

CYCLE DE CONFÉRENCES

LES

CHERCHEURS LUXEMBOURGEOIS

À L'ÉTRANGER

DU 17 OCTOBRE AU 12 DÉCEMBRE 2011

*Le cycle de conférences bénéficie d'une aide financière du Fonds National de la Recherche
Luxembourg, du Ministère de l'Enseignement Supérieur et de la Recherche et de la Ville de Luxembourg*

ORGANISATEURS

L'Association Jeunes Scientifiques Luxembourg

L'Association Luxembourgeoise des Ingénieurs

L'Association Luxembourgeoise des Ingénieurs-Architectes et Industriels

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Le Centre de Recherche Public Henri Tudor

Le Centre de Recherche Public Santé

La Faculté des Sciences, de la Technologie et de la Communication de l'Université du Luxembourg

Le Musée National d'Histoire Naturelle

La Section des Sciences Naturelles, Physiques et Mathématiques de l'Institut Grand-ducal

La Société des Sciences Médicales du Grand-Duché de Luxembourg

La Société des Naturalistes Luxembourgeois



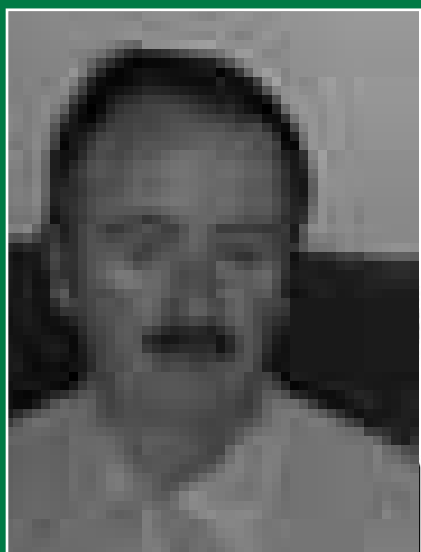
Cycle de conférences mis au point et brochure réalisée par Pierre SECK

Dans le cadre
de la promotion de la culture scientifique au Luxembourg,
les organisateurs proposent au grand public
le cycle de conférences

« Les Chercheurs Luxembourgeois à l'Étranger »

Des Luxembourgeois vivant à l'étranger
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Ils présentent leurs domaines de recherche
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*La langue dans laquelle une conférence est annoncée est celle dans laquelle elle sera donnée.
Toutes les conférences auront lieu à 19h dans l'amphithéâtre de la Ville de Luxembourg
au No 3, Rue Genistre à Luxembourg-Ville (Parking Guillaume ou Parking Aldringen)*



Manuel BUTTINI

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Nationality: Luxembourg (birth),
American (naturalized)

Curriculum vitae

University Education

- ◆ 1992-1995
Ph.D. in Neurobiology, Sandoz
(Novartis) Preclinical Research and
Department of Biology, University of
Basel, Switzerland
- ◆ 1985-1991
M.Sc. in Biology (Majors: Biochemistry
and Genetics)
University of Heidelberg, Germany

Professional Experience

- ◆ October 2005-present
Principal Scientist, Pharmacology
Department, Elan Pharmaceuticals,
CA
- ◆ September 2002-September 2005
Staff Scientist, Pharmacology
Department, Elan Pharmaceuticals,
CA
- ◆ February 2001-August 2002
Scientist, Pharmacology Department,
Elan Pharmaceuticals, CA
- ◆ August 1998- January 2001
Research Scientist, Gladstone Institute of
Neurological Disease and Department of
Neurology, University of California, San
Francisco, CA
- ◆ February 1996-July 1998
Postdoctoral Fellow, Gladstone Institute of
Neurological Disease and Department of
Neurology, University of California, San
Francisco, CA
- ◆ October 1995-January 1996
Postdoctoral Fellow, The Scripps Research
Institute, La Jolla, CA
- ◆ July 1992-September 1995
Ph.D. fellow, Preclinical Research, CNS
Department, Sandoz Pharma (Novartis),
Basel (Switzerland)

Alzheimer's Disease: The promise of emerging therapies

Most people experience some memory decline as they age. In Alzheimer's disease (AD) however, memory decline is dramatic. AD patients show severe memory problems such as forgetting that a conversation took place a couple of hours ago, word-finding difficulties, getting lost in familiar neighborhoods, symptoms that are also accompanied often by abrupt and disruptive behavioral changes. Nowadays, AD can be diagnosed clinically with about 95% reliability by using a combination of tools. The psychological and societal problems this disease causes are huge. Because of the increasing ageing of the world population, it is estimated that, worldwide, the number of patients with AD will increase from about 26 million to more than 100 million by 2050. This will severely strain the health-care systems because the disease is so persistent, long-lasting, and disabling. A lot of evidence suggests that one of the major disease-inducing mechanisms in AD is the abnormal accumulation of a small peptide, the A β amyloid peptide. All of us make the A β peptide in our brain, it's released from a large precursor protein named amyloid precursor protein (APP) after cleavage by two enzymes, the β -secretase and the γ -secretase. But A β is usually quickly cleared from our brains by clearance mechanisms. When its concentration is increased by overproduction or defective clearance, A β self-aggregates forming oligomers, fibrils, and amyloid plaques. The amyloid plaques are one of the main neuropathological hallmarks of AD at autopsy. A β is believed to one of the major disease-causing agents in AD, being responsible for instance for the decline of nerve connections or synapses, which ultimately leads to memory loss. It is therefore not surprising that many therapeutic interventions currently being developed are targeting A β , either by inhibiting its production or by enhancing its clearance. Many clinical trials targeting A β have been initiated, some have, unfortunately, already failed, but there is hope that the ones that still remain will ultimately help combat this devastating disease. In addition, a number of other approaches targeting disease factors other than A β are starting to enter clinical trials.



