



RESEARCHER
LINKS



WORKSHOP ON DRUG DISCOVERY AND NANOMEDICINE

Porto Alegre
March 29 to 30, 2016

Federal University of Rio Grande do Sul
Institute of Chemistry
Av. Bento Gonçalves, 9500
Amphitheatre (43111, A212)

Federal University of Rio Grande do Sul is pleased to held the Workshop on Drug Discovery and Nanomedicine

President: Prof. Carlos Alexandre Netto

Vice President: Prof. Rui Vicente Oppermann

Center of Nanoscience and Nanotechnology

Director: Prof. Sílvia S. Guterres

Vice Director: Dr. Naira M. Balzaretto

Institute of Chemistry

Director: Prof. Nadya Pesce da Silveira

Vice Director: Dr. Henri Stephan Schrekker

Newton Fund/UK Deputy: Ms. Fernanda Silva

Workshop on Drug Discovery and Nanomedicine

Coordinators:

Prof. Adriana R. Pohlmann (UFRGS)

Dr. Nicholas Holliday (Univ. Nottingham)

Mentors:

Dr. Rafael Roesler (UFRGS)

Prof. Steven Charlton (Univ. Nottingham)

Our goal is to bring together a UK and Brazilian cohort of early career researchers to take part in a workshop focusing on building links for future collaboration and enhancing the researchers' career opportunities. The workshop content is centred on drug discovery and nanomedicine.

Tuesday, March 29th

8h30 Opening Ceremony

9h00 Conference 1 Prof. Steven Charlton (University of Nottingham, UK)

The importance of target binding kinetics in drug discovery

9h45 Lecture 1 Dr. Brian Hudson (University of Glasgow, UK)

Unlocking the Therapeutic Potential of the FFA4 Long Chain Fatty Acid Receptor

10h15 Lecture 2 Dr. Dyeison Antonow (PUC-RS, Brazil)

Drug Delivery Systems: Targeted Therapies based on Antibody-Drug Conjugates (ADCs)

10h45 Pause

11h10 Pharmacology 101 – session 1

11h50 Lecture 3 Dr. Sophie Bradley (Medical Research Council Toxicology Unit, UK)

Targeting the M1 muscarinic acetylcholine receptor in neurodegeneration

12h20 Discussion

13h00 Lunch

14h00 Conference 2 Dr. Rafael Roesler (UFRGS, Brazil)

Gastrin-releasing peptide receptors in the central nervous system: role in brain function and as a drug target

14h45 Lecture 4 Dr. Margaret Cunningham (University of Strathclyde, UK)

A multidisciplinary approach to thrombin receptor research: Targeting proteinase-activated receptors as an antiplatelet strategy

15h15 Lecture 5 Dr. Marcelo Bispo de Jesus (UNICAMP, Brazil)

Cellular Mechanisms in Nanomaterial Internalization, Intracellular Trafficking, and Toxicity

15h45 Pause

16h10 Pharmacology 101 – session 2

18h00 Return to the Hotel

Wednesday, March 30th

9h00 Conference 3 Prof. Adriana R. Pohlmann (UFRGS, Brazil)

Polymeric nanocapsules as promising nanocarriers in therapeutics

9h45 Lecture 6 Dr. André Luís Branco de Barros (UFMG, Brazil)

Radiolabeled nanoparticles as alternative tool for cancer diagnosis and therapy

10h15 Lecture 7 Dr. Irene Clêmes Kulkamp Guerreiro (UFRGS, Brazil)

Antifungal and antiretroviral drugs nanoencapsulation: Could it be an efficient strategy to improve actual therapy?

