

# Pharmacology International

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## In This Issue

### WCP2014

PharfA	Pg. 9
Student Volunteer Thank You	Pg. 13
Young Investigator Competition Winners	Pg. 14
IOSP Satellite Meeting	Pg. 16

### IUPHAR Reports

IOSP and ETRIS Teaching Resources	Pg. 19
Education Section	Pg. 21
Drug Metabolism and Drug Transporter Section	Pg. 25
Gastrointestinal Section	Pg. 26
Immunopharmacology (ImmuPhar) Section	Pg. 30
Geriatric Clinical Pharmacology Subcommittee	Pg. 31
Pharmacoepidemiology & Pharmacovigilance Subcommittee	Pg. 32
Pediatric Clinical Pharmacology Section	Pg. 33
Pharmacology from Cape Town to Kyoto	Pg. 35

### Latest News

Pr. Harmar Awarded J.R. Vane Medal Posthumously	Pg. 37
GuideToPharmacology.org New Release	Pg. 38
Meet the 2014 - 2018 IUPHAR Executive Committee	Pg. 39
Hard at Work behind the Scenes - A Thank You to the IUPHAR Volunteers	Pg. 48
Chilean Society of Pharmacology Journal Update	Pg. 52
ICLAS Call for Award Nominations	Pg. 53

### Meeting Invitations

Upcoming Events	Pg. 54
Exploiting the New Pharmacology and Application to Drug Discovery	Pg. 55
Next Generation Pharmacogenomics	Pg. 56
Tomorrow's Medicines: Pharmacology, Patients and Populations	Pg. 57
IMMUNOPHARMACOLOGY-VACCIPHARMA 2015	Pg. 58
12 <sup>th</sup> EACPT Congress	Pg. 59



## Pharmacologists Enjoy Successful 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014) in Cape Town, South Africa

More than eight years have passed since the South African Society for Basic and Clinical Pharmacology won the bid in Beijing, China in 2006 to host this historic event in Cape Town. Including the satellite meetings in South Africa, the World Congress of Basic and Clinical Pharmacology (WCP2014) offered nearly three weeks of scientific activities in all areas of basic and clinical aspects of medicines. It has been an amazing and successful journey.

### The Congress

We were treated to a feast of more than 300 invited eminent scientists lecturing in more than 100 podium sessions in seven parallel tracks accompanied by

- Nobel Laureate Robert Lefkowitz (USA) as the keynote opening address on G Protein Coupled Receptors (bottom left),
- Arthur Christopoulos (Australia) as the International Union of Basic and Clinical Pharmacology (IUPHAR) Analytical Lecturer (right) and
- Alexander Doodoo (Ghana) with the first ever "Pharmacology for Africa" lecture (bottom right).

Over 1,000 poster presentations were delivered by delegates from more than 80 countries and six continents. The scientific programme further included eight "meet the expert" sessions for young



Continued on page 2...



Congress Secretary Christiaan Brink (at left) and President Douglas Oliver (at right) welcomed Naledi Pandor (center), the South African Minister of Science and Technology, to the Congress gala dinner.

as well as established scientists to engage with these world leaders. We also developed an excellent exhibition hall where delegates could interact with each other and with the exhibitors.

We were privileged to have as prestigious guests, delegates and participants:

- Minister of Science and Technology, South Africa
- Deputy Minister of Health, South Africa
- Representatives of the South African National Research Foundation (NRF)
- Representatives of the South African Medical Research Council
- Director of Innovation
- Director-General of Health, South Africa
- Deputy Director-General of the Western Cape Province Department of Health
- Registrar of Medicines, South Africa
- Representatives of South African Tourism
- Representative of Wesgro (Western Cape Tourism)
- Representatives of the Cape Town City Council
- Presidents of African pharmacological societies
- Representatives of the World Health Organisation (WHO), the International Council for Science (ICSU), the ICSU Regional Office for Africa, and the Gates Foundation amongst others



Robert Lefkowitz (at left) and Joseph Phaahla (at right), the South African Deputy Minister of Health, after the Opening Ceremony

### Media and Science Awareness

The Congress extensively used various media to bring science, health and medicine to the South African public through interviews and articles of eminent national, continental and international scientists at the Congress as well as the organising committee. In addition, we have contributed several articles to publications such as *Pharmacology International* since 2010.