Glenn BARNICH

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<http://homepages.ulb.ac.be/~gbarnich/>

Curriculum vitae

Awards and distinctions

- ◆ Adolphe Wetrems Prize 2010 of the Royal Academy of Belgium – mathematical and physical sciences
- ◆ Alexander von Humboldt Foundation research fellowship 1997
- ◆ Fulbright-Hays grant for Research and Lecturing in the United States 1995/1996

Employments

- ◆ Fund for Scientific Research – FNRS Belgium
- ◆ Research director since 2008
- ◆ Senior research associate 2004-2008
- ◆ Research associate 2000-2004
- ◆ Visiting professor at Laboratory of Mathematics and Theoretical Physics, Tours University, 02/2008
- ◆ Visiting professor at Department of Physics, University of Valencia, 1998/1999
- ◆ Postdoctoral fellow at Institute for Theoretical Physics, Free University Berlin, 1997
- ◆ Postdoctoral fellow at Center for Gravitational Physics and Geometry, Pennsylvania State University, 1995/1996

Higher education

Free University Brussels:

- ◆ 2000 Habilitation. Thesis: Classical and quantum aspects of the extended antifield formalism
- ◆ 1995 PhD in theoretical physics. Thesis: Local BRST cohomology in Yang-Mills theory
- ◆ 1991 masters in physics. Thesis: Sur la description covariante du formalisme canonique

Research interests

- ◆ Quantization methods for gauge and gravitational theories, symmetries and conservation laws, unified theories, black holes, quantum gravity

Publications

- ◆ <http://www.slac.stanford.edu/spires/find/hep/www?rawcmd=f+a+Barnich>

Conférence – Rendez-vous : 24 octobre 2011 – 19h00
Amphithéâtre de la Ville de Luxembourg, 3, rue Genistre – Luxembourg-Ville

Theoretical aspects of black hole physics

In this talk, I will try to explain how black holes emerged from mathematical considerations on Einstein's theory of space and time, independently of experimental input. The formation of astrophysical black holes through gravitational collapse and astronomical evidence for their existence will be briefly reviewed before turning to the fascinating thermodynamical properties of black holes. Finally, I will give some arguments on why black holes are at the heart of current research on quantum gravity and on unification of fundamental interactions and make the connection with personal research objectives.

Cycle de Conférences



Paul URBAIN

Universitätsklinikum Freiburg
Innere Medizin I -
Hämatologie und Onkologie
Sektion Ernährungsmedizin
paul.urbain@uniklinik-freiburg.de

Curriculum vitae

Schulische und wissenschaftliche Ausbildung

- ◆ seit 2007 Promotionsstudium für die Universität Hohenheim am Universitätsklinikum Freiburg (AG Prof. H. K. Biesalski). Thema: «Der Einfluss des Ernährungsstatus während der Krebstherapie auf das Outcome sowie die innovative Entwicklung einer Methode zur Verbesserung des Vitamin D-Status». Voraussichtlicher Abschluss August 2011.
- ◆ 2004-2007 Quereinstieg ins Studium der Ernährungswissenschaften an der Universität Hohenheim. Diplomabschluss im März 2007. Titel der Diplomarbeit: «Erfassung des Ernährungsstatus onkologischer Patienten vor und während der Chemotherapie», durchgeführt am Universitätsklinikum Freiburg.

- ◆ 2000-2003 Studium der Biologie an der Albert-Ludwigs-Universität in Freiburg. Vordiplomabschluss April 2003.
- ◆ 2000 Abitur mit naturwissenschaftlichem Schwerpunkt in Luxemburg.