10h45 Pause

11h10 Pharmacology 101 – session 3

11h50 Lecture 8 Dr. Javier Hernández Gil (Imperial College London, UK)

Tumour-Targeted and Matrix Metalloproteinase-Responsive Iron Oxide Nanoparticles for Theranostic Applications

12h20 Discussion

13h00 Lunch

14h00 Conference 4 Dr. Nicholas Holliday (University of Nottingham, UK)

Shedding light on G protein coupled receptor pharmacology using fluorescence complementation and imaging approaches

14h45 Lecture 9 Dr. Elizabeth Rosethorne (University of Nottingham, UK)

Using Phenotypic Assays to Explore Ep4 Agonism in Airway Remodelling

15h15 Lecture 10 Dr. Ana Rosa Lopes Pereira Ribeiro (INMETRO, Brazil)

Biomineralization of Anatase Nanoparticles and its Implications in Bone cells Survival

15h45 Pause

16h00 Group competition – due diligence exercise and Final remarks

18h30 Return to the Hotel

The coordinators and mentors

Coordinators

Associate Prof Nicholas D Holliday

Dr Nick Holliday was appointed Associate Professor of Molecular Pharmacology in 2013, after previously holding a Lectureship (since 2011) and a five year research fellowship in the School of Life Sciences at Nottingham. Following first class honours from the University of Cambridge (1994), Nick carried out his PhD studies at King's College London (1998), supported by a prize AJ Clark PhD studentship from the British Pharmacological Society. It was during subsequent postdoctoral work in London that his interests in peptide messengers regulating appetite and metabolism became focused on molecular mechanisms underlying the signalling and regulation of their receptors, which led to the Nottingham appointment. Since then, Dr. Holliday has built a research group investigating these and other G protein coupled receptors (GPCRs), the largest class of drug targets in man. He has specialised in quantitative pharmacological and signalling assays based on novel fluorescence techniques and automated imaging for use in drug discovery, with 14 primary papers since 2010. His particular expertise in bimolecular fluorescence complementation methods to study signalling partner interactions arose initially through Medical Research Council funding establishing assays for GPCR association with arrestin proteins, and to quantify pharmacology of defined receptor oligomers (Kilpatrick et al. (2010) *Br J Pharmacol*; Watson et al (2012) *Mol Pharmacol*; Kilpatrick et al. (2015) *Mol Pharmacol*). Dr Holliday also pioneered developments of this technology necessary to study signalling complexes using advanced imaging methods such as fluorescence correlation spectroscopy (Kilpatrick et al (2012) *Biochimica Biophysica Acta Mol Cell Res*), and adaptation of these techniques to membrane transporters and transcription factors (Evans et al (2011) *Nuc Acids Res*; Haider et al (2011) *PloS ONE*; Alqahtani et al (2014) *Open Biol*; Wong et al (2015) *Biochimica Biophysica Acta*, in press). This work was recognised by the prize award of the 2011 Bill Bowman lectureship from the British Pharmacological Society, together with several invited reviews (e.g. Kilpatrick & Holliday (2012) *Methods Mol Biol*; Sivertsen et al (2013) *Br J Pharmacol*; Stott et al (2015) *Biochem Pharmacol* in press). It continues to support high calibre international academic collaborations (e.g. Mountford et al (2014) *Org Biomol Chem*; Valentin-Hansen et al (2015) *J Biol Chem*), including as UK lead for CAPES Drug Discovery Award held by Prof Roesler, together industrial funding (e.g. GSK, AstraZeneca, NovoNordisk). Dr Holliday leads undergraduate pharmacology modules in pharmacy and neuroscience, and has trained 9 PhD students since 2009, three of which have won prize studentships or presentation prizes at international conferences. He is on the editorial board of *Pharmacology Research and Perspectives*, and also has been actively involved in public engagement, including an arts crossover project to explain the use of imaging in pharmacology ("Hijacking Natural Systems"), funded by the Wellcome Trust.