At the PharfA booth (L → R): Helen Kwanashie (Nigeria), Andrew Walubo (South Africa), Mamello Sekhoacha (South Africa), Stephen Okpo (Nigeria) and Fidelis Ching-Poh (Nigeria)

### Pharmacology for Africa

Pharmacology for Africa (PharfA), an initiative of the South African Society, has been established for precisely that purpose and has already contributed to capacity and capability development in west-, north- and east- Africa in the build-up to the  
Continued on page 3...



# 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014)

(continued)

Congress. As an integral partner of the Congress, PharfA developed several symposia addressing areas of importance for South Africa and Africa, such as developing the next generation of scientists. These symposia were key in attracting stakeholders including amongst others, ICSU, Gates Foundation and members of the pharmaceutical industry. World experts in the drug discovery and development field amongst the delegates were truly impressed by the strategies and actions South Africa is taking and have already indicated their support to assist South Africa in achieving these goals.



## Next Generation Scientists, Research Development and Drug Discovery

Developing basic and clinical sciences as well as next generation scientists were priorities on the agenda of the Congress, with several workshops and discussion sessions with the stakeholders taking place in Cape Town. These deliberations will form the basis to build on strategies and action plans we envisage for South Africa and Africa. We support the initiatives of the NRF (booth pictured at left) to develop basic and clinical sciences not only in South Africa but also in partnerships and bilateral agreements between African countries and us. The outstanding address during our gala dinner by the Minister of Science and Technology, The Honourable Naledi Pandor, emphasized this important approach by stating that Africa must progress in parallel with South Africa. More than 200 travel support grants were awarded to young investigators. IUPHAR, the South African Society, the European Federation (EPHAR), and the pharmaceutical industry awarded prizes to 15 young investigators for their excellent scientific contributions at the Congress.

The NRF partnered with the South African Society and PharfA in an exceptional way, which enabled us to make the 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology comparable with the best by:

- Presenting an outstanding comprehensive scientific programme with delegates from more than 80 countries,
- Presenting world leaders in their respective fields and a Nobel Laureate,
- Funding for young and established researchers from South Africa and Africa in particular,
- Environmentally friendly congress, focusing on IT and electronic media, developing an excellent mobile application for delegates to manage their congress experience,
- Partnering with PharfA (first ever for an IUPHAR World Congress) to support the development of the African continent,
- Delivering the highest number of satellite meetings (12) for an IUPHAR World Congress,
- Displaying exceptional organisational, technical and logistical skills,
- Supporting community-based projects with service providers and artists,
- Showcasing South Africa,
- Presenting outstanding opportunities for young investigators,
- Participating in the International Nelson Mandela Day on Friday 18<sup>th</sup> July,
- Presenting a truly memorable South African experience for delegates,
- Creating opportunities and activities that will continue far beyond the World Congress of Basic and Clinical Pharmacology 2014 in research and capacity development, drug research and discovery and many more.



During the Closing Ceremony IUPHAR Past President Patrick du Souich (at right) presented certificates to two of the four IUPHAR Young Investigator Winners, Claire Newton (in center) and Chantal Magne Nde (at left). See page 14 for the full story.



The Kwazinto Crafts booth was popular with souvenir shoppers during the coffee breaks.



We performed community service in Nelson Mandela's honor.



Salvador Moncada (at left) and Paul Vanhoutte (at right) were on hand to answer questions from other delegates. Continued on page 4...

## 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014)

(continued)

### Summary and Conclusion

The 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology in Cape Town was a milestone in our history as evidenced by the above information. The objectives of WCP2014 and PharfA also dictated that this global event must lead to legacy projects focusing on science skills and research development, which will continue far beyond 2014 in South Africa and the African continent. Several Congress sessions were dedicated to these goals. We are truly proud of the outcomes of this World Congress. Visit [www.WCP2014.org](http://www.WCP2014.org) or download the mobile app from [www.EventMobi.com/WCP2014](http://www.EventMobi.com/WCP2014) for interactive views of WCP2014. A full photograph gallery is also available for your perusal on our Facebook page at [www.facebook.com/pages/World-Congress-on-Basic-Clinical-Pharmacology-2014/318451754937500](http://www.facebook.com/pages/World-Congress-on-Basic-Clinical-Pharmacology-2014/318451754937500).