Stipendien/Preise

- ◆ 2007–2011 Promotionsstipendium vom Fonds National de la Recherche Luxembourg
- ◆ 2008 Nachwuchsforscherförderpreis der Deutschen Gesellschaft für Ernährungsmedizin (DGEM) für das Projekt «Die Rolle der Versorgung der Mundschleimhaut mit Antioxidantien für das Mukositisrisiko nach Hochdosis-Chemotherapie»
- ◆ 2010 Preis der Dr. Heinrich Kircher-Stiftung zur finanziellen Förderung der «Vitamin D Pilzstudie»
- ◆ 2010 Posterpreis für die «Vitamin D Pilzstudie» - Jahreskongress Ernährung 2010 Mitten in der Medizin in Leipzig
- ◆ 2010 Travel award for the best abstract from Germany für die «Vitamin D Pilzstudie» - ESPEN-Kongress in Nizza

Wichtigste Publikationen

- ◆ P. Urbain, F. Singler et al. Bioavailability of vitamin D₂ from UV-B-irradiated button mushrooms in healthy adults deficient in serum 25-hydroxyvitamin D: a randomized controlled trial. Eur J Clin Nutr. accepted March 2011 («Vitamin D Pilzstudie»)
- ◆ P. Urbain, A. Raynor et al. Role of antioxidants in plasma and buccal mucosa cells in the incidence and severity of oral mucositis after allogeneic haematopoietic cell transplantation. Support Care Cancer. submitted February 2011
- ◆ P. Urbain, G. Ihorst et al. Course of serum 25-hydroxyvitamin D status and its influencing factors during allogeneic haematopoietic cell transplantation. Bone Marrow Transplant. submitted March 2011

VIEL WIRBEL UM VITAMIN D : WAS STECKT DAHINTER?

Ein Mangel an Vitamin D verursacht in erster Linie Störungen im Knochenstoffwechsel und trägt zur Entstehung der Osteoporose im Alter bei. Eine langfristige Unterversorgung mit diesem Vitamin wird auch mit einer Risikoerhöhung für das Auftreten verschiedener chronischer Krankheiten wie z.B. Typ I und II Diabetes mellitus, Multiple Sklerose, kardiovaskuläre Erkrankungen und bestimmte Krebserkrankungen in Verbindung gebracht. Nach neuesten Untersuchungen ist eine ungenügende Vitamin D-Versorgung in unseren Breitengraden, insbesondere im Winter sowie bei alten und kranken Menschen, sehr häufig.

Da eine verbesserte Vitamin D-Versorgung nur über eine Steigerung der Eigensynthese bzw. über die tägliche Ernährung (inklusive Supplemente) erreicht werden kann, sind diesem Vorhaben enge Grenzen gesetzt. Erstens ist die Eigensynthese von Vitamin D durch Sonnenlicht (UVB) in unseren Breitengraden in ausreichender Menge nur von März bis Oktober möglich und durch die heutigen Empfehlungen zur Reduzierung des Hautkrebsrisikos ambivalent. Zweitens sind die Empfehlungen der Fachgesellschaften vermehrt Fisch zu essen theoretisch sinnvoll, jedoch aus ökologischen Gründen der

Überfischung problematisch, da die heutigen Fangquoten über längere Zeit nicht nachhaltig gehalten, geschweige denn gesteigert werden können. Letztlich gibt es frei verkäufliche Vitamin D-Supplemente, welche jedoch nur eine geringe Akzeptanz in der Bevölkerung haben.

Neben den bekannten und vermuteten Folgen eines Vitamin D-Mangels wird im Rahmen des Vortrags auf die allgemeine Versorgungslage in unseren Breitengraden eingegangen und der Nutzen sowie die Grenzen der heutigen Empfehlungen aufgezeigt und diskutiert. Weiterhin möchte ich eine kürzlich von unserer Arbeitsgruppe veröffentlichte Studie vorstellen, welche eine völlig neue Option ins Spiel bringt, um dem weit verbreiteten Vitamin D-Mangel entgegen zu wirken. Wir konnten erstmals am Menschen zeigen, dass das Vitamin D aus Vitamin D-optimierten Speisepilzen den Status deutlich verbessern kann und so wirksam wie ein handelsübliches Vitamin D-Präparat ist.



Betty Bisdorff

Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine- Epidemiology & NetTeaching Unit, University Hospital of Munich (LMU).
Betty.Bisdorff@med.lmu.de

Curriculum vitae

Research interests

- ◆ Cancer Epidemiology (Cancer prevalence in children suffering from Juvenile Idiopathic Arthritis)
- ◆ Epidemiology of Infectious Diseases (MRSA-ST398 prevalence in rural areas)
- ◆ Veterinary Epidemiology (e.g. sheep parasitic diseases, salmonella in pigs,...)
- ◆ Occupational and Environmental Epidemiology and Medicine (e.g. Continuing Medical Education in Occupation Medicine)

Education

- ◆ 2003-2008: University of Bristol (UK)- School of Biological Sciences- Veterinary Parasitology Group-PhD in Veterinary Epidemiology-The epidemiology of sheep ectoparasitic diseases.
- ◆ 2002-2003: University of Bath (UK)- Master of Science in Environmental Sciences, Policy and Planning

- ◆ 1999-2002: University of Westminster (UK)- Bachelor of Sciences (Hons) in Environmental Sciences and Business Management

Professional Experience

- ◆ 2010-current: Deputy Head of Epidemiology and NetTeaching Unit, Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, University Hospital of Munich (LMU).
- ◆ 2009- current: Postdoctoral Fellow in Epidemiology, Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, University Hospital of Munich (LMU).
- ◆ 2008: Epidemiologist-Veterinary Laboratories Agency-Centre for Epidemiology and Risk Analysis (UK).

