH, S. BIERI, PH. CHRISTEN: "HPTLC determination of sibutramine in adulterated herbal slimming supplements" *Camag Bibliography Service*, no 112 (March 2014), 9-11 (2014)

BOOKS OR BOOKS CHAPTERS

1. M. CUENDET, A. NIEVERGELT, J.M. PEZZUTO: "Molecular targets of botanicals used for chemoprevention". In *Integrative Oncology*. 2nd edition, D.I. Abrams, A. Weil, eds. Oxford University Press, New York, NY; pp. 52-84. (2014)

PRESENTATIONS

POSTERS PRESENTATIONS

1. D. WINEKENSTÄDDE, A. ANGELIS, C. SIMOES-PIRES, N. ALIGIANNIS, M. CUENDET, A.L. SKALTSOUNIS, H. STUPPNER Phytochemical analysis of an antioxidative methanolic extract of *Sedum sediforme*. 23rd Scientific Congress of the Austrian Pharmaceutical Society (ÖPhG), Graz, Austria, April 23-25, 2014
2. A. ANKLI, C. MAGNENAT, C. SIMOES-PIRES, J. TAIBON, V. BOKA, E. ARGIROPOULOU, H. STUPPNER, N. ALIGIANNIS, A.L. SKALTSOUNIS, M. CUENDET, E. REICH. Screening of Mediterranean and Alpine plant extracts for tyrosinase inhibition by an HPTLC autobiographic assay. International Symposium for Thin-Layer Chromatography, Lyon, France, 2-4 July 2014
3. M.E. ISSA, M. CUENDET. ICP-133 controls in vitro cell proliferation in multiple myeloma cancer stem cells, 23rd Biennial Congress of the European Association for Cancer Research. Munich, Germany, 5-8 July 2014
4. S. CRETTON, L. BRÉANT, L. POURREZ, L. MARCOURT, C. AMBUEHL, R. PEROZZO, S. EBRAHIMI, M. HAMBURGER, S. KARIMOU, M. KAISER, M. CUENDET, PH. CHRISTEN. Antitrypanosomal activity of quinolone alkaloids from the roots of *Waltheria indica*. Swiss Pharma Science Day, Bern, Switzerland, 31 August 2014
5. M.E. ISSA, M. CUENDET. ICP-133 controls in vitro cell proliferation in multiple myeloma cancer stem cells. Swiss Pharma Science Day 2014, Bern, Switzerland, 31 August 2014
6. C. WALTER, A. FRANDI, M. DE BARSY, K. PERRON, P. CHRISTEN, P. VIOLLIER, G. GREUB, M. CUENDET New approaches for functional genome analysis in a genetically intractable system organism (*Waddlia chondrophila*). Swiss Pharma Science Day 2014, Bern, Switzerland, 31 August 2014
7. V. ZWICK, N. DESCHAMPS, A.O. CHATZIVASILEIOU, M. ROUSSAKI, C. SIMOES-PIRES, A. NURISSO, I. DENIS, C. BLANQUART, N. MARTINET, P.-A. CARRUPT, A. DETSI, M. CUENDET. Aurones as histone deacetylase inhibitors: identification of key features. Swiss Pharma Science Day, Bern, Switzerland, 31 August 2014
8. J. TAIBON, A. ANKLI, C. MAGNENAT, C. SIMOES-PIRES, V. BOKA, E. ARGIROPOULOU, N. ALIGIANNIS, A.L. SKALTSOUNIS, M. CUENDET, H. STUPPNER, E. REICH. Development and validation of a HPTLC-based assay for the screening and identification of tyrosinase inhibitors. 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research, Guimaraes, Portugal, 31 August – 4 September 2014
9. S. DEL RIO-SANCHO, B. COUTAZ, J.-M. LE DOUSSAL, R. STÖCKLIN, M. CUENDET, Y. KALIA. Short duration iontophoresis for targeted topical peptide delivery into the skin. 14th Annual Meeting Skin Kin Forum, Prague, Czech Republic, 4-5 September 2014

10. N. DESCHAMPS, V. ZWICK, A.O. CHATZIVASILEIOU, M. ROUSSAKI, A. NURISSO, C. SIMOES-PIRES, P.-A. CARRUPT, A. DETSI., M. CUENDET Modulation of histone deacetylases by Mother Nature: The case of aurones, 23rd International Symposium on Medicinal Chemistry. Lisbon, Portugal, 7-11 September 2014

CONGRESSES & SYMPOSIA

1. PH. CHRISTEN, A. HAOUALA, C. SIMOES-PIRES, M. CUENDET, B. GRAZ, J. FALQUET. Reverse pharmacology for developing an anti-malarial phytomedicine. The example of *Argemone mexicana*. 2nd International Conference on Global Challenges for New Drug Discovery Against Tropical Parasitic Diseases, Malaga, Spain, 17-20 February 2014
2. M. CUENDET. Les produits naturels comme agents de chimioprévention du cancer. Mostaganem University, Mostaganem, Algeria, 18-19 February 2014
3. M. CUENDET. Validation thérapeutique de phytopréparations. Mostaganem University, Mostaganem, Algeria, 18-19 February 2014
4. PH. CHRISTEN, C. MATHON, S. BIERI. Targeted analysis of biomarkers for the screening of botanicals in herbal food supplements by LC-MS/MS. 2nd International Conference and Exhibition on Pharmacognosy, Phytochemistry and Natural Products, Beijing, China, 25-27 August 2014
5. S. CRETTON, L. BRÉANT, L. POURREZ, L. MARCOURT, C. AMBUEHL, R. PEROZZO, M. KAISER, M. CUENDET, PH. CHRISTEN. Antitrypanocidal activity of quinolone alkaloids from the roots of *Waltheria indica*. 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research, Guimaraes, Portugal, 31 August – 4 September 2014
6. C. SIMOES-PIRES, M. HALABALAKI, M.M. RUBNER, S. SCHWAIGER, C. PETIT, A. NIEVERGELT, H. STUPPNER, A.L. SKALTSOUNIS, D. INTELMMANN, M. CUENDET. Evaluation of plant extracts with detoxifying properties by mammalian cell metabolomics. 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research, Guimaraes, Portugal, 31 August – 4 September 2014
7. S. CRETTON, M. CUENDET, PH. CHRISTEN. Alkaloids as source of potential antiparasitic drugs. IV Congreso Iberoamericano de Productos Naturales en Patagonia: La diversidad Química y Biológica, Rio Gallegos, Argentina, 28-30 September 2014
8. M. CUENDET. Natural products as cancer chemopreventive agents: a focus on multiple myeloma cancer stem cells. 2nd Workshop of COST Action CM1106 (Chemical Approaches to targeting drug resistance in cancer stem cells), Tenerife, Spain, 14-15 October 2014
9. S. CRETTON, M. CUENDET, PH. CHRISTEN. Natural and synthetic alkaloids as potential novel antiparasitic drugs. 2nd International Conference on Natural Health, Mostaganem, Algeria, 26-28 October 2014

THESIS PRESENTED

INTRA-MUROS THESIS

1. Caroline MATHON,
« Caractérisation, identification et quantification de biomarqueurs et principes actifs dans des compléments alimentaires ou des phytopréparations »
Thesis n° 4715 – University of Geneva
Director : PH. CHRISTEN
Co-director : S. BIERI

THESIS JURY

1. Iza DENIS,
« Vectorisation d'inhibiteurs d'histones déacétylases et évaluation du phénéthyl isothiocyanate pour l'amélioration des traitements du mésothéliome pleural malin »
University of Nantes
2. Céline TISSEYRE,
« La maurocalcine : substance naturelle d'intérêt thérapeutique »
University of Grenoble

PATENTS

M.L. ZERAIK, E.FERREIRA QUEIROZ, J.-L. WOLFENDER, V. BOLZANI, I.C. GAMBOA, D.Q.S. SILVA, M.CUENDET. Processo de extração e isolamento de substâncias ativas presentes na polpa do umbu, alimentos nutracêuticos e/ou funcionais e cosméticos compreendendo as referidas substâncias ativas e seus usos. BR provisional patent application BR1020140255877 (2014)

AWARDS & DISTINCTIONS

S. CRETTON, Antitrypanosomal quinoline alkaloids from the roots of *Waltheria indica*, Swiss Pharma Science Day 2014, Bern, Switzerland, 31 August 2014. Award for the best poster in Pharmaceutical Biology

PHARMACOCEMISTRY

PROFESSOR PIERRE-ALAIN CARRUPT

DR DAVY GUILLARME, SENIOR LECTURER

GENERAL DESCRIPTION OF THE UNIT

The team of pharmacochemistry developed original theoretical and experimental methods able to quantify intermolecular interactions of a drug with its biological partners such as therapeutic targets or biological membranes. This research intended to accelerate the discovery of chemical compounds of therapeutic interest and to optimize the effectiveness, the selectivity and the safety of the selected drug candidates. They were centered on the development and validation of in silico and in vitro HTS filters to characterize physicochemical properties, passive membrane permeation and cellular efflux of new chemical entities. Virtual and in vitro HTS screening approaches were optimized to study the interactions with some specific bio-targets involved in neurodegenerative diseases like Alzheimer and Parkinson's diseases were measured in order to identify multifunctional drug candidates.

SPECIFIC RESEARCH FIELDS

- Biochemical screening: enzyme Inhibition; antioxidant profiling of NCEs; antiapoptotic properties of NCEs; enzymatic hydrolysis of drugs and prodrugs; inhibition of hERG channel; inhibition of HDAC and SIRT proteins.
- Molecular modelling: Intermolecular interaction fields; indirect molecular modelling; direct molecular modelling; quantum chemistry.
- Physicochemical screening: Physicochemical profiling; antioxidant properties.
- Permeation screening: passive permeation profiling using PAMPA-membranes to mimic the skin, the intestinal barrier and the blood-brain barrier. 3D-QSAR models associated with proteins responsible of cellular efflux in membrane permeation or multi-drug resistance.

2014 AT A GLANCE

Publications with impact factor	15
Books and chapters	3
Posters presentations	12
Congresses & Symposia	3
Continuing education & open to the public lectures	2
Ph.D. Thesis presented in 2014	2
Number of projects at FNRS and assimilated	1
Projects of collaboration with the industry	2

STAFF

RESEARCH ASSOCIATE	Sophie MARTEL (<i>until 30.04.2014</i>)	
EXCELLENCE FELLOWSHIP	Alessandra NURISSO	
SENIOR RESEARCH AND TEACHING ASSISTANTS	Julieta GRADINARU	Claudia SIMOES PIRES
POSTDOCTORAL SCHOLARS	Carolina DOS SANTOS PASSOS	Giuseppe Marco RANDAZZO
RESEARCH AND TEACHING ASSISTANTS	Alban BUJARD Nils OBERHAUSER Stéphanie ROMAND Lionel SACONNAY	Nathalie NEVEU Charlotte PETIT Lucie RYCKEWAERT Vincent ZWICK
INTERNSHIP STUDENTS – CO-SUPERVISION (CO-TUTELLE)	Cecilia FORTUGNO	Florine LECERF-SCHMIDT
ADMINISTRATIVE STAFF	Sylvia PASSAQUAY	
TECHNICAL STAFF	Virgine BEYELER (<i>apprentice laborante</i>) Fabrice GILLERA Christophe FRANCEY	Irena NIKOLOVA Emilie REGINATO

RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)

SUBSIDE TREMLIN

Main applicant : Claudia Simoes Pires
Total Allocation : CHF. 27'800.--
Duration : 6 months
Starting Date : September 2014

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total amount for 2014 (CHF)
Schmidheiny	research	17'849.--
Mercier	research	70'000.--
	Total	87'849.--

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Anal.Chem.	5.83
Chemistry - A European Journal	5.69
J.Med.Chem	5.48
Mol. Neurodegener.	5.29
J.Chem.Info.Model	4.07
Curr Topics Med. Chem.	3.45
Eur.J.Med.Chem.	3.43
Chem.Med.Chem.	3.10
Bioorgan.Med.Chem.	2.95
J.Comp.Aided Drug Des.	2.78

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. B.B. MESSI, R. HO, D. CRESSEND, K. PERRON, A.E. NKENGFACK, P.-A. CARRUPT, K. HOSTETTMANN, M. CUENDET. Synthesis and biological evaluation of direct thrombin inhibitors bearing (4-piperidin-1-yl)pyridine at the P1 position with potent anticoagulant activity. *Pharm.Biol.*, 2014, 52:706-711. 1.34
2. L. SACCONNAY, M. ANGLEVIEL, G.M. RANDAZZO, M. MARCO, E. FERREIRA QUEIROZ, J.-L. WOLFENDER, P.-A. CARRUPT, A. NURISSO. Computational studies on sirtuins from *Trypanosoma cruzi*: structures, conformations and interactions with phytochemicals. *PloS Negl. Trop. Dis.*, 2014, 8:e2689. 4.49
3. E. FAVRE, A. DAINA, P.-A. CARRUPT, A. NURISSO. Modelling The Met-form of human tyrosinase: a refined and hydrated pocket for antagonist design. *Chem. Biol. Drug Design*, 2014, 84:206-215. 2.51
4. C. FORTUGNO, G. VARCHI, A. GUERRINI, P.-A. CARRUPT, C. BERTUCCI. Optical biosensor analysis in studying new synthesized bicalutamide analogues binding to androgen receptor. *Pharm. Biomed. Anal*, 2014, 95: 151-157. 2.83
5. L.C. KLEIN-JUNIOR, C. DOS SANTOS PASSOS, A.-P. MORAES, V.-G. WAKUI, E.L. KONRATH, A. NURISSO, P.-A. CARRUPT, C.M.A. DE OLIVEIRA, A.T. HENRIQUES. Indole alkaloids and semisynthetic indole derivatives as multifunctional scaffolds aiming the inhibition of enzymes related to neurodegenerative diseases \pm A focus on Psychotria L. *Genus. Curr. Topics Med. Chem.*, 2014, 1056-1075. 3.45
6. N. OBERHAUSER, P.-A. CARRUPT, A. NURISSO. MLP Tools: a PyMOL plugin for using the molecular lipophilicity potential in computer-aided drug design. *J. Comp. Aided Mol. Des.*, 2014, 28:587-596. 2.78
7. S. ROMAND, J. SCHAPPLER, J.-L. VEUTHEY, P.-A. CARRUPT, S. MARTEL. cIEF for rapid pKa determination of small molecules: A proof of concept. *Eur.J.Pharm.Sci.*, 2014, 63: 14-21. 3.01
8. A. BUJARD, M. SOL, P.-A. CARRUPT, S. MARTEL. Predicting both passive intestinal absorption and the dissociation constant toward albumin using the PAMPA technique. *Eur. J. Pharm. Sci.*, 2014, 63: 36-44. 3.01
9. L. RYCKEWAERT, L. SACCONNAY, P.-A. CARRUPT, A. NURISSO, C. AVELLO SIMOES PIRES. Non-specific SIRT inhibition as a mechanism for the cytotoxicity of ginkgolic acids and urushiols. *Toxicol. Lett.*, 2014, 229:374-380. 3.35
10. D. LORENDEAU, L. DURY, E. GENOUX-BASTIDE, F. LECERF-SCHMIDT, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, R. TERREUX, S. MAGNARD, A. DI PIETRO, A. BOUMENDJEL, H. BAUBICHON-CORTAY. Collateral sensitivity of resistant MRP1-overexpressing cells to flavonoids and derivatives through GSH efflux. *Biochem. Pharmacol.*, 2014, 90: 235-245. 4.65