Douglas Oliver  
WCP2014 President



Christiaan Brink  
WCP2014 Secretary



*In addition to expressing appreciation to Douglas Oliver and Christiaan Brink, IUPHAR wishes to acknowledge and thank the WCP2014 organizers for their efforts!*



Marc Blockman



Andy Gray



Ooppel Greef



Gary Maartens



Bernd Rosenkranz



Vanessa Steenkamp



Scatterlings Conference & Events

*Continued on page 5...*



From our in-box...

**Samuel H.H. Chan (national chair professor/distinguished chair, professor and director, Center for Translational Research in Biomedical Sciences) Taiwan**  
*"Congratulations on a successful Congress; you and your staff should be proud."*



**Alexander Dodoo (director, WHO collaborating Centre and PharfA Presitious Lecture) Ghana**  
*"We all enjoyed everything thoroughly. Thanks to the whole team in SA. You did us proud and your hospitality was superb."*



**Patrick du Souich (immediate past president, IUPHAR) Canada**  
*"Thank you very much for all you have done for us: a wonderful and exciting congress, warm hospitality and great organization. CONGRATULATIONS - WCP2014 will be part of the successful congresses. Other remarkable aspects of my visit: the optimism and the kindness of your countrymen; Cape Town and surroundings are cleaner than Montréal and Québec!"*



**S.J. Enna (president, IUPHAR) USA**  
*"I wanted to contact you right away to congratulate you both on the magnificent meeting in Cape Town. Outstanding science, great location and wonderful hospitality. I fully appreciate all of the time and effort you put into this conference. It's great to know now that it all paid off. Thanks for giving me the opportunity to visit your beautiful country."*

**Mohamed Khayyal (president, Egyptian Society of Pharmacology & Experimental Therapeutics) Egypt**  
*"What you have both achieved last week will remain a milestone in the history of IUPHAR, WCP, and PharfA. Congratulations on a job superbly conducted and orchestrated. Cape Town was indeed an experience that will remain deep in our hearts forever."*



**Claude Kirimuhuzya (secretary general, Uganda Pharmacological Society) Uganda**  
*"I would also like to add my voice to everyone who appreciated the outstanding display of organizational ability in hosting WCP 2014, and the perfect show when it came to the participation of PharfA. The PharfA symposia brought out important issues and the lectures by African Scholars were captivating. For the Uganda Pharmacological Society, it was a particularly memorable and highly inspiring experience, considering the fact that it was our maiden experience as a national society."*



**Thiru Naidoo (Western Cape Convention Bureau) South Africa**  
*"A huge congratulations to an amazing event, a first for Africa and I am so proud to have contributed to it. Well done to you and the committee. It's ambassadors like you that make us proud to be South African!!"*

**Robert Lefkwowitz (Nobel Laureate) USA**  
*"I also want to thank you for the hospitality you showed us during our visit. You really went a step beyond in meeting and greeting us, and giving us such a warm send-off. I had an excellent time at the meeting, which seems to have gone extremely well. You should be very proud of what you have accomplished."*





## 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014)

(continued)

**Lynn Ngwenya (profession officer IRC, National Research Foundation)  
South Africa** *"It was such an excellent event. It did show greatness and  
excellence indeed."*



**Michael Spedding (secretary general, IUPHAR) France** *"This  
was a quite remarkable meeting, and fantastic to fulfill our  
cooperation with South Africa. You have made a lasting  
contribution to Africa and world pharmacology."*

**Paul Vanhoutte (past president IUPHAR) France/Hong Kong** *"Well done  
in putting together such an excellent World Congress. You and your team  
should be congratulated wholeheartedly!"*



Pharmacology  
International

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*Random picks from our collection of photographs...*



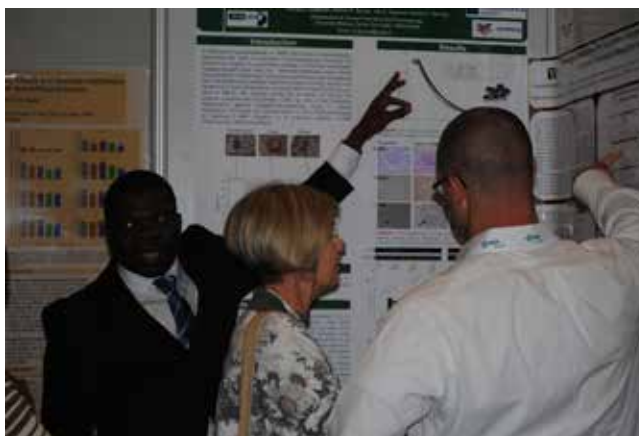
*Continued on page 7...*



17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014)  
(continued)











## “Pharmacology for Africa” Partner to the World Congress of Basic and Clinical Pharmacology

Pharmacology for Africa (PharfA), now only eight years young, has initiated several remarkable activities and milestones for organised pharmacology on the African continent since its founding in 2006 in Beijing. PharfA contributions have achieved continental and international recognition as a pillar of vision for pharmacology on the African continent. PharfA has been an integral partner to the 17<sup>th</sup> IUPHAR World Congress of Basic and Clinical Pharmacology (WCP2014) since the moment the South African Society of Basic and Clinical Pharmacology initiated the bid to host the World Congress in Cape Town in 2014. It is now all history --- South Africa won the bid and hosted an outstanding World Congress in July, 2014 at the foothills of the majestic Table Mountain in Cape Town. PharfA developed a multi-tier strategic plan for not only its partnership with WCP2014 but also defining the legacy of PharfA beyond 2014.



### PharfA symposia at WCP 2014

An array of symposia was organized by PharfA addressing areas of scientific interest pertinent not only for Africa but also the world at large. The most stimulating symposia, which resulted in lively outstanding debates, were presented with excellent speakers and chairs from, not only Africa, but also from Switzerland, China, India, Denmark, Germany, Hong Kong, Kenya and Nigeria. The following symposia were presented, each followed by a panel discussion:

#### PharfA Symposium 1

Sunday 13 July 2014

##### **Control of Complementary Medicines (Chair: Helen Kwanashie, Nigeria)**

Complementary medicines are increasingly being used by patients world-wide to manage disorders for an array of diseases so this topic is high on the agenda of such agencies as medicine regulators and the World Health Organisation (WHO). This symposium deliberated current positions and alternate approaches. It was concluded that complementary medicines have areas of critical concern, such as quality, safety and unfounded medicinal claims, but exciting opportunities for research and drug discovery.

- *Principles for regulatory control of complementary medicines* (Mandisa Hela, South Africa)
- *Position of Pacific Asia* (Yong-Xiang Zhang, China)
- *Position of the Indian subcontinent of Asia* (Prakash V. Diwan, India)

#### PharfA Symposium 2

Monday 14 July 2014

##### **Strategies for Medicines Development in Constraint Economies (Chair: Richard Glover, South Africa)**

This symposium highlighted opportunities for constraint economies in their search for drug discovery and product development. Evident also was the importance of capacity building and science development as critical elements

*Continued on page 10...*

## PharfA Partner to WCP2014 (continued)

on the discovery road, emphasising partnerships with other centres of excellence and industry.

- *Pre-clinical strategies addressing diseases of Africa* (Kelly Chibale, South Africa)
- *Bridging pre-clinical and clinical strategies* (Anna Jager, Denmark)
- *Westernizing traditional medicines* (Paul Vanhoutte, Hong Kong)

### PharfA Symposium 3

Thursday 17 July 2014

#### **Biological Medicines Development (Chair: Anastasia Guantai, Kenya)**

Biological medicines are increasing contributing to the treatments of diseases for previously treatable with conventional medicine. These medicinal products are by nature of the production and treatment costly to the patients. The development of next generation follow-up affordable and accessible products i.e., Biosimilars, is critical for health care delivery for in particular constraint economies. This exciting symposium reflected on the challenges and opportunities for the development of such products, and the WHO perspective on accessibility and affordability.

- *Biological medicines: The fundamentals* (Michael Soldan, Germany)
- *Challenges and opportunities for biosimilar medicines development* (Henry Leng, South Africa)
- *Regulatory appraisal of biological medicines and harmonization initiatives for availability and access* (Lembit Rago, WHO, Switzerland)

### Other PharfA activities

Wednesday 16 July 2014

#### **Scientific Capacity/Capability Development Symposium (Chairs: Goonaseelan "Colin" Pillai, Switzerland and Douglas Oliver, South Africa)**

Novartis and the PharfA Chair organised a scientific capacity/capability development symposium with speakers from South Africa, Switzerland and the USA. The speakers represented PharfA, Novartis, the Medical Research Council and the Bill & Melinda Gates Foundation.

#### **Panel Facilitator: Fared Mirza, Switzerland**

- *Scientific capacity and capability development in Africa: Re-stating the case* (Douglas Oliver, South Africa)
- *Building the next generation of scientists: Developing Africa's talent in healthcare* (Colin Pillai, Switzerland)
- *Scientific capacity and capability development: Using South Africa as the gateway to Africa* (Richard Gordon, South Africa)
- *Building critical mass in scientific capacity and capability development in Africa* (Natalie Rossignol, USA)



Continued on page 11...



## PharfA Partner to WCP2014 (continued)

### PharfA Prestige Summit:

The PharfA Prestige Summit hosted several speakers in various events. The highlight was the introduction of the first ever PharfA Lecture at an IUPHAR World Congress.

#### PharfA Lecture

Thursday 17 July 2014

The PharfA Lecture was chaired by Andrew Walubo, South Africa, with welcome and introductions delivered by Douglas W. Oliver, WCP2014, PharfA; S. J. Enna, USA, the new IUPHAR president, and Edith Madela-Mntla, South Africa, the Director of the International Council for Science Regional Office for Africa. Introduced by Mohamed T. Khayyal, Egypt, PharfA was honoured to have Alexander Dodoo, Ghana, presenting the first ever PharfA lecture entitled, *Let's do Drugs for the sake of Africa*. In his typical elegant and provocative style, Prof. Dodoo outlined the opportunities and challenges Africa faces with the burden of disease, the need for orphan drug development, medicine safety and quality issues. He presented clear direction on the way forward for the continent.



Edith Madela-Mntla (at left) and Alex Dodoo (at right) were the guest speakers at the PharfA Lecture

#### PharfA General Assembly

Thursday 17 July 2014

Douglas Oliver, Tiaan Brink and Andrew Walubo presided over the PharfA General Assembly (GA) proceedings. Following an address by Douglas Oliver regarding the role and contributions of PharfA on the continent since its founding, an open debate followed with a clear vision of the future beyond 2014. The optimism of the GA audience for the future development of Africa was a source of encouragement and motivation for African delegates, IUPHAR, other stakeholders from academia and industry as well as funding agencies. The plan developed for the next six years includes several milestones to be achieved through PharfA for next generation scientists and research development. Key strategies to success will be the support and assistance necessary to establish new national societies of pharmacology, hosting All Africa Congresses between IUPHAR world congresses, education and research training, researcher exchange programme, research partnering, and engagement with relevant stakeholders such as industry and funding agencies amongst others.



Andrew Walubo chaired the PharfA Lecture



The audience offered several comments and questions during the PharfA General Assembly (L → R): Eric Omogbai, Heba Abdel-Aziz, Theresa John, S. J. Enna, Celestino Obua and Mohamed Hamzawy

Continued on page 12...



*The PharfA Booth drew numerous visitors (L → R): Douglas Oliver (South Africa), P.K. "Chari" Rangachari (Canada), Kim Brøsen, (Denmark) and Mamello Sekhoacha (South Africa)*

### PharfA Exhibition Stand

PharfA supported WCP2014 by hosting its own exhibition stand, which received overwhelming attention. The various African national societies displayed their materials and banners while exchanging ideas with WCP2014 delegates. The camaraderie amongst the delegates from Africa was clearly visible at the exhibition stand and also throughout the Congress venue. Truly, PharfA has been not only a binding factor between African delegates, but it also presents a sense of belonging and identity to pharmacologists from Africa.

### Funding support of WCP2014

PharfA's primary contribution to WCP2014, apart from those mentioned above, has been its assistance in obtaining funds for delegates from emerging economies. These successes range from support by the British Pharmacological Society Young Pharmacologists from selling T-shirts, national society support such as Hong Kong, Canada, and several pharmaceutical companies both in South Africa and international, as well as research funding agencies. PharfA is truly grateful to these institutions in supporting not only Africa but also other needed young investigators to enable them to come to South Africa and experience a remarkable Congress.

### Summary

PharfA played an essential multi-tier role contributing significantly towards the success of the first ever World Congress of Basic and Clinical Pharmacology on the African continent. Its support of African delegates to Cape Town will have far reaching benefits for their careers and future. The focus of PharfA on capacity building and research has developed the potential to create sustainability and critical mass on the continent, creating opportunities with outcomes beyond our expectations. The support of so many stakeholders has been most encouraging and PharfA looks forward with enthusiasm to shaping African pharmacology beyond 2014. The legacies of WCP2014 and PharfA are starting to take shape with several activities being planned and put into action. •

Douglas Oliver  
PharfA Founder and Chair





***A Special Thank You to the WCP2014 Student Volunteers!***

Ahmed Abulfathi  
Chris-Mare Agenbag  
Sadiyya Ahmed-Hassen  
Nico Badenhorst  
Nirvana Bagwathpersad  
Refuoe Baleni  
Kim Baron  
Illana Basson  
Zanelle Bekker  
Moleboheng Binyane  
Fanya Boulou  
Sana Charania  
Madichaba Chelopo  
Maxwell Chirehwa  
Farouk Chughlay  
Michele Coffee  
Dewald Coutts  
Mohamed Daghman  
Candace Davison  
Anzelle Delport  
Trizel du Toit  
Ismaeel Ebrahim  
Barbara Glover  
Mandi Hamman  
Shamillah Holland  
Monique Hoon  
Tracey Hurrell  
Zeenat Ismail  
Natasha Jansen van Vuuren  
Elmarie Kleyhans  
Taurai Kurebwa  
Rose Lekhooa

Keagile Lepule  
Mohammed Magaji  
Thulani Mahlangu  
Memela Makiwane  
Oluchi Mbamalu  
Letitia Meiring  
Moné Mouton  
Mwila Mulubwa  
Brendon Naicker  
Saiyuri Nair  
Suveena Naranswami  
Charlize Niewenhuizen  
Inge Oberholzer  
Ellen Ovenden  
Veronica Paddy  
Mishal Pandie  
Hafiza Parker  
Jan Pinchevsky  
Somayya Ragie  
Tsakani Rasakanye  
Riaan Reay  
Abd-Alkarim Sasi  
Jaco Schoeman  
Twanette Swanepoel  
Tjokosela Tikiso  
Muhammed Vally  
Lyne Van Rensburg  
Alet van Tonder

*With our gratitude to  
the Student Volunteer  
Organizer  
Werner Cordier*

## International Union of Basic and Clinical Pharmacology (IUPHAR) 2014 Young Investigator Competition

The IUPHAR Young Investigator Competition was held in conjunction with the World Congress of Basic and Clinical Pharmacology (WCP2014) on Wednesday, July 16<sup>th</sup>. The session was chaired by Patrick du Souich (Canada), who was assisted in the judging by Urs Ruegg (Switzerland) and Graeme Henderson (United Kingdom). The ten finalists invited to Cape Town, South Africa to participate in the completion included:

Stephen Ayinbuomwan, University of Benin Teaching Hospital, Nigeria  
*Safety and tolerability profile of artemisinin-based antimalarial combination therapy (ACT) in adult Nigerians*

Luiz Sérgio Carvalho, University of Campinas, Brazil  
*Elevated CETP activity during acute phase of myocardial infarction is independently associated with endothelial dysfunction, no-reflow and adverse clinical outcome*

Yohannes T. Ghebremariam, Houston Methodist Research Institute, USA  
*Proton pump inhibitors inhibit the cardiovascular enzyme DDAH and regulate processes underlying idiopathic pulmonary fibrosis*

Christian Gruber, Medical University of Vienna, Austria  
*Exploring bioactive peptides as pharmacological tools for oxytocin and vasopressin ligand design*

Chantal Beatrice Magne Nde, Prince Henrys Institute of Medical Research, Australia  
*Timeless, a novel oestrogen receptor co-activator with a critical role in breast cancer*

Ivica Matak, University of Zagreb, Croatia  
*Involvement of TRPV1-expressing primary afferents in botulinum toxin type A antinociceptive efficacy*

Claire Newton, University of Cape Town, South Africa  
*Functional rescue of inactivating human LH receptor mutants with an allosteric agonist*

Carolina Nör, Federal University of Rio Grande do Sul, Brazil  
*IL-6R blockade as a therapeutic approach to overcome cisplatin resistance in head and neck cancer*

Deepesh Pandey, Johns Hopkins University School of Medicine, USA  
*Activation of histone deacetylase 2: A novel strategy for reversing vascular dysfunction in atherogenesis*

Valeria Sandrim, São Paulo State University, Brazil  
*45G>T polymorphism of ADIPOQ affect the responsiveness to antihypertensive therapy in preeclampsia but not in gestational hypertension*

Continued on page 15...





## IUPHAR 2014 Young Investigator Competition (continued)



The oral presentations were judged on the degree of organization, the statistical credibility and the strength of each conclusion. The judges agreed the competitors were professional and well-prepared. After the tally of the judges' evaluations yielded a tie score, it was decided to award third place to two competitors. During the WCP2014 Closing Ceremony, Dr. du Souich announced the following winners:

### Gold Award

Claire Newton



### Silver Award

Christian Gruber



### Bronze Awards

Stephen Ayinbuomwan



Chantal Beatrice Magne Nde



IUPHAR congratulates the winners and thanks the judges and all the participants for continuing this long tradition of excellence in pharmacology. •



## **Integrative and Organs Systems Pharmacology (IOSP) Workshop in Durban, South Africa: A WCP2014 Satellite**

The University of KwaZulu-Natal (UKZN) Discipline of Pharmaceutical Sciences (Pharmacology) and School of Laboratory Medicine and Medical Sciences (Biomedical Resource Unit, BRU) hosted an IOSP workshop at the Westville Campus July 8-11, 2014. The workshop was convened by Dr. Johannes Bodenstein (senior lecturer in Pharmacology) and Dr. Sanil Singh (manager, BRU) as a satellite meeting of the World Congress of Basic and Clinical Pharmacology (WCP2014). The initiative, underwritten by the International Union of Basic and Clinical Pharmacology (IUPHAR), is to train the next generation young integrative scientists. More than 30 delegates from mainly African countries attended the workshop.

The four-day interactive workshop, which was the first of its kind to be held at UKZN, presented an array of local and international speakers. It also included behind the scenes visits to the KwaZulu-Natal Sharks Board and uShaka Marine World to learn about the specialised research conducted at these facilities. Delegates were enthused by international speakers, Dr. David Lewis (senior lecturer in Neuroscience and Bioethics, University of Leeds, United Kingdom) and Prof. Hans-Peter Lipp (professor emeritus, Human Anatomy, University of Zürich, Switzerland and fractionate professorship at UKZN's School of Laboratory Medicine and Medical Sciences). Local speakers were represented by Drs. Sanil Singh, Linda Bester (senior laboratory animal technologist of BRU), Peter Owira (senior lecturer in Pharmacology), Bert Mohr (director of the Centre for Animal Research at the University of Cape Town and a scientific investigator in the Hatter Institute for Cardiovascular Research in Africa), Sean Cheevers (specialist in Occupational Medicine and guest lecturer to UKZN's Department of Occupational and Environmental Health) and Ms. Charon de Villiers (research manager at Delft Animal Centre of the Medical Research Council in Cape Town).