Publications

- ◆ Bisdorff, B., Scholhölter, J., Claussen, K., Pulz, M., Nowak, D. & Radon, K., MRSA-ST398 in livestock farmers and neighbouring residents in a rural area in Germany. *Epidemiology and Infection* (accepted for publication).
- ◆ Bisdorff, B. & Radon, K. The effectiveness of Summer Schools in Occupational Health and Safety: an evaluation of three consecutive schools. *American Journal of Industrial Medicine* (submitted).
- ◆ Bisdorff, B., Mayer, Y., Nowak, D. & Radon, K. The development of respiratory diseases amongst people living in the vicinity of confined animal operations: a longitudinal study». *Epidemiology* (submitted).
- ◆ Bisdorff, B. & Wall, R. (2008) Sheep blowfly strike risk and management in Great Britain: a survey of current practice. *Medical and Veterinary Entomology* 22, 1-6.
- ◆ Bisdorff, B. & Wall, R. (2008) Control and management of sheep mange and pediculosis in Great Britain. *Veterinary Parasitology* 155, 120-126.
- ◆ Bisdorff, B. & Wall, R. (2006) Blowfly strike prevalence in domestic rabbits in South West England and Wales. *Veterinary Parasitology* 141, 150-155.
- ◆ Bisdorff, B., Milnes, A. & Wall, R. (2006) Prevalence and regional distribution of scab, lice and blowfly strike in sheep in Great Britain. *The Veterinary Record* 158, 749-752.

The concept of epidemiology, explained with the help of two studies:

- *Prevalence and transmission of MRSA-ST398 in a rural area*
- *Increased cancer prevalence in children with Juvenile Idiopathic Arthritis*

Even though the concept of epidemiology has been used quite frequently in everyday life, even more so in the context of recent epidemics such as EHEC and bird flu, it still seems like a very abstract concept to most, especially since it covers so many different areas, e.g. from veterinary to social, to cancer to infectious diseases epidemiology, to name just a few. But how can the concept of epidemiology be linked to all those different disciplines?

This talk aims to explain the concept of epidemiology by presenting two different studies, the first one from the area of infectious disease epidemiology, the second one covering the area of cancer epidemiology.

The first study, “MRSA-ST398 prevalence and risk factors in livestock farmers and neighbouring residents in a rural area in Germany” aimed at establishing for the first time the prevalence and risk factors associated with MRSA-ST398 carriage, a strain usually found in animals, in a rural population with occupational livestock contact as well as neighbouring residents. Therefore a cross-sectional survey was carried out in a pig and poultry dense area in Germany. 2756 questionnaires and self-sampling nasal swabs were sent out in the winter of 2009/2010. Overall 1872 out of 2753 people (response 71%) participated in the study. 1.5% of the tested population without and 24% with occupational livestock contact tested positive for MRSA and MRSA-ST398 for the former; MRSA-ST398 only for the latter. The statistical analysis showed that the group without occupational livestock contact were 3.8 times (95% CI 1.5-9.3) more likely to be colonized if a household member had livestock contact; 3.2 times (95% CI 1.4-7.4) more likely if they regularly carried out private farm visits (e.g. to buy eggs or milk). In the group with occupational livestock contact, pig contact had an Odds Ratio of 7.1 (95% CI 2.9-17.2) for MRSA-ST398 acquisition. This is the first study establishing a MRSA prevalence of 1.5% within the general population without occupational livestock contact. The study furthermore confirmed previously established risk factors for those with and those without occupational livestock contact. It also suggested private farm visits as a new potential risk factor for MRSA colonization for the group without occupational contact. More research, however, into establishing the exact transmission routes and foremost into measures to prevent the spread of the bacterium in the farming environment is still required.

A second study, covering the field of cancer epidemiology, examining whether children with juvenile idiopathic arthritis (JIA) have an increased cancer risk in comparison to their peers will be presented. Currently the literature suggests that children with JIA have a two to threefold increased risk of developing cancer compared to children without JIA as well as in comparison to children with JIA that were not exposed to a TNF (tumor necrosis factor-alpha blockers) therapy. In collaboration with the “Deutsches Zentrum für Kinder- und Jugendrheumatologie” (DZKJR) a cohort study was launched in March 2010, in which 15.000 patients of the DZKJR are being asked about malignant diseases, drug intake, and other environmental factors (such as x-rays) enhancing the incidence of cancer. Preliminary results of the study will be presented.



Thierry E. KLEIN

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Curriculum vitae

Research interests

- ◆ Information and communication theory
- ◆ Wireless and mobile communication
- ◆ Packet data networks and optical networking
- ◆ Network performance optimization and management
- ◆ Energy efficient communication

Professional Experience

- ◆ 2001 – present: Bell Laboratories, Lucent Technologies / Alcatel-Lucent, Murray Hill, NJ (USA)
- ◆ 2010 – present: Director, End to End Wireless Networking Research Department
- ◆ 2010 – present: Chair of the Core Switching and Routing Working Group, Green Touch consortium
- ◆ 2007 – 2010: Founder and CTO of the “Alzette” Venture, Alcatel-Lucent Ventures
- ◆ 2001 – 2007: Member of Technical Staff
- ◆ 1996 – 2000: Research Assistant, Laboratory for Information and Decision Systems, Massachusetts Institute of Technology (MIT), Cambridge, MA (USA)

- ◆ 1999: Member of Technical Staff (summer internship), Bell Laboratories, Lucent Technologies, Murray Hill, NJ (USA)
- ◆ 1996: Teaching Assistant, Laboratory for Information and Decision Systems, Massachusetts Institute of Technology (MIT), Cambridge, MA (USA)
- ◆ 1995: Visiting Researcher, Keio University, Tokyo, Japan
- ◆ 1994: Software Developer, The Goodyear Tire and Rubber Company, Colmar-Berg, Luxembourg
- ◆ 1993: Technical Assistant, Société Européenne de Satellites, Betzdorf, Luxembourg

Education

- ◆ 2000: Doctor of Philosophy (PhD) in Electrical Engineering and Computer Science with Minor in Mathematics, Massachusetts Institute of Technology (MIT), Cambridge, MA (USA)
- ◆ 1995: Diplôme d'Ingénieur en Automatique. Mention très bien (1er de sa promotion). Ecole Centrale de Nantes, France
- ◆ 1994 : Maîtrise en Mécanique, Université de Nantes, France
- ◆ 1993 : License en Mécanique, Université de Nantes, France
- ◆ 1990 – 1992: Mathématiques Supérieures / Spéciales, Lycée Louis-Le-Grand, Paris, France
- ◆ 1990 : Diplôme de Fin d'Etudes Secondaires, Lycée Classique de Diekirch

Publications and Patents

- ◆ Author or co-author of over 35 peer-reviewed internationally recognized conference and journal publications.
- ◆ Named inventor or co-inventor on 36 patents and patent applications filed with the United States Patent and Trademark Office.
- ◆ Additional patent filings in Europe and Asia.
- ◆ 14 patents have been granted.

Awards and Honors

- ◆ Voted “Technologist of the Year 2010” at the Total Telecom World Vendor Awards for innovation and technical leadership on the Alzette Venture.
- ◆ Elected as Member of the Alcatel-Lucent Technical Academy (2008).
- ◆ Recipient of a Bell Labs President’s Award for the Base Station Router project (2006).
- ◆ Recipient of two Bell Labs Teamwork awards for the Base Station Router project (2004) and for the Celnet Xplorer project (2005).

Challenges and Opportunities in Future Wireless Networks

We are currently experiencing an explosion of wireless and mobile traffic and in particular mobile data traffic. This exponential growth in traffic is driven by a plethora of new devices (e.g. iPhone, smart phones and tablets) and new applications (e.g. YouTube, Facebook, social networking, machine to machine communication, video conferencing and immersive communication). In particular mobile video is one of the main drivers behind the current and predicted traffic growth leading to a factor 30 increase over the next ten years. In addition, consumers and businesses have ever-increasing demands for anywhere and anytime connectivity with a high quality broadband experience with seamless mobility across diverse devices.

In this presentation, I will review the macro trends in wireless communication networks and discuss some of the current and future challenges from a technical and business perspective to meet this increasing demand for wireless services. I will present several major approaches that are currently being investigated. New innovative wireless network architectures include small cells as an overlay to traditional macro cells as well as heterogeneous and multi-technology networks. The need for self-organization and intelligent management of these networks are highlighted to handle network complexity, user and traffic dynamics and ultimately guarantee end-user quality of service in a cost-efficient manner while optimizing the use of deployed network resources.

I will focus on three specific research activities and provide more insights into the technical challenges and solutions that have been developed at Bell Labs.

- (1) Wireless network monitoring and intelligent decision making for optimized network performance and end-user experience in heterogeneous multi-technology networks.
- (2) Network-in-a-box architecture. I served as the Founder and Chief Technology Officer of an Alcatel-Lucent internal start-up called “Alzette” (yes, named after the famous river in Luxembourg) with a goal of building a completely autonomous and integrated wireless network for use in emergency response, public safety, disaster recovery, frontier industry and military applications. The concept and product features will be described along with some lessons learned when taking research ideas from the initial concepts all the way to commercially available products.
- (3) Energy efficient networking. With the projected traffic growth, current technologies are simply not able to cope with the increasing energy demands. This calls for disruptive new ideas to improve energy efficiency in our communication networks. An overview of the GreenTouch™ consortium will be provided along with some specific research activities in energy efficient communication, routing and packet data networks.