Prof. Adriana R. Pohlmann

Adriana R. Pohlmann, Professor of Organic Chemistry at the Chemistry Institute of the Universidade Federal do Rio Grande do Sul in Porto Alegre, Brazil, received her Graduation in Pharmacy (1985) and Master in Chemistry (1991) at UFRGS, and Doctorate Degree in Therapeutic Chemistry at the University of Paris V, France (1997). In 1998, she received the prestigious Roussel-Uclaf award for her Dissertation and a Laureate Diploma from the College of Pharmaceutical and Biological Sciences, University of Paris V, France. She served as Head of the Department of Organic Chemistry (1999-2001), as First Director of the Center of

Nanoscience and Nanotechnology at UFRGS (2006), as member of the Committee of the Postgraduate Program in Chemistry (2001-2003; 2009-2011), Coordinator of the Post-Graduate Program on Pharmaceutical Nanotechnology (2013-2015) and as Vice-Director of the Institute of Chemistry (2003-2007). She also served as the Vice-Director of the Brazilian National Nanotechnology Network, and Coordinator of an international collaborative IBSA project between India, Brazil and South Africa both supported by the Brazilian Ministry of Science and Technology. She is a recognized researcher at the National Council for Scientific and Technological Development (CNPq/Brazil) leading the group: Micro- and nanoparticles for therapeutics. She currently advises Graduate and Post-Graduate students in Chemistry, Pharmaceutical Sciences and Pharmaceutical Nanotechnology. Her main research is focused on the organic chemistry applied to drug nanocarriers, including polymeric nanocapsules and nanospheres, with the view of understanding and controlling their sizes, shape, surface and physico-chemical properties. She has published more than 200 peer-reviewed articles, 3 books and 19 book chapters. Her research group holds 50 patents and transferred 7 products to a Brazilian Company, reaching the market since 2009. She currently serves as Ad-hoc reviewer for more than 25 International Scientific Journals, for Brazilian Agencies to support scientific research, and as Associate Editor of the Journal of Nanoscience and Nanotechnology and the Journal of Colloid Science and Biotechnology, Editorial Board member of the Journal of Nanopharmaceutics and Drug Delivery and the Journal of Biomedical Nanotechnology (American Scientific Publishers). She is also a member of the Brazilian Association of Pharmaceutical Scientists and of the Brazilian Chemical Society.

Mentors

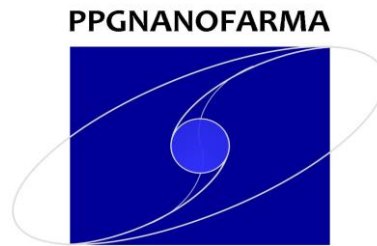
Prof Steven Charlton

Prof Charlton has recently joined the University of Nottingham where he is Professor of Molecular Pharmacology and Drug Discovery. Prior to that he spent 16 years in the pharmaceutical industry, both at SmithKline Beecham and Novartis. At Novartis he was Director of Molecular Pharmacology in Respiratory Diseases, leading an assay development and compound profiling team of 30 scientists providing expert opinion and support for GPCR, ion channel and enzyme projects. He has broad drug discovery experience, ranging from target validation through to leading full lead optimisation programmes to successful clinical proof of concept. He is interested in all aspects of the quantitative assessment of ligand-receptor interactions, with a particular interest in the kinetics of ligand binding and signalling. Prof Charlton serves as an editor of the British Journal of Pharmacology and is actively engaged in training new pharmacologists, working closely with the British Pharmacological Society to organise scientific symposia and teaching workshops. Prof Charlton was awarded Novartis Leading Scientist in 2007.

Associate Prof Rafael Roesler

Dr. Rafael Roesler, Associate Professor in the Department of Pharmacology, Institute for Basic Health Sciences, Federal University of Rio Grande do Sul has published more than 190 articles, 11 book chapters and holds 6 patents. Head, Cancer and Neurobiology Laboratory, University Hospital Experimental Research Centre (CPE-HCPA) focuses his research interest on biology and pharmacology of neurotransmitter and neuropeptide receptors; neurobiology and neuropharmacology of synaptic plasticity and memory; brain tumour biology and pharmacology; cell signalling in brain function, brain disorders, and cancer.

Execution:



Support:

