

Pharmacology International

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Invitation to the 17th World Congress of Basic and Clinical Pharmacology



Dear Pharmacology Colleague,

It is our privilege to invite you to participate in the 17th World Congress of Basic and Clinical Pharmacology (WCP2014) from 13-18 July 2014 in Cape Town, South Africa. This historic event marks the first ever IUPHAR World Congress to be hosted on the African continent and coincides with the celebration of 20 years of democracy in South Africa. We believe that WCP2014 will leave a lasting impression on all of us. Africa is a continent of many wonders and firsts. It is recognised as the "cradle of humankind", and is blessed with a diversity of people and cultures, majestic and breathtaking landscapes, as well as an unsurpassed beauty and diversity of animal and plant life. The host city of Cape Town is set on a peninsula of rocky heights with dramatic ocean views. Moreover, it is situated at the foothills of Table Mountain, recently acclaimed as one of the seven natural wonders of the world.

Visitors to the city will appreciate the range of world-class accommodations within walking distance of the modern venue, the Cape Town International Convention Centre. Only 20 minutes away is the Cape Town International Airport, offering flights by international air carriers directly from Europe, the Americas, and Asia. The congress theme is "Pharmacology at the cutting-edge". We will discuss the major breakthroughs and developments in the field of pharmacology – from fundamental to clinical pharmacology and translational research addressing healthcare challenges and patient outcomes. In addition to an outstanding scientific programme with Nobel Laureates and other world leaders, there

will be numerous opportunities for attending satellite meetings, workshops, hands-on learning and networking. These will be complemented by exciting social events, such as the Nelson Mandela International Day excursion. WCP2014 will have a strong focus on opportunities for young scientists. Pharmacology for Africa, an integral partner to the World Congress, will provide a specific platform for you to engage with colleagues from Africa. We are grateful for the support of the communities of pharmacologists around the globe in so many ways. For example, the British Pharmacological Society young pharmacologists have been selling T-shirts and the Hong Kong Pharmacology Society provided sponsorship to support the participation of young pharmacologists from Africa.

We invite you to extend your stay to explore South Africa and other countries in Africa, perhaps on safari or a multitude of other touring options. Come and experience the Cape floral kingdom, the "Big Five" and so much more. Accompanying persons will revel in the chance to experience Cape Town and its beautiful peninsula where the unexpected is always just around the corner. We look forward to welcoming you to Cape Town, with its natural beauty, creative freedom and incredible spirit.

Come embrace a truly South African and African experience!

Douglas Oliver and Tiaan Brink

WCP2014 President and Secretary-General

www.WCP2014.org

Important Dates

31 January 2014

Abstracts Close

28 February 2014

Early Bird Registration Cut-Off

31 May 2014

Late Breaker abstracts close



Abstract Submission

The Scientific Programme Committee invites you to submit abstracts for poster presentation at WCP2014. We will accept abstracts on a range of topics related to pharmacology research, education and practice (see below list of topic categories).

- Deadline for submission: **31 January 2014**, received electronically not later than 16:00 South African Time (GMT +02:00).
- Notification of acceptance decision: **End of February 2014** via email. The Programme Committee may select a small minority of abstracts for oral presentation, which will be negotiated with presenters.
- Format: Abstracts should be submitted in English consisting of four paragraphs with the following headings: **background, methods, results, conclusions**. These paragraphs should briefly describe the objectives of the study or investigation, the basic procedures (study subjects and analytical methods), the main findings (giving specific data and the statistical significance, if possible), and the principal conclusion. The abstract body text has a limit of **350** words.

ONLINE SUBMISSION

All abstracts should be submitted electronically via the online abstract form available on the official website. You can partially complete, save and return later to edit and finalise. Once your abstract is ready, you can submit, after which no changes can be made.

SELECTING YOUR ABSTRACT CATEGORY ON THE ONLINE ABSTRACT SUBMISSION FORM

To organise the extensive list of abstract categories, they are grouped into several MAIN CATEGORIES, each subdivided into several SUBCATEGORIES. You are requested to select an appropriate subcategory to best describe your abstract topic. Therefore, select a main category, followed by a subcategory. You may select a second subcategory, which may fall under the same or a different main category.

Please find below a list of the main categories:

List of Categories:

- Drug discovery & development
- Fundamental pharmacological mechanisms
- Drugs and the brain
- Cardiovascular pharmacology
- Drugs for infectious diseases
- Immunopharmacology
- Drug metabolism and disposition
- Endocrine pharmacology
- Oncology
- Specialised systems pharmacology
- Age-related pharmacology
- Pharmacology and technology
- Clinical pharmacology
- Toxicology
- Pharmacology education
- Regulatory affairs & management
- Veterinary pharmacology
- Other

Here are examples of the selection of two subcategories:

Example 1	Example 2
(one main category)	(two different main categories)
First choice	First choice
[Drugs and the brain]	[Drugs and the brain]
(main category)	(main category)
[Behaviour]	[Behaviour]
(subcategory)	(subcategory)
Second choice	Second choice
[Drugs and the brain]	[Oncology]
(main category)	(main category)
[Depression]	[Cytotoxic agents]
(subcategory)	(subcategory)

For assistance with your submission, please contact:

Janice Candlish
Project Manager – Medical Division
Scatterlings Conference & Events
Tel: +27 11 463 5085 / Email: Janice@soafrica.com

Introduction to the scientific programme

The programme committee members have all worked hard to develop an exciting scientific programme, which has a good balance between basic and clinical pharmacology. We have a very strong field of twenty plenary speakers, each of whom is at the cutting edge of their discipline. There are two parallel plenary sessions each morning, with a basic and a clinical pharmacology topic in nearly all sessions. There is a very diverse geographic representation of speakers. The range of session topics is very wide, including pharmacology education and drug regulation. We have tried hard to avoid session topics with similar themes being scheduled at the same time in the seven parallel sessions. Many of the session topics are complemented and expanded on in specialised satellite meetings during, before and after the congress.

We hope delegates enjoy a stimulating congress.

Prof Gary Maartens

Chair, Scientific Programme Committee

Sunday 13 July 2014

17:30 - 18:00

WCP2014 Opening Ceremony

18:00 - 18:30

18:30 - 19:00

Opening Keynote Speaker sponsored by NWU

19:00 - 19:30

R Lefkowitz. G Protein Coupled Receptors

19:30 - 20:00

20:00 - 20:30

WCP2014 Welcoming Function

20:30 - 21:00



“As founder member and past president of the South African Society for Basic and Clinical Pharmacology, it gives me great pleasure to anticipate and, hopefully, to experience in person, the impact that this historic congress is bound to have on tuition, training, and research in the fields of basic and clinical pharmacology in Africa, and, indeed, the whole world, to prevent and treat disease.”

Frank Otto Muller, Past President, South African Society of Basic & Clinical Pharmacology



“This meeting offers a tremendous opportunity for scientists across the globe to network and share the latest developments. WCP2014 also provides a venue for young scientists to interact with scientific leaders in basic and clinical pharmacology.”

Judith A. Siuciak, Executive Officer, ASPET



Monday 14 July 2014							
Track	1	2	3	4	5	6	7
7:30 - 8:00					Meet the Expert 1	Meet the Expert 2	Meet the Expert 3
8:00 - 8:30							
8:30 - 9:00	Plenary Lectures 1 & 2 co-sponsored by BPS				Plenary Lectures 3 & 4		
9:00 - 9:30	PK Rangachari. Basic Pharmacology Education				Yoshikatsu Kanai. Amino acid transporters in oncology		
9:30 - 10:00	Simon Maxwell. Challenges in training tomorrow's prescribers				Ronald Taylor. Monoclonal antibodies in cancer		
10:00 - 10:30	Tea break						
10:30 - 11:00	Pharmacology of novel tuberculosis regimens	New drug research and development for Alzheimer's disease	Natural Products: Neuro-Metabolic-Vascular Mechanisms	Therapeutic monoclonal antibodies in oncology	What every pharmacologist should know about children	Epigenetic regulation of drug metabolizing enzymes and transporters	LB1
11:00 - 11:30							
11:30 - 12:00							
12:00 - 12:30	Lunch & poster viewing						
12:30 - 13:00							
13:00 - 13:30							
13:30 - 14:00	Antibiotic resistance	New targets for stress	Therapeutic targets for treating or preventing insulin resistance and cardiometabolic complications	Targeted small molecule therapy in oncology	(*BPS) Communicating with the public and the policy community	Orphan G protein-coupled receptors- What are the new ligand and new drug targets?	LB2
14:00 - 14:30							
14:30 - 15:00							
15:00 - 15:30	Tea break						
15:30 - 16:00	Novel therapeutic strategies in HIV	Calcium signaling in brain diseases	Advances in reproductive pharmacology	Targeting B cell signaling in oncology	2020 Vision for Pharmacology Education	Mathematical Modelling and Computer Simulation – Applications to Healthcare	LB3
16:00 - 16:30							
16:30 - 17:00							
17:00 - 17:30	Pharfa Symposium 2: Traditional Medicine Development Strategies	Satellite - New Web-based Approaches for Teaching Clinical Pharmacology: Workshop Pscribe	Satellite: IATDMCT symposium - Frontiers in Therapeutic Drug Management	IUPHAR Clinical Division Council Meeting			
17:30 - 18:00							
18:00 - 18:30							
18:30 - 19:00							
19:00 - 19:30	SASBCP General Assembly	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions
19:30 - 20:00							
20:00 - 20:30							
20:30 - 21:00							
21:00 - 21:30							
21:30 - 22:00							



“This significant conference will not only deliberate on advances in the field and solutions to current challenges, but also increase awareness of the importance of pharmacology research both in South Africa and our continent.”

Albert van Jaarsveld, Chief Executive Officer, National Research Foundation, South Africa

Tuesday 15 July 2014

Track	1	2	3	4	5	6	7
7:30 - 8:00							
8:00 - 8:30					Meet the Expert 4	Meet the Expert 5	Meet the Expert 6
8:30 - 9:00	Plenary Lectures 5 & 6 Kozo Kaibuchi. Protein Phosphorylation in Signal transduction Richard Neubig. Signal transduction in therapeutics				Plenary Lectures 7 & 8 Brian Strom. Use of pharmacoepidemiology to study the effects of pharmaceuticals Doriano Fabbro. Tyrosine kinase inhibitors		
9:00 - 9:30							
9:30 - 10:00							
10:00 - 10:30	Tea break						
10:30 - 11:00	New drugs for neglected infectious diseases	Protein S-nitrosylation as a therapeutic target	Obesity: Basic and clinical pharmacology	TGFβ in radiation biology & therapy	IUPHAR Natural Products Section Symposium	Innovations in drug therapies – The future is now	LB4
11:00 - 11:30							
11:30 - 12:00							
12:00 - 12:30	Lunch & poster viewing						
12:30 - 13:00							
13:00 - 13:30							
13:30 - 14:00	Pharmacogenetics in infectious diseases	Optimizing anti-epilepsy drug discovery	Renin-angiotensin system pharmacology revisited	DNA repair and topoisomerase inhibitors in oncology	Internet-based solutions to alleviate shortages of pharmacology faculty in developing countries	Plants and animal toxins as sources of new therapeutic drugs	Structural basis for ion channel pharmacology
14:00 - 14:30							
14:30 - 15:00							
15:00 - 15:30	Break						
15:30 - 16:00	Recent breakthroughs in malaria treatment	The addictive brain through different receptor subtypes	Aspirin, the wonder drug	Sarcoma genetics and targeted therapeutics	Regulatory challenges in herbal and traditional medicines	NC-IUPHAR and guide to pharmacology	LB6
16:00 - 16:30							
16:30 - 17:00							
17:00 - 17:30	IUPHAR's Analytical Pharmacology Lecture. Dr Arthur Christoloupos. Adventures in allostery: From function to structure						
17:30 - 18:00							
18:15 - 19:45	IUPHAR General Assembly						
							
<p>Meeting registrants are welcome to watch the General Assembly proceedings, however, please avoid sitting in the seats reserved for the voting delegates.</p>							



« IUPHAR is honored and proud to sponsor the 17th World Congress of Basic and Clinical Pharmacology held the 13th to 18th July 2014 in Cape Town, South Africa. The Congress has a remarkable scientific program where the latest findings in basic and clinical pharmacology will be discussed in 20 plenary lectures, more than 80 symposia, 15 meet the expert sessions, poster sessions, the IUPHAR Young Scientists Competition, and more than 30 satellite meetings. In addition, spectacular pre and post Congress tours have been organized.

I do hope to meet you in Cape Town! »

Patrick du Souich, President, IUPHAR



Wednesday 16 July 2014							
Track	1	2	3	4	5	6	7
7:30 - 8:00					Meet the Expert 7	Meet the Expert 8	Meet the Expert 9
8:00 - 8:30							
8:30 - 9:00	Plenary Lectures 9 & 10				Plenary Lectures 11 & 12		
9:00 - 9:30	Bruce McEwen. Neurobiological effects of stress				Suzanne Hill. Medicines selection in high income countries		
9:30 - 10:00	Stephen Stahl. Psychopharmacology Mechanism of action of the atypical antipsychotics in psychosis and mood disorders: The pines, the dones, two pips and a rip				Clive Ondari. Medicine selection in emerging economies		
10:00 - 10:30	Tea break						
10:30 - 11:00			Manipulation of gut microbiome as a treatment strategy for gastrointestinal & metabolic disorders				
11:00 - 11:30		Rethinking mood therapeutics: Novel pharmacological approaches for anxiety and depression		(*IUPHAR-Clin Div) Update in geriatric pharmacology	Managed introduction of new medicine	Evolution, sport and modern diseases	IUPHAR Young Scientist Competition 1
11:30 - 12:00	Advances in antiviral therapy						
12:00 - 12:30	Lunch & poster viewing						
12:30 - 13:00							
13:00 - 13:30							
13:30 - 14:00		Phosphodiesterase 4 inhibitors as novel anti-inflammatory drugs	Neuroendocrine regulation of GI protection: Central & peripheral pathways	Controversies in essential medicines	Clinical pharmacometrics: Application to target concentration intervention	Evaluating drug-drug interactions with therapeutic proteins	IUPHAR Young Scientist Competition 2
14:00 - 14:30	Vaccine development						
14:30 - 15:00							
15:00 - 15:30	Break						
15:30 - 16:00	Inflammation and allergy: New therapeutic avenues	New approaches for non-neuronal brain diseases	Lipid modifying strategies beyond statins	Problems with OTC analgesics	Global PGx-based personalized medicine	Emerging drug targets	IUPHAR Young Scientist Competition 3
16:00 - 16:30							
16:30 - 17:00							
17:00 - 17:30							
17:30 - 18:00							
18:00 - 18:30							
18:30 - 19:00							
19:00 - 19:30	Break						
19:30 - 20:00							
20:00 - 20:30							
20:30 - 21:00							
21:00 - 21:30	WCP2014 Gala dinner (ticketed - paid)						
21:30 - 22:00							



“ IUPHAR is proud to sponsor its first World Congress on the African continent. In addition to a marvelous venue, WCP2014 attendees will enjoy and profit from an outstanding scientific program covering the latest advances in basic and clinical pharmacology. ”

S.J. Enna, Secretary-General, IUPHAR

Continued on page 7...

Thursday 17 July 2014							
Track	1	2	3	4	5	6	7
7:30 - 8:00							
8:00 - 8:30					Meet the Expert 4	Meet the Expert 5	Meet the Expert 6
8:30 - 9:00	Plenary Lectures 13 & 14 co-sponsored by BPS			Plenary Lectures 15 & 16 co-sponsored by BPS			
9:00 - 9:30	Martin Michel. To pee or not to pee: New concepts in urinary tract pharmacology (Autonomic pharmacology of the urogenital tract)			Simon Mallal. Mechanisms of drug hypersensitivity			
9:30 - 10:00	Salvator Moncada. Cardiovascular pharmacology			Munir Pirmohamed. Drug safety science			
10:00 - 10:30	Tea break						
10:30 - 11:00	Glucocorticoids: New insights into mechanisms of action	Targeting the TRPA1 channel for pain treatment	Hydrogen sulfide in GI health and disease	Hot topics in pharmaco-economics	Using clinical toxicology studies to improve biomarkers and regulatory decisions	The role of drug transporters in inter-individual variations in drug response	LB7
11:00 - 11:30							
11:30 - 12:00							
12:00 - 12:30	Lunch & poster viewing						
12:30 - 13:00	Lunch & poster viewing						
13:00 - 13:30							
13:30 - 14:00	Immunopharmacology of the systemic inflammatory response syndrome	The nitric oxide-cGMP pathway in neuropsychiatric illness: An update	Advances in GI pharmacology: New approaches to upper and lower GI ulcers and inflammation	Can academic drug discovery deliver in rare diseases?	IUTOX session on nanomedicines	Understanding and predicting the extent of drug-drug interactions	ORPHEUS PhD Standards: Bridging PhD programs to promote global collaboration
14:00 - 14:30							
14:30 - 15:00							
15:00 - 15:30	Break						
15:30 - 16:00	Immunobiologicals and chronic inflammatory diseases	Nitric oxide research reveals new ideas in pharmacology	Endothelium-dependent control of vascular tone	Pharmaco-epidemiology: At the cutting edge	The changing face of pediatric drug development	Understanding drug induced liver injury	PharFA Symposium 3: Biological medicines development
16:00 - 16:30							
16:30 - 17:00							
17:00 - 17:30							
17:30 - 18:00		IUPHAR Clinical Division General Assembly	Satellite - New Web-based Approaches for Teaching Clinical Pharmacology: Workshop Pscribe		PharFA Evening: Welcome & Introduction		
18:00 - 18:30					PharFA Lecture (Chair: Prof M. Khayyal; Speaker: Prof Alex Dodoo)		
18:30 - 19:00					PharFA General Assembly		
19:00 - 19:30							
19:30 - 20:00							
20:00 - 20:30	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions	Society Meetings & Social Functions	PharFA Reception (ticketed -free of charge)		
20:30 - 21:00							
21:00 - 21:30							
21:30 - 22:00							



“Chinese pharmacologists are keen on taking the opportunity to attend WCP2014 to conduct academic communications, develop cooperation and promote friendship with international counterparts. We also look forward to the opportunities to demonstrate our research progress.”

Guan-Hua Du, President (left), & Yong-Xiang Zhang, Vice-President & Secretary-General (right), Chinese Pharmacological Society

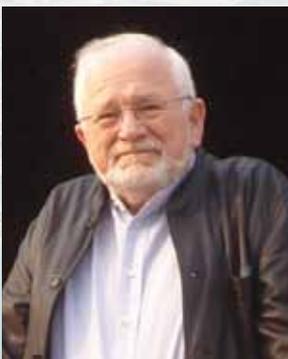


Friday 18 July 2014							
Track	1	2	3	4	5	6	7
7:30 - 8:00	Satellite 12	Satellite 13	Satellite 14	Satellite 15	Meet the Expert 4	Meet the Expert 5	Meet the Expert 6
8:00 - 8:30							
8:30 - 9:00	Plenary Lectures 17 & 18				Plenary Lectures 19 & 20 co-sponsored by BPS		
9:00 - 9:30	Nicholas Holford. Rational clinical pharmacology: Concentration not dose (Pharmacometrics)				Dan Roden. Moving pharmacogenomic discovery to implementation		
9:30 - 10:00	Kazuhide Inoue. Purinergic signaling in neuropathic pain				Nicholas White. Antimalarial pharmacology		
10:00 - 10:30	Tea break						
10:30 - 11:00	Global HIV clinical pharmacology capacity building and implementation research	Combination medications as novel treatments for stimulant addiction	New challenges for the treatment of diabetes mellitus	Epigenetic mechanisms in cell- and drug-based heart failure therapies	GRIP – Global training programs in paediatric pharmacology	Innovative methods for assessing drug toxicity and efficacy	LB8
11:00 - 11:30							
11:30 - 12:00							
12:00 - 12:30	WCP2014 Closing Ceremony						
12:30 - 13:00							
13:00 - 13:30	Lunch Break						
13:30 - 14:00							
14:00 - 14:30							
14:30 - 15:00							
15:00 - 15:30							
15:30 - 16:00	Nelson Mandela Day - Social Responsibility Excursion for All Delegates						
16:00 - 16:30							
16:30 - 17:00							



“The South African Society of Basic and Clinical Pharmacology has succeeded in setting an important milestone for the African continent, where pharmacologists from the ends of the earth: North, South, East and West indeed shall meet and will stand face to face, crossing every border, no matter what creed or breed, under the flag of IUPHAR.”

Mohamed T. Khayyal, President, Egyptian Society of Pharmacology & Experimental Therapeutics.



“The most pleasing aspect of this wonderful meeting to me is that it will take place for the first time in the so far pharmacologically neglected continent of Africa!”

Paul M. Vanhoutte, Past-President IUPHAR, and President, the Hong Kong Pharmacology Society

Activities in and around Cape Town



Wine tasting



Whale Watching in Hermanus



Kirstenbosch National Botanical Gardens



Shark Cage Diving



Table Mountain Aerial Cableway



Robben Island Museum



Noon gun



Sunset cruise – departing from the V&A Waterfront

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Speakers

Robert Lefkowitz
Opening Keynote
Speaker
G Protein-Coupled
Receptors



Robert Lefkowitz, Professor at Duke University Medical Center, Nobel Laureate of Chemistry in 2012, has been involved for more than three decades in G protein-coupled receptors. He has made numerous discoveries in this field directed at the molecular properties and regulatory mechanisms that control the function of plasma membrane receptors for hormones and drugs under normal and pathological circumstances. His contributions greatly assisted our understanding and development of new therapeutic strategies for several disease areas. Dr. Lefkowitz has, amongst other findings, isolated eight of the nine subtypes of adrenergic receptors and determined their complete amino acid sequences. The β -adrenergic receptors are among the most common G protein-coupled receptors. Dr. Lefkowitz is further widely recognised for his dedication to training and mentoring of his students. Over the years, he has trained more than 200 graduate students and postdocs in his laboratory. Young pharmacologists participating in Cape Town will have the privilege to meet and engage with him. Please visit Dr. Lefkowitz's website for details of his activities: <http://www.lefkolab.org/>

Arthur Christopoulos
IUPHAR lecture
Adventures in
allostery: From
function to structure



Arthur Christopoulos PhD is Professor of Pharmacology at Monash University and Principal Research Fellow of the National Health and Medical Research Council of Australia. He is one of the world's leading receptor pharmacologists

and his key contributions to the field have had a major impact on modern GPCR focused drug discovery. In recognition of his outstanding research, Prof Christopoulos is the recipient of the 2013 John J. Abel Award, sponsored by Pfizer, for his fundamental contributions to the field of analytical pharmacology and the study of G protein-coupled receptors, notably in his work on allosteric modulation and biased signaling of GPCRs. He is the highest-ranked Australian based scientist in the disciplines of pharmacology and toxicology. Additionally, Dr. Christopoulos also serves on the editorial board of eight international journals, including Molecular Pharmacology, the Journal of Pharmacology and Experimental Therapeutics, and Pharmacological Reviews.

Alex Dodoo
PharA Lecture



Alex Dodoo BPharm, MSc, PhD, MRPharmS, FPCPharm is Associate Professor (on sabbatical since January 2013) at the Centre for Tropical Clinical Pharmacology, University of Ghana Medical School (UGMS). He serves on several local and international advisory, training and safety committees, including Director, WHO Collaborating Centre for Advocacy and Training in Pharmacovigilance at UGMS and Chairman of the Global Vaccine Safety Initiative.

He is a longstanding member of numerous professional pharmaceutical associations and is the recipient of the Senior Pharmacovigilance Fellowship Award from the WHO Collaborating Centre for International Drug Monitoring, Uppsala, Sweden. Prof Dodoo is the author/co-author of various manuscripts and full papers in peer-reviewed journals, has written a book (Healthy Secrets – a layperson's guide to health issues) and contributed to several other books and manuals.

Continued on page 11...

Doriano Fabbro Tyrosine kinase inhibitors

Doriano Fabbro PhD is Chief Scientific Officer of PIQUR, a Swiss pharmaceutical company

focusing on the discovery and development of innovative anti-cancer drugs. After receiving his PhD in cell biology and biochemistry at the University of Basel, he spent twelve years as Group Leader in Molecular Tumor Biology.

He then joined the Oncology Group of Ciba-Geigy Basel. After the merger of Ciba-Geigy with Sandoz in 1996 he served at Novartis as Head of Kinase Biology until 2012. Dr Fabbro has contributed to the discovery & development of various protein kinase inhibitors for the treatment of cancer; e.g. Midostaurin®, Glivec®, Afinitor®, and Tassigna®. Dr Fabbro has more than 200 publications and numerous patents in the area of protein kinases regulation, structure, screening and drug discovery. He has been honoured with the Novartis Oncology President's Award (2005).

Suzanne Hill Medicine selection in high-income countries

Suzanne Hill BMed (Hons), Grad Dip Epi, PhD, FAFPHM is a clinical pharmacologist and public health physician, trained at the University of Newcastle, Australia. She was appointed as Chair of the Australian Pharmaceutical Benefits Committee in September 2011 and currently also has appointments as Visiting Professor at the University of Melbourne Medical School and the Australian National University School of Medicine. Her research interests are related to the public health and policy aspects of clinical pharmacology, including access to medicines and use of pharmaco-economics and clinical evidence in decision-making.

Previously, Dr Hill worked at the World Health Organization in Geneva from 2005, as Secretary to the WHO Expert Committee on Essential Medicines, responsible for the WHO Model List of Essential Medicines and its implementation in countries. She was principle investigator for the WHO project on Better Medicines for Children and played an important role in setting up standards for guideline development by WHO.



Nicholas Holford Rational clinical pharmacology: Concentration not dose (Pharmacometrics)

Nicholas Holford MB, ChB, MSc, MRCP(UK), FRACP is Professor of Clinical Pharmacology at the Department of Pharmacology and Clinical Pharmacology, University of Auckland. He has a keen interest in PKPD modeling, with particular emphasis in describing disease progression, influence of drug treatments on disease and dosing of children.

His career spans some forty years and he has been awarded numerous scholastic and professional honours and awards, the most recent being the Gary Neil Award for Innovation in Drug Development, by the American Society of Clinical Pharmacology. He is the author of a significant number of publications in the clinical pharmacology field.

Kazuhide Inoue Purinergic signalling in neuropathic pain

Kazuhide Inoue PhD is Dean of the Department of Molecular and System Pharmacology at the Graduate School of Pharmaceutical Sciences, Kyushu University in Japan. Prof Inoue is actively involved in the progression of pharmacology in Japan and is involved on an executive level with the Japanese Pharmacological Society, the Japanese Society for Neurochemistry (currently President) and the Japanese Pain Society. He has received numerous awards for his research activities, and was recently honoured with the Pharmaceutical Society of Japan Award. His current research project involves examining the mechanisms of neuropathic pain.

Kozo Kaibuchi Protein phosphorylation in signal transduction

Kozo Kaibuchi PhD is Professor of the Department of Cell Pharmacology at Nagoya University, Graduate School of Medicine. He began his career as a Research Associate in the Department of Biochemistry at the same institution from 1984 to 1989, serving concurrently as a postdoctoral fellow at the DNAX Research Institute of Molecular





and Cellular Biology. He was then named Assistant Professor at Kobe University School of Medicine, and was made Associate Professor in 1990.

He was later appointed Professor in the Division of Signal Transduction at the Nara Advanced Institute of Science and Technology, where he remained until 2000. He is a Visiting Professor of Kobe University and Nara Institute of Science and Technology, and a Fellow of Institute for Advanced Research at Nagoya University. He has authored numerous papers and is the recipient of a number of prizes, including most recently the Chunichi Cultural Award (2011).

Yoshikatsu Kanai
Fundamental
oncology: Amino
acid transporters in
oncology



Yoshikatsu Kanai MD, PhD is Professor of Bio-system Pharmacology at the Graduate School of Medicine, Osaka University, a position he has held since 2007. Prior to this he was on the Pharmacology and Toxicology faculty at Kyorin University School of Medicine for fourteen years, first as Associate Professor and then Professor and Chair of the department.

Prof Kanai's particular research interest lies in the molecular pharmacology of amino acid transporters and organic anion transporters and their applications to pharmacokinetics, pathophysiology, diagnosis and therapeutics. He has published a plethora of scientific articles and is a member of numerous global and local molecular, biochemistry and pharmacology societies.

Simon Mallal
Mechanisms of drug
hypersensitivity



Simon Mallal MBBS is Professor of Medicine and Director of the Center for Translational

Immunology and Infectious Diseases at Vanderbilt University, USA. He is also Director of the Institute of Immunology and Infectious Diseases at Murdoch University and Clinical Immunologist and Immunopathologist at Royal Perth Hospital in Western Australia. He has undertaken clinical practice management altering research throughout his career which has informed and directed his basic science research.

His projects have made significant impact on clinical and healthcare practice and policy, the development of new multidisciplinary capacity and approaches to translational medicine. The culmination was the establishment of a purpose-built translational medicine institute which he leads. He has authored over 200 articles and book chapters and given over 215 presentations at scientific meetings. He serves on several international scientific committees and advisory boards and received the Western Australian Premier Science Award in 2006.

Martin Michel
To pee or not to pee:
New concepts in
urinary tract pharma-
cology
(Autonomic pharma-
cology of urogenital
tract)



Martin Michel is a physician trained in experimental and clinical pharmacology in Essen (Germany) and San Diego (California). He is currently the Global Head of Product and Pipeline Scientific Support at Boehringer Ingelheim. Previously, he headed the Nephrology and Hypertension Research Laboratory in Essen (1993-2002) and the Department of Pharmacology & Pharmacotherapy at the University of Amsterdam (2003-2011).

He has published more than 400 scientific articles, is the Editor-in-Chief of Naunyn-Schmiedeberg's Archives of Pharmacology and also serves on the board of many pharmacological, physiological

Continued on page 13...

and urological journals. His research focuses on urogenital and cardiovascular pharmacology.

Simon Maxwell Challenges in training tomorrow's prescribers



Simon Maxwell MD PhD FRCP FRCPE FBPharmacoS FHEA is Professor of Student Learning/Clinical Pharmacology and Director of Clinical Pharmacology & Therapeutics teaching at the University of Edinburgh. He has made tremendous headway in developing e-Learning strategies to support education in this area and is currently the clinical lead for the Prescribe project, a joint collaboration between the Department of Health, Medical Schools Council (MSC) and British Pharmacological Society to deliver a national eLearning solution to develop safe and effective prescribing amongst UK medical students. His clinical responsibilities include supervision of acute medical admissions and the management of outpatients at increased cardiovascular risk. He is extremely active in the industry on a global level and chairs a number of relevant committees and associations.

Bruce McEwan The neurobiological effects of stress



Bruce McEwen PhD is the Professor of Neuroscience and runs the Laboratory of Neuroendocrinology at Rockefeller University. His lab is at the forefront of research on the impact of stress hormones on the brain. He career as a neuroscientist and neuroendocrinologist spans many years. Prof McEwen's first paper was published in 1964, and between then and now, he has published more than 700 papers. His current research focuses on stress effects on amygdala and prefrontal cortex, as well as hippocampus, and his laboratory also investigates sex hormone effects and sex differences in these brain regions. He is a member of the US National Academy of Sciences, the Institute of Medicine, and the American Academy of Arts and Sciences. He is also a member of the National Council on the Developing Child which focuses on healthy brain development. He is the co-author of two books for the lay audience and the recipient of numerous awards.

Salvador Moncada Cardiovascular pharmacology



Salvador Moncada MD, PhD and his research influence have had major global impact, as

shown by his standing in the international citation indexes and his acknowledgement as the most cited UK scientist in biomedicine in the 1990s. In 2010 he received a knighthood from Her Majesty, the Queen in recognition of his services to science. He spent two decades leading various ground-breaking research projects at the Wellcome Research Laboratories. In 1996, Prof Moncada moved to University College, London to establish and direct the Wolfson Institute for Biomedical Research. At the invitation of the Spanish Government, between 1999 and 2004 he conceived, designed and developed the Centro Nacional de Investigaciones Cardiovasculares (CNIC) in Madrid. In recent years, an interest in glycolysis research has had significant implications for the understanding of normal and abnormal cell proliferation, for example, in cancer.

Richard Neubig Signal transduction in therapeutics



Richard Neubig MD PhD recently became Professor and Chair of Pharmacology and Toxicology at Michigan State University. Prior to that he was a faculty member at the University of Michigan from 1983, where he served as Professor of Pharmacology, Associate Professor of Internal Medicine, and director of the Center for the Discovery of New Medicines. He is also the 2013 - 14 President of the American Society for Pharmacology and Experimental Therapeutics (ASPET). His research deals with G proteins and their receptors – by exploiting these mechanisms, his group has identified new drug candidates that may have utility in cancer, fibrosis, and mental depression.

He has demonstrated a significant commitment to education through his activities at ASPET and the Nomenclature Committee of the International Union of Basic and Clinical Pharmacology (NC-IUPHAR).

Clive Ondari Medicine selection in emerging economies



Clive Ondari PhD, MBA, BSc is the coordinator of Medicine Access and Rational Use (MAR) and Essential Medicines and Pharmaceutical Policies (EMP) at the World Health Organization. His work incorporates guidance on national medicines policies, selection, supplies management, good governance and rational use of medicines. Dr Ondari has over 20 years of experience in



pharmaceutical policies and programmes, having worked for the Government of Kenya and WHO on various assignments.

He started his career in academia and regulatory affairs in Kenya where he was Associate Professor of Pharmaceutics and Head of Department at the University of Nairobi and Chairman of the Pharmacy Board (Committee on Registration of Medicines) for over 10 years.

His commitment to improve access to medicines is extensive. He has led activities in the evaluation of the quality of malaria medications in developing countries and coordinated the development of the first comprehensive WHO guidelines on malaria treatment.

Munir Pirmohamed Drug safety science



Munir Pirmohamed is currently David Weatherall Chair in Medicine at the University of Liverpool, and a Consultant Physician at the Royal Liverpool University Hospital. He also holds the only NHS Chair of Pharmacogenetics in the UK, and is Deputy Director of the MRC Centre for Drug Safety Sciences, and Director of the Wolfson Centre for Personalised Medicine, amongst other titles.

His research focuses on individual variability in drug response, both safety and efficacy, with a view to evaluating the mechanisms, and identifying strategies to personalise medicines to optimise drug efficacy and minimise toxicity.

The translational research agenda has been strengthened through the award of the MRC Clinical Pharmacology training scheme for clinical fellows. Prof Pirmohamed has received a number of honours, most recently, the William Withering Medal from the Royal College of Physicians and the IPIT award for Public Service from the University of North Carolina in the US.

Pantangi Rangachari Basic pharmacology education



Pantangi Rangachari MBBS, PhD is a Professor (Emeritus) of Medicine at McMaster University, Canada. He has taught students from diverse programmes (undergraduate science, liberal arts, nursing, medicine, physiotherapy and pharmacy). His courses have linked toxicology with creative writing, signal transduction of taste receptors with anthropology, and his students have explored the antecedents of medical technology.

He is Vice-Chair of the IUPHAR Education Section and is on the editorial board of *Advances in Physiology Education*, and *Biochemistry and Molecular Biology Education (BAMBED)*. He has received the 3M National Teaching Fellowship, the Ontario Confederation of University Faculty Associations (OCUFA) award, the President's Award for Excellence in Teaching from McMaster University, as well as McMaster Students Union Teaching awards. He was the Claude Bernard Lecturer of the American Physiological Society for 2011. He has published over 110 refereed papers and co-authored three books on both experimental sciences as well as education.

Dan Roden Moving pharmacog- enomic discovery to implementation



Dan Roden, MD, is Principal Investigator for the Vanderbilt sites of the National Institutes of Health's Pharmacogenomics Research Network and the National Human Genome Research Institute's Electronic Medical Records and Genomics Network. He directs BioVU, the Vanderbilt DNA databank that currently links DNA samples from more than 135,000 patients to de-identify electronic medical records. Prof Roden's career-long focus has been studies of the clinical, genetic, cellular and molecular basis of arrhythmia susceptibility and

Continued on page 15...

variability responses to arrhythmia therapies, and he is widely recognised for his expertise in drug-induced arrhythmias. Over the last 10 years, he has also led Vanderbilt's broader efforts in pharmacogenomics discovery and implementation. Prof Roden has received the Leon Goldberg Young Investigator Award and the Rawls Palmer Progress in Science Award from the American Society for Clinical Pharmacology and Therapeutics and the Distinguished Scientist Award from both the Heart Rhythm Society and the American Heart Association.

Stephen Stahl

Mechanism of action of the atypical antipsychotics in psychosis and mood disorders: The pines, the dones, two pips and a rip



Stephen Stahl MD PhD is Adjunct Professor of Psychiatry at the University of California, San Diego and Honorary Visiting Senior Fellow, University of Cambridge, UK. He has held faculty positions at Stanford University, the University of California, Los Angeles, the Institute of Psychiatry London and the Institute of Neurology London. Prof Stahl was also Executive Director of Clinical Neurosciences at the Merck Neuroscience Research Center in the UK for several years.

His major interests are dedicated to producing and disseminating educational information about diseases and their treatment in psychiatry and neurology with a special emphasis on multimedia, the Internet and teaching how to teach. Prof Stahl is the author of over 425 articles and more than 1500 scientific presentations and abstracts. He is an internationally recognised clinician, researcher and teacher in psychiatry with subspecialty expertise in psychopharmacology. Prof Stahl has also written 25 books, including a best-selling textbook and clinical manual.

Brian Strom

Use of pharmacoepidemiology to study the effects of pharmaceuticals



Brian Strom MD, MPH is Professor of Public Health and Preventive Medicine, the Executive Vice Dean of Institutional Affairs, and Professor of Biostatistics & Epidemiology, Professor of Medicine, and Professor of Pharmacology, all at the Perelman School of Medicine of the University of Pennsylvania.

The Center for Clinical Epidemiology and Biostatistics that he created at Penn includes over 550 faculty, research and support staff, and trainees. At the time Prof Strom stepped down, CCEB

research received nearly \$49 million/year in extramural support. Its total budget was approximately \$67 million.

More than 560 clinicians have been trained or are in training through the CCEB's Master of Science in Clinical Epidemiology degree programme, which he founded. In this process, Prof Strom has become a leader in the rigorous formal training of clinical researchers. He is probably best known as a founder of the field of pharmacoepidemiology, and a pioneer in using large automated databases for research.

Ronald Taylor

Monoclonal antibodies in cancer

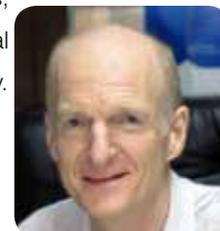


Ronald Taylor PhD is Professor of Biochemistry at the University of Virginia School of Medicine, a position he has held since 1983.

He completed his PhD in Physical Chemistry at Princeton University and his postdoctoral research at the University of Minnesota. For almost 25 years, Prof Taylor's laboratory has investigated monoclonal antibodies (mAbs) and their applications in clinical medicine, with special emphasis on the role of complement and other immune effector functions in mAb-based immunotherapies of cancer. He has published 170 papers, including 8 patents, and serves on the editorial boards of several journals, including the Journal of Immunology.

Nicholas White

Antimalarial pharmacology



Nicholas White is currently a Professor of Tropical Medicine at the Faculty of Tropical Medicine, Mahidol University and Oxford University, and is also a Consultant Physician at the John Radcliffe Hospital, Oxford, UK. He chairs the Wellcome Trust Tropical Medicine Research Programme in Southeast Asia, and the Oxford Tropical Medicine Network (encompassing research groups in Thailand, Vietnam, Laos, Kenya and The Gambia). Prof White has lived and worked for more than half of his life in Thailand, one of the leading countries in malaria research, and has been instrumental in this continuing effort. He is the recipient of the Prince Mahidol award (2011) which is the highest academic recognition in Thailand. His principal research interests are malaria, particularly the pathophysiology and treatment of malaria, and also other severe tropical infectious diseases. He has published over 880 scientific papers and over 40 book chapters.



Monday 14 July 2014

10:30 – 12:00

Track 1 - Pharmacology of novel tuberculosis regimens

Chair: Tawanda Gumbo

Emerging antituberculosis agents: Bedaquiline,

Delamanid, PA824 - *Kelly Dooley*

The role of Rifamycins and Fluoroquinolones in tuberculosis - *Helen McIlleron*

Optimising drug combinations and doses -

Tawanda Gumbo

Monday 14 July 2014

10:30 – 12:00

Track 2 - New drug research and development for Alzheimer's disease

Chair: Lin Li

DI-PHPB, a novel drug candidate for Alzheimer's

disease - *Xiaoliang Wang*

Beneficial effects of huperzine A on mitochondrial dysfunction and potential molecular mechanisms

HaiYan Zhang

Combinational therapeutic targets for Alzheimer's disease based on network pharmacology - *Wenxia*

Zhou

Multitarget strategy and new drug development of

traditional Chinese medicine to treat Alzheimer's disease - *Lin Li*

Monday 14 July 2014

10:30 – 12:00

Track 3 - Natural Products: Neuro-Metabolic-Vascular Mechanisms

Chair: Yu Huang

Exploration for discovery of anti-ischemic stroke drugs targeting the neurovascular unit based on mu

- *Guanhua Du*

Intervention of vicious cycle between liver disease and metabolic dysfunction by natural products -

Sang-geon Kim

Natural products, cholesterol and cardiovascular diseases - *Zhen Yu Chen*

Potential of natural products to protect the vascular system in health and diseases - *Valérie Schini-Kerth*

Monday 14 July 2014

10:30 – 12:00

Track 4 - Therapeutic monoclonal antibodies in oncology

Chair: Clive Zent

Mechanisms of action of unconjugated mAb -

Ronald Taylor

Unconjugated mAb therapy in B cell malignancies -

Clive Zent

Conjugated mAb - *Stephen Ansell*

BiTE antibody constructs - *Patrick Baeuerle*

Monday 14 July 2014

10:30 – 12:00

Track 5 - What every pharmacologist should know about children

Chair: Kalle Hoppu

Children's access to medicines - Therapeutic

orphans being adopted? - *Kalle Hoppu*

Developmental pharmacology before birth - *Shinya Ito*

Pharmacology of the newborn - *John Van Den Anker*

Developmental pharmacology in infants and children

- *Gregory Kearns*

Drug safety in children - *Shalini Sri Ranganathan*

Monday 14 July 2014

10:30 – 12:00

Track 6 - Epigenetic regulation of drug metabolizing enzymes and transporters

Chair: Ingolf Cascorbi

DNA methylation in the regulation of drug metabolism and transport - *Magnus Ingelman-Sundberg*

Role of microRNAs in the regulation of drug

metabolism and disposition - *Ingolf Cascorbi*

Toxicological implications of modulation of gene

expression by microRNAs - *Igor Pogribny*

Monday 14 July 2014

13:30 – 15:00

Track 1 - Antibiotic resistance

Chair: Marc Mendelson

The global spread of multi-drug resistant Gram-negative bacteria - *Adrian Brink*

Novel targets for the antibiotic pipeline - *Timothy Walsh*

Limiting the use of antibiotics in primary care -

Christopher Butler

Monday 14 July 2014

13:30 – 15:00

Track 2 - New targets for stress

Chair: Maurizio Popoli

Disrupted circadian clocks as modulators of resilience to stress - *Ilia Karatsoreos*

Neurobiological mechanisms linking stress and high trait anxiety with depression - *Carmen Sandi*

The impact of stress on glutamate transmission and neuronal architecture: A key to pathophysiology and treatment of mood and anxiety disorders - *Maurizio Popoli*

Focusing on the “golden hours”: Preclinical and clinical insights on immediate intervention in stress related disorders - *Joseph Zohar*

Monday 14 July 2014

13:30 – 15:00

Track 3 - Therapeutic targets for treating/preventing insulin resistance and cardiometabolic complications

Chair: Ramarosan Andriantsitohaina

Exercise, miokines and inter-organ cross-talk - *Juergen Eckel*

Mechanisms underlying the initiation, progression and potential regression of renal and diabetic complications - *Catherine Godson*

Impact of endogenous resolution on vascular inflammation: a key role for the Annexin A1 pathway - *Mauro Perretti*

Adipokines and cardiometabolic complications - *Concha Peiro*

Improving endothelial function in type 2 diabetes - *Ismael Laher*

Microparticles as new players in insulin resistance and cardiovascular complications - *Ramarosan Andriantsitohaina*

Monday 14 July 2014

13:30 – 15:00

Track 4 - Targeted small molecule therapy in oncology

Chair: Thomas Witzig

Targeting the mTOR pathway in hematological malignancies - *Thomas Witzig*

Targeting the mTOR pathway in solid tumors -

Robert Maki

Targeting JAK2 and ABL in myeloid malignancies - *Animesh Pardanani*

Immunomodulatory derivatives (IMiDs) - *Grzegorz Nowakowski*

Monday 14 July 2014

13:30 – 15:00

Track 5 - Communicating with the public and the policy community

Chair: Donald Singer

Communicating about NICE, drugs and the 4th hurdle - *David Haslam*

Engaging the public and policy community about advances in personalized medicines - *Katherine Johansen Taber*

Raising the profile of pharmacology through public engagement - *Katharine Richardson*

Monday 14 July 2014

13:30 – 15:00

Track 6 - Orphan G protein-coupled receptors- What are the new ligand and new drug targets?

Chair: Anthony Davenport

Orphan G protein-coupled receptors: what are the remaining druggable targets? - *Adam Pawson*

Therapeutic potential of biased apelin agonists and antagonists - *Anthony Davenport*

From AIDS to atherosclerosis: Chemokines, CCR5 and maraviroc - *Janet Maguire*

Role of cannabinoid-related receptors (GPR55, GPR18 and GPR119) in inflammation, satiety and obesity - *Stephen Alexander*

Monday 14 July 2014

15:30 – 17:00

Track 1 - Novel therapeutic strategies in HIV

Chair: Gary Maartens

Penetration of antiretrovirals into sanctuary sites - *Gary Maartens*

Drug targets for curing HIV - *Daria Hazuda*

Interactions between antiretrovirals and complementary medicines - *Adriana Andrade*

Monday 14 July 2014

15:30 – 17:00

Track 2 - Calcium signaling in brain diseases

Chair: Masamitsu Iino

Mitochondrial Ca²⁺ signalling - *Rosario Rizzuto*

Presenilins, neuronal calcium signaling and Alzheimer's disease - *Ilya Bezprozvanny*

Nitric oxide-dependent calcium signaling in ischemic brain injury - *Masamitsu Iino*

Monday 14 July 2014

15:30 – 17:00

Track 3 - Advances in reproductive pharmacology

Chair: Yan Zhu

Advances in contraceptives - *Asgi Fazleabas*
Prospective of contraceptives and its application of adjuvant therapy in China - *Yan Zhu*

Epigenomic reprogramming of the developing reproductive tract and disease susceptibility in adulthood - *To Be Advised*

Mifepristone in combination with prostaglandins for termination of 10-16 weeks' gestation: A systematic review - *Linan Cheng*

The state of hormonal contraception today: Benefits and risks of hormonal contraceptives, combined estrogen and progestin contraceptives - *Lee P Shulman*

Monday 14 July 2014

15:30 – 17:00

Track 4 - Targeting B cell signaling in oncology

Chair: Adrian Wiestner

Signaling through the B cell receptor:

Targetable molecules - *Paolo Ghia*

Targeting the B cell receptor pathway in B cell malignancies - *Adrian Wiestner*

Targeting the proteasome - *Irene Ghobrial*

Survival signals: Targeting the gatekeepers of apoptosis - *Andrew Roberts*



Monday 14 July 2014

15:30 – 17:00

Track 5 - 2020 Vision for pharmacology education
(IUPHAR Education Section Symposium)

Chair: Simon Maxwell

Pharmacology teaching, learning and assessment in the 'e-space': Strategies and implementation - *David Dewhurst*

Developing an online education resource in pharmacology and therapeutics for medical students - *Robert Likic*

Flipping the classroom: Using technology to build core learning structures in clinical pharmacology - *Shirra Moch*

e-Learning 2.0: The Teaching Resource Centre as a tool for integrative pharmacology and therapeutics - *Robert Rissman*

Delivering a national strategy for e-Assessment in clinical pharmacology and prescribing - *Simon Maxwell*

Influences on the uptake of technology for teaching and assessment of pharmacology? Can IUPHAR help? - *Elizabeth Davis*

Monday 14 July 2014

15:30 – 17:00

Track 6 - Mathematical modelling and computer simulation: Applications to healthcare from cradle to clinic

Chair: Paolo Denti

Clinical Pharmacology = Disease Progression + Drug Action - *Nick Holford*

From drug development to the clinic, anti-epileptic drugs - *Raymond Miller*

M&S for Decision making in oncology translational research - *Paolo Vicini*

The Gates Foundation approach to apply M&S to African health challenges - *Steven Kern*

Pharmacometrics in HIV, TB, and malaria: Dose optimisation for neglected populations - *Paolo Denti*

Tuesday 15 July 2014

10:30 – 12:00

Track 1 - New drugs for neglected infectious diseases

Chair: Mauro Teixeira

Developing new drugs for malaria - *Tim Wells*

New drugs for tuberculosis and dengue - *Theirry Diagana*

Developing new compounds against schistosomiasis - *Francois Noel*

Tuesday 15 July 2014

10:30 – 12:00

Track 2 - Protein S-nitrosylation as a therapeutic target

Chair: Takashi Uehara

Nitric oxide signaling in liver diseases - *Yasuko Iwakiri*
Aberrant protein S-Nitrosylation in neurodegenerative disorders - *Tomohiro Nakamura*

Covalent modification of H-Ras by nitric oxide-derived reactive species underlies development of chronic heart failure - *Motohiro Nishida*

Mechanism of nitric oxide-induced endoplasmic reticulum stress - *Takashi Uehara*

Tuesday 15 July 2014

10:30 – 12:00

Track 3 - Obesity: Basic and clinical pathophysiology and pharmacology

Chair: Ismael Laher

The obesity landscape and reproduction: views from animal and human studies - *Lucilla Poston*

Developmental origins of pediatric obesity-

Challenges and opportunities - *Dana Dabelea*

How the gut talks to the brain: Lessons for new anti-obesity drugs - *Carel Le Roux*

How can we pharmacologically treat obesity? - *Nicholas Finer*

Tuesday 15 July 2014

10:30 – 12:00

Track 4 - TGFB in radiation biology and therapy

Chair: Beverly Teicher

Does microenvironment contribute to the etiology of ER-negative breast cancer? - *Mary Helen Barcellos-Hoff*

Role of radiation-induced TGFβ signaling in cancer therapy - *Mansoor Ahmed*

Inhibition of PARP-1 increases the radiosensitivity of

Continued on page 19...

lung tumors - *Ian Stratford*
Role of the VEGF/VEGFR axis in cancer
biology and therapy - *Giovanni Melillo*