Guy GREIVELDINGER

MBA, Director Business Development and Merger & Acquisitions
Novartis Pharma AG / Molecular Diagnostics
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Curriculum vitae Professional Experience

- ◆ 2009-present Director Business Development & Licensing and Mergers & Acquisitions Novartis Pharma AG – Molecular Diagnostics Business Unit Current activities include evaluation of diagnostic opportunities and new technologies as well as negotiation of licensing and collaboration agreements. Latest acquisition involved a US-based medical laboratory business providing personalized diagnostic services in hematology and solid tumors (Genoptix Inc.), now part of the Molecular Diagnostic Business Unit within Novartis Pharmaceuticals Division.
- ◆ 2004-2009 Vice President Business Development Arpida AG – Basel As member of the Management Team, responsible for business development and licensing as well as alliance management. In addition, led pre-launch activities for a specialty drug (hospital antibiotic) and set up commercial operations in the US.
- ◆ 1999-2003 Head Marketing & Sales / Project Leader Carbogen AG – Aarau/Switzerland Worked with pharmaceutical and biotech companies in the field of production and chemical development of active pharmaceutical ingredients (API). As Project Leader managed the chemical development of Velcade® (Millennium Pharmaceuticals, now part of Takeda).

Higher Education

- ◆ 2003-2004 Executive Master of Business Administration (Executive MBA)
William E. Simon Graduate School of Business,
University of Rochester, NY, USA
- ◆ 1998-1999 Fulbright Research Fellowship (Post-doctoral Fellow)
University of California Berkeley, CA, USA
Group of Professor J. Ellman in Combinatorial Chemistry
Co-financed by Luxembourgish Ministry of Higher Education and Research
- ◆ 1994-1997 PhD Thesis (Dr. sc. nat.)
Swiss Federal Institute of Technology Zürich (ETH)
Group of Professor D. Seebach in Organic Chemistry Financed by ETH and Swiss National Science Foundation
- ◆ 1989-1993 Diploma Studies in Chemistry
Swiss Federal Institute of Technology Zürich (ETH)
Master Thesis in Organic Chemistry, Group of Professor D. Seebach
- ◆ 1988-1989 Post High-School Studies
Département des Sciences (biologie-chimie)
Centre Universitaire de Luxembourg

Selected Publications

- ◆ D. Seebach, J.-M. Lapierre, K. Skobridis, G. Greiveldinger: 'Chiral Dendrimers from Tris(hydroxymethyl)methane Derivatives'; *Angew. Chem.* 1994, 106, 457-458; *Angew. Chem. Int. Ed. Engl.* 1994, 33, 440-442.
- ◆ D. Seebach, P.B. Rheiner, G. Greiveldinger, T. Butz, H. Sellner: 'Chiral Dendrimers'; *Top. Curr. Chem.* 1998, 179, 125-164.
- ◆ G. Greiveldinger, D. Seebach: 'Second-Generation Trifluoromethyl-Substituted Chiral Dendrimers Containing Triply Branched Building Blocks: CF₃ as Sensitive NMR Probe for 'Remote' Diastereotopicity'; *Helv. Chim. Acta* 1998, 81, 1003-1022.
- ◆ B.A. Hermann, U. Hubler, P. Jess, H.P. Lang, H.-J. Güntherodt, G. Greiveldinger, P.B. Rheiner, P. Murer, T. Sifferlen, D. Seebach: 'Chiral Dendrimers on a Pt(100) Surface Investigated by Scanning Tunneling Microscopy'; *Surf. Interface Anal.*, 1999, 27, 507-511
- ◆ R. Xu, G. Greiveldinger, L.E. Marenus, A. Cooper, J.A. Ellman: 'Combinatorial Library Approach for the Identification of Synthetic Receptors Targeting Vancomycin Resistant Bacteria'; *J. Am. Chem. Soc.*, 1999, 121, 4898-4899

Professional Societies

- ◆ Swiss Pharma Licensing Group (Swiss PLG), Simonites (The Rochester-Bern Alumni Association), Lëtzebuurger Club Roude Léiw (Charter Member)

Conférence – Rendez-vous : 28 novembre 2011 – 19h00

Amphithéâtre de la Ville de Luxembourg, 3, rue Genistre – Luxembourg-Ville

The Promise of Personalized Medicine

The field of diagnostics is playing a large role in the delivery of healthcare as there is a general convergence of four global healthcare trends. First, there have been scientific and technological advancements that have enabled us to better understand disease at its earlier stage and the molecular causes thereof. This eventually will allow us to find answers to more complex questions at lower cost. In addition economic pressures have caused governments as well as private payors to ask for better patient stratification and improved health economic outcomes. On the other hand patients demand access to diagnostics due to expanded global access to healthcare and to the rise of self-directed healthcare. Finally physicians, who are exposed to more and more complex information, ask for diagnostic support to tailor patient care and as a consequence to provide better treatment to their patients.

Molecular diagnostics can broadly be defined as tests employing a variety of innovative technologies to help personalize diagnosis and treatment. These tests will improve the physician's ability to administer the right treatments to the right patients, at the right time and at the right dose, thereby optimizing both patient outcomes and healthcare spending. Pharmaceutical companies apply different approaches to develop and commercialize such diagnostic tests combined with drugs. It will be interesting to see which business model will allow them to best serve their customers, always taking into account the different requests of stakeholders involved such as regulators and payors.