11. P. EUGSTER, J. BOCCARD, B. DEBRUS, L. BREANT, J.-L. WOLFENDER, S. MARTEL, P.-A. CARRUPT. Retention time prediction for dereplication of natural products (CxHyOz) in LC-MS metabolite profiling. *Phytochemistry*, 2014, 108: 196-207. 3.35
12. M. MARTI, S. SCHNEE, Y. ANDREY, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, J.-L. WOLFENDER, K. GINDRO. UV-C stress irradiation to study metabolite modifications and phytoalexin biosynthesis in plant leaves: a UHPLC-TOFMS-based metabolomic study. *Molecules*, 2014, 19: 14004-14021 2.10
13. V. ZWICK, A.O. CHATZIVASILEIOU, N. DESCHAMPS, M. ROUSSAKI, C. SIMOES PIRES, A. NURISSE, I. DENIS, C. BLANQUART, N. MARTINET, P.A. CARRUPT, A. DETSI, M. CUENDET. Aurones as histone deacetylase inhibitors: identification of key features. *Bioorg. Med. Chem. Lett.*, 2014, 23:5497-5501 2.33
14. M.M. FERREIRA QUEIROZ, E.FERREIRA QUEIROZ, M.L. ZERAIK, G. MARTI, Q. FAVRE-GODAL, C. AVELLO SIMOES PIRES, L. MARCOURT, P.-A. CARRUPT, M. CUENDET, M.Q. PAULO, V.S. BOLZANI. Antifungals and acetylcholinesterase inhibitors from the stem bark of *Croton heliotropiifolius*. *Phytochem. Letters*, 2014, 10. 1.54
15. L. SACCONNAY, L. RYCKEWAERT, C. DOS SANTOS PASSOS, M.C. GUERRA, L. KATO, C.M. ALVES DE OLIVEIRA, A. HENRIQUES, P.-A. CARRUPT, C. AVELLO SIMOES-PIRES, A. NURISSE. Alkaloids from *Psychotria target sirtuins*: in silico and in vitro interaction studies. *Planta Medica*, 2014, On line. 2.34

BOOKS OR BOOKS CHAPTERS

1. C. DOS SANTOS PASSOS, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, A. NURISSE. In silico structural and thermodynamics studies of protein-protein interactions involving ubiquitin and HDAC6 ZnF-UBP domain. 8th Drug Design & Medicinal Chemistry, 8-9 May 2014 Berlin (Germany).
2. S. MARTEL, P.-A. CARRUPT. Molecular scale modeling of skin permeation: impact of cellular membranes. Editor: Querleux B., Pan Stanford Publishing Pte. Ltd.; *Computational Biophysics of the Skin*, 2014.
3. A. URBAIN, C. AVELLO SIMOES PIRES. Thin-layer chromatography, with chemical and biological detection methods. Wiley On-Line Library - Encyclopedia of Analytical Chemistry; 2014, On-Line; 23 June 2014.

PRESENTATIONS

POSTERS PRESENTATIONS

1. C. DOS SANTOS PASSOS, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, A. NURISSE. In silico structural and thermodynamics studies of protein-protein interactions involving ubiquitin and HDAC6 ZnF-UBP domain. 8th Drug Design & Medicinal Chemistry, 8-9 May 2014 Berlin (Germany).
2. L. RYCKEWAERT, L. SACCONNAY, P.-A. CARRUPT, A. NURISSE, C. AVELLO SIMOES PIRES. Non-specific sirtuin inhibition as a mechanism of cytotoxicity for ginkgolic acids and urushiols. *Drug Discovery Therapy World Congress 2014*, 16-19 June 2014, Boston (USA).
3. A. BUJARD, H. VOIROL, P.-A. CARRUPT. PAMPA technique used to predict drug-plasmatic protein binding percentage in two end-point measurement. *Swiss Pharma Day*, 20 August 2014, Bern (Switzerland).
4. N. DESCHAMPS, A. ORDEFS CHATZIVASILEIOU, V. ZWICK, M. ROUSSAKI, A. NURISSE, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, A. DETSI, M. CUENDET. Modulation of histone deacetylases by mother nature: the case of aurones. *EFMC-ISMIC 2014*, 7-11 September 2014., Lisbon (Portugal).
5. N. DESCHAMPS, P.-A. CARRUPT, A. NURISSE. Capless compounds can selectively inhibit HDAC6: evidences by molecular modelling. *EFMC-ISMIC 2014*, 7-11 September 2014, Lisbon (Portugal)

6. A. BUJARD, M. SOL, S. MARTEL, P.-A. CARRUPT. A high-throughput screening assay predicting both passive GIT permeability and affinity constant towards human serum albumin in a two end-point measurement. EFMC-ISMIC 2014, 7-11 September 2014, Lisbon (Portugal).
7. L. SACCONNAY, L. RYCKEWAERT, G.M. RANDAZZO, S. KRIFA, C. AVELLO SIMOES PIRES, P.-A. CARRUPT, A. NURISSO. In silico studies on human SIRT2 reveal structural features useful for the design of SIRT2 modulators. EFMC-ISMIC 2014, 7-11 September 2014, Lisbon (Portugal).
8. C. PETIT, A. BUJARD, K. SKALICK-WOZNIAK, J.-L. WOLFENDER, P.-A. CARRUPT. Evaluation of the passive permeability through GIT of a set of natural products and plant extracts with hexadecane membrane parallel artificial membrane permeability assay (HDM-PAMPA). Annual meeting of the Society for Medicinal Plants, 31 August - 4 September 2014, Lisbon (Portugal).
9. J. TAIBON, A. ANKLI, C. MAGNENAT, C. AVELLO SIMOES-PIRES, V.I. BOKA, A. ARGYROPOULOU, N. ALIGIANNIS, A.L. SHALTSOUNIS, M. CUENDET, H. STUPPNER, E. REICH. Development and validation of an HPTLC based assay for the screening and identification of tyrosinase inhibitors. 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 September 2014, Guimaraes (Portugal).
10. M.M. FERREIRA QUEIROZ, E. FERREIRA QUEIROZ, M.-L. ZERAIQUE, G. MARTI, Q. FAVRE-GODAL, C. AVELLO SIMOES-PIRES, L. MARCOURT, M. CUENDET, M.Q. PAULO, V.S. BOLZANI, J.-L. WOLFENDER. Bioactive compounds from the stem bark of *Croton heliotropiifolius*. 62nd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 31 August - 4 September 2014, Guimaraes (Portugal).
11. P. PASSOS, C. AVELLO SIMOES-PIRES, P.-A. CARRUPT, A. NURISSO. In silico structural and thermodynamics studies of protein-protein interactions involving ubiquitin and HDAC6 ZnF-UBP domain. Swiss Pharma Day, 20 August 2014, Bern (Switzerland).
12. M. TRAORE, H. JAMET, A. NURISSO, Y.S. WONG. Activity of the histone deacetylase inhibitors on *Toxoplasma gondii*. Journée scientifique du médicament, 19-20 June 2014, Grenoble (France).

CONGRESSES & SYMPOSIA

1. A. BUJARD. A HTS Assay Predicting Both Passive Intestinal Absorption and Affinity Constant Towards Human Serum Albumin in a Two End-Point Measurement. EFMC-ISMIC 2014, 7-11 September 2014, Lisbon (Portugal).
2. C. AVELLO SIMOES-PIRES. Evaluation of plant extracts with detoxifying properties by mammalian cell metabolomics. 62nd International congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research - GA2014, September 2014 Guimaraes (Portugal).
3. A. NURISSO. Epigenetic in drug design: new perspectives. San Pablo CEU, 2014, Madrid (Spain).

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. A. NURISSO. Chimie Médicinale et Innovation Pharmacologique, master recherche, Université Joseph Fourier - Grenoble (UJF). Magistral lectures and Practical Courses 23h.
2. A. NURISSO. Computer Aided Drug Design, Unité d'Enseignement (UE) de Master 2 Ingénierie Santé Médicaments (ISM), Université Joseph Fourier - Grenoble (UJF). Conception of the module, magisterial lectures and Practical Courses 30h

THESIS PRESENTED

INTRA-MUROS THESIS

1. Nils OBERHAUSER
Lipophilicity in computer-aided drug design: new tools and applications.
University of Geneva – 2014
Director : Prof P.-A. CARRUPT

CO-TUTELLE THESIS

1. Cecilia FORTUGNO
Multimethodological Study of Molecular Recognition Phenomena.
University of Bologna - 2014
Director: Prof P.-A. CARRUPT
Co-Director: Prof J.-L. VEUTHEY
Co-Director: Prof C. BERTUCCI

THESIS JURY

1. D. GARCIA SECO DE HERRERA
Estudio del transcriptoma de Rubus SPP. Var Loch Ness expresion genica de la ruta de flavonoides durante la maduracion de frutos.
Universidad San Pablo CEU, Madrid, Spain - 2014
Jury: Dr. C. SIMOES PIRES

AWARDS & DISTINCTIONS

- A. NURISSO, Prix d'encouragement à la recherche en chimie thérapeutique - Société de chimie thérapeutique française, EUROS 1'000
- A. NURISSO, Boursière d'excellence, Université de Genève
- A. NURISSO, FNS advanced mobility grant – CHF 48'000
- C. SIMOES-PIRES, Subside Tremplin, Université de Genève – CHF 27'800
- C. SIMOES-PIRES, IP star® winner (Diagenode) 2014 - http://www.diagenode.com/en/landing-pages/ipstar-campaign-inner.php?utm_source=MailingList+EMEA&utm_medium=email&utm_campaign=WINNER+of+Win+an+IP-Star

PROFESSOR CHANTAL CSJAKA

GENERAL DESCRIPTION OF THE UNIT

The activities of the group are divided into two main aspects that comprises (i) drug individualization through population pharmacokinetic, pharmacodynamic and pharmacogenetic modelling that allows characterisation of the dose-concentration-response relationships of drugs and (ii) drug optimization in vulnerable populations, such as paediatrics, geriatrics or critically ill patients. The population approach is a very suitable method to capture the combined effects of multiple demographic, environmental, or genetic factors that can influence drug levels and potentially modulate drug response or toxicity. The group's interests are also focused on dose adjustment strategies for drugs followed by therapeutic drug monitoring. Our group is working in close collaboration with several research groups and clinical units for specific research projects and is participating to local, national and international clinical studies. Several important projects in the area of anti-infective, oncologic and psychotropic treatments are on-going.

The group is also mandated by industrial companies to conduct population pharmacokinetic studies for drugs during their clinical development phases. Our expertise allows for drug analyses and simulations, which can provide a more global understanding of the drug kinetics along with intersubject variability and covariate effect, which is of major interest for the clinical development of new compounds. The group is also involved into the pregraduate teaching of clinical pharmacy at the Master level and is supervising master theses and doctoral theses in the field of clinical pharmacy.

SPECIFIC RESEARCH FIELDS

Population Pharmacokinetic analyses

Anticancer agents: several projects conducted within the frame of one PhD thesis have been initiated in 2014. These studies aim at better characterizing the concentration-effect and toxicity relationship of targeted anticancer drugs used in the treatment of solid tumors. A registry for targeted drugs (tyrosine kinase inhibitors) has been setup at the CHUV to prospectively collect pharmacokinetic, clinical and outcome data (OpTAT study). A randomized study evaluating the benefit of randomized therapeutic drug monitoring for regorafenib has been initiated. Several collaborations with national and international groups have started in order to improve patient recruitment for this project and two grant applications (Cardio-Onco grant, SAKK) have been submitted.

Antiinfective drugs: Pharmacokinetic studies on antiretroviral drugs aiming at better defining therapeutic intervals for therapeutic drug monitoring have been finalized. Several analyses on antimalarial drugs have been conducted within the frame of the DnDi (Drug for Neglected Disease Initiative) project (artemeter and lumefantrine in pregnant and non-pregnant women; mefloquine, piperazine and artemeter/lumefantrine in Cambodian and Tanzania malaria patients; artesunate-mefloquine in African children). In addition, studies on antibacterial agents in the neonatal population have been finalized.

Psychoactive agents: Several projects on the pharmacokinetic and pharmacogenetic analyses of psychoactive drugs have been performed in collaboration with the pharmacogenetics and psychopharmacology unit of the CHUV (Prof CB Eap). The collaborative multicentric study evaluating the exposure of antidepressant drugs through breastmilk is still ongoing.

Drug Safety-Pharmacoepidemiology: A research field for drug optimization during pregnancy and lactation has been set up in collaboration with the Maternity Hospital at the CHUV. It comprises several studies involving drug optimization in this population (characterization of the pharmacokinetic-pharmacodynamic relationship of nifedipine used as a tocolytic during pregnancy, algorithm for treatment reconciliation). A cohort safety study on metformin in pregnancy is in collaboration with ENTIS (European Network of Teratogen Information Services) and the Motherisk Program of Toronto is being conducted by our group. A Sinergia project aiming at better defining the factors contributing to preterm birth (microbiota, antibiotic and genetic influence) has been submitted.