Tuesday 15 July 2014

10:30 – 12:00

Track 5 - IUPHAR Natural Products Section

Chair: Yong-Xiang Zhang

Efficacy and safety of bioactive
phytochemicals is influenced by their ability
to interact with multiple target sites - *Anwar-ul-
Hassan Gilani*

Pharmacological study of the active
polysaccharides isolated from traditional
Chinese medicines - *Yong-Xiang Zhang*

Traditional Chinese and Kampo medicines
targeting diabetes- and aging-induced
cognitive and emotional deficits:

Neuropharmacological evidence from
Chotosan (Gouteng-san) - *Matsumoto Kinzo*

Development of anti-malarial drug artesunate
as an anti-inflammatory agent for allergic
asthma and COPD - *Wai Shiu Fred Wong*

The marine pharmaceutical pipeline - *Alejandro
Mayer*

Tuesday 15 July 2014

10:30 – 12:00

Track 6 - Innovations in drug therapies: The
future is now

Chair: Gene Colice

New ways to treat bacterial infections - *Peter
Taylor*

New therapeutic approaches for treating
pulmonary disease - *Gene Colice*

RNA interference (RNAi) a new therapeutic
approach: From concept to human proof-of-
concept - *Ronit Satchi-Fainaro*

Tuesday 15 July 2014

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Track 1 - Pharmacogenetics in infectious
diseases

Chair: Ann Daly

Pharmacogenetics and safety of antimalarial

drugs - *Jose Gil*

Pharmacogenetics and safety of
antituberculosis drugs - *Adalberto Santos*
Pharmacogenetics and safety of antiretroviral
drugs - *Eleni Aklillu*

Tuesday 15 July 2014

13:30 – 15:00

Track 2 - Optimizing anti-epilepsy drug
discovery

Chair: Michele Simonato

Defining the clinical “gaps to care” and the
“opportunities” to develop new treatments for
epilepsy - *Jacqueline French*

Technical and methodological issues - *Aristea
Galanopoulou*

Development of anti-epileptogenic therapies -
Asla Pitkanen

Use of biomarkers and surrogate endpoints.
- *Jerome Engel*

Tuesday 15 July 2014

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Track 3 - Renin-angiotensin system
pharmacology revisited

Chair: Jan Danser

Blockade of prorenin, renin and the (pro)renin
receptor: too much of a good thing? - *Jan*

Danser

Novel domain-selective ACE inhibitors:
Antihypertensives or antifibrotics? - *Edward
Sturrock*

The AT2 receptor as a drug target: Should
we stimulate it or block it? - *Ulriche Muscha
Steckelings*

How to activate the ACE2-angiotensin-(1-7)-
Mas axis - *Robson Santos*

Tuesday 15 July 2014

13:30 – 15:00

Track 4 - DNA repair and topoisomerase
inhibitors in oncology

Chair: Beverly Teicher

Drugging topoisomerases: Lessons and
challenges - *Yves Pommier*

PARP and CHK inhibitors as anticancer
therapeutics - *Antony Oliver*

Topic to be advised - *Mary-Ann Bjornsti*

Tuesday 15 July 2014

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Track 5 - Internet-based solutions to alleviate
shortages of pharmacology faculty in
developing countries

Chair: Leszek Wojnowski

Developing successful e-Learning that counts
- *Simon Maxwell*

Question writing for any occasion: Use of
questions in assessment and learning - *John
Szarek*

Hardware and software needs for
enhancement of medical education in
Tanzania - *John Bartlett*

Current status of the KCMUCO pharmacology
curriculum project - *Leszek Wojnowski*

Pe(E)r-Learning: the potential of peer-teaching
to create high quality e-Learning content -
Antonio Sarikas

Tuesday 15 July 2014

13:30 – 15:00

Track 6 - Plants and animal toxins as sources
of new therapeutic drugs

Chair: Yara Cury

Molecular mechanisms involved in
antinociception induced by crotalpine,
peptide from *Crotalus* venom - *Yara Cury*

Antimalarial activity of medicinal plants native
to or naturalized in South Africa - *Matsabisa
Motlalepula*

Anticancer compounds from marine
microorganisms collected at Brazilian tropical
seas - *Leticia Costa-Lotufo*

Effect of animal venom peptides on acid:
Sensing ion channels and pain control -

Ladzdunski Michel



Tuesday 15 July 2014

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Track 7 - Structural basis for ion channel
pharmacology

Chair: William Catterall

Structural basis for function and pharmacology of
voltage-gated sodium and calcium channels -

William Catterall

Structure basis for drug action on the cys-loop

family of receptors - *Jean-Pierre Corringer*

Outer structures in ionotropic glutamate

receptors as drug targets - *Lonnie Wollmuth*

Tuesday 15 July 2014

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Track 1 - Recent breakthroughs in malaria treatment

Chair: Karen Barnes

Tuesday 15 July 2014

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Track 2 - The addictive brain through different
receptor subtypes

Chair: Filippo Drago

Acute cannabinoids impair working memory through
astroglial CB1 receptor modulation of hippocampal

L - *Giovanni Marsicano*

Dopamine D3 receptors and alcohol addiction - *Gian*

Marco Leggio

Association between nicotinic acetylcholine receptor

single nucleotide polymorphisms and smoking

behaviour - *Marcus Munafò*

Blockade of dopamine D4 receptors attenuates

reinstatement of extinguished nicotine-seeking

behaviour - *Bernard Le Foll*

Tuesday 15 July 2014

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Track 3 - Aspirin, the wonder drug: Keeping a balance
between its great therapeutic benefits & its GI toxicity

Chair: Lenard Lichtenberger

Role of platelets and PC-aspirin - *Lenard Lichtenberger*

COX-1/COX-2 inhibition, role of neutrophils and H2S-

aspirin - *John Wallace*

Targeted aspirin therapy in PIK3CA colorectal cancer

- *Andrew Chan*

Aspirin and NF-kappaB pathway and melanoma -

Angela Iano

Tuesday 15 July 2014

15:30 – 17:00

Track 4 - Sarcoma genetics and targeted therapeutics

Chair: Beverly Teicher

Targeted kinase inhibitors for treatment of sarcoma

- *Gary Schwartz*

Screening of pediatric and adult sarcoma cell

lines reveals novel patterns of sensitivity toward

approved oncology drugs and investigational

agents - *Beverly Teicher*

Genetic and epigenetic changes in sarcoma - *Paul*

Meltzer

Molecular characteristics and therapies for

Liposarcoma - *Samuel Singer*

Tuesday 15 July 2014

15:30 – 17:00

Track 5 - Regulatory challenges in herbal and
traditional medicines

Chair: Philip Routledge

Efficacy and safety of herbal and traditional

medicines: Regulatory implications - *Philip Routledge*

Purity of herbal medicines: Implications for regulation

- *Michael Heinrich*

Concomitant use of herbal/traditional and

conventional medicines - *Alvaro Viljoen*

Regulatory approaches to herbal and traditional

medicines: The contribution of education - *Anthony*

J Smith

Tuesday 15 July 2014

15:30 – 17:00

Track 6 - NC-IUPHAR and the Guide to Pharmacology

Chairs: Michael Spedding & Colin Dollery

Introduction to NC-IUPHAR - *Colin Dollery*

NC-IUPHAR: How two decades of controversy help

resolve drug discovery - *Michael Spedding*

IUPHAR-DB, GRAC and the Guide to Pharmacology

- *Adam Pawson*

Analyzing the drug targets in the human genome -

Chris Southan

The IUPHAR educational website - *Simon Maxwell*

Wednesday 16 July 2014

10:30 – 12:00

Track 1 - Advances in antiviral therapy

Chair: Marc Mendelson

Novel targets and therapeutic management of hepatitis C infection - *Graham Foster*

The influenza antiviral pipeline - *Fred Hayden*

Interference strategies for treatment of viral infections - *Ben Berkhout*

Wednesday 16 July 2014

10:30 – 12:00

Track 2 - Rethinking mood therapeutics: Novel pharmacological approaches for anxiety and depression

Chair: Nicolas Singewald

Rescue of impaired fear extinction by targeting epigenetic mechanisms in a genetic mouse model - *Nicolas Singewald*

Translational support of a role of endocannabinoids in anxiety and its treatment - *Andrew Holmes*

Revising antidepressant therapy: From serotonin to glutamate - *Greger Wegener*

Behavioural and biological validation of an animal model of obsessive-compulsive disorder (OCD) - *Brian Harvey*

microRNAs as novel therapeutic targets for anxiety and depression - *John Cryan*

Wednesday 16 July 2014

10:30 – 12:00

Track 3 - Manipulation of gut microbiome as a treatment strategy for gastrointestinal and metabolic disorders

Chair: Yvette Tache

Intestinal microbiota transfer from lean donors increases insulin sensitivity in metabolic syndrome - *Max Nieuwdorp*

Probiotics deliver neuroactive compounds: Microbial endocrinology in the design and use of probiotics - *Mark Lyte*

Intestinal microbiota in functional bowel disorders - *Kashyap Purna*

Modulation of stress-related visceral pain by probiotic - *Yvette Tache*

Wednesday 16 July 2014

10:30 – 12:00

Track 4 - (*IUPHAR-Clin Div Update in geriatric pharmacology) Optimal prescribing in older patients: The challenge of multiple comorbid conditions and polypharmacy

Chair: Darrell Abernethy

Multiple comorbid conditions and disease-based treatment guidelines: The therapeutic dilemma for older persons with geriatric syndromes - *Sarah Hilmer*

Methods to assess drug burden and Polypharmacy - *Petra Thürmann*

Deprescribing to limit polypharmacy: The evidence base - *David Le Couteur*

Effects of new drugs in older patients: What is known at the time of drug approval? - *Darrell Abernethy*

Wednesday 16 July 2014

10:30 – 12:00

Track 5 - Managed introduction of new medicines

Chair: Lars Gustafsson

Challenges and developments in Vietnam - *Nghiem Tran Dung*

Developments and challenges in South Africa: Focus on non-communicable diseases, HIV and cancer - *Ilse Truter*

Developments and challenges in Brazil, including neglected diseases - *Bethânia de Araújo Almeida*

The national Scottish partnership model of rapid HTA of new medicines: 10 years experience - *Angela Timoney*

Suggested models to introduce new medicines: Building on experience with new oral anticoagulants - *Brian Godman*

Wednesday 16 July 2014

10:30 – 12:00

Track 6 - Evolution, sport and modern diseases

Chairs: Michael Spedding & Ian McGrath

Evolution and running - *Tim Noakes*

Does sport reveal the end of a long range physiological evolution? - *Jean-François Toussaint*

Improving muscle mass and function in older adults: Understanding the mechanisms of sarcopenia - *Paul Greenhaff*

Brain development and evolution:

Mechanisms, circuits, and susceptibility to disease - *Michael Spedding*

Wednesday 16 July 2014

13:30 – 15:00

Track 1 - Vaccine development

Chair: Marc Mendelson

Developments in dengue vaccines - *Amadou Sall*

New targets for influenza vaccines - *Albert Osterhaus*

Progress towards a new tuberculosis vaccine - *Willem Hanekom*

Maternal immunization - *Shabir Madhi*

Wednesday 16 July 2014

13:30 – 15:00

Track 2 - Phosphodiesterase 4 inhibitors as novel anti-inflammatory drugs

Chair: Eeva Moilanen

Wednesday 16 July 2014

13:30 – 15:00

Track 3 - Neuroendocrine regulation of gastrointestinal protection: Central and peripheral pathways

Chair: Klara Gyires

Brainstem neuropeptides induce vagally mediated gastroprotection: Role of prostaglandins, NO and CGRP - *Yvette Tache*

Interactions between neuropeptides in gastroprotection - *Klara Gyires*

Contribution the hypothalamic-pituitary: Adrenocortical axis hormones to gastroprotection - *Ludmila Filaretova*

Brain-gut axis in the mechanism of gastric protection and ulcer healing - *Tomasz*

Brzozowski



Wednesday 16 July 2014

13:30 – 15:00

Track 4 - Controversies in essential medicines

Chair: Clive Ondari

Selecting medicines for off-label indications: A global perspective - *Andy Gray*

Selecting essential medicines for cancer: The EMLc approach - *Clive Ondari*

Managing essential medicines in rare/neglected diseases - *Elizabeth Mathai*

Wednesday 16 July 2014

13:30 – 15:00

Track 5 - Clinical pharmacometrics: Application to target concentration intervention

Chair: Nick Holford

Safe and effective variability: A quantitative approach to guide rational dose individualization - *Nick Holford*

TCIworks: Challenges in introducing TCI into clinical practice - *Carl Kirkpatrick*

Nextdose: A web based collaborative tool for target concentration intervention - *Sam Holford*

The Drug Dashboard: Integrating medical informatics with dosing decisions - *Jeff Barrett*

Wednesday 16 July 2014

13:30 – 15:00

Track 6 - Evaluating drug-drug interactions with therapeutic proteins

Chair: Honghui Zhou

In vitro / preclinical studies and mechanisms for drug-drug interactions with therapeutic proteins -

Frank-Peter Thiel

Clinical evaluations of drug-drug interactions with therapeutic proteins - *Honghui Zhou*

Drug-drug interactions with therapeutic proteins:

Industrial and regulatory perspectives - *Honghui Zhou*

Wednesday 16 July 2014

15:30 – 17:00

Track 1 - Inflammation and allergy: New therapeutic avenues

Chair: Francesca Levi-Schaffer

Therapeutic strategies for allergic diseases based on modern genomics - *Marc Rothenberg*

CRTH2 antagonism: A new therapeutic principle in allergic diseases - *Hans-Uwe Simon*

Inhibitory receptors on mast cells and eosinophils as new targets for anti-allergic therapy - *Francesca Levi-Schaffer*

Specialized pro-resolving mediators: Agonists for resolution of lung inflammation and injury - *Bruce Levy*

Wednesday 16 July 2014

15:30 – 17:00

Track 2 - New approaches for non-neuronal brain diseases

Chair: Yuji Ikegaya

A role for inflammation-related molecules in behavioral depression induced by repeated stress - *Tomoyuki Furuyashiki*

Pathophysiology of neuro-glio-vascular dynamics - *Yuji Ikegaya*

New approach for evaluating the drug effect in the cerebrovascular disorders - *Toshiaki Kume*

Non-cell-autonomous modulation of neuropathic pain by microglia - *Makoto Tsuda*

Wednesday 16 July 2014

15:30 – 17:00

Track 3 - Lipid modifying strategies: Needs beyond statins

Chair: Gonzalo Calvo-Rojas

Drug targets for lipid modifying strategies - *Fernando Civeira*

Animal models in hyperlipidaemia and arteriosclerosis - *Paul Quax*

Clinical development strategies: From primary prevention to orphan indications - *Tabassome Simon*

Statin treatment: Goals and failures - *Marie-Louise Ovesjö*

Wednesday 16 July 2014 15:30 – 17:00

Track 4 - Problems with OTC analgesics

Chair: Kay Brune

OTC analgesics: Abuse in endurance sports - *Kay Brune*

Second generation effects of paracetamol - *Gisa Tiegs*

Continued on page 23...

Usage patterns and risks of OTC analgesics

- *Nicholas Moore*

Assessing multiple organ toxicity of

analgesics - *Kim Rainsford*

Wednesday 16 July 2014

15:30 – 17:00

Track 5 - Global PGx-based personalized medicine

Chair: Ingolf Cascorbi

The view from North America - *Julie Johnson*

The view from South America - *Guilherme*

Suarez-Kurtz

The view from Africa - *Collen Masimirembwa*

The view from Australia - *Andrew Somogyi*

The view from Europe - *Ingolf Cascorbi*

Global education in PGx - *Adrian Llerena*

Public health PGx - *Vural Özdemir*

Wednesday 16 July 2014

15:30 – 17:00

Track 6 - Emerging Drug Targets

Chair: Richard Neubig

Plucking the high hanging fruit: Synthetic strategies for targeting protein-protein interactions in transcription -

Paramjit Arora

Allosteric targeting of protein-protein interactions: RGS proteins in CNS therapeutics

- *Richard Neubig*

Anti-apoptosis therapies in cancer -

Simone Fulda

Thursday 17 July 2014

10:30 – 12:00

Track 1 - Glucocorticoids: new insights into mechanisms of action

Chair: Carlo Riccardi

The glucocorticoid receptor: One gene many offspring - *John Cidlowski*

Annexin-1 as a mediator of glucocorticoids action - *Rod Flower*

Mechanisms of anti-inflammatory actions of glucocorticoids: Role of GILZ - *Carlo Riccardi*

Thursday 17 July 2014

10:30 – 12:00

Track 2 - Targeting the TRPA1 channel for pain treatment

Chair: Pierangelo Geppetti

The roles of TRPA1 in pain, analgesia and temperature regulation - *Stuart Bevan*

TRPA1 channels are neuronal sensors of

bacterial endotoxins - *Felix Viana*

The role of TRPA1 in chemotherapeutic-

induced peripheral neuropathy and migraine

hypersensitivity - *Pierangelo Geppetti*

Thursday 17 July 2014

10:30 – 12:00

Track 3 - Hydrogen sulfide in GI health and disease

Chair: John Wallace

The pharmacology of H₂S - *Hideo Kimura*

H₂S and inflammation of the GI tract - *John Wallace*

H₂S and resolution - *Mauro Perretti*

H₂S in gastrointestinal nociception and pain -

Nathalie Vergnolle

Thursday 17 July 2014

10:30 – 12:00

Track 4 - (*IUPHAR-Clin Div) Hot topics in pharmacoconomics

Chair: Suzanne Hill

Pharmaceutical pricing: What are the current policy approaches for managing prices?

- *Speaker to be advised*

A tale of two molecules: Marketing and legal influences on cost - *Nicola Magrini*

Compulsory licensing and HTA - *Sripen*

Tantivess

High cost challenges: Paying for targeted therapies

Suzanne Hill

Thursday 17 July 2014

10:30 – 12:00

Track 5 - Using clinical toxicology studies to improve biomarkers and regulatory decisions

Chair: Michael Eddleston

Global overview of clinical toxicology -

Michael Eddleston

Using clinical toxicology to validate renal

injury biomarkers - *Nicholas Buckley*

Developing novel biomarkers for drug

induced liver injury - *James Dear*

Using pharmacovigilance to identify serious

adverse drug reactions - *David Juurlink*

Thursday 17 July 2014

10:30 – 12:00

Track 6 - The role of drug transporters in inter-individual variations in drug response

Chair: Matthias Schwab

Clinical pharmacogenetics of drug transporters

- *Matthias Schwab*

Role of drug transporters in drug exposure and safety - *Frans Russel*

Integration of drug transporters as important

DMPK determinants in drug development -

Christoph Funk

Thursday 17 July 2014

13:30 – 15:00

Track 1 - Immunopharmacology of the systemic inflammatory response syndrome

Chair: Fernando Cunha

Triggering cell activation in sepsis vascular

dysfunction - *Jamil Assreuy*

Failure of neutrophil migration and the

pathogenesis of sepsis - *Fernando Cunha*

Systemic inflammatory response syndrome in

viral and protozoan infections - *Mauro Teixeira*

To be advised - *Mauro Teixeira*

Thursday 17 July 2014

13:30 – 15:00

Track 2 - The nitric oxide-cGMP pathway in neuropsychiatric illness: An update

Chair: Brian Harvey

Nitric oxide pathways in anxiety and stress-related disorders - *Greger Wegener*

The role of nitric oxide synthase in

schizophrenia and impulsivity - *Andreas Reif*

Continued on page 24...



NO and the modulation of behavioral responses to stress: Implications for the neurobiology of depression
- *Samia Joca*

Thursday 17 July 2014

13:30 – 15:00

Track 3 - Advances in GI pharmacology: New approaches to upper and lower GI ulcers and inflammation

Chair: Sandor Szabo

New challenges in GI pharmacology - *Sandor Szabo*

The promise and limitations of prostaglandins and

other gastroprotective drugs - *Koji Takeuchi*

The development of new, safe NSAIDs - *Lenard*

Lichtenberger

The clinical reality of preventing and treating

gastroduodenal ulcers - *Gaetano Iaquinto*

Current and potential future approaches to

inflammatory bowel diseases - *Shunji Horie*

Functional GI diseases are in dire need for effective

preventive and therapeutic interventions - *Yvette Tache*

Thursday 17 July 2014

13:30 – 15:00

Track 4 - Can academic drug discovery deliver in rare diseases?

Chair: Michael Spedding

MIPS: Integrating discovery, delivery and

development - *Bill Charman*

The Association Française contre les Myopathies (AFM):

A 25 year revolution in rare diseases - *Serge Braun*

The Structural Genomics Consortium as a springboard

for discovery in epigenetics and kinases - *Chas Bountra*

Dundee Drug Discovery Unit: Diversity screening for

tropical diseases - *David Gray*

Thursday 17 July 2014

13:30 – 15:00

Track 5 - IUTOX session on nanomedicines

Chair: Mary Gulumian

Nanomedicine for the treatment and diagnostic of

severe diseases - *Patrick Couvreur*

Nanotoxicology and nanomedicine - *Mary Gulumian*

Designer nanoparticles for therapeutic applications

- *Samir Mitragotri*

Electrochemical immuno(bio)sensors for the detection of virus and disease-specific biomarkers - *Philani Mashazi*

Thursday 17 July 2014

13:30 – 15:00

Track 6 - Understanding and predicting the extent of drug-drug interactions

Chair: Geoffrey Tucker

In vitro characterisation of the inhibition of drug metabolising enzymes - *John Miners*

In vitro-in vivo extrapolation of transporter-mediated drug-drug interactions - *Sibylle Neuhoff*

Complex drug-drug interactions involving enzymes and transporters - *Geoffrey Tucker*

Thursday 17 July 2014

15:30 – 17:00

Track 1 - Immunobiologicals and chronic inflammatory diseases

Chair: Francesca Levi-Schaffer

Targeting the chemokines system with antibodies and potential for new drug development - *To Be Advised*

Targeting cytokines (IL-20, IL-21) with antibodies and potential for new drug development - *Ian Anhfelt-Ronne*

Deciphering new targets for drug development in chronic arthritis - *Wim van den Berg*

Thursday 17 July 2014

15:30 – 17:00

Track 2 - Nitric oxide research reveals new ideas in pharmacology

Chair: Arunabha Ray

Involvement of nitric oxide in the toxicodynamics of drugs and xenobiotics - *Kavita Gulati*

Methylene blue: New light through old windows - *Brian Harvey*

Regulation by nitric oxide (NO) of gender based differences in stress-induced neurobehavioral and immunological changes - *Arunabha Ray*

Thursday 17 July 2014

15:30 – 17:00

Track 3 - Endothelium-dependent control of vascular tone

Chair: Paul Vanhoutte

Complexity and regulation of NO signalling:

Recent developments - *Brant Isakson*

Endothelial cytochrome P450 and

lipoygenases metabolites of arachidonic acid in health and disease - *William Campbell*

Myo-endothelial gap junctions microdomains

and the control of vascular tone - *Kim Dora*

Endothelial dysfunction and inflammation:

new therapeutic targets for cardiovascular diseases - *Yu Huang*

Thursday 17 July 2014

15:30 – 17:00

Track 4 - (IUPHAR - Clin Div) Pharmacology epidemiology: At the cutting edge

Chair: Brian Strom

Using big data in comparative effectiveness research - *David Henry*

Streamline randomised comparative

effectiveness - *Thomas MacDonald*

Comparative effectiveness research using a

national health insurance database in Taiwan - *Kin-Wei Arnold Chan*

Use of a large simple trial design for

comparative effectiveness research: The

Ziprasidone Observational Study of Cardiac

Outcomes (ZODIAC) - *Brian Strom*

Thursday 17 July 2014

15:30 – 17:00

Track 5 - The changing face of pediatric drug development

Chair: Alison Bowers

The changing regulatory environment of

pediatric drug development - *Alison Bowers*

Pediatric drug development from the

sponsor's perspective and bridging

approaches - *Robert Kunka*

Issues and solutions in pediatric clinical trials

- *Kathryn Blake*

Challenges for conducting early phase pediatric PK trials: Overview of OTC and pulmonary programs - *Kenneth Kim*

Thursday 17 July 2014

15:30 – 17:00

Track 6 - Understanding drug induced liver injury: CYP450 and the immune system

Chair: Allan Rettie

Introduction to drug-induced liver injury: Types, mechanisms, and salient characteristics -

James Lewis

Characterization of mechanisms of drug-induced immune mediated liver injury - *Jack Utrecht*

Genetic predictors for drug-induced liver injury (genome-wide association studies) - *Ann Daly*

Thursday 17 July 2014

13:30 – 15:00

Track 7 - ORPHEUS PhD Standards: Bridging PhD programs to promote global collaboration

Chair: Zdravko Lackovic

ORPHEUS-AMSE-WFME standards for PhD education - *Michael Mulvany*

Do we need global standards for PhD

education - *Zdravko Lackovic*

Do we need international standards: China position - *Duan Liping*

Do we need international standards: US position - *Joey Barnett*

Do we need international standards: India position - *Arunabha Ray*

Do we need international standards: South Africa position - *Christiaan Brink*

Friday 18 July 2014

10:30 – 12:00

Track 1 - Global HIV clinical pharmacology capacity building and implementation research

Chair: Gene Morse

Ibadan University Clinical Pharmacology Program - *Fatai Fehintola*

Harare International Pharmacology Specialty Laboratory - *Charles Maponga*

University of Turin HIV Clinical Pharmacogenomics Program - *Giovanni Diperti*

YRG Developmental Clinical Pharmacology Program In India - *Shanmugam Saravanan*

Global Clinical Pharmacology Quality

Assurance & Quality Control Program - *Robin Difrancesco*

New Fogarty HIV Research Training Programs for Capacity Building - *Gene Morse*

Friday 18 July 2014

10:30 – 12:00

Track 2 - (ASPET Symposium) Combination medications as novel treatments for stimulant addiction

Chair: Warren Bickel

Relapse vulnerability phenotypes are suppressed by combined serotonin 5-HT2

receptor ligands - *Kathryn Cunningham*

Monoamines and cocaine medication

development in nonhuman primates -

Leonard Howell

Human laboratory evaluation of putative combination pharmacotherapies for stimulant use disorders - *William Stoops*

Extended-release mixed amphetamine salts

and topiramate for cocaine dependence: A randomized controlled trial - *Frances Levin*

Friday 18 July 2014

10:30 – 12:00

Track 3 - New challenges for the treatment of diabetes mellitus

Chair: Manuel Vazquez-Carrera

Targeting inflammation to treat insulin

resistance - *Manuel Vazquez-Carrera*

Diabetes mellitus and vascular inflammation

old and new models for translational

research - *Teresa Tejerina*

Pros and cons about incretins: Are there any choices beyond them? - *Carmen Iglesias-Osma*

Cardiovascular benefits of GLP-1 based

treatments for diabetes mellitus: Hopes or

realities - *Manel Puig-Domingo*



Friday 18 July 2014

10:30 – 12:00

Track 4 - Epigenetic mechanisms in cell- and drug-based heart failure therapies

Chair: Lutz Hein

Epigenetic targets and mechanisms in chronic heart failure - *Lutz Hein*

Energy metabolism and epigenetic transcriptional regulation - *Andre Terzic*

Epigenetic signatures in human induced pluripotent stem cells - *Juan Carlos Izpisua Belmonte*

Innovative cell therapeutics and disease models by epigenetic reprogramming - *Wolfram Zimmermann*

Friday 18 July 2014

10:30 – 12:00

Track 5 - GRIP: Global training programs in paediatric pharmacology

Chair: Kalle Hoppu

GRIP (Global research in paediatrics) - *Kalle Hoppu*

Global curriculum for the fellowship program in paediatric clinical pharmacology - *Shinya Ito*

GRIP master's program in paediatric pharmacology and clinical trials in children - *Evelyne Jacqz Aigrain*

GRIP training program for investigators and support staff for clinical trials in children - *John Van Den Anker*

GRIP Roadshow and training modules available in the VLE: Training opportunities for where you are -

Kalle Hoppu

Friday 18 July 2014

10:30 – 12:00

Track 6 - Innovative methods for assessing drug toxicity and efficacy

Chair: Hector Keun

Uncovering the mechanisms of drug toxicity by use of ~omics technology - *Richard Paules*

~omics technology in translational drug research - *Andrew Walubo*

Predicting drug response from metabolic profiles - *Hector Keun*



“ The scientific programme looks extremely exciting. I also have a lot of interest in the social programmes, which I am sure will have great African tastes. I look forward to meeting thousands of pharmacologists from all over the world. ”

Masamitsu Iino, Second Vice President, IUPHAR, and Secretary General, WCP2018 Kyoto

IUPHAR Young Investigator Awards

The purpose of the IUPHAR Young Investigator Awards is to encourage and recognise excellence in early career pharmacologists.

Eligibility:

The awards are open to pharmacologists who are no more than 10 years from receipt of their highest terminal degree (i.e. PhD, MD). The young investigator must be first author on the submitted abstract.

How to apply:

Candidates who wish to compete for this award should indicate in the appropriate place on the electronic abstract form that they wish their abstract to be considered for an IUPHAR Young Investigator Award.

Finalists:

Ten candidates will be selected by members of the IUPHAR Executive Committee (Contribution Judges). Those chosen will be invited to present their work in a 10-minute oral presentation (plus 5 minutes for questions) in a dedicated symposium at the World Congress (scheduling to be listed in the final programme).

After the symposium, judges (selected by members of the Executive Committee: Presentation Judges) will select the three recipients of the awards, based on the candidates' ability to present their experimental findings and defend their conclusions to an international audience.

Awards:

Gold Award - \$1000 USD

Silver Award - \$ 500 USD

Bronze Award - \$ 250 USD

The awards will be presented at the closing

Continued on page 27...

ceremony and featured in the post-congress issue of the IUPHAR newsletter, "Pharmacology International".

Further information about the awards and criteria for participation can be obtained from:

IUPHAR Administrative Office
Lynn LeCount
Administrative Officer
IUPHAR@kumc.edu

Accompanying Person's Programme

The Organising Committee has planned an official accompanying person's programme. Accompanying persons are required to pay R1,500 per person, which includes the following:

- Access to the exhibition area for the duration of the Congress
- Attendance at the Official Opening Ceremony
- Attendance at the Welcome Cocktail Party
- Tea and coffee throughout the duration of the Congress
- Formal Congress Identification

In addition, the Organising Committee has compiled an official tours programme that is sure to appeal to family or friends accompanying delegates on their trip to South Africa. Participation in these tours is optional, and the cost of the tours will be added to the fee of R1,500 per accompanying person. The tours will run as follows:

DATE	TOUR	PER PERSON PRICE
Monday, 14 July 2014	1 – Half Day City Tour	R495
	2 – Half Day Township Tour	R605
Tuesday, 15 July 2014	3 – Full Day Cape Peninsula Tour	R935
	4 – Half Day Winelands Tour	R655

CTICC = Cape Town International Convention Centre

Wednesday, 16 July 2014	1 – Half Day City Tour	R495
	2 – Half Day Township Tour	R605
Thursday, 17 July 2014	3 – Full Day Cape Peninsula Tour	R935
	4 – Half Day Winelands Tour	R655

To book, select your preferred option on the registration form.

For assistance, please contact:

Carina du Plessis
Conference Coordinator
Scatterlings Conference & Events
carina@soafrica.com

TOUR 1 – HALF DAY CITY TOUR

Half day tour – R495 per person



Depart CTICC at 08h30 and return 13h00.

A comprehensive city tour starting with a short ride to Signal Hill for a great view of our Cape Town Stadium, Sea Point area and Robben Island. Other highlights include a brief tour of the Malay Quarter (Bo-Kaap), city centre, Company Gardens and the Castle of Good Hope.

TOUR 2 – HALF DAY TOWNSHIP TOUR

Half day tour – R605 per person



Depart CTICC at 08h30 and return 13h00.

Beginning at the District Six Apartheid Museum, the venue is the gateway to the understanding of apartheid and the existence of townships. After this, make your way to Langa, the oldest formal



Continued on page 28...



township in Cape Town. Here you will visit local projects such as crafters, schools and a crèche.

Stop for refreshments at a local shebeen (tavern - beer optional). Make an appointment with a traditional healer. This tour offers interaction with local township people - more than half of South Africa's population live in townships.

TOUR 3 – FULL DAY CAPE PENINSULA TOUR

Full day tour – R935 per person



Depart CTICC at 08h30 and return 16h00.

Experience some of the most spectacular views in the world. The tour begins with a scenic drive along the Atlantic coast passing through the fishing village of Hout Bay. Here you will have the option of taking a short boat trip to Duiker Island to view the Cape Fur seals. The tour then heads along Chapman's Peak Drive on to Cape Point and the Cape of Good Hope Nature Reserve. From there we travel to False Bay and return to Cape Town by way of the Simon's Town naval base where we visit the penguin colony at Boulders Beach. Travel via Fish Hoek fishing village and Muizenberg to Kirstenbosch National Botanical Gardens for an optional short walking tour of these beautiful gardens. Return to Cape Town in the late afternoon.

TOUR 4 – HALF DAY WINELANDS TOUR

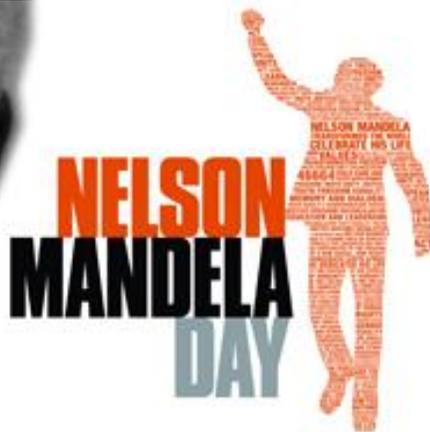
Half day tour – R655 per person



On this enchanting excursion we travel directly to the quaint town of Stellenbosch, an architectural jewel that serves as the historic heart of the country's wine region. We then head for one of the nearby wine estates for a wine & cheese tasting and cellar tour.



Nelson Mandela Day



Following the success of Nelson Mandela's 90th birthday celebrations in London's Hyde Park in June 2008, it was decided that there could be nothing more fitting than to celebrate Mr Mandela's birthday each year with a day dedicated to his life's work and that of his charitable organisations, and to ensure his legacy continues forever.

The Mandela Day campaign message is simple: Mr Mandela gave 67 years of his life fighting for the rights of humanity. All we are asking is that everyone

gives 67 minutes of their time, whether it's supporting your chosen charity or serving your local community.

Mandela Day is a call to action for individuals – for people everywhere – to take responsibility for changing the world into a better place, one small step at a time, just as Mr Mandela did.

WCP2014 ends on Nelson Mandela Day and the Organising Committee is arranging a number of options for delegates to participate in this important day. The cost per person is R250 and will cover the cost of transport and a small contribution towards the chosen charity / community work. Please indicate on your registration form if you would like to participate.





Registration Information

How to Register:

Registrations are open – delegates are invited to register by visiting the congress website www.wcp2014.org, select “Participate” and then “Register”.

Registration Fees & Entitlements:

CATEGORY	EARLY BIRD (if registered and paid for by 28 February 2014)	NORMAL (if registered and paid for after 28 February 2014)
Standard Registration	ZAR 8,000 incl. VAT	ZAR 10,000 incl. VAT
Student Registration	ZAR 5,000 incl. VAT	ZAR 8,000 incl. VAT
Day Delegate	ZAR 2,500 incl. VAT	ZAR 2,500 incl. VAT
Accompanying Person	ZAR 1,500 incl. VAT	ZAR 1,500 incl. VAT

Standard Registration includes:

- Attendance to all Congress sessions
- Attendance to social event: Welcome Function, Sunday 13 July 2014
- 2 tea / coffee breaks per day
- All published Congress proceedings
- Delegate package
- Access to the Congress exhibition for the day selected
- Gala Dinner tickets are available at an additional cost
- Lunch is not included

Student Registration includes:

NB: This option is only open to bona fide FULL TIME students. A letter from your study supervisor/ supervising professor confirming your formal registration as a full time student or a full time appointment as a postdoctoral fellow, must be included with your registration (a student card is not acceptable).

- Attendance to all Congress sessions
- Attendance to social event: Welcome Function, Sunday 13th July 2014
- 2 tea / coffee breaks per day
- All published Congress proceedings
- Delegate package
- Access to the Congress exhibition for the day selected
- Gala Dinner tickets are available at an additional cost
- Lunch is not included

Day Delegate Registration – ZAR 2,500 (incl. VAT) per day

- Attendance to all Congress sessions on the day selected
- 2 tea / coffee breaks
- All published Congress proceedings for the day selected
- Delegate package
- Access to the Congress exhibition for the day selected
- Gala Dinner tickets are available at an additional cost
- Lunch is not included

Accompanying Person – ZAR 1,500 (incl. VAT)

- Attendance to Opening Function/Welcome Cocktail Function
- 2 tea / coffee breaks in exhibition hall
- Closing ceremony
- Gala Dinner tickets are available at an additional cost
- Access to any Congress sessions not included

Additional Meetings

(Delegate must indicate attendance on the registration form, not automatically included in registration fees)

MEETING	FEE
Thursday evening, 17 July 2014	
Pharmacology for Africa (PharA) General Assembly	No additional cost
Friday afternoon, 18 July 2014	
Nelson Mandela International Day excursion	ZAR 250 per person

Social Events

Welcome Cocktail – Sunday 13 July 2014 – ZAR 250 (incl. VAT) per person

(Included in Full Congress and Day Delegate registration)

- Light cocktail snacks
- Entertainment
- Access to the official opening of the Congress exhibition
- Drinks

Gala Dinner - Wednesday 16 July 2014 – ZAR 990 (incl. VAT) per person

(Not included in Full Congress or Day Delegate registration)

- Meal served: set menu
- Entertainment
- A limited drinks selection

* NOTE: All fees are quoted in South African Rand (ZAR).



“The World Congress represents a unique opportunity to celebrate and support the two branches of pharmacology, basic and clinical, on an international stage.”

Jonathan Bruun, Chief Executive Officer, British Pharmacological Society

Congress Bursary Guidelines

Objective

The primary goal of the Congress Bursary is to support young and established pharmacologists from financially restricted environments and who are actively involved in research, to attend and participate in the WCP2014 Congress. A prerequisite is that an applicant has to present an accepted poster or oral presentation at the Congress.

Funding

All bursaries are subject to availability of earmarked sponsorship (no guarantees). The amount of the bursary will be determined by the judgement of the Bursary Committee, subject to availability of funds and merit, and will include at least a sponsored registration fee.

Application Guidelines

The application deadline is **31 January 2014**. Applications are submitted online together with abstract submission on the same web form.

Applications should contain the following:

- The submitted abstract(s) for poster or oral presentation.
- Short (max. 150 words) motivation for the bursary application, including a summary of current research, financial need and how attending the WCP2014 Congress will benefit the future academic career.
- The applicant's abbreviated curriculum vitae, including an academic record.
- A signed supporting letter, on an official institutional letterhead, from the applicant's supervisor/superior, confirming the applicant's current appointment or registration, and activity in pharmacological research.



Congress Satellites

Integrative and Organ Systems Pharmacology (IOSP) training workshop. This workshop covers in vivo experimental pharmacology for young scientists.

07 - 11 July 2014

University of KwaZulu Natal, Durban

11th International Society for Serotonin Research Meeting - WCP2014
Satellite

09 - 11 July 2014

See page 74 for details!

Arabella, Hermanus

www.serotoninclub.org

Sheryl Beck

International Symposium on Methods for Studying Drug Metabolism and Transport, and Herbal Derived Medicines

10 - 11 July 2014

See page 76 for details!

Lord Charles Hotel, Somerset West, Cape Town

www.methods2014.org

Andrew Walubo

Emerging Trends in the Pharmacology of Drugs for Hypertension and Heart Failure with a Special Focus on the RAAS

10 - 12 July 2014

See page 78 for details!

Spier Conference Centre

Edward Sturrock

IUPHAR Education Section Satellite Meeting

12 - 13 July 2014

See page 79 for details!

Cape Town International Conference Centre

www.iuphar-ed2014.org

Simon Maxwell/Zelda Coetzee

Novartis Institutes of BioMedical Research (NIBR) Drug Discovery and Development Workshop

12 - 13 July 2014

Cape Town International Conference Centre

Ross Tracey

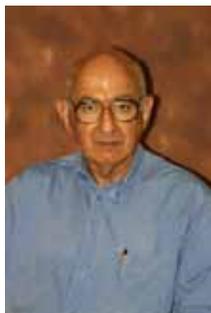
Title: Clinical Pharmacology Workshop

Basic & Clinical Neuroscience Symposium Southern African Neuroscience Society (SANS)

13 July 2014

University of Cape Town

Fleur Howells



“ It is gratifying that the country’s achievements in the treatment and prevention of diseases such as poliomyelitis, epidemic meningitis, tuberculosis, malaria, human papillomavirus infection, HIV infection and numerous other infections and diseases have been recognized and appreciated. The fact that the 2014 IUPHAR meeting is being held in the country is indication of such recognition and will assuredly give impetus for more.”

Peter Folb, Past President, South African Society of Basic & Clinical Pharmacology

Congress Satellites (continued)

IUPHAR Gastrointestinal Section Business Meeting

13 July 2014

See page 54 for background!

Cape Town International Conference Centre

Sandor Szabo

Training of Medicines Development and Regulation in Emerging Countries

13 July 2014

Cape Town International Conference Centre

Bernd Rosenkranz

PharfA Symposium 1: Regulatory Control of Traditional Medicines

13 July 2014

Cape Town International Conference Centre

Andrew Walubo

PharfA Symposium 2: Traditional Medicine Development Strategies

14 July 2014

Cape Town International Conference Centre

Andrew Walubo

IATDMCT symposium - Frontiers in Therapeutic Drug Management

14 July 2014

Cape Town International Conference Centre

www.IATDMCT.org

Alexander A Vinks

New Web-based Approaches for Teaching Clinical Pharmacology: Workshop Pscribe

14 - 17 July 2014

Cape Town International Conference Centre

<http://www.pscribe.eu>

Ben Janssen

PharfA Symposium 3: Biological Medicines Development

17 July 2014

Cape Town International Conference Centre

Andrew Walubo

Adrenoceptors: Does Understanding Structure Change Everything?

19 - 23 July 2014

See page 81 for details!

Kruger National Park

<http://www.adrenoceptor.com>

BJP - Ian McGrath

**Is Your Organization Interested
in Hosting a Satellite
Meeting/Social Event/Symposia?**

**For more information visit
www.WCP2014.org/index.php/participate/satellite**

Pre & Post Congress Tours

The Organising Committee has compiled a pre- and post-congress tour programme for delegates and accompanying persons to experience the rest of South Africa and surrounding countries. The following tours are planned:

DESCRIPTION	SINGLE	DOUBLE (per person sharing)
Kruger National Park (3 days / 2 nights)	R9,705	R8,350 per person
Garden Route (4 days / 3 nights)	R10,455	R9,280 per person
Victoria Falls Fly In (3 days / 2 nights)	R14,410	R10,690 per person
Blue Train Classic (2 days / 1 night)	TBA	TBA
Kruger Park Walk in the Wild Safari (4 days / 3 nights)	R11,685	R9,100 per person
Zambia Victoria Falls & Chobe Fly In Safari (5 Days / 4 Nights)	R27,835	R21,595 per person
Sun City and Pilanesberg Nature Reserve Tour (Full Day Tour, Johannesburg based)	R2,335 per person	–



Kruger National Park

3 Days / 2 Nights

Single: R9,705

Double: R8,350 per person sharing



Experience the unforgettable sights and sounds of Africa's wilderness

See more of what the Kruger surrounds have to offer by travelling in a luxury coach from Johannesburg to the scenic town of Hazyview situated on the border of South Africa's greatest safari destination, the Kruger National Park. You will enjoy game drives in a closed vehicle with viewings at waterholes, rest breaks at camps and tranquil overnight stays at a picturesque safari hotel.

Blue Train Classic

2 Days / 1 Night

2014 pricing not available yet



All the grace, elegance and romance of a 5-Star luxury train journey

The Blue Train is synonymous with the finest, most gracious travel, evoking all the refinement and luxury of the Victorian era. This two day journey from Cape Town to Pretoria traverses the scenic Cape Winelands and the stunning dry plains and mountains of the Klein and Groot Karoo to reach the grasslands of the Highveld. While the immense scenery of South Africa passes by, you will enjoy relaxing in your opulent suite or the elegant lounges, as well as dining in Silver Service tradition featuring the best of local cuisine and award-winning wines.

Continued on page 35...

Victoria Falls Fly In

3 Days / 2 Nights

Single: R14,410

Double: R10,690 per person sharing



Experience one of the Seven Wonders of the Natural World

Stand in the footsteps of David Livingstone on Livingstone Island, the only accessible land in the middle of the Victoria Falls. Feel the spray on your face, hear the roar in your ears as you experience the same awe and wonder at the extraordinary spectacle of the Victoria Falls.

Kruger Park Walk in the Wild Safari

4 Days / 3 Nights

Single: R11,685

Double: R9,100 per person sharing



Take a walk on the wild side in Africa

In the golden morning light, set out on foot along rhino tracks and elephant paths to enjoy superb close encounters with Big 5 game and many other animals and birds in the Africa wilderness. This is an authentic safari adventure that evokes all the romanticism, excitement and awe of the century-old explorer days. Your professional armed rangers will ensure your safety and every comfort while you make the memories that last a lifetime.

Garden Route

4 Days / 3 Nights

Single: R10,455

Double: R9,280 per person sharing



Explore the Garden Route and its abundant attractions in just four days

Experience the highlights of the Garden Route, travelling from Port Elizabeth to Cape Town in this short four day tour. Visit Tsitsikamma National Park en route to the quaint holiday town of Knysna. Enjoy the bright greens and blues of the forests and lagoons and the evocative landscapes of the Klein Karoo and Oudtshoorn.

Zambia Victoria Falls & Chobe Fly In Safari

5 Days / 4 Nights

Single: R27,835



Your ultimate African adventure

Experience an Africa-of-old on this five day guided journey to one of the Seven Natural Wonders of the World, Victoria Falls, where you still feel the same sense of wonderment the early explorers did more than a century ago. It is a short road trip over the border into Botswana where you'll go on safari in the unspoiled Chobe National Park and revel in the magnificent wilderness of this continent.

Continued on page 36...

Space is limited - book early!

www.WCP2014.org/index.php/travel-info/tours

Sun City & Pilanesberg Nature Reserve Tour

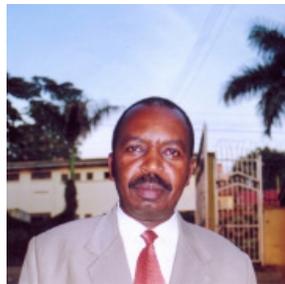
Full Day Tour (Johannesburg based)

R2,335 per person



Combine local shopping with Big 5 fun and a dose of glitz and glamour

Travel through the Crocodile Ramble and visit the popular Chameleon Village near Hartbeespoort Dam, boasting various African arts and crafts, en route to Sun City and the Pilanesberg National Park. Sun City is not only a luxury casino and resort but is also a flagship structure associated with times during the Apartheid South Africa. Bordering this entertainment complex, you will find one of the world's outstanding geological phenomena; a crater of a long extinct volcano and the result of eruptions some 1,200 million years ago – The Pilanesberg Game Reserve. This area of 572 square km is now home to most southern African species including lion, elephant, buffalo, rhino and leopard. Enjoy a closed vehicle game drive, seeking out the Big Five, followed by a guided tour of the famous Sun City Resort including the Valley of the Waves and Waterworld (entrance fee not included).



☞ *Hosting the WCP on the African continent should serve as a boost for all the pharmacologists in the developing countries, particularly those in Sub-Saharan Africa to come together and put a common front to face the challenges ahead of us.* ☞

Claude Kirimuhuzya, Secretary General, Uganda Pharmacological Society



☞ *The West African Society for Pharmacology (WASP/ SOAP) is really excited at the prospect of WCP2014; and that the IUPHAR World Congress is taking place in Africa for the first time. Members plan to participate in large numbers, and present the quality pharmacological research they carried out (despite several constraints) especially in the areas of natural products, isolated tissue and whole animal models. We look forward to forging research networks and collaborations with other pharmacologists from around the world.* ☞

Helen O. Kwanashie, President, West African Society for Pharmacology (WASP) / Societe Quest Africaine de Pharmacologie (SOAP)

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WCP2014 Offerings: A Review by the IUPHAR Clinical Pharmacology Division

The organizers of WCP2014 have developed a wonderful program fulfilling the promise of a satisfying melding of basic and clinical pharmacology. Nearly all, if not all, sessions have clinical pharmacology content and the basic pharmacology is always linked with a therapeutic context - a great way for clinicians to catch up on the advances in the basic pharmacology of their area of interest. Following is an overview of some of the clinical pharmacology content in the program but we strongly advise all interested to have a look at the detailed program at <http://www.wcp2014.org/index.php/programme/scientific-programme>.

The IUPHAR Division of Clinical Pharmacology Council will meet on Monday 14 July 2014 at 5:00 – 7:00 p.m. in meeting room 1.72. Members of the current council are at http://www.iuphar.org/clin_officers.html.

The General Assembly of the Clinical Division will be held on Thursday 17 July at 5:00 – 7:00 p.m. in meeting room 1.4. All interested in clinical pharmacology are invited and encouraged to attend. The election of officers and councillors for the next four years will be held during the General Assembly.

Every day of the congress has clinically related plenary lectures. On Monday Simon Maxwell addresses training tomorrow's prescribers. Then Tuesday Brian Strom talks on pharmacoepidemiology. For Wednesday Suzanne Hill and Clive Ondari address medicine selection in high income countries and emerging economies, respectively. Thursday brings Munir Pirmohamed to speak on drug safety science. On Friday we have Nicholas Holford on pharmacometrics, Dan Roden on pharmacogenomics and Nicholas White on antimalarial medicines.

The Clinical Pharmacology Division is sponsoring four symposia during the meeting:

Update in geriatric pharmacology - Optimal prescribing in older patients: The challenge of multiple comorbid conditions and polypharmacy (Chair: Darrell Abernethy)

Multiple comorbid conditions and disease-based treatment guidelines: The therapeutic dilemma for older persons with geriatric syndromes by Sarah Hilmer
Methods to assess drug burden and polypharmacy by Petra Thürmann
Deprescribing to limit polypharmacy: The evidence base by David LeCouteur
Effects of new drugs in older patients: What is known at the time of drug approval?
by Darrell Abernethy

Hot topics in pharmacoconomics (Chair: Suzanne Hill)

Pharmaceutical pricing: What are the current policy approaches for managing prices?
by Alexandra Cameron
A tale of two molecules: Marketing and legal influences on cost by Nicola Magrini
Compulsory licensing and HTA by Sripen Tantivess
High cost challenges: Paying for targeted therapies by Suzanne Hill

WCP2014 Offerings in Clinical Pharmacology

(continued)

Pharmaco-epidemiology: at the cutting edge (Chair: Brian Strom)

- Using big data in comparative effectiveness research by David Henry
- Streamline randomised comparative effectiveness by Thomas MacDonald
- Comparative effectiveness research using a national health insurance database in Taiwan by Kin-Wei Arnold Chan
- Use of a large simple trial design for comparative effectiveness research: The Ziprasidone Observational Study of Cardiac Outcomes (ZODIAC) by Brian Strom

Controversies in essential medicines (Chair: Clive Ondari)

- Selecting medicines for off-label indications: A global perspective by Andy Gray
- Selecting essential medicines for cancer: The EMLc approach by Clive Ondari
- Managing essential medicines in rare/neglected diseases by Elizabeth Mathai

Besides these sponsored sessions, there are three sessions dedicated to paediatric clinical pharmacology including one on the GRIP program, a global training program in paediatric pharmacology. There are a number of symposia on drug discovery, development and regulation in relation to both conventional medicines and herbal and natural products. Teaching pharmacology and clinical pharmacology is extensively covered in a number of sessions, as are regulatory issues and medicines policy. Modelling, simulation and pharmacometrics are included at the macro and micro levels. As expected, there is a comprehensive track on infectious diseases with HIV, malaria, TB and vaccines prominent. Neurological, metabolic and inflammatory/immune diseases each have solid symposium tracks and there is good clinical content in all.

A list of some of the disease or therapy specific symposia follows:

- Pharmacology of novel tuberculosis regimens
- Novel therapeutic strategies in HIV
- New drugs for neglected infectious diseases
- Recent breakthroughs in malaria treatment
- Immunobiologicals and chronic inflammatory diseases
- Global HIV clinical pharmacology capacity building and implementation research
- Rethinking mood therapeutics: Novel pharmacological approaches for anxiety and depression
- Combination medications as novel treatments for stimulant addiction
- Advances in reproductive pharmacology
- Aspirin, the wonder drug
- Advances in GI pharmacology: New approaches to upper and lower GI ulcers and inflammation
- New challenges for the treatment of diabetes mellitus
- Problems with OTC analgesics
- Therapeutic monoclonal antibodies in oncology
- Targeted small molecule therapy in oncology
- Targeting B cell signalling in oncology

There are also pre-congress satellites and workshops which can be accessed on the congress website.

Altogether it is an enticing program for clinical pharmacologists. The organizers are to be congratulated.

See you there! •

Don Birkett
Chair, IUPHAR Division of Clinical Pharmacology

WCP2014 Contributions from NC-IUPHAR Members

NC-IUPHAR is well represented at WCP2014 with six members giving plenary lectures or organising symposia. Put the below sessions in your itinerary for a great scientific experience linked to the unique experience of visiting South Africa!

IUPHAR Analytical Pharmacology Lecture

Adventures in allostery: From function to structure

Arthur Christopoulos (see page 10)

Plenary Speakers

Tyrosine kinase inhibitors

Doriano Fabbro (see page 11)

Protein phosphorylation in signal transduction

Kozo Kaibuchi (see page 11)

Amino acid transporters in oncology

Yoshikatsu Kanai (see page 12)

Challenges in training tomorrow's prescribers

Simon Maxwell (see page 13)

Signal transduction in therapeutics

Richard R. Neubig (see page 13)

Symposia

Monday, 14 July 2014, 13:30 – 15:00, Track 6 (see page 17)

Orphan G protein-coupled receptors: What are the new ligands & drug targets?

Chair: Anthony Davenport

GPCRs are targets for nearly half of all medicines and represent a significant proportion of the 'druggable' genome as these proteins have proved remarkably tractable to medicinal chemistry strategies to discover new therapeutic agents. NC-IUPHAR presents the evolving pharmacology of 'orphan' GPCRs recently paired with their cognate ligands and stimulating progress in 'de-orphanising' the remaining GPCRs predicted to exist from the human genome.



Orphan GPCRs: What are the remaining "druggable" targets?

Adam Pawson



Therapeutic potential of biased apelin agonists and antagonists

Anthony Davenport



From AIDS to atherosclerosis: Chemokines, CCR5 and maraviroc

Janet Maguire



Role of cannabinoid-related receptors (GPR55, GPR18 and GPR119) in inflammation, satiety and obesity

Stephen Alexander

WCP2014 Contributions from NC-IUPHAR Members

(continued)

Tuesday, 15 July 2014, 13:30 – 15:00, Track 7 (see page 20)

Structural basis for ion channel pharmacology

Chair: William A. Catterall

Advances in the structural biology of complex intrinsic membrane proteins have allowed determination of the structures of key ion channels and ionotropic neurotransmitter receptors at high resolution by x-ray crystallography. This Symposium will focus on the structural basis for the function and pharmacology of four different families of ion channels and receptors.



Structural basis for drug action on the cys-loop family of receptors

Pierre-Jean Corringer



Outer structures in ionotropic glutamate receptors as drug targets

Lonnie P. Wollmuth



Structural basis for function and pharmacology of voltage-gated sodium and calcium channels

William A. Catterall

Tuesday 15 July 2014 15:30 – 17:00, Track 6 (see page 20)

NC-IUPHAR and the Guide to Pharmacology

Chairs: Michael Spedding and Colin Dollery

The immense recent growth of knowledge about drug targets, with their crystal structures, has been an immense help to drug discovery. The IUPHAR classifications have been of great use, together with the database, in defining nearly all potentially “druggable” sites encoded by the human genome. The IUPHAR open access, online database provides detailed, expert-driven annotation of the primary literature on human and rodent receptors and other drug targets, together with the substances that act on them. Information on the products of >646 genes from four major protein classes (G protein-coupled receptors, nuclear hormone receptors, voltage- and ligand-gated ion channels) and over 3,000 bioactive molecules that interact with them. The clinical relevance of targets and ligands in the database, more extensive links to other databases and curation of enzymes as drug targets are all underway to have a freely-accessible Guide to Pharmacology. A new teaching initiative for pharmacology is created by collaboration between IUPHAR, BPS and ASPET in the form of a website, based at Edinburgh. The presentation will describe the approach, and time lines of a major new initiative for clinical and preclinical pharmacology education worldwide, in synergy with the NC-IUPHAR, IUPHAR-DB and GuideToPharmacology.org.



Brief Introduction to NC-IUPHAR

Colin Dollery



NC-IUPHAR: How two decades of controversy help resolve drug discovery

Michael Spedding



IUPHAR-DB, GRAC and the Guide to Pharmacology

Adam Pawson



The IUPHAR educational website

Simon Maxwell

WCP2014 Contributions from NC-IUPHAR Members

(continued)

Wednesday, 16 July 2014, 10:30 – 12:00, Track 6 (see page 21)

Evolution, sport and modern diseases

Chairs: Michael Spedding and Ian McGrath

The "two stage evolution" hypothesis of the evolution to run, from ~100,000 years ago, adapted to all the earth's environmental niches, (the latter using predominantly epigenetic and diet-driven bioflora changes, with contributions from SNPs/CNVs), explains much of susceptibility to many modern diseases. The brain circuits crucial to persistence hunting and associated social interactions control context and emotion, and are the weak link in psychiatric disorders. Furthermore, these circuits represent the long-searched-for central regulator limiting ultimate sports performance. The biochemical drivers of 'evolutionary-recent' change in nerve and muscle are partially defined and point to dysfunction in the trophic/inflammatory interface in disease processes.



Evolution and running

Tim Noakes



Do sports reveal the end of a long range physiological evolution?

Jean-François Toussaint



Aging and exercise: Mechanisms and benefit in offsetting disease

Paul Greenhaff



Brain development and evolution: Mechanisms, circuits, and susceptibility to disease

Michael Spedding

Wednesday, 16 July 2014, 15:30 – 17:00, Track 6 (see page 23)

Emerging drug targets

Chair: Richard Neubig

A range of new drug targets will be described. which are at the cutting edge for innovative therapies



Plucking the high hanging fruit: Synthetic strategies for targeting protein-protein interactions in transcription

Paramjit Arora



Allosteric targeting of protein-protein interactions: RGS proteins in CNS therapeutics

Richard Neubig



Anti-apoptosis therapies in cancer

Simone Fulda

Continued on page 43...



Guide to PHARMACOLOGY

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WCP2014 Contributions from NC-IUPHAR Members

(continued)

Thursday, 17 July 2014, 13:30 – 15:00, Track 4 (see page 24)

Can academic drug discovery deliver in rare diseases?

Chair: Michael Spedding

Selected institutions have tackled the challenges associated with drug discovery for rare diseases. The efforts and techniques of four groups are featured.



The Monash Institute of Pharmaceutical Sciences (MIPS): Integrating discovery, delivery and development

Bill Charman



Association Française contre les Myopathies: A 25 year revolution in rare diseases

Serge Braun



Structural Genomics Consortium as a springboard for discovery in epigenetics and kinases

Chas Bountra



Dundee Drug Discovery Unit: Diversity screening for tropical diseases

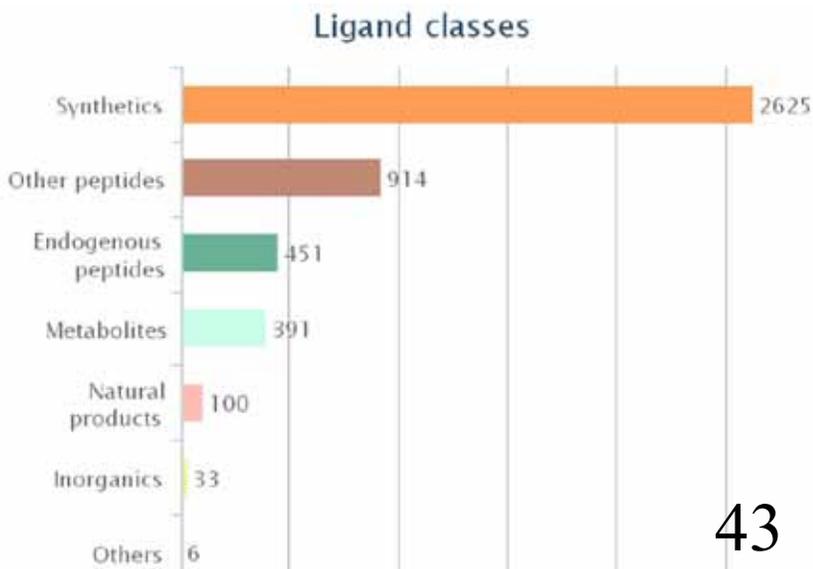
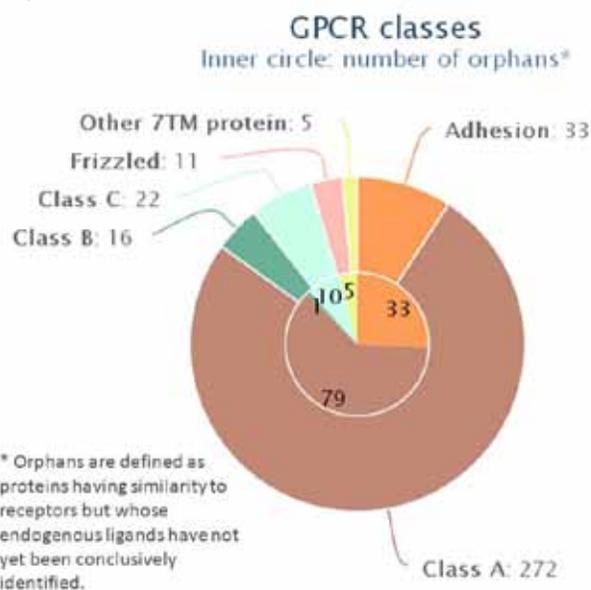
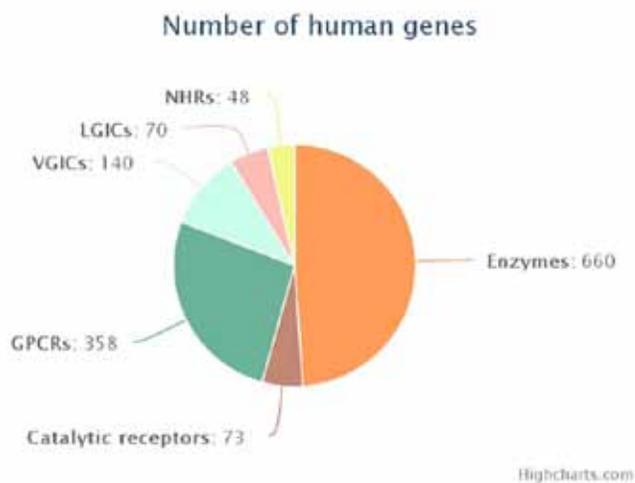
David Gray

Be sure to add this great line-up to your WCP2014 itinerary. •

Michael Spedding

Chair, NC-IUPHAR

Database content:





In Memory
William C. Bowman
April 26, 1930 - July 18, 2013

Reproduced with permission from the British Pharmacological Society

The British Pharmacological Society lost one of its luminaries on Thursday, 18 July, with the death of Bill Bowman. Bill's health had deteriorated since a stroke in London a couple of years ago. After a very lengthy stay in hospitals in London and Dumfries, he managed to get home to Rockcliffe on the Solway Firth, which held so many happy memories for him. His daughter, Alison, and son, Ewen, told us that over the past few months, and particularly the last few weeks, he became bedbound and life became incredibly tough. He died very peacefully; it was the most glorious evening in Rockcliffe, still and hot with the sun setting over Rough Island, just as he would have wished.

Bill started his academic career through obtaining a first class honours degree in pharmacy from the London School of Pharmacy ("The Square"), which is now, of course, part of University College London. During this time, he was inspired by Eleanor Zaimis who invited him to join her group to work for a PhD, in which he studied the effects of sympathomimetic amines on the contractility of skeletal muscle. He demonstrated, for the first time, that adrenaline, while enhancing the contractility of fast contracting muscle, actually reduced twitch tension in slow contracting muscle, this ultimately being identified as the possible basis of the tremorigenic action of β_2 -receptor agonists.

William C. Bowman

(continued)

The time between submitting his PhD thesis and actually being examined was interrupted by the Ministry of Defence, who suddenly required his assistance in defending the realm through two years of National Service. He found himself in the Royal Air Force (RAF), which provided the basis of numerous, some unrepeatable, anecdotes with which he used to regale us many years later over the odd pint or two in the pub. He told us that because of his background, the RAF decided he should become an Education Officer and packed him off on a teacher training course, following which he was required to teach aerodynamics! During his National Service he was allowed to attend his PhD examination in Oxford, which he attended in full RAF uniform with Edith Bülbring as external examiner.

When Her Majesty's forces felt sufficiently safe to dispense with his services, he joined the Square as a lecturer under the mentorship of Gladwyn Buttle. His time at the School of Pharmacy was very productive; the pharmacology department at the Square was a pharmacological powerhouse including staff members such as Geoff West, Alan Cuthbert, Brian Callingham, Tom Bolton, Colin Raper and Mike Rand. Among Bill's other scientific contributions during that period was the development of the concept of pre-junctional nicotinic autoreceptors (Blaber and Bowman 1963), which was pursued later at Strathclyde in collaboration with Ian Marshall (Bowman 1989). While at the Square, Bill, Mike Rand and Geoff West decided to fill a gap by writing a textbook aimed primarily at pharmacy students. This progressed to a second edition in 1980 with only Mike as co-author and became the standard textbook of pharmacology worldwide, translated into many languages. It was generally referred to as "Bowman and Rand" except in Portugal where, to Bill's mischievous delight, its author(s) was (were) described as "Rand Y Bowman"! Sadly, although well-advanced in preparation, the third edition never materialised, due to a fire in 1990 that destroyed Mike Rand's house along with extensive drafts of the book, and then Mike's death in 2002, after which Bill lost the will to work further on this enormous task, which he and Mike had been determined to complete without farming out chapters to numerous colleagues.

Buttle's retirement in 1965 resulted in a Square pharmacological diaspora and Bill's move to establish the Department of Pharmacology at the new University of Strathclyde in 1966, an event that was to place Strathclyde firmly on the world's pharmacological map. Bill's presence at Strathclyde attracted people to join the department as staff members, notably Jim Parratt, whom he invited to take up an appointment in 1967, following which the department grew rapidly.

At Strathclyde, Bill revisited his earlier work on the effects of sympathomimetics on skeletal muscle with Mike Nott and Ian Rodger (e.g. Bowman and Nott 1970), as well as developing a lasting interest in neuromuscular blocking drugs, this being stimulated by the close proximity of Organon laboratories, which at the time of Bill's arrival was developing pancuronium. The fruitful collaboration with Ian Marshall in the department and Organon led to the identification, development and subsequent marketing of vecuronium and rocuronium, two of the most extensively used muscle

William C. Bowman

(continued)

relaxants in anaesthetic practice. This resulted in Bill's wide recognition among anaesthetists and his being made an honorary fellow of the Faculty of Anaesthetists of the Royal College of Surgeons, of which he was especially proud, and his appointment as visiting professor of anaesthesiology in various universities in Canada and the US. His other interests at the neuromuscular junction in collaboration with Ian Marshall and Alan Harvey focused on the aminopyridines as reversal agents for neuromuscular blockade and their potential application in conditions of impaired neuroeffector transmission (Bowman and Savage 1981).

Bill's long friendship and collaboration with Mike Rand and Mike's return to Australia in 1965, resulted in so many Australian visitors and PhD students in the department, that Bill's research laboratory became known as 'Kangaroo Valley' and was formally labelled as such! This was in the days before 'health and safety at work' and the department was then on the roof of Strathclyde's Royal College building. My recent attempt at a sentimental revisit to the old laboratories (abandoned many years ago) to see if the label remained was thwarted by the fact that access to the roof laboratories had been well and truly sealed off, presumably to stop pharmacologists jumping from the roof after a failed grant application. One frequent Australian visitor to the department, and one cause of Bill's trips to Melbourne (the excuse being the textbook!) was the delightful Anne Stafford, a distinguished pharmacologist, whom he married in the early 1970s. Sadly, Anne died in 2007 after a long illness.

As happens frequently with senior academics, Bill moved into senior positions in the University, becoming successively Deputy Principal (Pro-Vice Chancellor in English parlance) and Vice-Principal, thus progressively removing him from active involvement in pharmacology research. I was never certain how much Bill enjoyed the trappings of high office, but his friend and colleague Dr. Peter West, who was University Secretary at that time, tells me that Bill described his role as "drinking gin and tonic on behalf of the University"! Despite this laid back approach, he went on to be an outstanding Vice Principal, playing a key role in steering the University through difficult times. Throughout his time away from the department, he retained close contact with the world of pharmacology through his extensive involvement with the British Pharmacological Society, in which he held a number



William C. Bowman

(continued)

of executive posts, and IUPHAR, which he served as Secretary-General from 1994-1998, becoming the first Editor-in-Chief of *Pharmacology International*. The British Pharmacological Society recognized his contribution to the Society and to the discipline of pharmacology through electing him as an Honorary Fellow and through establishing the Bill Bowman Travelling Lectureship, awarded annually to support the development of a young pharmacologist, a matter that was always close to Bill's heart. On his retirement, the University perpetuated his name by establishing the WC Bowman Chair of Pharmacology.

We have lost an inspirational teacher, a brilliant lecturer, a walking encyclopaedia of pharmacology and a mentor to numerous pharmacologists around the globe. Our thoughts are with his children, Alison and Ewen, and grandchildren, Cammie, Ewan, Emma and Keith. •



Bill enjoyed a reunion of his colleagues and friends during September, 2012.

L → R: Karen Furman, Bill Bowman, Bill Dryden, Kathy Kane, Moira Hall-Wadsworth, Brian Furman and Roger Wadsworth

Brian Furman

(On behalf of Bill's numerous friends and colleagues at the University of Strathclyde)

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IUPHAR Updates

Symposium in Honor of Professor Folke Sjöqvist **Clinical Pharmacology in Health Care, Teaching and Research: The Future**

Editor's Note: IUPHAR has had the good fortune of Professor Sjöqvist leading the IUPHAR Clinical Division as a past president in addition to his more recent contributions as an IUPHAR liaison to the World Health Organization. We thank his colleagues at Karolinska for sharing this article.

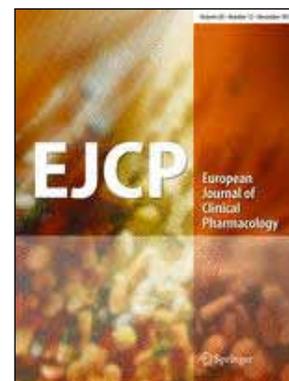
Professor emeritus Folke Sjöqvist turned 80 years old in May, 2013. The event was celebrated with a symposium on May 24th at Karolinska Institute in Stockholm, which was organized by Professors Gunnar Alván, Marja-Liisa Dahl (co-chair), Rune Dahlqvist, Erik Eliasson, Lars L. Gustafsson, and Georgios Panagiotidis (co-chair) on behalf of the Clinical Pharmacology Department at Karolinska Institute/Karolinska University Hospital Stockholm. The symposium was supported by the Foundation for Clinical Pharmacology and Therapeutics, Stockholm.

The topics covered highlighted Professor Sjöqvist's contributions and achievements in health care, teaching and research: *Rational Use of Medicines, Personalised Medicine and Diagnostics* and *Global Medicine*. In addition, there were presentations on describing current clinical pharmacology research programs in Sweden. The 140 participants included collaborators, colleagues, friends and family traveling to Stockholm from three continents and 14 countries.

The opening presentation was given by Professor Rune Dahlqvist, Editor of *European Journal of Clinical Pharmacology*. Professor Dahlqvist also presented Professor Sjöqvist a copy of the supplementary issue of the journal (cover at right) that was prepared as a tribute to him [1].

Rational Use of Medicines

Professor Sir Michael Rawlins, former chairman of the National Institute for Health and Care Excellence (NICE) in the United Kingdom presented



Sjöqvist Symposium

(continued)



Many of Folke Sjöqvist's former foreign research fellows attended the honorary symposium.

a talk entitled *The societal challenge of making important drugs available to patients*. Professor Rawlins emphasized that only in Europe do the expenses for health and healthcare vary 10-fold across countries, with the size of the expenditure correlating with GNP. He noted that most healthcare institutions are challenged in identifying ways to pay for newer, more expensive medications. The NICE and other health technology assessment institutions are forced to make decisions about availability and payments without, in many cases, the benefit of data from studies designed to directly compare a new drug with an older agent (head-to-head trials). While prioritization is typically based on the “incremental cost-effectiveness ratio”, NICE also considers the views from a council of laymen when making this decision. Rawlins emphasized the need for a global, value-based pricing scheme for medications, and noted this approach has already been implemented by some countries.

Professor Lars L. Gustafsson, from Karolinska Institute, spoke on behalf of Associate Professor Richard Malmström on *Critical unbiased drug evaluation - a cornerstone of introduction of new drugs in Stockholm Healthcare Region*. He reported that the purchase of new, specialized medicines accounts for over 50% of medication expenditures in Stockholm and elsewhere. He suggests that what is needed is a new model for introducing medicines. Professor Gustafsson described successful Stockholm approaches to addresses this issue, including horizon scanning, health economic evaluations, and follow-up studies. The new oral anticoagulants, including dabigatran, provide proof of concept for these strategies [2]. The present method for selection and recommendation of essential drugs in the Stockholm “Wise List” will be complemented by “Wise Protocols”, which will cover the introduction of new, expensive medicines.

Associate Professor Ylva Böttiger, Karolinska Institute and Karolinska University Hospital, made a presentation entitled *Electronic prescription support systems – the role of clinical pharmacology*. The data were drawn from a 1970's Stockholm study involving a consultation service for patients with drug related problems [3]. A structured and evidence based evaluation of relevant literature were used over the years to provide the information for each patient consultation report. A similar drug evaluation model is used for building and maintaining the Finnish-Swedish point of care



Sjöqvist Symposium

(continued)

database, SFINX, which covers drug-drug interactions [4]. Currently SFINX contains approximately 15,000 drug-drug interactions and is available widely in electronic health records in both countries. The preparation of SFINX and other drug information databases provide new opportunities for clinical pharmacologists according to Professor Böttiger.

Professors Petra Thürmann, HELIOS Klinikum Wuppertal, Germany, and Ulf Bergman, Karolinska Institute, emphasized that Folke Sjöqvist has always argued that academic clinical pharmacology will flourish only with daily involvement in clinical practice. They noted that because many clinical pharmacologists cannot, or do not, see patients regularly, the development of the field is compromised in Europe and elsewhere.

Personalised medicine and diagnostics

Professor Erik Eliasson, Karolinska Institute and Karolinska University Hospital, discussed *Therapeutic Drug Monitoring (TDM) for tomorrow* as a prerequisite for “personalised medicine”, a concept introduced by Professor Sjöqvist and his colleagues in the 1960’s [5]. Professor Eliasson reported that because TDM helps clinicians understand the variability in drug concentrations, it improves drug efficacy and safety in single patients and in vulnerable patient populations.

Professor Olof Beck, head of the Clinical Pharmacology Laboratory at Karolinska University Hospital, made a presentation entitled *New technologies and monitoring tools in drug abuse and doping control*. He believes that in the future mass spectrometry is likely to replace all immunological assay procedures. Today, it is possible to detect narcotic and internet drugs in exhaled air using smart collection devices and sensitive LCMS/MS detection techniques. He noted this technology has advanced rapidly since the first report in 2010 about the possibility of detecting amphetamine in exhaled air [6]. He also reported it is possible to detect numerous substances in small samples of fresh or dried blood using sensitive multiplex LCMS/MS technology.

The session co-chairs, Professors Michael Eichelbaum of Stuttgart Germany, and Leif Bertilsson of Stockholm, concluded that personalized medicine should be based on a combination of molecular, clinical and epidemiological approaches.

Ongoing research projects in clinical pharmacology in Sweden

Associate Professor Eleni Aklillu, Clinical Pharmacology at Karolinska

Continued on page 51...

Sjöqvist Symposium

(continued)

Institute, presented her research results demonstrating differences in efavirenz concentrations between cohorts of HIV-patients in Ethiopia and Tanzania because of genotypic differences in the CYP2B6 drug metabolising enzyme activity [7]. Associate Professor Susanna Wallerstedt from the Clinical Pharmacology group in University of Gothenburg, Sweden, discussed *Medication reviews – effects on hard outcomes and cost-effectiveness*. She and her colleagues found in a randomized study that it is costly to conduct medication reviews using a pharmacist in hospitalized patients. The estimated cost of the intervention was equivalent to about €460,000 for each quality adjusted life-year (QALY) that is gained, supporting the view that medication reviews are not very cost-effective [8]. Associate Professor Björn Wettermark, Clinical Pharmacology at Karolinska Institute, emphasized the potential in Scandinavian countries of *Pharmacoepidemiological research today and tomorrow*. He found particularly valuable the results of analytical studies that combine data on drugs and drug therapy with information from other registers [9]. He predicted new opportunities for pharmacoepidemiological research across continents, given the growing interest in this field. The session co-chairs, Professors Giampaolo Velo, University of Verona, Italy, and Anders Rane, Karolinska Institute, Stockholm, concluded that scientific studies comparing the value and costs of drug therapies are major research avenues in clinical pharmacology.

Global medicine

Professor Gustafsson spoke of the Nobel Laureate, Professor Sune Bergström, describing him as a visionary who in the 1970's initiated global, WHO-funded research programs on the clinical pharmacology and drug development of tropical diseases [10]. Gustafsson emphasized that public-private-non-profit partnerships such as the "Medicines for Malaria Venture" (MMV) and "Global Alliance for TB-drug development" have, since the end of the 1990's, produced about 12 promising drug candidates that are now in phase II-III clinical trials. It was noted that global medicine is an area ripe for clinical pharmacology studies. He predicted that computerized decision supports systems will in a few years be critical for the delivery of healthcare in countries with limited resources.

Professor Michael Orme, University of Liverpool, United Kingdom, made a presentation entitled *Quo Vadis? Presence and future of clinical pharmacology, the WHO initiatives and more* that focused on the impact of Professor Sjöqvist's impact on the development of clinical pharmacology [11]:

- The 272 articles published by Professor Sjöqvist from 1994 to 2012 have been cited more than 10,000 times.
- Professor Sjöqvist established clinical pharmacology as a multi-disciplinary clinical specialty and directed its development in different areas, including clinical drug evaluation and pharmacogenetics.
- Between 1972 and 2005 as many as 112 individuals from 37 countries acquired a major part of their research training in Professor Sjöqvist's department at Huddinge University Hospital and Karolinska Institute. Thirty-three of these trained in Stockholm between 1968 and 1996 have been become Professors of Clinical Pharmacology.
- Since 1971 Professor Sjöqvist has received a number of international awards in recognition of his work. He has also received honorary doctorates from institutions in five different countries.



Sjöqvist Symposium

(continued)

Professor Orme noted there have been challenges in the development of clinical pharmacology as an independent discipline. While he emphasized that clinical pharmacology must continue to be multidisciplinary, it needs to be recognized as a medical speciality, especially in Europe. He closed by stating that clinical pharmacology has much to offer, including information on the allocation of healthcare resources in the most cost-effective manner.



Folke Sjöqvist (left) and Michael Orme (right), who was awarded an honorary doctorate from Karolinska Institute a few days prior to the symposium.

The identity of clinical pharmacology

The final session, chaired by Michael Rawlins and Professor Gunnar Alván, focused on the identity of the discipline. Michael Orme argued that clinical pharmacologists must have medical training to gain the trust and respect necessary for the discipline to flourish. Professor Sjöqvist ended the meeting by emphasizing the multidisciplinary nature of clinical pharmacology: Everyone is welcome, including pharmacists, analytical chemists, biostatisticians and geneticists. He argued that a dichotomy has developed between diagnosis and drug therapy. This can only be bridged by prescribers. It is necessary to understand the disease of the patient including psychosocial factors in pharmacotherapy. To gain an impact within health and healthcare you should be a physician when working as a clinical pharmacologist. Professor Sjöqvist reminded the group that he started as a general practitioner. •

Sjöqvist Symposium

(continued)



Folke Sjöqvist laughing with previous foreign research fellows at Clinical Pharmacology at Karolinska Institute

Professor Lars L. Gustafsson
Professor Marja-Liisa Dahl, Head of Clinical Department
Associate Professor Georgios Panagiotidis, Head of Division
Karolinska Institute and Karolinska University Hospital, Stockholm, Sweden

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Past and Future Activities of the IUPHAR Gastrointestinal (GI) Section

Over the past year the GI Section was proud to host a number of successful meetings, including one in May, 2013 that included Dr. Barry Marshall, a Nobel Laureate. We look forward to organizing the GI symposia for the WCP2014 meeting in Cape Town. Other, more specialized, regional symposia are also being planned for the future.

Business and Scientific Meetings during the Digestive Diseases Week

In May, 2013 the annual meetings of several American gastroenterology-related societies were held during the Digestive Diseases Weeks (DDW). The largest gathering of GI-related clinicians and basic scientists from all over the world, this meeting normally attracts more participants than GI world congresses. The IUPHAR GI Section meets regularly at these meetings, which are usually held in May. We are very proud that Dr. Barry Marshall, who shared the 2005 Nobel Prize for the discovery of *Helicobacter pylori*, the etiologic factor in the pathogenesis of 'peptic ulcer' disease, accepted our invitation to attend our meeting on May 19, 2013 in Orlando, Florida, USA. In addition to his presentation on "The



International Union of Basic and Clinical Pharmacology

Business & Scientific Meeting, DDW, Orlando, FL

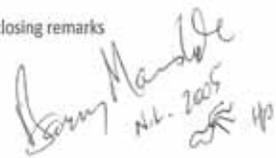
May 19, 2013, 7:00 pm

Embassy Suites Int'l Drive-Jamaican Ct., Panther Room

8250 Jamaican Court - Orlando, FL 32815, Phone: 407-345-8250 Fax: 407-352-1463

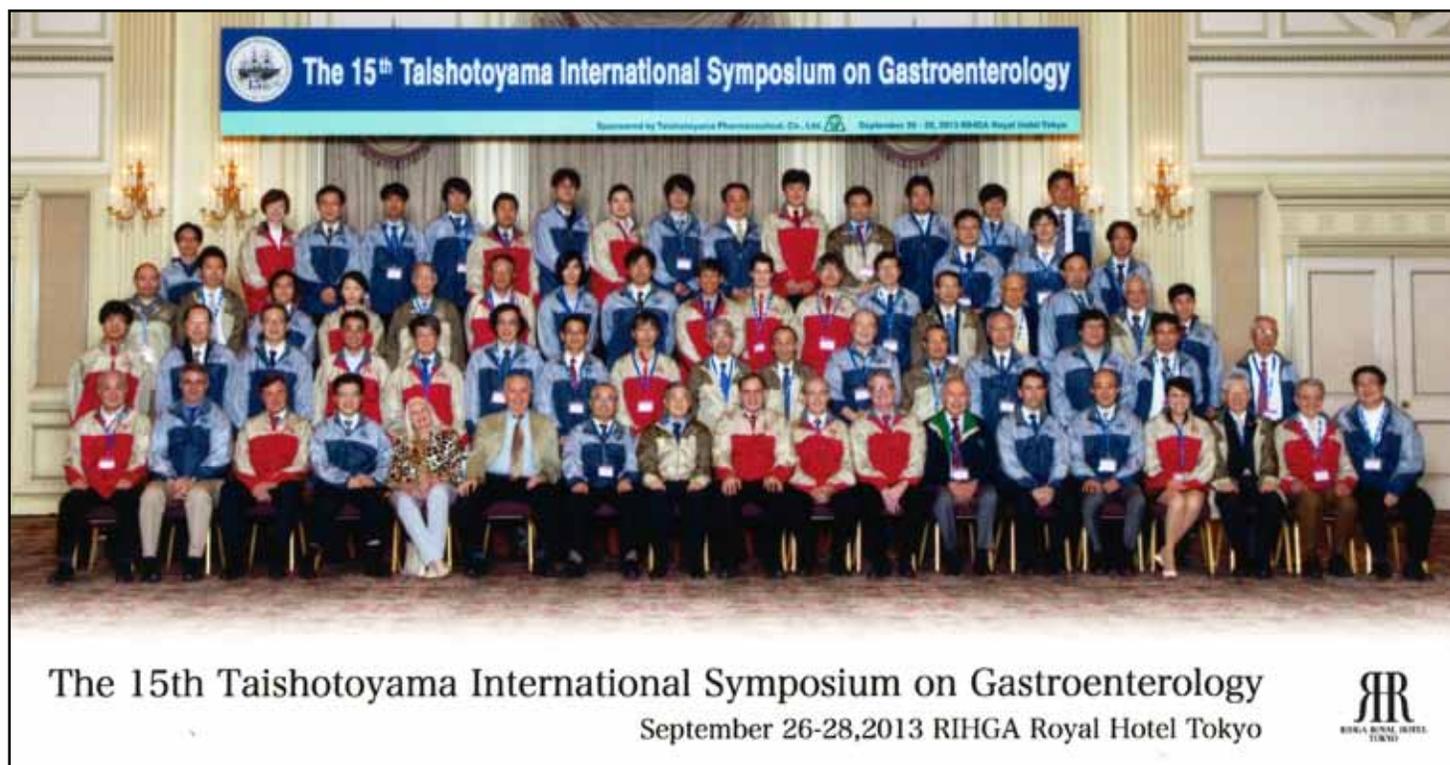
Chaired by Sandor Szabo (president) & Duan Chen (vice-president)

- Introduction & welcome
- Strictly business
 - Name change: GI Section vs. GI Pharmacology Section?
 - Review of operational principles & statutes
 - Plans for the World Congress of Pharmacology, Cape Town, South Africa, 2014
- Announcements
 - Publications in J. Physiol. Pharmacol. (T. Brozowski)
 - 8th Int. Symp. on Cell/Tissue Injury & Cytoprot./Organoprotection, Budapest, Hungary, 2014 (K. Gyires)
 - 15th ICUR, Ottawa, Canada, 2015 (J. Wallace)
- Scientific presentation: Dr. Barry Marshall, Nobel Laureate 2005 – "The bad & good face of H. pylori: An update from the Ondek research team"
- Discussion & closing remarks



Dr. Barry Marshall participated in the May, 2013 Digestive Diseases Week in Orlando, Florida, USA.

Past & Future Activities of the IUPHAR Gastrointestinal (GI) Section (continued)



bad and good face of *H. pylori*: An update from the Ondek research team". Dr. Marshall attended our business meeting dinner and actively participated in an extended discussion on various topics related to GI research, pharmacology, clinical activities, and the changing face of *H. pylori*.

15th Taishotoyama International Symposium on Gastroenterology, Tokyo, Japan: Last of a Series

These symposia are organized and sponsored by the Taishotoyama Pharmaceutical Co., Ltd. which produces and markets drugs, such as sofalcone, for the treatment of GI disorders. The first of these symposia was held in 1987 in Shimoda, a historic sea-side village near Tokyo, then the subsequent meetings have been held in Tokyo. As the number of participants is strictly limited, it is noteworthy that several members of IUPHAR GI Section leadership were invited to participate in past meetings, and the one held this year (September 26-28). The Organizing Committee chairs of the last several symposia have been two prominent GI investigators and clinicians from Japan, Profs. Masaki Kitajima and Akira Terano, who are also members of IUPHAR GI Section. Furthermore, four of the five Special Lectures were presented by members of the Global GI Club. Unfortunately, this will be the last of these symposia, as the company is unable to continue sponsorship of this event. The proceedings of this symposium will be published in the *Journal of Gastroenterology and Hepatology*.

Special IUPHAR GI Section Symposium: First in Zagreb, Croatia

This meeting was held at the Medical Faculty, University of Zagreb, Croatia (October 17-19, 2013). It was organized by Prof. Predrag Sikiric of the University of Zagreb Department of Pharmacology, and a member of the International Board of IUPHAR GI Section. The program consisted of invited lectures, short oral presentations that were selected from submitted abstracts, poster sessions and round-table discussions. Most of the participants were from European countries, although there was also representation from Japan, Korea, Canada and the USA. The proceedings of this symposium will be published in the *Journal of Physiological Pharmacology*.

Past & Future Activities of the IUPHAR Gastrointestinal (GI) Section (continued)

IUPHAR GI Section Symposia at WCP2014 in Cape Town, South Africa (see page 24) The GI Section is very proud that its symposia proposals were accepted by the WCP Program committee. The GI topics to be covered during the Cape Town meeting (July 13-18, 2014) are:

- Advances in GI pharmacology: New approaches to upper and lower GI ulcers and inflammation
- Aspirin, the wonder drug: Keeping a balance between its great therapeutic benefits and its GI toxicity
- Hydrogen sulfide in GI health and disease
- Manipulation of gut microbiome as a treatment strategy for gastrointestinal and metabolic disorders
- Neuroendocrine regulation of GI protection: Central and peripheral pathways

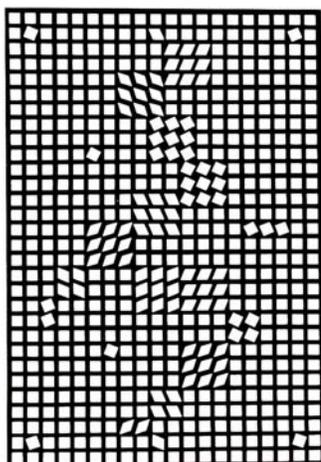
These presentations are designed to appeal not only to basic and clinical scientists actively engaged in GI research, but to anyone interested current treatments for GI disorders, including functional and structural diseases. In addition, there will be a discussion of the latest developments in defining the pathology of GI diseases and new targets for drug discovery. In addition, the GI Section will have its quadrennial business meeting on Sunday afternoon, July 13, just prior to the opening ceremony of the Congress.

8th International Symposium on Cell/Tissue Injury and Cytoprotection/ Organoprotection, September 24-26, 2014, Budapest, Hungary (see page 51)

This is the eighth in a series of international symposia, with the first one was held in Heidelberg, Germany in 1986. This gathering is now the official scientific meeting of IUPHAR GI Section. Unlike the terminated Taishotoyoma International Symposia on Gastroenterology that focused on broad scientific and clinical aspects of GI diseases, these meetings are more focused on particular issues of contemporary interest, such as the pharmacologic prevention of GI lesions (i.e., protection of GI tract), especially on gastroprotection. The value of these symposia is enhanced by parallel presentations and discussion on mechanisms of cell and tissue injury in the GI tract and other organs. This fosters a cross-fertilization of ideas that is enhanced by specialists and presentations in areas such as cardioprotection, neuroprotection and hepatoprotection. Such interactive presentations will highlight the 2014 meeting in Budapest. The symposium is being organized by Prof. Klara Gyires of the Department of Pharmacology, Semmelweis Medical University, who is also a member of the IUPHAR GI Section Executive Committee, and her colleagues. It will be held in the historic building of the Hungarian Academy of Sciences. •

Sandor Szabo
President, IUPHAR GI Section

**Past & Future Activities of the
IUPHAR Gastrointestinal (GI) Section
(continued)**



OPART dedicated
to the symposia
by Victor Vasarely

FIRST ANNOUNCEMENT

8th International Symposium on Cell/Tissue Injury and Cytoprotection/Organoprotection

**24-26 September, 2014
Budapest, Hungary**

Standing Committee

J. Farber
S. Orrenius
S. Szabo
A. Tarnawski
K.H. Usadel

Scientific Advisory Board

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L. Filaretova (Russia)
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Local Organizing Committee:

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B. Sperlagh (Co-chair)
P. Ferdinandy
P. Matyus
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Z. Zádori (Secretary)

Organized by:

-Hungarian Society for
Experimental and Clinical
Pharmacology
- Department of Pharmacology
and Pharmacotherapy,
Semmelweis University
- Drug Development and Safety
Center

Sponsored by:

Hungarian Academy of Sciences
IUPHAR GI Section

Goals

To provide updates on cell & tissue injury, as well as protection. The focus will be on gastrointestinal (GI) tract – injury & protection of esophageal, gastric, duodenal mucosal injury & ulcers, brain-gut & gut-brain axis, liver damage, inflammatory bowel disease, irritable bowel syndrome, role of microbiota in intestinal mucosal homeostasis, & the role of progenitor-stem cells in healing. Moreover, mechanism of cell/tissue injury & cyto/organoprotection of other tissues (e.g., cardiovascular, liver, central & peripheral nervous system) will also be discussed.

Main topics

Advances in GI pharmacology
Novel insights into the mechanisms of GI mucosal injury & protection
Mechanisms of NSAID-induced tissue injury
Mechanisms of H. pylori-induced tissue injury
Prostaglandins, antioxidants, gas mediators & growth factors in GI mucosal protection
Mechanisms of reversible & irreversible cell injury
Stem cells & microRNAs in cell injury & cytoprotection
Neurotransmitters, hormones & peptides in gastric in gastric mucosal injury/protection
Microbiota & intestinal homeostasis
Probiotics & nutraceuticals
Hepatic injury & protection
Cardioprotection
Neuroprotection: novel target sites & protective mechanisms

Format

Minisymposia, e.g., 2-4 invited speakers, followed by short presentations
selected from submitted abstracts
Poster session

Registration fees (before 1st June, 2014)

Individuals: 295 Euro (includes program & abstract booklet, opening
Reception, coffee breaks, lunches, organ concert)
Students/fellows: 95 Euro
Corporations/industry: 595 Euro

For further information please contact:

Symposium Chair: Prof. Klara Gyires, e-mail: gyirkla@net.sote.hu
Symposium Secretary: Dr. Z. Zádori, e-mail: zadzol@net.sote.hu
Department of Pharmacology & Pharmacotherapy, Semmelweis University,
Budapest
Symposium Co-chair: Prof. B. Sperlagh, e-mail: sperlagh@koki.hu
Institute of Experimental Medicine, Hungarian Academy of Sciences, Budapest



GRIP Training: From the IUPHAR Section on Pediatric Clinical Pharmacology

IUPHAR is a 3rd party to the EU 7th Framework funded Network of Excellence project called the Global Research in Paediatrics (GRIP). The fostering of training in pediatric clinical pharmacology is one of the main objectives of the GRIP program (for more information, see *Pharmacology International* 2011; No. 76 [June] p. 3). To this end, the GRIP Roadshow has been developed as a collaboration between the European Society for Developmental, Perinatal and Pediatric Pharmacology (ESDP), an IUPHAR member society, and the IUPHAR Pediatric Clinical Pharmacology Section.



Concept

GRIP Roadshow is a one to two day face-to-face introductory course that covers pediatric clinical pharmacology and the challenges associated with investigation medicines for children. The course content was developed in a workshop composed of leading experts in pediatric clinical pharmacology that was held in Rotterdam in October, 2012. The workshop participants developed course materials, including slides, covering a series of selected key topics. Other experts and institutions, such as the European Medicines Agency (EMA), provided additional content for the course. The content package is customized for individual courses based on the length of time available and the audience. By the end of a Roadshow course the participants will 1) be able to describe how children handle medicines differently than adults; 2) recognize the need for appropriate formulations and data on doses, efficacy and safety to ensure high-quality drug therapy; and 3) be aware of the importance of clinical trials in providing children with better medications and for reducing pediatric off-label use.

A Roadshow course is delivered by two experts in pediatric clinical pharmacology either as a stand-alone course or as part of another meeting or congress. As GRIP covers all of the speakers' expenses, there is no cost to the host institution or society. The local organizers are responsible for advertising the course and registering participants. Local organizers are welcome to use the registration fees to help cover the costs associated with sponsoring the event.

Three Pilot Courses in 2013

The Roadshow concept was piloted in 2013. Dr. Marek Migdal organized the first one on February 25-26 in Warsaw, Poland. There were 38 participants. The tutors were Drs. Stephanie Laer, Secretary General of ESDP, from Dusseldorf, Germany and Saskia de Wildt from Rotterdam, Netherlands. The second Roadshow was held as a pre-congress Education Day in conjunction with the 14th Biannual ESDP Congress in Salzburg, Austria. The course was presented on June 4th, with approximately 60 participants. The tutors for this one-day course were Drs. John van den Anker, from Washington D.C., USA and Gregory Kearns, from Kansas City, Missouri, USA. In August, a Roadshow

Continued on page 59...

GRIP Training in Pediatric Clinical Pharmacology (continued)

Program of the GRIP Roadshow in Salzburg, Austria on June 4th, 2013

<u>Time</u>	<u>Topic</u>
9:00-9:30	Welcome and introduction to the course and to GRIP
9:30-10:00	General introduction to the theme of the course <ul style="list-style-type: none">• The concept of children as “Therapeutic orphans”• Off-label and unlicensed use of medicines in children• The pediatric initiatives (US, EU, WHO)
10:00-11:00	Basics of developmental/pediatric pharmacology <ul style="list-style-type: none">• Birth to adulthood, pharmacodynamics and pharmacokinetics• Considerations of dose calculation• Routes of administration in children
11:00-11:30	Break
11:30-12:00	Drug safety in children <ul style="list-style-type: none">• Are adverse effects more common or more rare in children?• Adverse effects related to or affecting growth and development• Dosing errors
12:00-12:30	Pharmacological aspects in case of severe disease in children in relation to the pharmacodynamics and pharmacokinetics
12:30-13:30	Lunch
13:30-14:30	Pediatric formulations <ul style="list-style-type: none">• Formulations most suitable for use in children• Considerations of excipients used in pediatric formulations• Extemporaneous formulations
14:30-15:00	When evidence is absent can we extrapolate data from adults to children or should we do clinical trials? <ul style="list-style-type: none">• Off-label or off-knowledge use of medicines?• Experimental therapy vs. clinical trials
15:00-15:30	Ethical aspects of drug research in children
15:30-16:00	Break
16:00-16:30	Understanding the basics of drug development in children <ul style="list-style-type: none">• Finding the right dose• Demonstrating efficacy• Demonstrating safety• Regulatory assessment and why it is important
16:30-17:00	What you need to know as an investigator of a pediatric clinical trial <ul style="list-style-type: none">• What is a good study and what is not• Good Clinical Practice (GCP)• Recruiting children for a study• Protocol deviations• Adverse Events
17:00-17:30	Questions and General Discussion
17:30-18:00	Summary and closing of the meeting (including evaluation)

GRIP Training in Pediatric Clinical Pharmacology (continued)



Tutors and participants at the first GRIP Roadshow in Warsaw, Poland, February 25-26, 2013. The tutors were Drs. Stephanie Laer, Kalle Hoppu, and Saskia de Wildt, who are seated in the front row from left to right, and Dr. Marek Migdal, who is standing furthest to the right.

was organized within the program of the International Congress of Pediatrics 2013 in Melbourne, Australia. Dr. Kalle Hoppu, from Helsinki, Finland and Gregory Kearns were the tutors. Approximately 70 to 80 individuals attended the entire course, with up to 130 present at any given time.

The participants were asked to assess the training in relation to the learning objectives. The results for those who returned the questionnaire after the Warsaw and Melbourne courses were as follows: for those who considered that the three main learning objectives were completely / somewhat achieved for learning objective 1: 60% / 40%, for learning objection 2: 80% / 20%, and for learning objective 3: 87% / 13%.

The experience gained from the three pilot courses has been invaluable, and encouraging, for both the participants and the tutors. As compared to a conventional course, which typically involves different speakers for each topic, the audience sees the Roadshow tutors more as teachers than simply speakers. The broad spectrum of topics covered by the tutors reinforces their expert status in the view of the participants.

Future Plans

Roadshows in France, Finland, Argentina and/or Chile, India and possibly South Africa and some Eastern European countries are being considered for 2014. The pool of tutors will have to be expanded to meet the growing demand for this course. While the GRIP project is scheduled to run through 2015, a one-year extension of this program is under consideration. If the Roadshow concept proves its value, it may be continued by ESDP and/or IUPHAR once GRIP support is terminated. IUPHAR member societies, particularly regional ones, interested in organizing a stand-alone Roadshow course or one in conjunction with their annual meeting are encouraged to contact the IUPHAR Office for further information. •

Kalle Hoppu
Chair, IUPHAR Section of Pediatric Clinical Pharmacology
Leader of GRIP WP1

See pages 16 and 26 for the WCP2014 symposia offered by the
IUPHAR Section of Pediatric Clinical Pharmacology!

News from the IUPHAR Section of Pharmacogenetics and Pharmacogenomics

Memorandum of Agreement between IUPHAR PGx and ESPT

In March 2013, Prof. Gérard Siest, President of European Society for Pharmacogenetics and Theranostics, and Ingolf Cascorbi, Chair of the IUPHAR Section of Pharmacogenetics and Pharmacogenomics, signed a memorandum of agreement to cooperate and collaborate on programs and activities of mutual interest.

2nd ESCPT conference, September 26-28, 2013, Lisbon, Portugal



The initial activity undertaken by these groups, and sponsored by IUPHAR, was the 2nd Conference of the European Society of Pharmacogenomics and Theranostics Pharmacogenomics “From Cell to Clinic”. This three day meeting was well organized and well

attended. Presentations covered a broad range of topics relating to pharmacogenetics, and included workshops describing new technologies. Five members of the society were invited to give oral presentations. Ann K. Daly, Newcastle, U.K, presented a talk entitled *Recent progress in molecular methods for pharmacogenomic studies* in which she highlighted intriguing findings on the association between drug-induced liver injury and the HLA-marker. Magnus Ingelman-Sundberg, Stockholm, Sweden, made a presentation entitled *Pharmacogenomics of endogenous metabolism and its implication for behaviour, psychopathology and treatment* which underscored the importance of CYP2C19 for proper brain development. In his presentation entitled *Prospective clinical trials on coumarin anticoagulant pharmacogenomics: The moment of truth*, Vangelis G. Manolopoulos, Alexandroupolis, Greece, outlined the EU-wide EUPACT consortium. It was announced that the results of this work will be presented in November 2013 at the American Heart Congress. Matthias Schwab, Stuttgart, Germany, gave a presentation entitled *The importance DNA methylation and its impact on transporter PGx* focusing on the human lactate transporter MCT4 in renal cancer and its consequences for clinical outcomes. Ingolf Cascorbi, Kiel, Germany, reported on *miRNA and its impact on ABC transporter-mediated drug resistance*, highlighting the interaction of miRNA with ABCC2 and ABCG2 expression and its differential influence on variant alleles. On the second day of the conference the IUPHAR PGx Section held a special workshop on *Global status of clinical implementation of pharmacogenomics: A brief survey*, which was underwritten by IUPHAR and the IUPHAR Clinical Division in order to highlight the role of PGx in clinical medicine. This workshop fostered a lively discussion among the speakers and attendees. In particular, Guilherme Kurtz-Suarez, Rio de Janeiro, Brazil, contributed to the discussion by outlining the situation in South America involving mixed populations. Conference participants came from both academia and industry. The aim of this workshop was to provide a brief overview of the symposium the PGx Section is planning to present during the 17th World Congress of Basic and Clinical Pharmacology in Cape Town in July, 2014.

Continued on page 62...

News from the IUPHAR Section of Pharmacogenetics and Pharmacogenomics

5th International Congress on Psychopharmacology



The 5th International Congress on Psychopharmacology (TAP-ICP) was held in Antalya, Turkey from October 30th to November 3rd, 2013. As in 2011, this congress was held under the auspices of IUPHAR. The IUPHAR PGx Section was kindly invited by Prof. Feyza Aricioglu, Marmara University, Istanbul, to organize a symposium on personalized medicine in psychiatry. The speakers were Professors Alessandro Serretti, Bologna, Italy; David Gurwitz, Tel Aviv, Israel; Ingolf Cascorbi, Kiel, Germany; and Julia C. Stingl, Bonn, Germany.

17th World Congress of Basic and Clinical Pharmacology (WCP2014)



The PGx Section is organizing two symposia during WCP2014. The first is entitled *Epigenetic regulation of drug metabolizing enzymes and transporters* (see page 16 for details) scheduled from 10:30 a.m. to noon

on Monday, July 14th. It will feature Ingolf Cascorbi, Magnus Ingelman-Sundberg and Igor Pogribny to address such aspects as DNA methylation and the role of microRNAs in the regulation of drug metabolism as well as the implications of modulation of gene expression by microRNAs. The second is entitled *Global PGx-based personalized medicine* and features perspectives from Julie Johnson (North America), Guilherme Kurtz-Suarez (South America), Collen Masimirembwa (Africa), Andrew Somogyi (Australia), Ingolf Cascorbi (Europe), Adrian Llerena (Global Health) and Vural Özdemir (Public Health). It will be held 3:30 - 5 p.m. on Wednesday, July 16th (see page 23 for details). Please add these symposia to your itinerary! •

Ingolf Cascorbi
Chair, Pharmacogenetics/genomics Section

Member Updates

A Galaxy of Pharmacologists and an Exhibition of Pharmacology



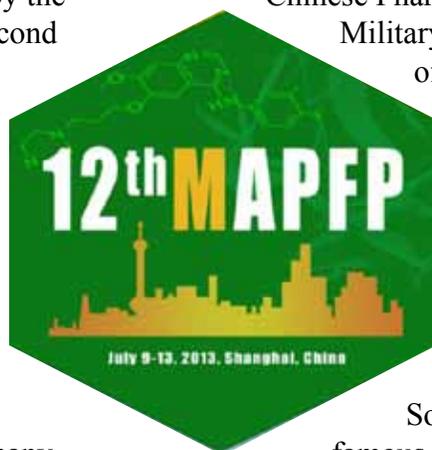
The 12th Meeting of the Asia-Pacific Federation of Pharmacologists Hosted by the Chinese Pharmacological Society

The 12th meeting of the Asia-Pacific Federation of Pharmacologists (APFP) was held in Shanghai, China, from July 9 to 13, 2013. It was sponsored by the the APFP, and co-sponsored by the Second Pharmacological Society. The chair Du, President of CNPHARS, enhance international collaborations discovery and development, to pharmacology instruction.

The meeting attracted over 1,200 Pacific rim countries, including Korea, Singapore, Thailand, invited experts from the USA, UK, were also in attendance. Among the many Prof. S. J. Enna, Secretary-General of IUPHAR, Prof. Douglas Oliver, Councillor of IUPHAR and President of the 17th World Congress of Basic and Clinical Pharmacology, Prof. John Miners, Councillor of IUPHAR, Prof. Akos Mathe, Vice-President of International

Chinese Pharmacological Society (CNPHARS) and Military Medical University and Shanghai of the meeting was Prof. Guan-Hua

The purpose of the meeting was to in pharmacology to facilitate drug improve clinical care, and to enhance



participants, mostly from Asian and China, Hong Kong, Taiwan, Japan, Malaysia, and Australia. Some South Africa, Hungary, and Belgium famous pharmacologists who were present were Prof. Masamitsu Iino, Vice-President of IUPHAR, Prof. Douglas Oliver, Councillor of IUPHAR and President of the 17th World Congress of Basic and Clinical Pharmacology, Prof. John Miners, Councillor of IUPHAR, Prof. Akos Mathe, Vice-President of International



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APFP Meeting

(continued)

Council for Medicinal and Aromatic Plants, Prof. Samuel HH Chan, President of APFP, Prof. Masayoshi Mishina, President-elect of APFP, Prof. Alastair Stewart, Secretary General of APFP, Prof. Wen-Chang Chang, Councillor of APFP, Prof. Peter Molenaar, Councillor of APFP, Prof. Supratra Srichairat, Councillor of APFP. Officials of CNPHARS who participated the meeting included Prof. Zhi-Bin Lin, Honorary President of CNPHARS and Councillor of APFP, Prof. Guan-Hua Du, President of CNPHARS and Councillor of APFP, Prof. Yong-Xiang Zhang, Secretary-General of CNPHARS and Councillor of IUPHAR, and the Vice-Presidents of CNPHARS, Prof. Jian Ding, Bao-Feng Yang, Xue-Jun Li, Xiu-Mei Zhang, Jun-Tian Liu, Wei Wei and Jian-Guo Chen.

The opening ceremony was held in the evening and presided over by Prof. Yong-Xiang Zhang, the Secretary-General of the meeting. Prof. Guan-Hua Du, the chair of meeting, delivered a welcoming speech on behalf of the meeting organizers, after which there were brief speeches by Prof. Samuel HH Chan, the President of APFP, Prof. S. J. Enna, Secretary-General of IUPHAR, and Prof. Ying-Hao Sun, the President of the Second Military Medical University. Subsequently all of the distinguished guests joined the meeting organizers on stage where they launched the fireworks, signaling the opening of the meeting. The meeting hall was filled with the sound of exploding fireworks, cheering and laughter. Colorful ribbons danced in the air. The atmosphere was very warm and cheerful. While brief, the opening ceremony was very moving and warmly received by the audience.



The meeting included 10 plenary lectures spanning two sessions (photograph above). Prof. S.J. Enna presented a lecture on GABA receptor allosterism; Prof. Samuel HH Chan reported on brain-derived neurotrophic factor (BDNF) as an endogenous antioxidant in animal models of disease; Prof. John Miners on the structure-function relationships of human UDP-glucuronosyltransferases: application of molecular,

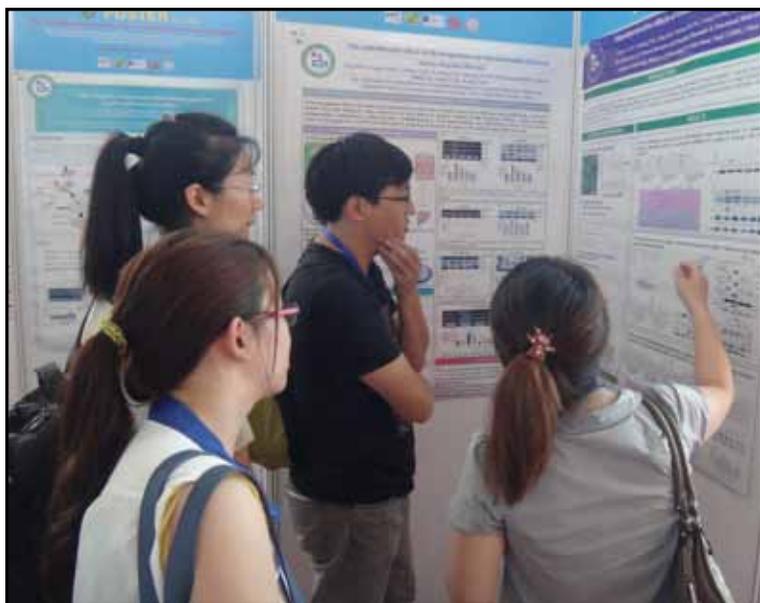
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APFP Meeting

(continued)

kinetic and computational modeling approaches; Prof. Douglas Oliver discussed guanidines pharmacology from molecule to primate; Prof. Jian-Guo Chen reported on how the stability of NR2B in the nucleus accumbens controls behavioral and synaptic plasticity adaptations to chronic stress and amphetamine; Prof. Masamitsu Iino reviewed his work on the regulation of cell functions by Ca^{2+} : From basic principles to therapeutic targets; Prof. David Webb presented a lecture on therapeutic target of endothelin and nitric oxide in hypertension and chronic kidney disease; Prof. Akos Mathe reviewed current trends in the study of MAPs and their clinical uses; Prof. Alastair Stewart reported on glucocorticoid insensitivity in chronic inflammatory diseases, and Prof. Min-Goo Lee presented work on human ABC transporters and pharmacogenomics. Others described their research in 12 symposia. Topics including antitumor pharmacology, neuropsychopharmacology, drug discovery and pharmaceutical screening, natural products and traditional medicines, therapeutic drug monitoring, chemotherapy, cardiovascular pharmacology, and drug metabolism.

Young scientists participated in oral presentation (photograph below) and poster session competitions (photograph at right). The winning entries, which were judged on the basis of the quality of the research, the clarity of the report, and responses to questions, were selected by a jury of senior scientists. There were ten winners selected from the oral competitions and 50 from the poster presentations. The awards were presented at the closing ceremony.



Two joint meetings were held during the 12th Meeting of APFP. These were the Second Joint Symposium on Pharmacology of Chinese Pharmacological Society and British Pharmacological Society (BPS), and the 2013 Joint Meeting of Pharmacology of Chinese Pharmacological Society and Hong Kong Pharmacology Society (HKPS).

Continued on page 66...



APFP Meeting

(continued)



BRITISH
PHARMACOLOGICAL
SOCIETY

During the CNPHARS-BPS joint meeting, 16 pharmacologists selected by CNPHARS or BPS made presentations on the themes of *State-of-the-art in mechanisms and treatments of neurodegenerative diseases* and *Recent advances in cardiovascular pharmacology*.

The presenters from China included Prof. Zhong Chen (*Histamine H3 receptor aggravates cerebral ischemic injury by non-histaminergic mechanisms*), Prof. Lin Li (*Beneficial effects of tetrahydroxy-stilbene glucoside on multiple targets of Alzheimer's disease*), Prof. Jia-Wei Zhou (*The role of astroglia in Parkinson's disease*), Prof. Lan Zhang (*Beneficial effect of cornel iridoid glycoside on neural protection and regeneration*), Prof. Yi-Fan Han (*Neuroprotection through multiple targets by novel anti-Alzheimer's dimers derived from Chinese medicines*), Prof. Rong-Biao Pi (*Evaluation of tacrine-caffeic acid heterodimers as multi-targeted anti-Alzheimer's disease agents and the mechanism of anti-oxidative stress*), Prof. Bao-Feng Yang (*Role of microRNAs in heart diseases and translational research*), Prof. Yong Ji (*Gas molecules as regulators in cardiovascular pharmacology*), Prof. Yu Huang (*Vascular oxidative stress against nitric oxide bioavailability*), Prof. Xue-Jun Li (*Autophagy mediates the cytoprotective mechanism of polyphenols*), and Prof. Jun Peng (*Phosphorylation of nuclear myosin II and myocardial ischemia-reperfusion oxidative injury*). Those from the United Kingdom were Prof. Mimoun Azzouz (*Prospects for success in gene therapies for motor neuron diseases*), Prof. Sandor Kantor (*Sleep and EEG as biological markers in animal models of Huntington's disease*), Prof. Ruth Luthi-Carter (*Merging multi-modal 'omics data to benefit drug discovery*), Prof. Derek Terrar (*Calcium signalling in the heart and its regulation by endogenous mediators*), and Prof. Xin Wang (*Exploring therapeutic potential of the immunomodulator fingolimod (FTY-720) for treating cardiac hypertrophic remodeling*). By promoting this exchange of information on neurodegenerative and cardiovascular diseases between Chinese and British pharmacologists, this meeting created opportunities for future collaborations between the CNPHARS and the BPS.



HONG KONG PHARMACOLOGY SOCIETY
香港藥理學學會

The 2013 joint meeting of CNPHARS and the Hong Kong Pharmacology Society was designed to encourage communication and collaboration among young mainland pharmacologists and those in Hong Kong. A young investigator oral presentation competition was held during the meeting. Of the 14 Ph.D. students selected to compete, six won awards for best presentations. Both societies believe the development of pharmacology in China will be facilitated by strengthening the research bond between young scientists on the Chinese mainland and in Hong Kong.

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APFP Meeting

(continued)



Also held during the CNPHARS meeting were the 17th Servier-CNPHARS Outstanding Young Pharmacologist Award (photograph above) and the 2013 CNPHARS Outstanding Young Pharmacologist Award ceremonies. The CNPHARS meeting succeeded in encouraging communication and collaboration among basic and clinical pharmacologists in the Asia-Pacific region. The meeting fostered a lively exchange of ideas, and provided an excellent platform for the presentation of research results and new techniques in pharmacology. Feedback from the delegates indicated the meeting was a great success that contributed greatly to the advancement of pharmacology worldwide. It was agreed that the momentum generated by this event must be maintained by more frequent communication among scientists and by further interactions at similar types of productive, high level conferences. •

Yong-Xiang Zhang
Secretary, CNPHARS and Councillor, IUPHAR



The APFP closing and award ceremony



THE 75TH ANNIVERSARY OF THE ITALIAN SOCIETY OF PHARMACOLOGY

The 75th anniversary of the Italian Society of Pharmacology (SIF: Società Italiana di Farmacologia) will be on December 22nd, 2014. On that day in 1939, royal decree no. 2162 (at that time Italy was a kingdom) was issued and officially established the Society. The first congress was held in Florence a year later on December 20th - 22nd, 1940. The 75th birthday was celebrated at the 36th biannual National Congress in Turin on October 23rd - 26th, 2013.

We are grateful to IUPHAR for offering us the opportunity to share the celebration with our sister pharmacology societies. Only the American, German and British pharmacological societies are older than the Italian Society. In 1939 a small group of Italian pharmacologists, led by Gaetano Vinci, of the University of Messina and a member of the Italian Senate, launched SIF. Professor Vinci was elected the first president of the Society. At that time the founding members declared that “the time had come for the Italian pharmacologists to recognize themselves as a family with a uniformity of scientific interests and a spirit of true collegial friendship”. The Society was born at a difficult time inasmuch as World War II had begun a few months earlier. Moreover, the Fascist regime had imposed limitations with regard to foreign travel and contacts with foreign colleagues, causing cultural and scientific isolation. Nevertheless, the SIF founders were optimistic and determined, holding the second and third congresses as scheduled in 1942 and in 1944 despite the war. Indeed, the 1944 congress was held in Florence shortly after the city was liberated from the German army.

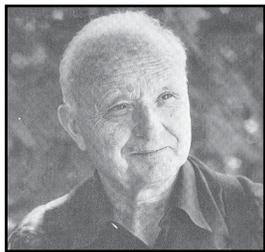
While there were approximately 50 original members, after the war and reconstruction the membership grew to 200 in 1963, 550 in 1974, then 1,075 in 1994. Today, there are about 1,200 members. The bylaws were modified over the years in response to the growth of the Society and to adapt to changes in academia, industry and the healthcare system. The Society is administered by a President, presently Professor Francesco Rossi, Second University of Naples, who is assisted by the Past President, Professor Pier Luigi Canonico, University of Eastern Piedmont, Novara and the President-Elect, Professor Giorgio Cantelli Forti, University of Bologna, as well as a Secretary and a six-member Executive Council. The President is elected for a 2-year term. The presidents who served over the past decade were the Professors Vincenzo Cuomo (1999-2003), Rome University “La Sapienza”, Gian Luigi Gessa (2003-2005), Giovanni Biggio (2005-2007), University of Cagliari, and Achille Caputi (2007-2009), University of Messina. The Society maintains a permanent office in Milan that is managed by an administrative secretary. Society revenues are derived from membership dues, corporate contributions, and profit from courses and meetings. A large portion of the annual budget is invested in fellowships and travel grants for doctoral students and postdoctoral fellows.



THE 75TH ANNIVERSARY OF THE ITALIAN SOCIETY OF PHARMACOLOGY

(continued)

At its first Congress, the Society adopted as its official journal the existing *Archivio Italiano di Scienze Farmacologiche*, which was founded in 1932. As it was published only in Italian, it had limited distribution. Some members published their work in foreign journals, mainly the *Archiv für Pathologie und Experimentelle Pharmacologie*, the *Archives Internationelles de Pharmacologie et Pharmacodynamie* and, rarely, in the *Journal of Pharmacology and Experimental Therapeutics*. The *Archivio* was discontinued in 1969 and replaced by *Pharmacological Research* (for more information please visit http://www.sifweb.org/ricerca/pharm_res.php), which is published in English.



The comparison of the proceedings of the first SIF congress held in 1940 with the program of the 36th Congress in 2013 demonstrates clearly the growth of the Society and the changes in the field over the past seven decades. Thus, the first congress included two lectures and 46 oral presentations. Only the lecture presented by Professor Vittorio Erspamer (photograph at left), the discoverer of serotonin with Irvine H. Page, and of many pharmacologically active peptides from amphibian skin, reached an international standard and is still interesting to read because of its remarkable insights.

At the 2013 Congress there were two guest lectures, 41 symposia, 20 sessions of oral presentations, many workshops, and hundreds of posters. Because of attendance by foreign colleagues, many presentations were in English. Topics like “personalized medicine,” economic sustainability of pharmacological treatments, clinical pharmacology, public health and nanomedicine demonstrate the breadth of Society interests in the 21st century. From a learned society focused on the dissemination of experimental results, the SIF has evolved into one that provides a forum for the presentation of high quality experimental results and for discussion of issues associated with drug development and the use of therapeutics within the context of the national health system.



The pre- and post-doctoral students who received an award at the National Congress of the Society, held in Turin on October 23rd - 26th, 2013.

The SIF was significantly affected by the extraordinary economic, social, and cultural changes that occurred in Italy for several decades after the war. During this time Italian universities increased in size and number, and more money was invested in research, although the amount of funding never matched the amount needed to support all the worthwhile studies. Many PhD students and postdocs went abroad for study, mostly to the United States. Those who returned to Italy introduced new ideas and new laboratory techniques. They also brought a new management style to the stagnant Italian university system, helping it to shed its provincial atmosphere. Two Nobel laureates, Daniel Bovet and Ernst Chain, were appointed as Chief of the Laboratory of Therapeutic Chemistry and of the Center of Microbiological Chemistry, respectively, at the Istituto Superiore di Sanità, Rome. Their presence was inspiring and encouraging for young Italian pharmacologists. The expansion and success of the international and Italian pharmaceutical industries also help grow the SIF by providing financial support for young graduates, university grants, and by helping to foster a stimulating scientific environment.

In September 1968, the 1st Joint Meeting with the British Pharmacological Society, considered a model to imitate by the young Italian pharmacologists, was held in Florence. For the first time at a SIF meeting, the presentations

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THE 75TH ANNIVERSARY OF THE ITALIAN SOCIETY OF PHARMACOLOGY (continued)

were selected by referees and presented in English. Between 1968 and 2003 there have been 24 joint meetings held with the French, German, Dutch, Belgian, Scandinavian, Polish, and Hungarian societies. These gatherings have created a large network of scientific collaborations, and helped stimulate the creation of the Federation of European Pharmacological Societies (EPHAR), which is presently chaired by Professor Filippo Drago, Catania University.

The SIF joined IUPHAR early and has been continuously involved in IUPHAR activities. Professors Rodolfo Paoletti and Paolo Preziosi served as IUPHAR councillors in 1975 - 81 and 1994 - 98, respectively. Professor Giancarlo Pepeu was elected auditor 1998 - 2000, and Professor Gian Paolo Velo of Verona and Professor Emilio Perucca of Pavia served as councillors of the IUPHAR Clinical Division from 1992 - 2000 and 2000 - 2008, respectively. Professor Velo, together with Professor Pepeu, organized the 7th World Conference on Clinical Pharmacology & Therapeutics in Florence in 2000.

The SIF website, <http://www.sifweb.org>, provides details on the organization of the Society, which includes a Division of Clinical Pharmacology. The SIF fosters scientific interactions among its members through ten working groups, covering virtually all aspects of pharmacology. The Society supports young pharmacologists with travel fellowships and grants and assists them in identifying job opportunities. The SIF collaborates with public authorities and private organizations in disseminating expert opinions on drug efficacy and side effects. In this regard, the Society also oversees a website on pharmacovigilance, <http://www.farmacovigilanza.org>, which is very popular among general practitioners. The SIF activities are regularly announced in *Quaderni della SIF*, a quarterly magazine, and in three on-line publications: the weekly *SIF Newsletter*, the bi-weekly *Drugs in Evidence*, and a *Pharmacogenetics Bulletin*. The Society sponsors and awards prizes for the best publications in different areas of pharmacology. These awards are funded by the Association of Pharmaceutical Industries (Farmindustria), pharmaceutical companies and private foundations. Besides its biennial National Congresses, the Society organizes small meetings on specific topics. In addition, since 1997 it has hosted an annual National Seminar for PhD students of pharmacology and related disciplines in which they have an opportunity to present and discuss their research with each other and their tutors.

Since its founding, the Society's scientific activities have been summarized in three articles: "La Ricerca Farmacologica Italiana 1930 - 40, 1946 - 68, and 1968 - 90" by Giancarlo Pepeu in *Quaderni della SIF*. These historical summaries, which are written in Italian, are available on the Society's website. Most members are active and publish regularly in journals of pharmacology and related disciplines such as neuroscience, molecular biology, and biochemistry.

Up to now the European economic crisis, which for many reasons is more severe in Italy than in other countries, has not affected Society activities. However, because there is now less public and private funding for research, young scientists are being discouraged from pursuing their profession. Thus, as compared to earlier times there are fewer new university and industrial positions for pharmacologists. For this reason many leave Italy in search of opportunities. Thus, the Society is celebrating its 75th birthday in challenging times. However, as the need for new medications will grow, there is no doubt that Italian pharmacology will weather the current storm in paving the way for a gala celebration of its 100th anniversary in 2039. •

Giancarlo Pepeu
SIF President 1995 - 1999



2014 Anniversaries

IUPHAR congratulates these member societies on their Milestone Anniversaries:

Italian Society of Pharmacology
1939 - 2014

Czech Society for Experimental
and Clinical Pharmacology and Toxicology
1959 - 2014

Slovak Pharmacological Society
1959 - 2014

American College of Clinical Pharmacology
1969-2014

Indian Pharmacological Society
1969 - 2014

Portuguese Society of Pharmacology
1969 - 2014

Canadian Society of
Pharmacology and Therapeutics
1974 - 2014

Croatian Pharmacological Society
1979 - 2014

Hellenic (Greek) Society of Pharmacology
1984 - 2014

Serbian Medical Society
Section on Clinical Pharmacology
2009 - 2014



Dear Colleague,

On behalf of the International Union of Crystallography (IUCr), we are pleased to invite you to attend the official Opening Ceremony of the International Year of Crystallography (IYCr2014), which will take place at UNESCO Headquarters in Paris on 20 and 21 January 2014. The IUCr and UNESCO are leading the celebration of IYCr, which was proclaimed by the United Nations General Assembly in July, 2012.

The Opening Ceremony will provide an exciting opportunity to demonstrate the many aspects of crystallography. Events planned for the Ceremony include presentations, a round-table discussion involving young crystallographers and an exhibition. Full details of the programme may be found at <http://www.iycr2014.org/opening-ceremony>.

We hope that you will be able to join us for the Opening Ceremony. Note that registration for the event is free, but as places are limited, entry will be assured only by prior registration. We invite you, therefore, to register for the Opening Ceremony by visiting <http://www.iycr2014.org/registration>. The deadline for registration is 3 November 2013.

Finally, please feel free to extend this invitation to one accompanying person (note that a registration form should also be completed for this person). If you have any problems with the registration procedure, please contact the International Basic Sciences Programme of UNESCO at iycr2014@unesco.org.

Yours sincerely,

Michael H. Dacombe
Executive Secretary

and

Michele Zema
Project Manager for the
International Year of Crystallography 2014

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<http://www.iucr.org>
<http://www.iycr2014.org>
<https://www.facebook.com/iycr2014.org>



❖ **The training course will take place at the Hotel Dubrovnik, Zagreb**

❖ **Time**

The course will start on 03 April at 08.30 through to 17.00 and continue on 04 April at 09.00 through to 17.00 (1 hour lunch)

❖ **Practical information, Programme and Registration forms** available from the ISoP Administration office:

ISOP SECRETARIAT LTD
140 Emmanuel road
London SW12 0HS – UK
Tel/Fax: +44 (0)20 3256 0027
e-mail: administration@isoponline.org
website: www.isoponline.org

The International Society of Pharmacovigilance, an international non-profit scientific society, gratefully acknowledges assistance from the Agency for Medicinal Products and Medical Devices of Croatia (HALMED) as partner co-organizer.

ISoP Training Course Zagreb 03-04 April 2014

Proactive Pharmacovigilance and Risk Management in the Era of Personalised Medicines



First Announcement

ISoP training course – Zagreb, 03-04 April 2014 Proactive Pharmacovigilance and Risk Management in the Era of Personalised Medicines

Recent changes in the pharmacovigilance legislation in various regions in the world have introduced mandatory elements to pharmacovigilance practice, some of which are new, others, still existing, have been developed further.

In this advanced two day-seminar, two important elements will be elucidated, with a focus on proactive risk management and the role of rapidly evolving pharmacogenomics in pharmacovigilance.

The training course will be offering opportunity for open discussions and thoughts on how to fill empty spaces in good pharmacovigilance practice.

There will be ample opportunity to exchange views and ideas in discussions both following individual presentations, after the panel discussion at the end of the seminar, and during coffee breaks.

This course is targeted at regulators, scientists and industry, with a strong focus on practical examples and real-life solutions.

The faculty for this course consists of international experts in pharmacovigilance, representing government, academia, and industry.

The programme will include the following topics:

- Medical assessment of adverse drug reactions (ADRs)
- Evaluating and minimising risk and medication errors through RMPs, PASS and other activities in the post-authorisation phase
- Risk minimisation measures in Risk Management Plans (RMP); selection of tools and effectiveness indicators, and communication
- Evaluation of Post-Authorisation Safety Studies (PASS)
- Best practice of literature assessment as an everyday practice in pharmacovigilance
- Medication errors: definition, reporting and assessment
- The safety of the individual patient and how will pharmacovigilance respond to new drug developments
- Pharmacogenomics and safety of drugs
- The role of patient groups in pharmacovigilance
- Establishing a benefit-risk balance in orphan drugs

This course is organized in the historic city of Zagreb, capital of the newest member of EU, Croatia.



11th Meeting of the International Society for Serotonin Research



WCP2014 Satellite: A Serotonin Safari

Arabella Hotel and Spa, Kleinmond,
Hermanus, Western Cape, South Africa

July 9-12th, 2014

We are in the midst of planning the next International Society for Serotonin Research meeting to be held July 9-12, 2014 at the Arabella Hotel and Spa in South Africa (<http://www.africanpridehotels.com/hotels/Pages/arabella-hotel-spa.aspx>). Arabella is a beautiful estate located about an hour (60 miles, 100km) from Cape Town International Airport (CPT).

“Arabella Hotel & Spa rests in the heart of the Kogelberg Biosphere Reserve. Hugged by the Rooisands Nature Reserve, the Bot River Lagoon and Kogelberg Mountains, every room leads to a private terrace or balcony overlooking pristine grounds, swimming pool, mountain views or lagoon waters. The hotel offers a variety of elegant restaurants and bars to indulge even the most discerning palate with fine cuisine and wine. Leisure facilities include a heated indoor hydro pool, sauna, and an award-winning spa. Beyond the walls of this five-star retreat, you're spoilt for choice with activities, such as kayaking at sea, horseback rides through the shore and golf at the prestigious Arabella Golf Course, to name a few.”

The local organizing committee (LOC), composed of Professor Brian Harvey (chair), Professor Sandra van Dyk, Mr. De Wet Wolmaran, Professor Soraya Seedat, Dr. Sian Hemmings and Mr. Jacques Joubert, is doing a fantastic job. The meeting will be comprised of 15 symposia in a single session format (see listing below), a full session devoted to our Young Investigators (NIDA Travel Awardees- i.e., graduate students, post-doctoral fellows and early-stage investigators) and an evening poster session. In addition, we are very pleased to announce that the honorary Irvine Page plenary lecture will be given by Professor Herbert Meltzer (Northwestern University, USA) and the honorary Maurice Rapport plenary lecture will be given by Professor Charles Marsden (University of Nottingham, UK). In addition to the Gala dinner, the LOC is in the process of planning some wonderful evening social events, including the opening reception and a wine tasting. The opening reception will be the evening of Wednesday, July 9, with full day sessions July 10, 11 and 12. To close the meeting, the Gala dinner will be held the evening



of Saturday, July 12. The 2014 meeting website is currently under construction and we plan to have travel, hotel and touring information available by the end of October, 2013. We expect that meeting registration and abstract submission for poster presentations to “go live” in early January, 2014. In the interim, please see our Society website (<http://www.serotoninclub.org>) for updates.

*The Congress venue offers an African ambience
with the feel of open space in the interior.*

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“A Serotonin Safari”: July 9-12, Arabella, South Africa

“Serotonin neurons come of age with 5-HT_{1A} receptor function”

Chair: Dr. Sheryl Beck, *Univ Pennsylvania, USA*;
Co-Chair: Dr. Evan Deneris, *Case Western Reserve, USA*
Speakers: Dr. Sheryl Beck, Dr. Evan Deneris and Dr. Rodrigo Andrade
(Wayne State Univ, USA)

“Cell-type dissection of the serotonergic system and of its developmental targets”

Chair: Dr. Alexandre Dayer, *University of Geneva, Switzerland*
Speakers: Dr. Alexandre Dayer, Dr. Philippe Marin (*Univ Montpellier, France*)
and Dr. Patricia Gaspar (*Institut du Fer a Moulin, INSERM, Univ Paris, France*).

“Serotonin: a new hope in Alzheimer’s disease?”

Chair: Dr. Sylvie Claeysen, *Montpellier University, France*;
Co-Chair: Prof. Joel Bockaert, *Montpellier University, France*
Speakers: Dr. Sylvie Claeysen, Dr. Christophe Arbus (*Toulouse Univ, France*) and Dr. John Cirrito (*Washington Univ, USA*).

“The 5-HT_{2C} receptor at the interface of obesity and addiction”

Chair: Dr. Harriët Schellekens, *Univ College Cork, Ireland*;
Co-Chair: Prof. John F. Cryan, *Univ College Cork, Ireland*
Speakers: Dr. Lora Heisler (*Cambridge Univ, UK*), Dr. Guy Higgins (*Univ Toronto, Canada*) and Dr. Harriët Schellekens

“Serotonylation: regulation in diverse systems from tetrahymena to mammalian brain”

Chair: Dr. Nancy Muma, *Univ Kansas, USA*
Speakers: Dr. Nancy Muma, Dr. Diego Walther (*Max Planck Institute, Germany*) and Dr. Patrick Schoss (*Zentralinstitut für Seelische Gesundheit, Germany*)

“Serotonin, a modulator of innate immune cells”

Chair: Dr. Luc Maroteaux, *Institut du Fer a Moulin, INSERM, Univ Paris, France*
Speakers: Dr. Angel Corbi (*Consejo Superior de Investigaciones Cientifica, Spain*) Professor Josef Priller (*Charite Univ, Germany*) and Dr. Anne Roumier (*Institut du Fer a Moulin, INSERM, Univ Paris, France*)

“New contributions of serotonin receptors and their molecular networks in synaptogenesis, degeneration and addiction”

Chair: Prof. Valérie Compan, *Univ Montpellier, France*
Speakers: Dr. Evgeni Ponimaskin (*Medical School Hanover, Germany*), Dr. Veronique Sgambato-Faure (*CNRS, France*) and Dr. Valerie Compan

“Serotonin, cortical microcircuitry and cognition”

Chair: Prof. Trevor Sharp, *Oxford, UK*; Co-Chair: Dr. Connie Sanchez-Morillo, *Lundbeck Research, USA*
Speakers: Dr. Guadalupe Mengod (*Barcelona, Spain*), Dr. Victoria Puig (*MIT, USA*) and Dr. Judith Homberg (*Nijmegen, The Netherlands*).

“From Optogenetics to the Microbiome: Emerging strategies to understand the role of 5-HT in anxiety and addiction”

Chair: Dr. Andrew Holmes, *NIAAA, NIH, USA*
Speakers: Dr. Andrew Holmes, Dr. Nicolas Singewald (*Univ Innsbruck, Austria*), and Prof. John Cryan (*Univ College Cork, Ireland*).

“Fast Measurements of Serotonin in Brain - Implications for Psychiatric Disease and Drug Abuse”

Chair: Dr. Lynette Daws, *Univ Texas Health Science Center San Antonio, USA*; Co-Chair: Dr. Anne Andrews, *UCLA, USA*
Speakers: Dr. Lynette Daws, Dr. Katie Ann Jennings (*Oxford, UK*) and Dr Parastoo Hashemi (*Wayne State Univ, USA*)

“Serotonin and schizophrenia”

Chair: Dr. Maarten van den Buuse, *Univ Melbourne, Australia*;
Co-Chair: Dr. Herb Meltzer, *Northwestern Univ, USA*
Speakers: Prof. Kevin Fone (*Univ Nottingham Medical School, UK*), Dr. Maarten van den Buuse and Dr. Mark Geyer (*UCSD, USA*)

“Novel insights into serotonin receptor structure and function”

Chair: Prof. Finn Olav Levy, *Univ Oslo, Norway*
Speakers: Prof. Joel Bockaert (*Univ Montpellier, France*), Dr. Kjetil Andressen (*Univ Oslo, Norway*) and Mr. Daniel Wacker (*Scripps Research Institute, USA*)

“Drug addiction and impulsivity: is serotonin involved?”

Chair: Dr. Athina Markou, *UCSD, USA*;
Co-Chair: Dr. Kathryn Cunningham, *Univ Texas Med Branch, USA*
Speakers: Dr. Kathryn Cunningham, Dr. Athina Markou and Dr. Trevor Robbins (*Cambridge Univ, UK*)

“5-HT receptors: from function to structure and back”

Chair: Prof. Dan Hoyer, *Univ Melbourne, Australia*;
Co-Chair: Prof. Nicholas Barnes, *Univ Birmingham, UK*
Speakers: Prof. Dan Hoyer, Prof. Sarah Lumis (*Univ Cambridge, UK*) and Dr. John McCorvy (*UNC-Chapel Hill, USA*)

“The role of serotonin systems in the adverse neuropsychiatric side effects and recreational use of HIV-1 antiretroviral drugs”

Chair: Dr. John Schetz, *Univ North Texas Health Science Center, USA*
Co-Chair: Dr. Charles France, *Univ Texas Health Science Center San Antonio, USA*
Speakers: Dr. John Schetz, Dr. Javier González-Maeso (*Mount Sinai School of Medicine, USA*) and Dr. Charles France



INVITATION

METHODS 2014

INTERNATIONAL SYMPOSIUM ON METHODS FOR STUDYING DRUG
METABOLISM AND TRANSPORT AND HERBAL DERIVED MEDICINES
10 - 11 JULY 2014

The International Symposium on Methods for Studying Drug Metabolism and Transport and Herbal Derived Medicines (Methods 2014) will be held in Cape Town, South Africa, from 10 to 11 July 2014. It is a satellite symposium to the 17th World Congress of Basic and Clinical Pharmacology (WCP2014) which will begin later in the week. More details can be obtained at the symposium website: www.methods2014.org.

This will be an exciting moment during which world-renowned experts will share their experiences in a collegial atmosphere with the overall aim of building capacity through skills transfer. With the help of a well-constituted International Scientific Committee, the Methods 2014 Organising Committee has assembled an outstanding programme featuring internationally recognised experts who are at the forefront of their respective research areas.

We recognise that "Methods" are the driver for research and drug discovery. With advancing technology, the scientific methods are changing at a faster rate and this calls for frequent reappraisal. Therefore, under the theme "**Rallying for Quality, Safe and Effective Medicines**", the symposium will introduce this scientific gathering to new developments in the relevant scientific research methods used to study drug metabolism and transport, and in the development of herbal derived medicines.

We are excited not only because this is the first event of its kind in Africa, but also because so many world experts have accepted our invitations to share their expertise on our soil. Furthermore, this gives us an opportunity to celebrate the success of efforts by organisations such as the IUPHAR section on Drug Metabolism and Transport, the International Society for the Study of Xenobiotics (ISSX), and the African Institute of Biomedical Science and Technology (AIBST) in promoting drug metabolism research in the region. Specifically, the African Society for Drug Metabolism and Development (ASDMD, www.asdmd.org) was formed through such efforts.

A warm welcome and an exhilarating social programme await you, and the people of South Africa and the host city of Cape Town anticipate your arrival. We hope that this will be a memorable meeting and we look forward to welcoming you to Cape Town.



Prof Andrew Walubo
Symposium CHAIR



ASDMD (www.asdmd.org)
THE AFRICAN SOCIETY FOR DRUG METABOLISM AND DEVELOPMENT
"Striving for Drug Efficacy, Safety and Availability"

REGISTRATION INFORMATION

REGISTRATION FEES	
Standard Delegate Registration Fee (before 15 May 2014)	ZAR 2,750.00
Late Delegate Registration Fee (after 15 May 2014)	ZAR 3,250.00
Delegate Registration Includes <ul style="list-style-type: none">• Access to all Symposium sessions Thursday - Friday• Tea breaks and lunches on all Symposium days• Methods 2014 documentation	Excludes <ul style="list-style-type: none">• Accommodation costs• Travel costs• Travel insurance

CALL FOR POSTERS

SUBMISSION OF POSTER INFORMATION

Participants are welcome to submit original research-related abstracts for poster presentations only. Oral abstracts will be from the invited speakers. Abstracts are subject to peer-review for quality research, scientific content and logical presentation. The deadline for submission of abstracts is **28 February 2014**.

Authors chosen for a poster session will be given at least a full day to display their poster. Posters will be displayed in the foyer of the symposium venue, where refreshments will be served. During poster sessions, the authors of the posters will be required to be available for discussion of their work.

ABSTRACT SPECIFICATIONS

Abstracts must contain 4 sections:

- OBJECTIVE:** introductory sentence indicating the objective and purpose of the study.
- METHODS:** description of experimental procedures, including applicable statistical evaluation.
- RESULTS:** summary of the data and results.
- CONCLUSIONS:** statement of the study's conclusions.
 - Abstracts should be written in **English**.
 - Abstract title should be given in UPPER CASE. The title should define the topic and contain no abbreviations.
 - In the body of the abstract, standard abbreviations need not be defined; other abbreviations and acronyms should be defined on first use.
 - Generic names for pharmaceuticals, biologics and medical devices should be used in place of trade names. Trade names should only be used if equivalent products from multiple manufacturers are being compared.
 - Capitalise all trade names.
 - Italicise scientific names.
 - Overly commercial abstracts will not be accepted.
 - Do not include graphics, photographs or tables.
 - Maximum word count for the body of the abstract is 250 words (2000 characters).
 - Submissions may have up to six authors. The lead author's name should appear first and will be the author that is corresponded with.
 - The institutional and professional affiliations of all authors will be required.

SUBMISSION INSTRUCTIONS

- Prepare your abstract to the above specifications.
- Access the submission site via the symposium website: www.methods2014.org

SYMPOSIUM WEBSITE

www.methods2014.org

Methods 2014 Symposium Secretariat

African Agenda

Tel: +27 (0)21 683 2934 Email: info@methods2014.org



IMPORTANT DATES

- Registration opens **August 2013**
- Submission site opens **August 2013**
- Deadline for submissions **28 February 2014**
- Notification of acceptance **March 2014**
- End of early registration discount **15 May 2014**
- Methods 2014 **10-11 July 2014**

PROVISIONAL PROGRAMME

www.methods2014.org



VENUE AND ACCOMMODATION

NH The Lord Charles Hotel is a luxurious 4-star hotel in Somerset West that offers 197 comfortable and well-equipped, air-conditioned guestrooms. It also offers internet by wireless or dial-up access and currency exchange facility.

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RAAS Satellite Meeting 2014

11-12 July

Spiers Wine Estate, Cape Town
South Africa



1st Announcement

Emerging trends in the pharmacology of drugs for hypertension and heart failure with a special focus on the RAAS

Topics:

- Metabolic aspects of ischemia and heart failure
- Novel interventions for heart failure
- Hypertension: Molecular mechanisms and interventions
- Therapeutic interventions involving AT2 receptors
- Targeting aldosterone in hypertension and heart failure
- Therapeutic interventions involving ACE2 and angiotensin (1-7)
- Clinical aspects of the RAAS

Speakers:

Jan Danser (Erasmus MC), **Faadiel Essop** (University of Stellenbosch), **Gavin Norton** (University of Witwatersrand), **Lionel Opie** (University of Cape Town), **Kathy Rodgers** (University of Southern California), **Robson Santos** (Federal University of Minas Gerais), **Karen Sliwa** (University of Cape Town), **Colin Sumners** (University of Florida), **Muscha Steckelings** (University of Odense), **Rhian Touyz** (University of Glasgow), **Rob Widdop** (Monash University), **Angela Woodiwiss** (University of Witwatersrand)

For further information contact the RAAS Meeting Office 2014 • Tel: +27 (0)21 7120571

• Fax: +27 (0)866 82 8882 • email: raas2014@eventmanagementsolutions.co.za

website: <http://raassatellite2014.org>



Official WCP 2014 Satellite Meeting



Are you passionate
about education
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Join us for the IUPHAR-Ed Pharmacology Education Satellite Meeting in Cape Town (South Africa) - 12 & 13 July 2014

Key topics to be covered include:

- Flipped lectures
- Students as agents of change
- Faculty development
- Novel assessment solutions
- Inter-professional education
- Pharmacology education in Africa
- Internet-based education solutions

Share your experience and research with us in a relaxed and informal atmosphere! Apply for Early Educator Awards in Basic, Clinical and Trans-disciplinary Pharmacology.

For more information and registration details visit our website at www.iuphar-ed2014.org



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www.iuphar-ed2014.org

REGISTER NOW for WCP2014 in Cape Town



We now invite you to share your pharmacology with us and to enjoy a truly African and South African experience in Cape Town.

Pharmacology
International

December 2013



The 17th World Congress of Basic and Clinical Pharmacology (WCP 2014) is now only months out, and registration and abstract submissions opened in August 2013. WCP2014 is overwhelmed with global support, including interest from eminent groups to hold satellite meetings, and special interest to support participation by African pharmacologists and more. Of note is that the young pharmacologists of the British Pharmacology Society have been selling T-shirts to support African Pharmacologists to attend WCP 2014.

Now we all look forward to the first ever IUPHAR World Congress on the African continent in Cape Town. The mother city of South Africa, is a world-class city that beats to the pulse of Africa - a place where service and world class meeting facilities converge with excellent infrastructure and support systems – the ideal location for hosting IUPHAR in 2014. And do not forget the destination, the tours, the safaris, and the warm-hearted people. Cape Town has unparalleled natural wonders, set on a peninsula of rocky heights, lush valleys and oceans. Table Mountain, named one of the New 7 Wonders of Nature in 2012, a plethora of pristine beaches

and famed Cape flora are only minutes away from the Cape Town International Convention Centre (CTICC), the venue of WCP 2014. “Pharmacology at the cutting-edge” will combine basic and clinical as well as translational pharmacology, addressing the health care challenges of our world as the theme of the 17th World Congress from the 13-18 July 2014.

The exceptional scientific programme, along with satellite meetings and training of next generation scientists, will bring world renowned speakers and delegates to Africa, deliberating medicines, diseases and therapeutics of critical importance such as oncology, immunology HIV/AIDS and other infectious diseases, diseases of lifestyle, pharmacology of the brain, regulatory and translational pharmacology and cutting-edge discoveries in pharmacology.

We started down this road some time ago and have travelled the continents of our world with a vision to unite the pharmacologists across the globe. We look forward to welcoming you in Cape Town.
Vanessa Steenkamp
Chair: Marketing Committee



James Black Conference: Adrenoceptors and GPCRs where is structure leading?

19—23 July 2014, Mopani Lodge, Kruger National Park, South Africa
Satellite symposium to the World Congress of Pharmacology (WCP) 2014, incorporating the Ninth IUPHAR Adrenoceptor Symposium.

Major Sponsors: National Research Foundation of South Africa and the British Pharmacological Society

Organizers: Professor Robert Millar, robertpetermillar@gmail.com Universities of Cape Town, Pretoria and Edinburgh; Professor John McGrath, ian@mcgrath.org.uk Universities of Glasgow and Sydney; Professor Mika Scheinin, mschein@utu.fi University of Turku, Finland; Dr Richard Bond, RABond@uh.edu University of Houston, USA

Theme: Where does the revolution in adrenoceptor structure and signalling take physiology, pharmacology and therapeutics?

Programme: Several sessions of the WCP will explore the latest developments in GPCR structure and function. Our satellite meeting will pause to consider the implications of this avalanche of data for future drug development, bringing together the leaders in developing these new concepts of molecular pharmacology with those involved in studying the physiology and pathophysiology of systems utilizing the receptors, and with young scientists for whom these ideas will be the life-blood of their careers.

The meeting will be led by Nobel Laureate Professor Brian Kobilka and other leading speakers from WCP. We are grateful for the support of the National Research Foundation of South Africa for sponsorship to allow young African chemists, biologists and pharmacologists to attend and utilize this unique opportunity to join leading scientists in a Master Class setting.

The main scientific motif and guiding concept of the proposed meeting is to take a wide view of the topic and to extrapolate how the emerging structural data can provide new explanations of drug action and novel therapeutic approaches. This will draw on other receptors in addition to adrenoceptors.

The meeting will take place over three days (with time for social interaction and to see some African wildlife) at the Kruger National Park. It will follow the format of the existing BPS series of James Black Meetings: a small residential event bringing together international experts to address delegates, who may submit posters. The intention is to facilitate the development of international scientific networks and to support the development of junior researchers, particularly African pharmacologists, with an opportunity to meet the leaders in their fields.

The programme will include debates on topics such as "Do beta-3-adrenoceptors exist in the human heart" and "Is ligand-directed signalling likely to lead to new drug targets". Several Editors of leading pharmacology journals will attend and will lead sessions on "How to publish".

Upcoming Events

March

European College of Neuropsychopharmacology Workshop for Junior Scientists in Europe

March 6 - 9, 2014 in Nice, France

<http://www.ecnp.eu/meetings/workshops.aspx>

Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics

March 19 - 22, 2014 in Atlanta, Georgia, USA

<http://www.ascpt.org/Meetings/FutureAnnualMeetings/tabid/6705/Default.aspx>

53rd Annual Meeting and ToxExpo by Society of Toxicology

March 23 - 27, 2014 in Phoenix, Arizona, USA

<http://www.toxicology.org/ai/meet/am.asp>

April

80th Annual Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology

April 1 - 4, 2014 in Hanover, Germany

<http://dgpt-online.de/startseite.html>

Spring Meeting of the Swiss Society for Pharmacology and Toxicology on "Pharmacology and Toxicology in Times of Change"

April 3, 2014 in Bern, Switzerland

<http://www.swisspharmtox.ch/events.html>

Proactive Pharmacovigilance and Risk Management in the Era of Personalised Medicine sponsored by the International Society of Pharmacovigilance

April 3 - 4, 2014 in Zagreb, Croatia

<http://www.isoonline.org/index.php?page=training>



Upcoming Events

April (continued)

European College of Neuropsychopharmacology School of Child and Adolescent Neuropsychopharmacology

April 6 - 11, 2014 in Venice, Italy

<http://www.ecnp.eu/meetings/ecnp-school.aspx>

P2T: the 9th Congress of Physiology, Pharmacology and Therapeutics by the French Society of Pharmacology and Therapeutics

April 22 - 24, 2014 in Poitiers, France

<http://congres-p2t.fr>

Experimental Biology '14, sponsored by the American Society for Pharmacology and Experimental Therapeutics

April 26 - 30, 2014 in San Diego, California, USA

<http://www.aspet.org/Meetings.aspx?id=426>

5th British Pharmacological Society Focused Meeting on Cell Signaling

April 28 - 29, 2014 in Leicester, United Kingdom

<http://www.bps.ac.uk/meetings/139a131cf49>

June

Canadian Society of Pharmacology and Therapeutics Annual Meeting

June 10 - 13, 2014 in Winnipeg, Manitoba, Canada

<http://www.pharmacologycanada.org/events>

European College of Neuropsychopharmacology School of Neuropsychopharmacology

June 29 - July 4, 2014 in Oxford, United Kingdom

<http://www.ecnp.eu/meetings/ecnp-school.aspx>

To include your events here, please e-mail the details to iuphar@kumc.edu.

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Contributions:

We welcome contributions from member societies, divisions, sections and committees. Please submit articles and photographs to iuphar@kumc.edu at least one month prior to the cover date.

Membership:

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