The talk will provide an overview of the evolution of personalized medicine and its actual stage. It will describe the different approaches chosen by the players in the field and show, by using examples, how they plan to address the challenges of a changing environment.

Cycle de Conférences



Professeur Paul KRACK

Curriculum vitae

Formation et titres

- ◆ 1981-87
Etudes médicales, Université de Giessen
- ◆ 1987-95
Formation de neurologie,
Universités de Giessen et Kiel
- ◆ 1989
Docteur en médecine, Université de Giessen
- ◆ 1999
Privatdozent, Université de Kiel
- ◆ 2003
Professeur des Universités-Praticien
Hospitalier, Université Grenoble

Statut actuel

- ◆ Responsable Unité des Troubles du Mouvement ;
Pôle de Psychiatrie et de Neurologie -
CHU Grenoble
- ◆ Co-responsable avec le Dr Marc Savasta
Equipe Dynamique des Réseaux Neuronaux
du Mouvement, Institut des Neurosciences
de Grenoble - Inserm U.836-UJF-
CEA-CHU

Domaines d'intérêt

- ◆ Maladie de Parkinson: signes non-moteurs
de la maladie de Parkinson
- ◆ Stimulation cérébrale profonde
- ◆ Ganglions de la base et comportement
humain
- ◆ 125 Publications dans journaux avec comité
de lecture, facteur H 42

Sélection de Publications

- ◆ Krack P, Limousin P, Benabid AL, Pollak P (1997) Chronic subthalamic stimulation improves levodopa-induced dyskinesias in Parkinson's disease. *Lancet* 350: 1676
- ◆ Krack P, Pollak P, Limousin P, et al (1997) Stimulation of the subthalamic nucleus alleviates tremor in Parkinson's disease. *Lancet* 350: 1675
- ◆ Limousin P, Krack P, Pollak P, et al (1998) Electrical stimulation of the subthalamic nucleus in advanced Parkinson's disease *N Engl J Med* 339: 1105-1111
- ◆ Krack P, Batir A, Van Blercom N, et al (2003) Five years follow-up of bilateral stimulation of the subthalamic nucleus in advanced Parkinson's disease *N Engl J Med* 349: 1925-1934
- ◆ Deuschl D, Schade-Brittinger C, Krack P, et al (2006) A randomized trial of deep-brain stimulation for Parkinson's disease *N Engl J Med* 355: 896-908
- ◆ Krack P, Hariz MI, Baunez C, Guridi J, Obeso JA. (2010) Deep brain stimulation: from neurology to psychiatry? *Trends Neurosci.* 33 : 474-484

Conférence – Rendez-vous : 5 décembre 2011 – 19h00

Amphithéâtre de la Ville de Luxembourg, 3, rue Genistre – Luxembourg-Ville

Deep brain stimulation: from neurology to psychiatry?

Deep brain stimulation (DBS) of the subthalamic nucleus (STN) has become an accepted treatment for motor symptoms in advanced stage Parkinson's disease (PD). From recent clinical observations in PD patients treated with DBS one can conclude that the STN plays a role not only in the control of movement but also in motivational, cognitive and emotional aspects of behaviour. STN DBS improves hyperdopaminergic behaviours mainly by allowing reduction of dopaminergic treatment, thus psychiatric complications of drug treatment are becoming a new indication in addition to the motor complications. Stereotaxy has known a revival starting with Parkinson's disease, a neuropsychiatric illness related to basal ganglia dysfunction. Deep brain stimulation (DBS), which allows for reversible focal neuromodulation of altered brain circuits, is now entering the field of psychiatry. The emerging indications of DBS are Obsessive Compulsive Disorder (OCD), Tourette syndrome, depression and addiction. The multiple brain targets for DBS along limbic and associative cortico-basal-ganglia thalamocortical loops may help to conceptualize these neuropsychiatric disorders as being related to basal ganglia dysfunction.

Cycle de Conférences



Véronique FEIPEL

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Curriculum vitae

Education

- ◆ 1997 PhD in Physical Therapy and Rehabilitation, Université Libre de Bruxelles
- ◆ 1994 Agregation to Higher Secondaire and Higher Teaching, Université Libre de Bruxelles
- ◆ 1990 Licence in Physical Therapy and Rehabilitation, Université Libre de Bruxelles
- ◆ 1996 Diplôme de Fin d'Etudes Secondaires, section Latin-Mathématiques, Lycée de Garçons, Esch-sur-Alzette

Positions occupied

- ◆ Since 2006 Professor, Laboratory of Functional Anatomy, Faculty for Motor Sciences, Université Libre de Bruxelles
- ◆ 2000-2006 Assistant professor, Laboratory of Functional Anatomy, Faculty for Motor Sciences, Université Libre de Bruxelles