2014 AT A GLANCE

Publications with impact factor	13
Publications without impact factor	4
Books and chapters	1
Posters presentations	13
Congresses & Symposia	6
Continuing education & open to the public lectures	3
Number of projects at FNRS and assimilated	6
Projects of collaboration with the industry	2

STAFF

SENIOR RESEARCH ASSOCIATE

Monia GUIDI

Alice PANCHAUD

RESEARCH AND TEACHING ASSISTANTS

Catalina BARCELO

Etienne WEISSKOPF

Evelina CARDOSO

ADMINISTRATIVE STAFF

Dominique HUNZIKER

RESEARCH FUNDS



“Prediction of infant drug exposure to antidepressant drugs through breastfeeding using population pharmacokinetic modeling and simulation »

Main applicant: C. CSAJKA

Total Funding: CHF 260'000.-

Allocation 2014: CHF 72'000.-

Duration 4 years

Starting date: 1.4.2012

« Clinical Pharmacology and Pharmacogenetics In the Complex Care of HIV and HIV/HCV co-infected Individuals

». Prof C. Csajka, co-applicant.

Main applicant: L. DECOSTERD

Co-applicant: C. CSAJKA

Total Funding: CHF 442'000.-

Allocation 2014: CHF 60'305.-

Duration 3 years

Starting date: 1.10.2012

“Population kinetic modelling of metabolic traits in HIV infected (SHCS project) individuals”

Main applicant: P. TARR

co-applicant: C. CSAJKA

Total Funding : CHF 55'800.-

Allocation 2014: CHF 14'700.-

Duration: 2 years

Starting date: 1.8.2014

“Co-administration of elvitegravir, darunavir and etravirine : beware of unexpected low drug levels !” (SHCS project)

Main applicant: C. CSAJKA

Co-applicant: M. CAVASSINI

Total Funding: CHF 5'000.-

Allocation 2014: CHF 5'000.-

Duration: 6 months

Starting date: 1.7.2014

“Population Pharmacokinetic modelling of vitamin D in HIV-infected patients (SHCS project)

Main applicant: A. TELENTI

Total Funding: CHF 18'000.-

Allocation 2014: CHF 9'800.-

Duration: 8 months

Starting date: 1.1. 2012

PRIVATE ORGANISATION

Drug for neglected disease initiative (DNDi).

“Efficacy, Safety and Population-Pharmacokinetics of Artesunate-Mefloquine combination for the Treatment of Uncomplicated Falciparum Malaria in African children versus Artemether- Lumefantrine”

Main applicant: C. CSAJKA

Co-applicant: M. GUIDI

Total Funding: CHF 39'075.-

Allocation 2014: CHF 39'075.-

Duration 9 months

Starting date: 1.1.2014

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
1143	Service	23'753.10
0932	Service	2'457.20
	total	26'210.30

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Clinical Pharmacology and Therapeutics	7.90
Journal of Antimicrobial Chemotherapy	5.31
Clinical Pharmacokinetics	5.05
Antimicrobial Agents and Chemotherapy	4.47
Pharmacogenetics and genomics	3.60
British journal of clinical pharmacology	3.87
The Journal of clinical pharmacology	2.47
Therapeutic drug monitoring	2.27

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. M. GUIDI, G. FOLETTI, P. McLAREN, M. CAVASSINI, A. RAUCH, P.E. TARR, O. LAMY, A. PANCHAUD, A. TELENTI, C. CSAJKA, M. ROTGER. the Swiss HIV Cohort Study. Vitamin D time profile based on the contribution of non-genetic and genetic factors in HIV-infected individuals of European ancestry. Antivir Ther. 2014 Jul 17. doi: 10.3851/IMP2823. 2.82

2. [A. LUPATTELLI, O. SPIGSET, M.J. TWIGG, K. ZAGORODNIKOVA, A.C. MÅRDBY, M. MORETTI, M. DROZD, A. PANCHAUD, K. HAMEEN-ANTTILA, A. RIEUTORD, R. GJERGIA, M. ODALOVIC, D. KENNEDY, G. RUDOLF, H. JUCH, A. PASSIER, I. BJÖRNSDÓTTIR, H. NORDENG ; Medication use in pregnancy: a cross-sectional, multinational web-based study. *BMJ open* 2014; 4:e004365.](#) 1.58
3. [V. GOTTA, N. WIDMER, L.A. DECOSTERD, Y. CHALANDON, D. HEIM, M. GREGOR, R. BENZ, L. LEONCINI-FRANSCINI, G. M. BAERLOCHER, M.A. DUCHOSAL, C. CSAJKA, T. BUCLIN ; Clinical usefulness of therapeutic concentration monitoring for imatinib dosage individualization: results from a randomized controlled trial. *Cancer Chemother Pharmacol.* 2014 Dec; 74\(6\):1307-19](#) 2.76
4. [T. MERCIER, F. TISSOT, C. GARDIOL, N. CORTI, S. WEHRLI, M. GUIDI, C. CSAJKA, T. BUCLIN, W. COUET, O. MARCHETTI, L.A. DECOSTERD ; High-throughput hydrophilic interaction chromatography coupled to tandem mass spectrometry for the optimized quantification of the anti-Gram-negatives antibiotic colistin A/B and its pro-drug colistimethate. *J Chromatogr A.* 2014 Nov 21; 1369:52-63.](#) 4.16
5. [A. PANCHAUD, E. WEISSKOPF, U. WINTERFELD, D. BAUD, M. GUIDI C.B. EAP, C. CSAJKA, N. WIDMER ; Pharmacokinetic Alterations in Pregnancy and Use of Therapeutic Drug Monitoring. *Therapie.* 2014 5-6;69\(3\):223-234. Epub 2014 Jul 14](#) 0.40
6. [A. FUCHS, M. GUIDI, E. GIANNONI, D. WERNER, T. BUCLIN, N. WIDMER, C. CSAJKA ; Population pharmacokinetic study of gentamicin in a large cohort of premature and term neonates. *Br J Clin Pharmacol.* 2014 Jun 17.](#) 3.87
7. [D. MOSHA, M. GUIDI, F. MWINGIRA, S. ABDULLA, T. MERCIER, L.A. DECOSTERD, C. CSAJKA, B. GENTON ; Population Pharmacokinetics and Clinical Response for Artemether-Lumefantrine in Pregnant and Nonpregnant Women with Uncomplicated Plasmodium falciparum Malaria in Tanzania. *Antimicrob Agents Chemother.* 2014 Aug; 58\(8\):4583-92.](#) 4.47
8. [V. GOTTA, S. BOUCHET, N. WIDMER, P. SCHULD, L.A. DECOSTERD, T. BUCLIN, F.X. MAHON, C. CSAJKA, M. MOLIMARD ; Large-scale imatinib dose-concentration-effect study in CML patients under routine care conditions. *Leuk Res.* 2014 Jul; 38\(7\):764-72.](#) 2.37
9. [M. ARAB-ALAMEDDINE, R. LUBOMIROV, A. FAYET-MELLO, M. AOURI, M. ROTGER, T. BUCLIN, N. WIDMER, M. GATRI, B. LEDERGERBER, K. RENTSCH, M. CAVASSINI, A. PANCHAUD, M. GUIDI, A. TELENTI, L.A. DÉCOSTERD, C. CSAJKA ; Swiss HIV Cohort Study; Swiss HIV Cohort Study. Population pharmacokinetic modelling and evaluation of different dosage regimens for darunavir and ritonavir in HIV-infected individuals. *J Antimicrob Chemother.* 2014 Sep; 69\(9\):2489-98.](#) 5.31
10. [E. DAHMANE, J. BOCCARD, C. CSAJKA, S. RUDAZ, L.A. DÉCOSTERD, E. GENIN, B. DURETZ, M. BROMIRSKI, K. ZAMAN, B. TESTA, B. ROCHAT ; Quantitative monitoring of tamoxifen in human plasma extended to 40 metabolites using liquid-chromatography high-resolution mass spectrometry: new investigation capabilities for clinical pharmacology. *Anal Bioanal Chem.* 2014 Apr; 406\(11\):2627-40.](#) 3.43
11. [C. CSAJKA, A. JAQUET, U. WINTERFELD, Y. MEYER, A. EINARSON, A. PANCHAUD ; Risk perception by healthcare professionals related to drug use during pregnancy: a Swiss survey. *Swiss Med Wkly.* 2014 Mar 7;144:w13936](#) 1.88
12. [F. LIVIO, P. WAHL, C. CSAJKA, E. GAUTIER, T. BUCLIN ; Tobramycin exposure from active calcium sulfate bone graft substitute. *BMC Pharmacol Toxicol.* 2014 Mar 4;15\(1\):12](#) 1.84
13. [M. NOETZLI, M. GUIDI, K. EBBING, S. EYER, L. WILHELM, A. MICHON, V. THOMAZIC, I. STANCU, A. ALNAWAQIL, C. BULA, S. ZUMBACH, M. GAILLARD, P. GIANNAKOPOULOS, A. VON GUNTEN, C. CSAJKA, C.B. EAP. Population pharmacokinetic approach to evaluate the effect of CYP2D6, CYP3A, ABCB1, POR and NR1/2 genotypes on donepezil clearance. *Br J Clin Pharmacol.* 2014 Jul;78\(1\):135-44](#) 3.87

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. A. PANCHAUD, D. BAUD. Le paracétamol reste l'antalgique de 1^{er} choix pendant la grossesse. *pharmaJournal* 2014; 12/2014; 25(12):7-8.
2. J. BENEY, A. PANCHAUD, B. GUIGNARD, C. CSAJKA. Cas clinique n°3: médicaments et rein. *pharmaJournal* 2014; 21(10):5-7.
3. A. PANCHAUD, B. GUIGNARD, J. BENEY, D. BAUD, C. CSAJKA, E. FERREIRA. Cas clinique n°2: épilepsie et grossesse. *pharmaJournal* 2014; 12(6):5-7.
4. B. GUIGNARD, J. BENEY, A. PANCHAUD, C. CSAJKA, S. DE DENUS. Cas clinique n°1: insuffisance cardiaque. *pharmaJournal* 2014; 7(3):5-8.

BOOKS OR BOOKS CHAPTERS

1. A. PANCHAUD, J. BERGER, O. BUGNON ; Médicaments & grossesse. *BabyGuide - Le manuel officiel suisse* 2014.

PRESENTATIONS

POSTERS PRESENTATIONS

1. A. PANCHAUD, D. BAUD, T. VIAL, N. BERNARD, E. AMAR, U. WINTERFELD, L.E. ROTHUIZEN, A. DAUTRICHE, F. BEAU-SALINAS, A. PISTELLI, H. DUNSTAN, Y.C. KAPLAN, M. KADIOGLU, DUMAN, E. MANAKOVA, G. ELEFTHERIOU, G. KLINGER, T. BUCLIN, C. CSAJKA, S. HERNANDEZ-DIAZ, G. KOREN. Pregnancy outcome following maternal exposure to metformin: preliminary results of a collaborative ENTIS and Motherisk study. OTIS-ENTIS joint meeting, Toronto. *Birth Defects Research Part A Clinical and Molecular Teratology* 07/2014; 100(7):521.
2. M. AOURI, M. GUIDI, M. ROTGER, M. CAVASSINI, C. BARCELO, A. RAUCH, T. BUCLIN, L.A. DECOSTERD ; Population pharmacokinetics and pharmacogenetics analysis of Rilpivirine in HIV-1 infected individuals. 23rd Annual Meeting of the Population Approach Group in Europe (PAGE), Alicante, Spain, 10-13 June 2014.
3. A. CHAOUCH, Y. DAALI, E. BAGLIVO, L. COTTET, J. DESMEULES, M. GEX-FABRY, T. BUCLIN, C. CSAJKA ; Voriconazole population pharmacokinetics in patients undergoing cataract surgery, congrès PAGE, Alicante, Espagne, Juin 2014
4. A. FUCHS, A. ROTZINGER, M. CAVASSINI, T. BUCLIN, C. CSAJKA, M.P. SCHNEIDER ; Impact of medication adherence measurement on antiretroviral drug pharmacokinetics and interpretation of drug concentration levels. European society for patient adherence, compliance, and persistence. 21-22 November 2014, Lausanne (Switzerland).
5. A. FUCHS, A. ROTZINGER, M. CAVASSINI, M. P. SCHNEIDER, C. CSAJKA ; Impact of medication adherence measurement on antiretroviral drug pharmacokinetics: A retrospective cohort study in HIV patients followed by therapeutic drug monitoring and taking part in a medication-adherence enhancing program. Population Approach Group in Europe, 10-13 June 2014, Alicante (Spain).
6. A. FUCHS, Y. THOMA, Y. SUTTER, J. STADELMANN, C. CSAJKA, M. GUIDI, N. WIDMER, T. BUCLIN ; EzeCHieL : a story of individualized medicine. Case of gentamicin dosing regimen optimisation in newborns. Nano-Tera annual meeting, 20 May 2014, Lausanne (Switzerland).
7. Y. SUTTER, J. STADELMANN, A. DUBOVITSKAYA, M. SCHUMACHER, A. FUCHS, T. BUCLIN, Y. THOMA ; EzeCHieL interoperability: from blood to everywhere. Nano-Tera annual meeting, 20 May 2014, Lausanne (Switzerland).
8. E. DAHMANE, K. ZAMAN, L.A. DECOSTERD, C.B. EAP, L. PEREY, M. GALMICHE, T. BUCLIN, M. GUIDI, C. CSAJKA ; Population Pharmacokinetics of Tamoxifen and three of its metabolites in Breast Cancer patients. Poster PAGE Alicante 2014

9. J. RIBEIRO, J. CERRUTI, N. WIDMER, F. LIVIO, T. BUCLIN, C. CSAJKA, M. GUIDI ; Caractérisation du profil pharmacocinétique de la vancomycine chez des patients hospitalisés en médecine générale et chirurgie. GSASA 2014-pS14-1088
10. A. PANCHAUD, D. BAUD, E. AMAR, U. WINTERFELD, L.E. ROTHUIZEN, T. VIAL, N. BERNARD, A. DAUTRICHE, F. BEAU-SALINAS, A. PISTELLI, H. DUNSTAN, Y.C. KAPLAN, M. KADIOGLU DUMAN, E. MAŇÁKOVÁ, G. ELEFTHERIOU, G. KLINGER, T. BUCLIN, C. CSAJKA, S. HERNANDEZ-DIAZ, G. KOREN ; Pregnancy outcome following maternal exposure to metformin: preliminary results of a collaborative ENTIS and Motherisk study. Poster, ENTIS/OTIS meeting, Canada, Sept 19-21th 2014
11. M. JERMINI, P.Y. RODONDI, T. BUCLIN, K. ZAMAN, A. ORCURTO, C. CSAJKA, L.E. ROTHUIZEN ; Utilisation des médecines complémentaires en oncologie : prévalence, caractéristiques et interactions. Oral presentation and poster, GSASA meeting, Interlaken, Nov 3-4th 2014
12. U. WINTERFELD, L.E. ROTHUIZEN, V. GOTTA, A. PANCHAUD, A.O. ROSSETTI, T. BUCLIN ; Use of antiepileptic drugs in women of childbearing age and during pregnancy: critical appraisal of information provided by the summary of product characteristics. 2nd International Conference of the Organization of Teratology Information Specialists and the European Network of Teratology Information Services, 2014, Toronto
13. E. DAHMANE, K. ZAMAN, L. PEREY, A. BODMER, S. LEYVRAZ, C.B. EAP, M. GALMICHE RINDISBACHER, L.A. DECOSTERD, T. BUCLIN, M. GUIDI, C. CSAJKA ; Population pharmacokinetics of tamoxifen and three of its metabolites in breast cancer patients. European and Swiss Congress of Internal Medicine (ESCIM), Geneva, 14-16 May 2014; Abstract ebooklet: 75, P412

CONGRESSES & SYMPOSIA

1. A. FUCHS, M. GUIDI, E. GIANNONI, D. WERNER, N. WIDMER, T. BUCLIN, C. CSAJKA ; Dosing regimen of gentamicin in neonates: evaluation of current guidelines based on a large pharmacokinetic analysis. Oral presentation European and Swiss Congress of Internal Medicine, Geneva, Switzerland. 14 - 16 May 2014
2. M. GUIDI, G. FOLETTI, A. PANCHAUD, O. LAMY, M. CAVASSINI, A. RAUCH, P.E. TARR, A. TELENTI, M. ROTGER, C. CSAJKA ; Population pharmacokinetics and pharmacogenetics of vitamin D in HIV-positive patients. Oral presentation FIP Pharmaceutical Sciences World Congress, Sydney April 2014.
3. U. WINTERFELD, P. MERLOB, D. BAUD, V. ROUSSON, A. PANCHAUD, L.E. ROTHUIZEN, N. BERNARD, T. VIAL, L.M. YATES, A. PISTELLI, M. ELLFOLK, G. ELEFTHERIOU, L.C. DE VRIES, P. BOZZO, A.P. JONVILLE-BERA, M. KADIOGLU, J. BIOLLAZ, T. BUCLIN ; Pregnancy outcome following maternal exposure to pregabalin: a collaborative ENTIS and Motherisk study. Oral presentation, ENTIS/OTIS meeting, Canada, 19-21th Sept 2014
4. U. WINTERFELD, L.E. ROTHUIZEN, V. GOTTA, A. PANCHAUD, A.O. ROSSETTI, T. BUCLIN. Use of antiepileptic drugs in women of childbearing age and during pregnancy: critical appraisal of information provided by the summary of product characteristics. ESCIM, Geneva, 2014. [Oral Presentation]
5. U. WINTERFELD, L.E. ROTHUIZEN, V. GOTTA, A. PANCHAUD, A.O. ROSSETTI, T. BUCLIN ; Use of antiepileptic drugs in women of childbearing age and during pregnancy: critical appraisal of information provided by the summary of product characteristics. 2nd International Conference of the Organization of Teratology Information Specialists and the European Network of Teratology Information Services, 2014, Toronto
6. E. DAHMANE, K. ZAMAN, L. PEREY, A. BODMER, S. LEYVRAZ, C.B. EAP, M. GALMICHE RINDISBACHER, L.A. DECOSTERD, T. BUCLIN, M. GUIDI, C. CSAJKA ; Population pharmacokinetics of tamoxifen and three of its metabolites in breast cancer patients. European and Swiss Congress of Internal Medicine (ESCIM), Geneva, 14-16 May 2014; Abstract ebooklet: 75, P412

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. A. PANCHAUD, D. BAUD. Médicaments pendant la grossesse et l'allaitement. CAP, Lausanne, November, 2014.
2. A. PANCHAUD. Traitements pharmacologiques, mucoviscidose et grossesse. Après-midi Romande de Mucoviscidose 2014, Genève, October 2014

THESIS PRESENTED

THESIS JURY

1. Ruholah HEYRANI NOBARI.
Regulation of the HLA-B27 - TCR Interaction by Enzymatically Stable β -Peptidic Peptidomimetics.
thesis N° 4766 –
University of Geneva
Directors : Urs RUEGG, Faculty of Sciences, and J.D. SEEBACH, Faculty of medicine, UniGe
2. Dominic MOSHA.
Safety, efficacy and pharmacokinetics profile of antimalarial drugs in pregnancy:
pharmacoepidemiology studies.
Thesis N° 11056
Director : M. TANNER, University of Basel

COMMUNITY PHARMACY PRACTICE

PROFESSOR OLIVIER BUGNON

GENERAL DESCRIPTION OF THE UNIT

The fact of prescribing, recommending or swallowing a drug seems banal and yet there are many traps: side effects, insufficient effectiveness, too high costs, non-adherence, waste, lack of motivation, altered quality of life, etc. These topics, as well as the evolution of advanced pharmacy services are considered as priorities of action for academic and clinical activities of the Pharmacy of the PMU (Policlinique Médicale Universitaire), a unique place in Switzerland, which combines practice, research, development and education. Olivier Bugnon, chief pharmacist, is on the other hand an Associate Professor of the School of pharmaceutical sciences (University of Geneva, University of Lausanne); like this, he participates in the research and development of Community Pharmacy practice, a clinical pharmaceutical science which respects the public health priorities and the central role of the patient. His main teaching responsibility is the organization of the second year of the Master in Pharmacy (year of assistantship). He supervises the examinations of the Master and is member of the Federal Committee for the State Exam in Pharmacy. His research activities (8 PhD students in pharmaceutical sciences in 2014) explore ways of collaboration between physicians, pharmacists and other professionals to improve the responsible use of medicines (effectiveness, safety, efficiency, patient-related outcomes). Internationally, the unit of Community Pharmacy Practice is represented especially within the International Pharmaceutical Federation (FIP), the European Society of Clinical Pharmacy (ESCP), the Pharmaceutical Care Networks in Europe (PCNE) and the European Society for Patient Adherence, Compliance and Persistence (ESPACOMP).

SPECIFIC RESEARCH FIELDS

The research of the Group of Community Pharmacy Practice covers the three following areas:

1. **People- and person – Centered integrated Care**

The global trend for health systems is people- and person-centeredness, coordination, networking and continuity of care. Pharmacists are at the interface of the treatments prescribed by the physicians and the OTC treatments. The evolution of their role turns towards collaborative pharmacy practice and e-health strategies, aiming at the global quality of the care and control of the costs. In 2012, the area « integrated care » of the Pharmacy of the PMU worked on the following topics and projects:

- Quality circles physicians-pharmacists-nurses in nursing homes (cantonal projects in Fribourg and Vaud)
- Risk evaluation and mitigation strategies – REMS and patient programs (e.g. Patient with cardiovascular risk; patients with oral anticancer medications, multiple sclerosis patients, home-based subcutaneous immunoglobulin)
- Exploration of e-Health strategies facilitating the interprofessional collaboration and the person-centeredness
- Exploration of change management strategies facilitating the implementation of advanced cognitive pharmacy services
- Animation of the network of the pharmacists specialized in Addiction Medicine in the French-speaking part of Switzerland - COROPHA (project supported by the FOPH)

The research on integrated care is closely linked to the two other areas « medication adherence » (e.g. oncology, multiple sclerosis) and « safety and cost effectiveness of drugs » (e.g. in geriatrics). This research involves cross-sectional scientific collaborations between pharmaceutical, medical, human and economic sciences.

2. **Medication Adherence**

The daily and prolonged taking of medicine is difficult for chronic patients, especially in case of side effects, complex treatments, lack of motivation, incomprehension or refusal of the treatment. To sometimes forget to take one's medicine is nevertheless a normal human behavior. The medication adherence defines itself as a dynamic active process in which the patient works to maintain his health in collaboration with the medical team.

The researchers of the Pharmacy of the PMU, in collaboration with various physicians and nurses, are interested in the scientific support and evaluation of the medication adherence in the routine care in domains like for example high blood pressure, VIH infections, oral anticancer medications, transplantations. The adherence programs are concretized by:

- Motivational, semi-structured interviews, lead by a pharmacist;
- The measure of medication adherence through an electronic medication pillbox and it's relation with the effects of the therapy;
- The sharing of data collected in pharmacies (e.g. persistence, implementation, side effects, preferences of patients and their relatives) within the healthcare workforce.

The research on the adherence also contributes to the goals of the area « integrated care ».

3. **Safety and Cost effectiveness of Drugs**

Drugs represent the option most frequently used by the physicians. The prescription formalizes the therapeutic plan with the concordance of the patient; it represents an essential communication tool for the collaboration with the pharmacist. Drug related problems experienced by the patients and medication errors are too frequent. They are usually a sign of system failure, a cost factor and breaks of the seamless care: many good reasons to study scientifically the provided services likely to manage drug risk as well as to improve safety, effectiveness and efficiency of the medicines.

This research area is naturally closely linked with the two other areas «medication adherence» and «integrated care».

2014 AT A GLANCE

Publications with impact factor	5
Publications without impact factor	6
Books and chapters	4
Posters presentations	23
Congresses & Symposia	15
Continuing education & open to the public lectures	30
Ph.D. Thesis presented in 2014	1
Awards	1
Number of projects at FNRS and assimilated	1
Projects of collaboration with the industry	4

STAFF

PHARMACEUTICALS SCIENCES SECTION

Olivier BUGNON (50% ASSOCIATE PROF.)

LECTURERS

Jérôme BERGER (20%)

SENIOR RESEARCH ASSOCIATE

Marie-Paule SCHNEIDER VOIROL (50%)

RESEARCH AND TEACHING ASSISTANTS

Jennifer CELIO

Aurélie GERTSCH-ROTZINGER

Julien MARQUIS

Isabelle ANGUISH

Minette ZEUKENG-ZEBAZE

Aline BOURDIN

INTERNSHIP STUDENTS – CO-SUPERVISION (CO-TUTELLE)

Mélanie LELUBRE (University of Bruxelles)

Yves MICHIELS (University of Dijon)

ADMINISTRATIVE STAFF

Dominique HUNZIKER (30%)

STAFF

POLYCLINIQUE MEDICAL UNIVERSITAIRE (PMU)

Olivier BUGNON (50% Head of PMU)

Jérôme BERGER (80% co-Head of PMU)

Marie-Paule SCHNEIDER VOIROL (30% Co-Head of PMU)

PHARMACIST

Sophie DU PASQUIER

Jean-François LOCCA

Sebastian AMICO (100%)
(Pharmacist civilian-service – 6 month)

Anne NIQUILLE CHARRIERE

HEALTH ECONOMIST

Clémence PERRAUDIN

PHARMACISTS, COMMUNITY PHARMACY

Marie-José BARBALAT (80%)

Patricia KRATTINGER (100%) (*postgraduate training*)

Najoua BENNANI ZIATNI (100%) (*postgraduate training - until june*)

Suzan MEJDI THALMANN (100%)

Aline BOURDIN (50%)

Jérémie NAYAK (75%) (*Since June*)

Catherine BREMOND (40%) (*since August 2014*)

Laure NICOLET (100%)

Jennifer CELIO (40%)

Vanessa PAVON CLEMENT (60%)

Yann DUBOIS (100%) (*postgraduate training*)

Elodie RESENTERRA (80%)

Anne-Sophie FAVRE (100%)

Muriel SCHUETZ (80%)

Raliza GAUTHIER (80%) (*since August 2014*)

Sandrine VON GUENIGEN (80%)

Noëllie GENRE (50%)

STATISTICIAN

Pierluigi BALLABENI

ADMINISTRATIVE STAFF

Nadia MARTEL (60%) (*Unit Secretary*)

Sonia DESSELBERGER (60%) (*Unit Secretary*)

Raphaël NAOUX (50%) (*Administrative project manager until January*)

TECHNICAL STAFF

Fabienne AUGSBURGER (50%)

Véronique GROGNOZ (50%)

Chantal ARN (100%) (*since october 2014*)

Nathalie SICHER (80%)

Noëlle BACONNIER (100%)

Stefania MAGNO (70%)

Christelle BADINO BRAS (100%)

Mirjam RUFENACHT (100%)

Stéphanie BURNAT TORRI (85%)

Ljiljana SCHAEFLI (60%)

Laurianne CURTET (100%)

Stéphanie SUDAN (100% - since june 2014)

Abnore DULA (100%) (*since April 2014*)

Christine VULLIAMOZ (50%)

Séverine GORGERAT (100%)

Ajnure ZENELI BELA (70%) (*since August 2014*)

RESEARCH FUNDS

PUBLIC (FNRS, NIH, CTI.....)

FEDERAL OFFICE OF PUBLIC HEALTH (FOPH)

Elaboration of the Federal Exam for Pharmacy 2014: participation of Pharmaceutical Sciences Section expert's (University of Geneva, University of Lausanne) - (Contract No. 14.007043 / 704.0001/ -685)

Main applicant: O. BUGNON

Allocation 2014: CHF 270'642

Duration: 1 year

CANTONAL OFFICE OF PUBLIC HEALTH - VAUD

Development, implementation and evaluation of a new cantonal collaborative care management programme in nursing homes (physicians-nurses-pharmacists quality circles]

Main applicant: O. BUGNON

Total allocation : CHF 240'000.--

Allocation 2014: CHF 30'000.--

Duration: 8 years

Starting date: 2007

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
CL3	Reaserch and Development	1'200
PF16	Research and Development	12'000
PS12	Research and Development	29'700
SAN6	Research and Development (2 Years)	45'000
SOVAPH	Research and Development	10'000
TAS11	Research and Development	30'000
AS11	Formation	4'000
CP3	Formation	10'320
G3	Formation	2'000
ME5	Formation	8'200
MESHDO	Formation	2'000
PHA11	Formation	7'000
SAN6	Formation	2'000
VOR5	Formation	4'000
	total	167'420

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

American Journal of Health System Pharmacy	1.98
Annals of Pharmacotherapy	2.92
Disease Management and Health Outcomes	0.34
International Journal of Pharmacy Practice	1.26
Journal of Clinical Pharmacy and Therapeutics	1.53
Journal of Managed Care Pharmacy	2.68
Patient Education and Counselling	2.59
Pharmacy Practice (www.pharmacypractice.org)	PR
Revue Médicale Suisse	Indexé Pub Med

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. P. ASLANI, M.P. SCHNEIDER: "Adherence: the journey of medication taking, are we there yet? Int J Clin Pharm 2014 Feb; 36(1): 1-3. doi: 10.1007/s11096-013-9901-x. Epub 2013 Dec 6. 1.27
2. M.P. SCHNEIDER, M. BOUVY: "The ESPACOMP and its role in promoting knowledge and competencies in the matter of patient adherence". Int J Clin Pharm 2014 Feb; 36(1): 8-9. doi: 10.1007/s11096-013-9879-4. Epub 2013 Nov 30. 1.27
3. A. LEHMANN, P. ASLANI, R. AHMED, J. CELIO, A. GAUCHET, P. BEDOUCH, O. BUGNON, B. ALLENET, M.P. SCHNEIDER: "Assessing medication adherence: options to consider". Int J Clin Pharm 2014 Feb; 36(1): 55-69. doi: 10.1007/s11096-013-9865-x. Epub 2013 Oct 29. 1.27
4. I. KRUMMENACHER, B. SPENCER, S. DU PASQUIER, O. BUGNON, M. CAVASSINI, M.P. SCHNEIDER: "Qualitative analysis of barriers and facilitators encountered by HIV patients in an ART adherence programme". Int J Clin Pharm 2014 Aug; 36(4): 716–724. doi 10.1007/s11096-014-9930-0. Epub 2014 Jun 10. 1.27
5. J. MARQUIS, M.P. SCHNEIDER, B. SPENCER, O. BUGNON, S. DU PASQUIER: "Exploring the implementation of a medication adherence programme by community pharmacists: a qualitative Study". Int J Clin Pharm 2014 Oct; 36(5): 1014-22. doi: 10.1007/s11096-014-9989-7. Epub 2014 Aug 20. 1.27

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. L. ABRECHT, A. ANCHISI, D. WIDMER, O. BUGNON, S. DU PASQUIER, S. JOTTERAND, M. KARLEN, L. HERZIG: "Interprofessional pill box management in an ambulatory care setting". Rev Med Suisse 2014 ; 10(452) : 2246-8, 2250-1.
2. A. BOURDIN, J. BERGER, M. SCHLUEP, O. BUGNON: "Modèle de soins intégrés centré sur le patient: favoriser la sécurité et l'adhésion médicamenteuse des patients sous fingolimod". pharmaJournal 07; 3.2014: 13-14. "Patientenzentriertes integriertes Versorgungsmodell: Förderung von Sicherheit und Adhärenz bei Patienten unter Fingolimod". pharmaJournal 07; 3.2014: 17-18.
3. J. MARQUIS, M.P. SCHNEIDER, V. PAYOT, A.C. CORDONIER, O. BUGNON, K.E. HERSBERGER, I. ARNET: "Problèmes de déglutition chez les patients polymédiqués". pharmaJournal 2014; 6:15-16. "Schluckstörungen bei Patienten unter Polymedikation". pharmaJournal 2014; 6:16-17.
4. A. BOURDIN, J. BERGER, O. BUGNON: "Programme interprofessionnel: gestion pharmacothérapeutique de l'auto-perfusion d'immunoglobulines". pharmaJournal 12; 6.2014: 17-18. "Interprofessionnelles Programm: Pharmazeutisch-therapeutisches Management einer Immunglobulin-Selbstinfusion". pharmaJournal 12; 6.2014: 19-20.

5. M.P. SCHNEIDER, A. ROTZINGER, D. MAESTRALLI, O. BUGNON, M. CAVASSINI, J.J. PARIENTI: "Patients VIH positifs: Programme de soutien de l'adhésion et de rétention dans les soins". *pharmaJournal* 17; 8.2014: 16-17. "HIV-positive Patienten: Programm zur Unterstützung der Adhärenz und zur Verhinderung eines Behandlungsabbruchs". *pharmaJournal* 17; 8.2014: 18-19.
6. L. NICOLET, J. BERGER, O. BUGNON: "Toux sèche aiguë chez l'adulte – Quel antitussif recommander?" *pharmaJournal* 19; 9.2014 : 5-7. "Trockener Reizhusten bei Erwachsenen – Welches Antitussivum soll empfohlen werden?" *pharmaJournal* 19 ; 9.2014 : 7-9.

BOOKS OR BOOKS CHAPTERS

1. A. PANCHAUD, J. BERGER, O. BUGNON. "Médicaments, grossesse et allaitement". *BabyGuide – Le Manuel officiel Suisse : Grossesse, naissance et les trois premières années de l'enfant*, Ed. BabyGuide, Le Mont-sur-Lausanne (June 2014).
2. J. BERGER, O. BUGNON. *Du bon usage des médicaments en pédiatrie ...BabyGuide – Le Manuel officiel Suisse : Grossesse, naissance et les trois premières années de l'enfant*, Ed. BabyGuide, Le Mont-sur-Lausanne (June 2014).
3. V. PAVON CLEMENT, O. BUGNON. *Voyager durant la grossesse, avec des bébés ou des petits enfants*. *BabyGuide – Le Manuel officiel Suisse : Grossesse, naissance et les trois premières années de l'enfant*, Ed. BabyGuide, Le Mont-sur-Lausanne (Juin 2014).
4. M.P. SCHNEIDER, C. PERRAUDIN, J. CELIO, O. BUGNON. Comment réduire le gaspillage des médicaments ? *La Revue d'information sociale REISO*, 16.10.2014 (accessible à l'adresse : <http://www.reiso.org/spip.php?article4722>).

PRESENTATIONS

POSTERS PRESENTATIONS

1. A. ROTZINGER, M. CAVASSINI, M. REYMERMIER, S. AMICO, O. BUGNON, M.P. SCHNEIDER. HIV-disclosure and relation with medication adherence. Poster presented at IAPAC (International Association of Providers of Aids Care) 9th International Conference on HIV Treatment and Prevention Adherence, 8-10 June 2014 Miami.
2. M.P. SCHNEIDER, A. ROTZINGER, D. MAESTRALLI, O. BUGNON, M. CAVASSINI, J.J. PARIENTI. Adherence-enhancing program and retention in care in the Swiss HIV Cohort. Poster presented at IAPAC (International Association of Providers of Aids Care) 9th International Conference on HIV Treatment and Prevention Adherence, 8-10 June 2014 Miami.
3. A. FUCHS, A. ROTZINGER, M. CAVASSINI, M.P. SCHNEIDER, C. CSAJKA. Impact of medication adherence measurement on antiretroviral drug pharmacokinetics: A retrospective cohort study in HIV patients followed by therapeutic drug monitoring and taking part in a medication-adherence enhancing program. 23rd Conference of the Population Approach Group Europe (PAGE), Alicante, Spain, 10-13 June 2014.
4. S. DU PASQUIER, E. OBERSON, M.P. SCHNEIDER, D. HUGENTOBLER, A. NIQUILLE, O. BUGNON. Analyse rétrospective des données de prescription et de remise de paracétamol à la Policlinique Médicale Universitaire (PMU) de Lausanne. SWISSFAMILYDOCS Conference 2014 "Du simple au complexe", Zürich 28-29 August 2014.
5. S. JOTTERAND, C. ROSSIER, H. FIGUEIREDO, J.F. LOCCA, J. BERGER, O. BUGNON. Au-delà des cercles de qualité: SISCare, pour une promotion interprofessionnelle de l'adhésion médicamenteuse. SWISSFAMILYDOCS Conference 2014 "Du simple au complexe", Zürich 28-29 August 2014.
6. A. NIQUILLE, M. RODUIT, O. MICHEL, M.P. SCHNEIDER, O. BUGNON. Etude observationnelle des prescriptions de médicaments allongeant l'intervalle QT à la Pharmacie de la Policlinique Médicale Universitaire de Lausanne. SWISSFAMILYDOCS Conference 2014 "Du simple au complexe", Zürich 28-29 August 2014.

7. I. ANGUISH, P.L. BALLABENI, C. PERRAUDIN, J.F. LOCCA, I. BURGY, C. REPOND, E. MICHIELAN, O. BUGNON. Main outcomes of a collaborative pharmacy practice model in nursing homes. 43rd ESCP Symposium on Clinical Pharmacy « Patient safety – Bridging the gaps », Copenhagen 22-24 October 2014.
8. A. BOURDIN, J. BERGER, C. PERRAUDIN, O. BUGNON. Therapy management program for immunoglobulin self-infusion: patients' reported outcomes. 43rd ESCP Symposium on Clinical Pharmacy « Patient safety – Bridging the gaps », Copenhagen 22-24 October 2014.
9. Y. MICHIELS, A. CHICOYE, B. VERGES, C. MOISAN, H. MECHIN, F. ALLAERT, G. VERGEZ, O. BUGNON. A community pharmacy-based information program on Type 2 diabetes patients' medication adherence. 43rd ESCP Symposium on Clinical Pharmacy « Patient safety – Bridging the gaps », Copenhagen 22-24 October 2014.
10. I. ANGUISH, P.L. BALLABENI, C. PERRAUDIN, J.F. LOCCA, I. BURGY, C. REPOND, E. MICHIELAN, O. BUGNON. Main outcomes of a collaborative pharmacy practice model in nursing homes. GSASA-Pharmasuisse Conference, 2-4 November 2014 Interlaken.
11. A. BOURDIN, J. BERGER, C. PERRAUDIN, M. SCHLUEP, O. BUGNON. A person-centered integrated care program for Multiple Sclerosis patients treated by fingolimod: first patients' reported outcomes. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
12. A. BOURDIN, J. BERGER, C. PERRAUDIN, O. BUGNON. Therapy management program for immunoglobulin self-infusion: patients' reported outcomes. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
13. S. DU PASQUIER, E. OBERSON, M. SCHNEIDER, D. HUGENTOBLER, A. NIQUILLE, O. BUGNON. Analyse rétrospective des données de prescription et de remise de paracétamol à la Policlinique Médicale Universitaire (PMU) de Lausanne. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
14. S. DU PASQUIER, M. RABOUD, A. WILDHABER, O. BUGNON. Développement d'un instrument d'autoévaluation pour la remise en officine des traitements de substitution aux opiacés (TSO). GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
15. O. MICHEL, A. GERTSCH, I. LOCATELLI, O. BUGNON, M. RICKENBACH, M. CAVASSINI, M.P. SCHNEIDER. A dynamic assessment of medication-taking behaviour during pregnancy and postpartum: should cart adherence be reinforced during postpartum ? GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
16. M. RODUIT, A. NIQUILLE, O. MICHEL, M.P. SCHNEIDER, O. BUGNON. Etude observationnelle des prescriptions de médicaments allongeant l'intervalle QT à la Pharmacie de la Policlinique Médicale Universitaire de Lausanne. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
17. A. ROTZINGER, M. CAVASSINI, M. REYMERMIER, S. AMICO, O. BUGNON, M.P. SCHNEIDER. Hiv-disclosure and relation with medication adherence. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
18. M.J. ZEUKENG, C. PERRAUDIN, O. BUGNON. Développement d'un matériel d'animation de Cercles de Qualité (CQ) dans les Etablissements Médico-Sociaux (EMS) : les douleurs neurogènes chez la personne âgée. GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
19. C. PERRAUDIN, A. BOURDIN, J. BERGER, O. BUGNON. Switching patients with primary antibody deficiencies to home-based subcutaneous immunoglobulin : Economic evaluation of an interprofessional drug therapy management program. ISPOR (International Society For Pharmacoeconomics and Outcomes Research) 8-12 November 2014 Amsterdam.
20. M.J. ZEUKENG, A. NIQUILLE, J.F. LOCCA, C. PERRAUDIN, O. BUGNON. Implementation of a collaborative pharmacy practice model in nursing homes of a Swiss canton: Drug cost monitoring between 2009 and 2012. ISPOR (International Society For Pharmacoeconomics and Outcomes Research). 8-12 November 2014 Amsterdam.
21. A. BOURDIN, J. BERGER, C. PERRAUDIN, M. SCHLUEP, O. BUGNON. A person-centered integrated care program for Multiple Sclerosis patients treated by fingolimod: first patients' reported outcomes. Annual Symposium of ESPACOMP (European Society for Patient Adherence, COMPLIANCE and Persistence), Lausanne 21-22 November 2014.

22. A. FUCHS, A. ROTZINGER, M. CAVASSINI, M.P. SCHNEIDER, C. CSAJKA. Impact of medication adherence measurement on antiretroviral drug pharmacokinetics: a retrospective cohort study in HIV patients followed by therapeutic drug monitoring and taking part in a medication-adherence enhancing program. Annual Symposium of ESPACOMP (European Society for Patient Adherence, Compliance and Persistence), Lausanne 21-22 November 2014.
23. S. DU PASQUIER, M. RABOUD, A. WILDHABER, O. BUGNON. Développement d'un instrument d'autoévaluation pour la remise en officine des traitements de substitution aux opiacés (TSO). TDO4 (4^e colloque international francophone sur le traitement de la dépendance aux opioïdes), 18-19 December Bruxelles.

CONGRESSES & SYMPOSIA

1. O. BUGNON. "Définir et évaluer l'exercice professionnel collaboratif". Session Pratiques collaboratives pluriprofessionnelles: quel impact sur le parcours de santé ? XV^e Congrès de la Société Française de Pharmacie Clinique, 5-6-7 february 2014, Grenoble.
2. O. BUGNON. "Priorité à la continuité des soins (ordonnance de sortie et plans de gestion des risques). Table ronde: le lien ville-hôpital. Priorité à la continuité des soins (ordonnance de sortie et plans de gestion des risques) ". XV^e Congrès de la Société Française de Pharmacie Clinique, 5-6-7 february 2014, Grenoble.
3. S. JOTTERAND, O. BUGNON. "Au-delà des cercles de qualité médecins-pharmaciens: relever le défi de la polymédication et des médicaments spécialisés". Colloque « Réseau de soins intégrés » de la PMU de Lausanne, 3 March 2014.
4. J. BERGER, A.S FAVRE, J. DE MOOIJ, O. BUGNON. "Exploratory study of pharmacist-led home medication use reviews (HMUR) for elderly people in collaboration with family doctors and home care nurses". PCNE (Pharmaceutical Care Network Europe) meeting, Working Symposium, 14-15 March 2014 Sliema, Malta.
5. O. BUGNON. "Pour un usage responsable des médicaments à Madagascar et en Suisse: un même défi de santé publique pour les pharmaciens". Symposium de l'Ordre des pharmaciens de Madagascar, Antananarivo, 2 April 2014.
6. J. BERGER, A. BOURDIN, O. BUGNON. "A Multiple Sclerosis case history to illustrate the pharmacist perspectives for person centered integrated care". Teaching Workshop; Stakeholders for Person Centered Integrated Care. 7th Geneva Conference on Person Centered Medicine. 29 April 2014, Geneva.
7. O. BUGNON. "Les bonnes pratiques officinales: une exigence pour la qualité en officine". Journée pharmaceutique internationale de Casablanca 2014, Casablanca, 11 October 2014.
8. O. BUGNON, A. BOURDIN, J. BERGER, C. PERRAUDIN. "Examples of collaborative services in community pharmacy contributing to person-centered medication Risk Management Plans (RMPs) ". Session "Patient safety when changing medical treatment", 43rd ESCP Symposium on Clinical Pharmacy "Patient safety-Bidging the gaps", Copenhagen 22-24 October 2014.
9. A. BOURDIN. "A person-centered integrated care program for multiple sclerosis patients treated by fingolimod: first patients' reported outcomes". GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
10. C. PERRAUDIN, "Evaluer l'impact coût-avantages d'une prestation pharmaceutique: Méthodes et exemples". GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
11. M.P. SCHNEIDER, I. ARNET. "L'adhésion aux traitements chroniques: comment la promouvoir en pharmacie d'officine?" GSASA- Pharmasuisse Conference, 2-4 November 2014 Interlaken.
12. S. DU PASQUIER, J. MARQUIS, M.P. SCHNEIDER, B. SPENCER, O. BUGNON. "Exploring the implementation of a medication adherence programme by community pharmacists: a qualitative study". 18th Annual Symposium of ESPACOMP (European Society for Patient Adherence, Compliance and Persistence), Lausanne 21-22 November 2014.

13. M. CAVASSINI, A. ROTZINGER, D. MAESTRALLI, O. BUGNON, Y. VALLET, T. GLASS, A. CALMY, M.P. SCHNEIDER, J. J. PARIENTI. "Does an adherence-enhancing program increase retention in care in the Swiss HIV Cohort?" 18th Annual Symposium of ESPACOMP (European Society for Patient Adherence, COMpliance and Persistence), Lausanne 21-22 November 2014.
14. J. CELIO, F. NINANE, O. BUGNON, M.P. SCHNEIDER. "Interdisciplinary collaboration pharmacists-nurses and medication adherence programs: a review". 18th Annual Symposium of ESPACOMP (European Society for Patient Adherence, COMpliance and Persistence), Lausanne 21-22 November 2014.
15. M.P. SCHNEIDER, G. LUDWIG, S. RODRIGUES, A. NIQUILLE, V. SANTSCHI, A.C. LANGE, A.S. FAVRE, O. BUGNON, M. PASCUAL, L. MICHAUD, F. STIEFEL. "Does the Intermed instrument predict medication adherence in transplant recipients?" 18th Annual Symposium of ESPACOMP (European Society for Patient Adherence, COMpliance and Persistence), Lausanne 21-22 November 2014.

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. M.P. SCHNEIDER. "Activités de pharmacie clinique efficaces dans le VIH". CAS en pharmacie clinique, Universities of Geneva and of Grenoble, Grenoble, 13 January 2014.
2. D. NANCHEN, C. MONNEY, O. BUGNON, "Atelier: Nouveaux anticholinergiques à longue durée d'action. Risque cardiovasculaire du diclofénac. Nouveaux anticoagulants". Les Jeudis de la PMU : acquisitions thérapeutiques 2013, 13 February 2014, Lausanne.
3. J. BERGER. "Patients âgés et médicaments: visites à domicile et revue de médication". Séminaire pharmActuel. PMU, Lausanne 18 March 2014.
4. I. ANGUISH, J. F. LOCCA, S. ZUMBACH, C. J. BULA, O. BUGNON. "Mise à jour des recommandations publiées en 2008 pour le bon usage des psychotropes dans les EMS". Symposium interdisciplinaire annuel des EMS fribourgeois. AFIPA, Société de Médecine du canton de Fribourg et Société des pharmaciens du Canton de Fribourg, 20 March 2014, Fribourg.
5. O. BUGNON, A. NIQUILLE, C. ROSSIER. "Bonnes pratiques de prescription des médicaments du système cardiovasculaire". Cercle de Qualité médecins-pharmaciens de Lausanne, Paudex, 26 March 2014.
6. O. BUGNON. "Pour un usage responsable des médicaments à Madagascar ou en Suisse: un même défi de santé publique pour les pharmaciens". Formation continue aux pharmaciens. Association des Pharmaciens de Madagascar, Antananarivo, 2 April 2014.
7. O. BUGNON. "Etre un leader par l'exemple. Introduction au symposium – Athlète de la vie : agir ou subir ? avec Thierry Schneider". Symposia Pharmacie on top 2013 sur le thème « Etre un leader par l'exemple ! ». Organisation : MEPHA Pharma SA avec le soutien de SISPha SA. Lausanne-Bussigny (7 April 2014), Montreux (2 May 2014), Lugano (16 June 2014).
8. O. BUGNON. "Le futur de l'officine avec la pharmacie clinique ambulatoire". PharmaMeeting Meet pharma, meet friends. ASEP association suisse des étudiants en pharmacie. PMU, Lausanne 26 April 2014.
9. J. BERGER, I. ANGUISH, A. S. FAVRE, J. DE MOOIJ, O. BUGNON. "Comment gérer la polymédication en officine?" Programme EPGL/PharmaGenève de formation continue pour pharmaciens, Genève, 29 April 2014.
10. A. NIQUILLE, M. P. SCHNEIDER, L. KERBOAS, D. NANCHEN, J. CORNUZ. "Présentation de la feuille de route pour la recherche clinique". Formation continue à l'attention des jeunes chercheurs PMU et DUMSC, PMU, Lausanne, 14 May 2014 and 16 December 2014.
11. M.P. SCHNEIDER. "Travaux de master de l'EPGL réalisés à la Pharmacie de la PMU; présentation des résultats d'intérêt pour les pharmaciens d'officine". Assemblée de la Société Vaudoise de Pharmacie, Lausanne, 15 May 2014.
12. O. BUGNON. "1. Bilan des résultats du cercle 2012-2013. 2. Optimiser le profil de prescriptions des antihypertenseurs (IT 02.07)". Cercle de qualité médecins-pharmaciens d'Yvonand-Echallens, Yvonand, 22 May 2014.

13. J. BERGER. "Médicaments du système nerveux central: cas pratiques de validation d'ordonnances". Séminaire pharmActuel. PMU, Lausanne 24 May 2014.
14. A. NIQUILLE, C. ROSSIER, O. BUGNON. "Bonnes pratiques de prescription des hypolipémiants". Cercle de Qualité médecins-pharmaciens de Lausanne, Paudex, 04 June 2014.
15. M. SCHUETZ-LEUTHOLD. "Patients insuffisants rénaux ou dialysés: cas pratiques de validation d'ordonnances". Séminaire pharmActuel. PMU, Lausanne 24 June 2014.
16. O. BUGNON. "Pharmacie ambulatoire et collaboration avec l'hôpital". CAS en pharmacie clinique, Universities of Geneva and of Grenoble, Geneva, 26 June 2014.
17. M.P. SCHNEIDER. "Prise en charge interdisciplinaire de l'adhésion thérapeutique dans la maladie chronique". Colloque hebdomadaire de médecine destiné aux médecins de Pourtalès et aux médecins neuchâtelois, Hôpital de Pourtalès, Neuchâtel, 2 September 2014.
18. O. BUGNON. "Optimiser le profil de prescriptions des hypolipémiants". Cercle de qualité médecins-pharmaciens d'Yvonand-Echallens, Yvonand, 11 September 2014.
19. A. NIQUILLE, C. ROSSIER, O. BUGNON. "Bonnes pratiques de prescription des Anti-inflammatoires non stéroïdiens et des inhibiteurs de pompes à protons". Cercle de Qualité médecins-pharmaciens de Lausanne, Paudex, 17 September 2014.
20. O. BUGNON, I. ANGUISH. "Assistance pharmaceutique et gestion du risque médicamenteux en EMS". Formation continue, Société des Pharmaciens du Canton de Fribourg, Fribourg, 1st October 2014.
21. M. SCHUETZ. "Violence conjugale". Séminaire CAP, formation continue FPH, Lausanne, 1st October 2014.
22. S. DU PASQUIER, A. WILDHABER, B. BROERS. "Bonnes pratiques à l'officine pour la remise des traitements de substitution et dans le cas d'usage abusif de benzodiazépines". Séminaire CAP, formation continue FPH, Lausanne 7 October 2014 and Bussigny 28 October 2014.
23. O. BUGNON. "Programmes inter-disciplinaires en pharmacie: les moyens de mesurer et soutenir l'adhésion thérapeutique du patient". Programme pour médecins et pharmaciens; le Symposium de médecine sous le chapiteau KNIE, Lausanne, 9 October 2014.
24. J. BERGER. "Phototoxicités, allergies, intolérances et médicaments: cas pratiques et validation d'ordonnances". Séminaire pharmActuel. PMU, Lausanne, 11 November 2014.
25. A. NIQUILLE, C. ROSSIER, O. BUGNON. "Bonnes pratiques de prescription des analgésiques". Cercle de Qualité médecins-pharmaciens de Lausanne, Paudex, 12 November 2014.
26. A. NIQUILLE, M. J. ZEUKENG, O. BUGNON. "Assistance pharmaceutique (Cercles de qualité) dans les établissements médico-sociaux vaudois : Etat des lieux 2013 du projet cantonal". Service de la santé publique du Canton de Vaud, Lausanne, 18 November 2014.
27. O. BUGNON. "Pharmacovigilance et nouveautés 2014 (en particulier en pneumologie, diabétologie et urologie)". Cercle de qualité médecins-pharmaciens d'Yvonand-Echallens, Yvonand, 20 November 2014.
28. I. ANGUISH, O. BUGNON. "Présentation des statistiques 2012-2013 de la consommation des médicaments dans les EMS fribourgeois". Formation continue à l'attention des pharmaciens responsables des EMS fribourgeois, Fribourg, 25 November 2014.
29. J. BERGER. "Oncologie partie II". Séminaire CAP, formation continue FPH, Cully, 4 December 2014.
30. O. BUGNON. "Nouveautés pharmaceutiques en 2014: cas pratiques de validation d'ordonnances". Séminaire pharmActuel. PMU, Lausanne 9 December 2014.

THESIS PRESENTED

INTRA-MUROS THESIS

1. Julien MARQUIS
Etudes d'implémentation d'un programme interdisciplinaire de soutien de l'adhésion thérapeutique de patients à risque cardiovasculaire en pharmacie d'officine
Thesis n°4732, University of Geneva
Director : O. BUGNON
Co-director : M.P. SCHNEIDER

RADIO TELEVISION INTERVENTION

M.P. SCHNEIDER : RTS, La Première, - Le 12h30, 20 November 2014 –
Conférence internationale sur le mauvais usage des médicaments à Lausanne - (disponible sur :
<http://www.rts.ch/la-1ere/programmes/le-12h30/6298980-conference-internationale-sur-le-mauvais-usage-des-medicaments-a-lausanne-20-11-2014.html?f=player/popup>).

S. De GEEST, M.P. SCHNEIDER - SRF, 12h30, 21 November 2014 -
Rezept gegen Medikamentenverschwendung gesucht (disponible sur
<http://www.srf.ch/play/radio/popupaudiooplayer?id=d83921f1-05e2-4368-8c18-66d4892f5383>).

M.P. SCHNEIDER - RTS, La Première, CQFD, 25 November 2014
Les ordonnances sont mal suivies - (disponible sur : <http://www.rts.ch/la-1ere/programmes/cqfd/6293200-les-ordonnances-sont-mal-suivies-25-11-2014.html?f=player/popup>).

AWARDS & DISTINCTIONS

A. BOURDIN. "Person-centered integrated care program for multiple sclerosis patients treated by Fingolimod: first patient related outcomes". Prix du meilleur poster, 2^{ème} congrès suisse des pharmaciens, GSASA et pharmaSuisse, 3-4 November 2014, Interlaken, Suisse.

HOSPITAL PHARMACY (CHUV)

PROFESSOR FARSHID SADEGHIPOUR

GENERAL DESCRIPTION OF THE UNIT

The CHUV hospital pharmacy group works in close collaboration with the HUG pharmacy and other hospital pharmacies to develop research and education activities in hospital and clinical pharmacy. The undergraduate education is mainly focused on a full course (32 h) of hospital pharmacy dispensed during the 3rd year of the baccalaurean cursus. A post-graduate education (MAS) in hospital pharmacy is also proposed since 1999 on the HUG and CHUV sites, in collaboration with the Valais hospital. This three years program is a complete specialization in hospital pharmacy, associating theoretical and practical teachings, as well as a one year research project.

CHUV pharmacy also proposes positions for PhD students in pharmaceutical sciences, either for pharmacists having achieved their MAS, or in direct access. The topics are diversified among the research fields described below. For more information: CHUV pharmacy: <http://www.chuv.ch/pha>

SPECIFIC RESEARCH FIELDS

Drug risk management

- Prospective risk analysis in hospital processes (FMECA method)
- Impact of information technologies on patient safety at prescription, dispensing and administration of drugs
- Impact of human factors on error rates at different steps of the medication use process.

Optimization of clinical use of drugs

- Securing and optimizing the drug use process by developing a clinical pharmacy activity
- Evaluation and improvement of specific administration techniques (i.e. enteral feeding tubes, nebulisation, intrathecal).
- Continuity of care at hospital discharge Detection, prevention, management and evaluation of drug incompatibilities

Development of hospital pharmaceutical forms

- Development of ready-to-use formulations adapted to hospital specificities, and validation of production processes.
- Formulation of pediatric parenteral nutrition

Pharmaceutical analysis

- Development and validation of generic separation methods for the dosage of active ingredients contained in hospital pharmaceutical formulations. Pharmacoeconomics and pharmacoepidemiology

2014 AT A GLANCE

Publications with impact factor	5
Publications without impact factor	2
Books and chapters	1
Posters presentations	10
Congresses & Symposia	10
Continuing education & open to the public lectures	9

STAFF

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PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Pharmacoeconomics	2.86
Eur. J. Clin. Pharmacol.	2.74
Ann. Pharmacother.	2.57
Pharmacotherapy	2.31
Qual. Saf. Health Care	2.16
J.Pharm. Pharmacol.	2.03
Am. J. Health-Syst. Pharm.	1.98
Swiss Med.Wkly	1.82
Int. J. Qual. Health Care	1.79
Int. J. Clin. Pharm. (IJCP)	0.86

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. S. FLEURY-SOUVERAIN, F. SADEGHIPOUR, P. BONNABRY. Development of ready-to-use cefuroxime syringes for use in ophtalmology. *European Journal of Hospital Pharmacy* 2014;21:34-38 0.47
2. A. FOURNIER, O. PANTET, S. GUERID, P. EGGIMANN, J.L. PAGANI, J.P. REVELLY, P.M. HAUSER, O. MARCHETTI, S. FONTANELLA, I. LETOVANEC, F. RAVAT, M.M. BERGER, A. PANNATIER, P. VOIROL, Y.A. QUE. Effective treatment of invasive *Aspergillus fumigatus* infection using combinations of Topical and Systemic Antifungals in a severely burnet patient. *J Burn Care Res*, 2014 Aug 14 1.55
3. V. HUMBERT-DELALOYE, M. BERGER-GRYLLAKI, P. VOIROL, B. TESTA, A. PANNATIER. Screening for physicochemical incompatibilities of intravenous drugs in intensive care units: the case of monobasic potassium phosphate and furosemide. *Eur J Hosp Pharm*, DOI 10.1136/ejhpharm-2013-000431 0.47
4. G. GAGNON, P. VOIROL, L. SOGUEL, O. BOULAT, M.M. BERGER. Trace element monitoring in the ICU: Quality and economic impact of a change in sampling practice *Clinical Nutrition*, DOI 10.1016/j.clnu.2014.04.012 3.94
5. P. VOIROL, M. BERGER-GRYLLAKI, A. PANNATIER, P. EGGIMANN, F. SADEGHIPOUR. Visual compatibility of insulin aspart with intravenous drugs frequently used in ICU. *Eur J Hosp Pharm*, DOI 10.1136/ejhpharm-2014-000478 0.47

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. L. CARREZ, L. FALASCHI, L. CINGRIA, F. SADEGHIPOUR, L. BOUCHOUD, P. BONNABRY. Organisation et sécurisation du circuit des chimiothérapies : exemple de la pharmacie des Hôpitaux Universitaires de Genève. *Pharmactuel* 2014;47:119-24

2. V. HUMBERT-DELALOYE, A. PANNATIER. Compatibilités physico-chimiques: nouvelles données (1, 2) / Physikalisch-chemische Kompatibilität von intravenösen Medikamenten: neue Daten (1, 2)/
pharmaJournal 11, 5.2014

BOOKS OR BOOKS CHAPTERS

1. M. GEHRI, B. LAUBSCHER, E.R. DI PAOLO, M. ROTH-KLEINER, J.M. JOSEPH, S.M. MAZOUNI. Vademecum de Pédiatrie 2014. Editions Baby Guide, 450 p., 2014

PRESENTATIONS

POSTERS PRESENTATIONS

1. D. PALMERO, E. CHAVAN, L. BERGER, H. HENRY, J.F. TOLSA, A. PANNATIER, F. SADEGHIPOUR. Développement et validation d'une méthode LC-MS pour l'étude de stabilité de solutions de prostaglandine E1. 2^{ème} congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 novembre 2014
2. S. HANNOU, A. PANNATIER, A. VON GUNTEN, P. VOIROL, F. SADEGHIPOUR, M.L. WEIBEL, J.F. MALL, I. DE GIORGI. Effects of pharmacist's interventions on inappropriate prescribing in a geriatric psychiatry unit. 2^{ème} Congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 novembre 2014
3. D. PALMERO, E. CHAVAN, L. BERGER, H. HENRY, J.F. TOLSA, A. PANNATIER, F. SADEGHIPOUR. Etude de la stabilité physico-chimique de solutions de prostaglandine E1 à 48 et 72h. 2^{ème} Congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 novembre 2014
4. D. PALMERO, E.R. DI PAOLO, J.F. TOLSA, A. PANNATIER. Introducing a preformatted medical order sheet and giving a course to decrease prescription errors in newborns (poster). 19th Congress of the EAHP, Barcelone, 26-28 March 2014
5. D. PALMERO, E.R. DI PAOLO, J.F. TOLSA, A. PANNATIER. Introducing a preformatted medical order sheet and giving a course to decrease prescription errors in newborns. 19th Congress of the EAHP, Barcelone, 26-28 March 2014
6. A. FEKA, A. FOURNIER, N. PERROTTET, E. THEIN, N. DEMARTINES, A. PANNATIER, P. VOIROL. Metamizole and post operative analgesia: are the guidelines respected?. 19th Congress of the EAHP, Barcelone, 26-28 March 2014
7. S. FLEURY-SOUVERAIN, T. SIGRIST, L. GSCHWIND, L. BOUCHOUD, F. SADEGHIPOUR, P. BONNABRY. Development of ready-to-use adrenaline syringes for emergency use. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
8. S. HANNOU, A. PANNATIER, A. VON GUNTEN, P. VOIROL, M.L. WEIBEL, J.F. MALL, I. DE GIORGI. Effects of pharmacist's interventions on inappropriate prescribing in a geriatric psychiatry unit. 19th Congress of the EAHP, Barcelone, 26-28 March 2014
9. J.C. DEVAUD, P.P. EGGIMANN, P. VOIROL, P. JOLLIET, C. PINGET, J.B. WASSERFALLEN, A. PANNATIER, F. SADEGHIPOUR. Ready-to-use propofol syringes: pharmacoeconomic modelisation of their potential to reduce primary bacteraemia in critically ill patients. 2^{ème} congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 November 2014
10. B. MOSIMANN, A. VON GUNTEN, A. PANNATIER, P. VOIROL, J. MATHYS, I. DE GIORGI, F. SADEGHIPOUR. Utilisation off-label des médicaments psychotropes chez les patients âgés atteints de démence dans une unité de psychogériatrie d'un hôpital universitaire (poster). 2^{ème} Congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 novembre 2014 and 17^e Journée de Recherche des départements de Psychiatrie de Lausanne et de Genève, Belle-Idée-Chêne-Bourg, 12 June 2014

CONGRESSES & SYMPOSIA

1. S. HANNOU, P. VOIROL, M.L. WEIBEL, A. PANNATIER, A. VON GUNTEN, F. SADEGHIPOUR, J.F. MALL, I. DE GIORGI. Reduction of inappropriate drug prescribing by a clinical pharmacist in a geriatric psychiatry unit. 2^{ème} Congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 november 2014.
2. D. PALMERO. «Improving the drug medication process in a department of neonatal medicine », PhD Day EPGL, UNIGE, 13 June 2014
3. D. PALMERO. «Compatibilité & incompatibilité des TPN » Atelier Détresse Nutritionnelle du Nouveau-né, HEL, CHUV, Lausanne, 6 May an 12 December 2014
4. F. SADEGHIPOUR. "La qualité et la fabrication". Séminaire MAS " Qualité et gestion des risques ", Sion, 2014
5. F. SADEGHIPOUR. "Fabrication Aseptique: Exigences Techniques : Applications Pratiques". Séminaire MAS "Préparation des médicaments parentéraux à l'hôpital ", Lausanne, 2014
6. A. ANGELSTORF. "Rôle du pharmacien dans la préparation des cytostatiques ". Séminaire MAS – "Préparation des médicaments parentéraux à l'hôpital", Lausanne, 2014
7. A. ANGELSTORF. Préparation des APT, Journées Lausannoises en Nutrition Clinique de la SSNC, CHUV, Lausanne, 1st October 2014,
8. J.C. DEVAUD. Les techniques de stérilisation dan la fabrication des médicaments en petites quantités. Séminaire MAS "Préparation des médicaments parentéraux à l'hôpital ", Lausanne, 2014
9. J.C. DEVAUD. Solutions nutritives industrielles entérales et intraveineuses – la teneur en protéines et lipides a-t-elle un impact clinique ?, Symposium de nutrition en soins intensifs : Impact de la maladie critique sur le tube digestif & la masse musculaire – Outils thérapeutiques, SSNC/GESKES. », CHUV, Lausanne, 13 November 2014
10. G. PODILSKY. "Manipulation des cytotoxiques : risques et précautions ". Séminaire MAS – "Préparation des médicaments parentéraux à l'hôpital", Lausanne, 2014

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. P. BONNABRY, F. SADEGHIPOUR, et al. "Maîtrise de la fabrication en milieu aseptique ". Pharmacies des HUG et du CHUV, Genève, 2014
2. F. SADEGHIPOUR. "Hottes à flux laminaire d'air et les postes de sécurité biologique". Diplôme interuniversitaire (DIU) de pharmacotechnie. University of René Descartes, Paris, 2014
3. F. SADEGHIPOUR. "Contrôles des Zones à Atmosphère Contrôlé ". Diplôme interuniversitaire (DIU) de pharmacotechnie. University of René Descartes, Paris, 2014
4. A. PANNATIER. La nutrition parentérale : Dénutrition hospitalière - Causes et conséquences. Les substrats en nutrition parentérale, Stabilité et compatibilités des solutions de nutrition parentérale. Diplôme interuniversitaire (DIU) de pharmacotechnie. University of René Descartes, Paris, 2014
5. P. VOIROL. Module 4 CAS Pharmacie clinique (organisation) et « Pharmacothérapie en soins intensifs : quelques spécificités », University of Geneva and University of Grenoble, Geneva, March 2014
6. E. DI PAOLO. «Maladies courantes en pédiatrie», CAS Pharmacie clinique :, University of Geneva and University of Grenoble, Geneva, March 2014
7. P. VOIROL. Médicaments en soins intensifs: très chers ou trop chers?, Colloque de formation SMIA, CHUV, Lausanne, 6 March 2014
8. P. VOIROL. Cas cliniques : « Une journée mordante », Formation continue en pharmacie clinique GSASA, CHUV, Lausanne, 6 mars 2104
9. G. PODILSKY. Production des agents cytotoxiques – Formation pratique, CAS Pharmacie clinique, University of Geneva and University of Grenoble, Geneva, March 2014

AWARDS

1^{er} prix communication orale. Reduction of inappropriate drug prescribing by a clinical pharmacist in a geriatric psychiatry unit. 2^{ème} Congrès suisse des pharmaciens (GSASA-PharmaSuisse), Interlaken, 2-4 november 2014.

HOSPITAL PHARMACY (HUG)

PROFESSOR PASCAL BONNABRY

GENERAL DESCRIPTION OF THE UNIT

The HUG hospital pharmacy group works in close collaboration with the CHUV pharmacy and other hospital pharmacies to develop research and education activities in hospital and clinical pharmacy. The undergraduate education is mainly focused on a full course (32 h) of hospital pharmacy dispensed during the 3rd year of the baccalaurean cursus. A post-graduate education (MAS) in hospital pharmacy is also proposed since 1999 on the HUG and CHUV sites, with a collaboration with the Valais hospital. This three years programme is a complete specialization in hospital pharmacy, associating theoretical and practical teachings, as well as a research project. HUG pharmacy also proposes positions for PhD students in pharmaceutical sciences, either for pharmacists having achieved their MAS, or in direct access. The topics are diversified among the research fields described below. For more information: HUG pharmacy: <http://pharmacie.hug-ge.ch>

SPECIFIC RESEARCH FIELDS

Drug risk management

- Prospective risk analysis in hospital processes (FMECA method)
- Use of simulation to analyze factors that may influence the rate of preparation and administration errors
- Interests and risks of information technologies in risk management at the hospital.