- ◆ 2000 Post-doctoral research fellow, Laboratoire Informatique de la Scoliose 3D, Centre de Recherche de l'Hôpital Sainte-Justine – Université de Montréal - Canada
- ◆ 1992-2000 Assistant, Laboratory of Functional Anatomy, Faculty for Motor Sciences, Université Libre de Bruxelles
- ◆ 1991-1994 BFR Research Fellow, Laboratory of Functional Anatomy, Faculty for Motor Sciences; Université Libre de Bruxelles
- ◆ 1990-1992 Physical Therapist in private practice, senior residence, homecare association in Luxembourg and Belgium

Thesis supervision and juries

- ◆ Supervision of more than 70 master's theses and of more than 30 student research projects
- ◆ Supervision of 4 PhD theses
- ◆ Member of 6 PhD juries (Belgium, France, The Netherlands)

Publications and scientific activities

- ◆ More than 40 international peer-reviewed publications, 5 book chapters, 80 Abstracts / Conference Proceedings, more than 30 oral and 15 poster communications, unpublished, 15 session chairs in international conferences, 70 invited lectures
- ◆ Research topics: wrist kinematics, spine kinematics and functional evaluation in patients with spinal disorders, musculo-skeletal modeling, gait analysis
- ◆ Member of the International Society of Biomechanics, Société de Biomécanique, Rachis 50, SIROT (Société Internationale de Recherche en Orthopédie et Traumatologie), European Society of Biomechanics and of the European GAITRite® Network Group. Member of the Executive Council of the International Society of Biomechanics (2007-2013)
- ◆ Member of the Editorial Board of Clinical Biomechanics. Peer-reviewing for Surgical and Radiologic Anatomy, Annales de Chirurgie de la Main, Clinical Biomechanics, Journal of Sports Sciences, European Spine Journal, Spine, Journal of Biomechanics
- ◆ Expert and consultancy missions for the BFR (Luxembourg), the Natural Sciences and Engineering Research Council of Canada, and the Fonds Québécois de Recherche sur la Nature et les Technologies du Québec (Canada).
- ◆ Winner of the MAAF-Santé Price 2006 (Société de Biomécanique)
- ◆ Participation in the organization of 13 international conferences
- ◆ Coordinator of the XXIIIrd Congress of the International Society of Biomechanics, ISB2011, Brussels, July 2011

Three-dimensional assessment of cervical spine motion and kinaesthesia

Neck disorders represent a major cause of disability, generating large worker disability, sick leave and compensation costs. Whereas in a significant proportion of patients, the link between symptoms and underlying pathological process is clearly established, such a relationship is not always so obvious and the factors leading to chronicity are still poorly understood. As a consequence, diagnostic procedures, therapeutic decision making and patient follow-up remain a matter of controversy.

During the past 15 years, our research group has contributed to the development, validation of functional evaluation methods of the cervical spine and their implementation as diagnostic aids. The techniques developed are aimed at complementing other examination methods, such as medical imaging, specifically in those cases in which the precise diagnosis is difficult to establish and in situations in which objective, valid and reproducible data is required. Our approach is based on three-dimensional (3D) kinematics assessment and is applied to evaluate active motion ranges and patterns as well as proprioception.

In a first group of studies, we developed and validated a 3D electrogoniometric protocol to assess motion ranges of the cervical spine. A normative database was then created, based on data sampled in more than 250 asymptomatic volunteers of both genders and aged between 14 and 70 years. This study allowed determining the “normal” values of primary and conjunct cervical spine movements. It was also shown that primary neck motion ranges decrease with advancing age, unlike coupling patterns. Several primary and coupled motion components were significantly altered in groups of patients suffering from chronic neck pain, Whiplash-associated disorders or cervical disk disease.

In order to expand data exploitation in neck kinematics analysis by assessing motion quality or patterns, the goodness of fit of polynomials to kinematics data was analysed. Qualitatively, patients with neck disorders displayed less harmonic curves, with irregularities and plateau-like appearances. Root mean square differences between data and fit were significantly modified in patients as compared to healthy volunteers. Although cervical spine motion ranges may remain within normal limits in patients, motion patterns were altered qualitatively and quantitatively.

Proprioception or kinaesthesia is defined as the sense of the relative position, weight, movement and/or tension of neighbouring parts of the body. The central nervous system uses proprioceptive information to maintain balance or adjust the planning of movements and tasks. It has been reported that neck kinaesthesia may be altered in patients with cervical spine disorders, particularly following Whiplash injuries. Neck kinaesthesia evaluation is usually based on measurement of head repositioning accuracy. In our studies, 3D head repositioning accuracy was studied in a broad range of conditions. Dynamic methods of kinaesthesia evaluation were also developed. Although significant differences between healthy subjects and patients with neck disorders were observed, the magnitude of these differences was limited and thus of questionable clinical relevance.

Objective and reliable evaluation of 3D cervical spine motion and proprioception was shown to be feasible in clinical applications. Such methods can contribute to diagnosis and patient follow-up, especially in patients in whom anatomical lesions are not clearly identifiable.