Optimization of clinical use of drugs

- Securing the drug use process in high risk care units
- Detection, prevention, management and evaluation of drug incompatibilities
- Development of decision support, by a clinical pharmacy activity or the dematerialization in computerized systems
- Continuity of care at hospital discharge

Development of hospital pharmaceutical forms

- Validation of production processes
- Development of ready-to-use pharmaceutical forms
- Formulation of pediatric parenteral nutritions

Pharmaceutical analysis

- Development and validation of generic separation methods for the dosage of active ingredients contained in hospital pharmaceutical formulations.
- Analysis of cytotoxic drugs (quality control and traces in the environment)
- Analysis of monoclonal antibodies

Pharmacoeconomics and pharmacoepidemiology

- Analysis of drug use by means of time series methodology
- Modeling the use of antibiotics in relation with the evolution of resistance

Evaluation of the spill-over effect between the hospital and the community settings

2014 AT A GLANCE

Publications with impact factor	4
Publications without impact factor	3
Posters presentations	25
Congresses & Symposia	9
Continuing education & open to the public lectures	13
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STAFF

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Dominique HUNZIKER

RESEARCH FUNDS

INDUSTRY AND ASSIMILATED

Code	Service - Development - Research	Total Amount for 2014 (CHF)
Pharm-ED	e-learning en pharmacie Hospitalière pour les pays en développement	170'000
	Impact des technologies de l'information sur la sécurité du circuit du médicament	37'500
	Développement de supports de formation numériques (e-learning) à l'usage du personnel médico-soignant du département de l'enfant et de l'adolescent (DEA)	45'000
	total	252'500

PUBLICATIONS

THE TOP TEN JOURNALS IN THE FIELD (WITH IMPACT FACTOR)

Pharmacoeconomics	2.86
Eur. J. Clin. Pharmacol.	2.74
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Swiss Med.Wkly	1.82
Int. J. Qual. Health Care	1.79
Int. J. Clin. Pharm. (IJCP)	0.86

SCIENTIFIC PUBLICATIONS (WITH IMPACT FACTOR)

1. S. FLEURY-SOUVERAIN, F. SADEGHIPOUR, P. BONNABRY. Development of ready-to-use cefuroxime syringes for use in ophthalmology. *European Journal of Hospital Pharmacy* 2014;21:34-38 0.47
2. L. Z. KAESTLI, L. CINGRIA, C. FONZO-CHRISTE, P. BONNABRY. Prospective risk analysis and incident reporting for better pharmaceutical care at paediatric hospital discharge. *International Journal of Clinical Pharmacy* 2014;36:953-62 0.90
3. C. FONZO-CHRISTE, B. GUIGNARD, C. ZAUGG, A. COELHO, K.M. POSFAY-BARBE, J. GERVAIX, J. DESMEULES, V. ROLLASON, CH. COMBESCURE, R. CORBELLI, P. RIMENSBERGER, R. PFISTER, P. BONNABRY. Impact of clinical decision support guidelines on therapeutic drug monitoring of gentamicin in newborns. *Therapeutic Drug Monitoring* 2014;36:656-62 1.90

4. L. Z. KAESTLI, S. NOBLE, L. LACROIX, A. GALETTO, A. GERVAIX, C. FONZO-CHRISTE, P. BONNABRY. Drug information at paediatric emergency department discharge : what are parents'/patients' expectations ? European Journal of Hospital Pharmacy 2014;21:325-9 0.47

SCIENTIFIC PUBLICATIONS (WITHOUT IMPACT FACTOR)

1. S. FLEURY-SOUVERAIN, S. NUSSBAUMER, M. MATTIUZZO, P. BONNABRY. Determination of the external contamination and cross-contamination by cytotoxic drugs on the surfaces of vials available on the Swiss market. Journal of Oncology Pharmacy Practice 2014;20:100-11
2. L. CARREZ, L. FALASCHI, L. CINGRIA, F. SADEGHIPOUR, L. BOUCHOUD, P. BONNABRY. Organisation et sécurisation du circuit des chimiothérapies : exemple de la pharmacie des Hôpitaux Universitaires de Genève. Pharmactuel 2014;47:119-24
3. A. GUERIN, P. BONNABRY, D. LEBEL, J. F. BUSSIÈRES. Le site Impact Pharmacie recense les preuves. PharmaJournal 2014;15:13-4

PRESENTATIONS

POSTERS PRESENTATIONS

1. S. SENHAJI, C. LUHMANN-LUNT, R. CORBELLI, P. RIMENSBERGER, C. FONZO-CHRISTE, P. BONNABRY. European survey on the implementation of standardized concentrations for drug infusion In pediatric and neonatal intensive care. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
2. S. DELESTRAS, S. KABICHE, B. GUIGNARD, T. SIGRIST, C. FONZO-CHRISTE, P. BONNABRY. Are pharmacist's recommendations on drug compatibility applied and relayed by caregivers? A randomized controlled study. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
3. L.Z. KAESTLI, S. CHALIER, A. GERVAIX, S. NOBLE, L. LACROIX, A. GALETTO, J.-L. FORNI, C. FONZO-CHRISTE, P. BONNABRY. Pharmacist's interventions to improve drugs' supply and parents' knowledge at paediatric hospital discharge. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
4. M. FLEURY, B. GUIGNARD, C. FONZO-CHRISTE, P. BONNABRY. Subcutaneously implanted port-chamber central venous catheters : occlusion prevention and care. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
5. S. FLEURY-SOUVERAIN, T. SIGRIST, L. GSCHWIND, L. BOUCHOUD, F. SADEGHIPOUR, P. BONNABRY. Development of ready-to-use adrenaline syringes for emergency use. 19th Congress of the European Association Hospital Pharmacy, Barcelone, 2014
6. K. ING LOZENZINI, C.F. SAMER, J. PUGIN, S. HARBARTH, P. BONNABRY, M. FATHI, P. DAYER, J. DESMEULES. Therapeutic drug monitoring of vancomycin and aminoglycosides in an Intensive care unit, a retrospective study. 82^{ème} Assemblée générale de la Société Suisse de Médecine Interne, Geneva, 2014
7. O. FRANÇOIS, C. FONZO-CHRISTE, E. GREMION, L. SUPPAN, M. NIQUILLE, P. BONNABRY. Médicaments et température dans un véhicule d'urgence. Les rencontres Prescrire, Paris, 2014
8. D. CARLI-GHABAROU, C. HAY, P. BONNABRY, C. LOVIS. All is about Medicinal Product Dictionary. Swiss eHealth Summit, Berne, 2014
9. S. SENHAJI, C. FONZO-CHRISTE, P. BONNABRY. Impact of standardized concentrations on drug infusion process In NICU/PICU : a simulation study from prescription to administration. The 5th Congress of the European Academy of Paediatric Societies - EAPS, Barcelone, 2014

10. B. MOUCHET, L. BOUCHOUD, P. BONNABRY. Une formation théorique permet-elle d'améliorer les performances de calculs des opérateurs en production? 17^{èmes} Journées du GERPAC, Giens, 2014
11. N. VERNAZ, V. ROLLASON, L. ADLERE, P. BONNABRY, J. DESMEULES. Snapshot of prescribing practice for clopidogrel and esomeprazole co-prescription and cost evaluation of guidelines application. 17th Annual European Congress ISPOR, Amsterdam, 2014
12. L. ADLERE, N. VERNAZ, V. ROLLASON, J. DESMEULES, P. BONNABRY. Snapshot of prescribing practice for clopidogrel and esomeprazole co-prescription and cost evaluation of guidelines application. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
13. A.L. BLANC, T. FUMEAUX, M. CARPENTIER, A. OURAHMOUNE, J. DESMEULES, P. CHOPARD, A. PERRIER, N. SCHAAD, P. BONNABRY. Identification of factors associated with hospital potentially preventable readmission in Switzerland. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
14. A. PARRON, C. FONZO-CHRISTE, P. RIMENSBERGER, P. BONNABRY. Taux d'extravasation sur voies veineuses périphériques et facteurs contributifs aux soins intensifs de pédiatrie et en néonatalogie. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
15. L. CINGRIA, C. FOLCH, V. BERHAUT, P. BONNABRY. Analyse de l'historique des retraits de lots et révision de la procédure. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
16. L. CARREZ, A.S. VERREY, L. FALASCHI, L. BOUCHOUD, P. BONNABRY. Evaluation de la performance d'un automate pour la production de poches injectables de cytotoxiques. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
17. M. FLEURY, C. BORNEMISZA, C. PLANCHAMP MESSEILLER, R. PICHON, P. BONNABRY. Evaluation ergonomique d'une unité de reconstitution des chimiothérapies par un pharmacien d'hôpital. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
18. C. FOLCH, L. CINGRIA, S. SENHAJI, B. BURTIN, F. JOLLIET, P. BONNABRY. Réorganisation de la chambre froide pour améliorer la gestion des médicaments en cas de panne. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
19. A. DE TOLEDO, P. BONNABRY, I. GUESSOUS. Etude action santé : faisabilité d'une approche online de prévention des maladies cardiovasculaires par le pharmacien. 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
20. L. Z. KAESTLI, S. NOBLE, L. LACROIX, A. GALETTO, A. GERVAIX, S. CHALIER, C. FONZO-CHRISTE, P. BONNABRY. Peut-on améliorer la connaissance des traitements et l'obtention des médicaments des patients pédiatriques sortant de l'hôpital ? 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
21. B. MOUCHET, L. BOUCHOUD, P. BONNABRY. Une formation théorique permet-elle d'améliorer les performances de calculs des opérateurs en production ? 2^{ème} Congrès Suisse des pharmaciens GSASA-PharmaSuisse, Interlaken, 2014
22. A.L. BLAN, T. FUMEAUX, M. CARPENTIER, A. OURAHMOUNE, J. DESMEULES, P. CHOPARD, A. PERRIER, N. SCHAAD, P. BONNABRY. Identification of factors associated with hospital potentially preventable readmission in Switzerland. 43th ESCP Symposium on Chiminal Pharmacy, Copenhagen, 2014
23. S. SPAHNI, V. PIGUET, P. BONNABRY, N. PERONE, M. LOUIS-SIMONET, A. GEISSBUHLER. Le Plan de Traitement Partagé dans MonDossierMedical.ch. 8^{ème} Journée de l'Innovation des HUG, Genève, 2014
24. F. WONG, J. DUQUESNE, B. BONAN, P. BONNABRY, B. DECAUDIN, M. RELIEU, R. COLLOMP. Simulation et travail en équipe: apports en pharmacotechnie (chimiothérapie). 16^{ème} Journées Internationales de la Qualité Hospitalière & en Santé, Paris, 2014
25. L. CERRUTI, D. LEBEL, T. VAN HEES, O. BOURDON, P. BONNABRY, A. SPINEWINE, J.D. HECQ, J.F. BUSSIÈRES. Perception de la pharmacovigilance par les futurs pharmaciens hospitaliers belges, français, québécois et suisses. Colloque annuel du RQRUM, Orford, Québec, 2014

CONGRESSES & SYMPOSIA

1. C. FONZO-CHRISTE. "Particules: incompatibilités physico-chimiques et filtres en ligne". Congrès SFPC, Grenoble, 2014
2. C. BRUGGMANN. "Perfusion, Médicaments et Incompatibilités - Présentation d'un cas de soins intensifs". Congrès SFPC, Grenoble, 2014
3. P. BONNABRY. "Evaluating the risk of aseptic preparations". HPE Live, Birmingham, 2014
4. P. BONNABRY. "Comment la simulation peut nous aider à améliorer la sécurité des processus". GERPAC, Presqu'île de Giens - Hyeres, 2014
5. P. BONNABRY. "Pharmacie hospitalière: défis actuels et futurs ". Séminaire MAS "Qualité et gestion des risques", Sion, 2014
6. C. FONZO-CHRISTE. " Incompatibility of IV Drugs: some clinical highlights ". EAPS, Barcelona, 2014
7. P. BONNABRY. "Automatisation du circuit du médicament : expérience en Suisse". Congrès de la société marocaine de pharmacie oncologique, Rabat, 2014
8. P. BONNABRY. "e-learning en pharmacie hospitalière : présentation du projet Pharm-Ed". Congrès de la société marocaine de pharmacie oncologique, Rabat, 2014
9. P. BONNABRY. "Hospital pharmacy in the future: which role for Carefusion ? ". Carefusion International Meeting, Kellberg, Germany, 2014

CONTINUING EDUCATION & OPEN TO THE PUBLIC LECTURES

1. P. BONNABRY, H. NEY. "HUG Pharmacy & Sterilisation", Berner Fachhochschule, Geneva, 2014
2. P. BONNABRY. "Analyse prospective des risques: application de la méthode AMDEC". Certificat qualité des soins, University of Geneva, Geneva, 2014
3. P. BONNABRY. "Analyse prospective des risques: application de la méthode AMDEC". D.U.E.C. préparations aseptiques, Master techniques pharmaceutiques hospitalière. University of Lille, Lille, 2014
4. P. BONNABRY. "Stratégie d'organisation de la recherche en pharmacie hospitalière". D.U.E.C. préparations aseptiques, Master techniques pharmaceutiques hospitalière. University of Lille, Lille, 2014
5. P. BONNABRY. "Analyse prospective des risques: application de la méthode AMDEC ". Diplôme universitaire (DU) d'analyse et de gestion des risques en santé. Université René Descartes, Paris, 2014
6. P. BONNABRY. "Stratégie de sécurisation du circuit du médicament : apport des technologies de l'information". Diplôme universitaire (DU) d'analyse et de gestion des risques en santé, Université René Descartes, Paris, 2014
7. P. BONNABRY, F. SADEGHIPOUR, et al. "Maîtrise de la fabrication en milieu aseptique". Pharmacies des HUG et du CHUV, Geneva, 2014
8. P. BONNABRY. "Sécurisation du circuit du médicament : apport des technologies de l'information". Master ThEO. University René Descartes, Paris, 2014
9. P. BONNABRY. "Analyse prospective des risques: application de la méthode AMDEC". Diplôme interuniversitaire (DIU) de pharmacotechnie. University René Descartes, Paris, 2014
10. O. FRANCOIS. "Devenez AAA : Amateurs d'Armoires Automatisées". Forum romand sur l'automatisation en milieu hospitalier, Lausanne, 2014
11. P. BONNABRY. "Enjeux futurs et implication pour la pharmacie clinique". CAS en pharmacie clinique, University of Geneva, University of Grenoble, Geneva, 2014
12. P. BONNABRY. "L'inflammation : AINS et corticostéroïdes". Vendredis d'EOG-MOS, Geneva, 2014

13. L. BOUCHOUD. "Le rôle de la pharmacie dans les essais cliniques". BPEC, Cours des HUG / Faculty of medicine, Hôpital des Enfants, Geneva, 2014

THESIS PRESENTED

INTRA-MUROS THESIS

1. Laure-Zoé KAESTLI
Amélioration de la continuité des soins pharmaceutiques aux patients pédiatriques sortant de l'hôpital
Thesis n°4678 – Geneva
Director : P. BONNABRY

THESIS JURY

1. Isabelle KOHLER
Sensitivity Improvements in Capillary Electrophoresis - Mass Spectrometry for Clinical and Forensic Toxicology.
Thesis n°4611, University of Geneva,
Directors : S. RUDAZ, J.-L. VEUTHEY

RADIO TELEVISION INTERVENTION

P. BONNABRY
RTS, Corpus, 8 April 2014
Quand les médicaments manquent

P. BONNABRY
RTS, Corpus, 9 January 2014
Hôpitaux, les défis de la stérilisation des poches d'alimentation