Animal ethics and welfare were at the forefront of the workshop. In his opening address, Dr. Singh summarized the mission as "In pursuit of ethical animal research, there is a great need to develop a course that suits the South African context. We hope that the information gathered at this workshop about animal models and handling, along with environmental enrichment, can help





## IOSP Workshop in Durban, South Africa (continued)

those involved in research. Just as many social aspects affect humans, they affect animals as well, and it is a very important yardstick for us to evaluate our ethical behaviour in animal research.” Topics of discussion during the workshop pertained to humane experimental techniques, practical animal handling, ethical use of animals in research, and pain management in laboratory animal research. “Animals are living entities and we should respect their contribution. In sharing good practices and making colleagues aware of what new techniques and practices are out there, any form of bettering animal welfare is a concern.” said Dr. Singh.

Delegates toured the BRU on the Westville campus. Dr. Bester, post-graduate students and volunteers explained basic experiments performed in laboratory animal sciences along with protocol planning, practical animal handling and restraint as well as the latest surgical techniques. Dr. Mohr explained that there is a moral philosophy and public sensitivity associated with animal research. “Animals are useful models of human biology and by law, pharmacology drugs have to be legally tested and examined on animals before being made available to humans. There is a lot of concern in terms of animal use and testing.” Mohr presented a talk entitled, *The Principles of Humane Experimental Techniques*, in which he stated, “Safety testing occurs beforehand for drugs to get sold and, while there are failures, this is done so as to ensure few human side effects. The Animal Research Reporting of In Vivo Experiments (ARRIVE) guidelines state that one of the greatest criticisms of animal research is the poorly published or reporting of the study. All 29 guidelines must be adhered within any study so as to justify the quality of the experiment.” Mohr spoke about the use of sentient beings in laboratory research, “Sentient beings are animals that are conscious and have subjective experiences where their feelings are important to the animal. They have sensations, emotions, social behaviour, empathy and altruism, as well as a memory,



*Participants on the last day of the IOSP Workshop*

## IOSP Workshop in Durban, South Africa (continued)

communication and culture.” Animals are useful models for human biology and are entitled to five specific freedoms. These are freedom from hunger and thirst; pain; injury and disease; and fear, distress and discomfort. They also have freedom to express normal behaviour. The guiding principles of animal laboratory research, known as the 3Rs, were the core elements discussed at the workshop. Reduction of suffering in fewer animals is something that needs to be practiced. Refinement and fine tuning should be done in laboratory procedures so as to make experiments better and most effective. The aspect of replacement should always be questioned. Is there an alternative? Non-animal models, invertebrates and immature animals can also be used. “Every animal is an individual in our care and respect is needed when treating these animals. Animals are used all over the world for many things but, specific to the workshop, animals are also used for scientific purposes, for the testing of drugs and diseases, for research and for teaching and training. Only once non-animal models are found, shall animal usage in science begin to decrease.”

Dr. Dave Lewis presented a talk called, *Animal models and alternatives - all the information required to make informed decisions in planning a protocol*. Lewis explained the use of animal alternatives in laboratory research and how to minimise animal distress as much as possible. He elaborated, “The question we should always ask ourselves is, should we be using animals for testing or should we be using non-animal alternatives? We should use animals in instances where we can’t find alternatives to address our scientific questions. There should be a minimum use of animals in the scientific experiment with a maximised high quality data set with unambiguous data. Objectives and endpoints need to be clear and measurable for the best practice. Only the most appropriate techniques should be used, so that it is possible to do in future by other scientists, should the need arise. There need to be humane endpoints as a result of good lab practice and guidance.” Partial and total replacement of animals in research was also mentioned, with Lewis explaining that sometimes total replacement of an animal isn’t possible but that using cell tissues or animal cultures are sometimes needed. Dr. Lewis also encouraged researchers to look at databases to see what they can use to replace animals. As lab animal scientists, principle replacement is what we should be doing. “The lifetime experience of the animal shouldn’t only include that short time when the animal is being experimented on, but for the entire duration from the time it is born to its death. To minimise pain, suffering and distress in animals, the use of general anaesthetic and analgesia will help. Researchers should also consider minimising the effect of the intervention by spending the minimum amount of time with the animal and should try to have focused experiments to do so.” •

Johannes Bodenstein and Sanil Singh

*This article is reprinted from the UKZN weekly newsletter with permission.*





# An Introduction to the Education and Training Resources in In-Vivo Sciences (ETRIS) and an Invitation to Host an Integrative and Organ Systems Pharmacology (IOSP) Workshop

The International Union of Basic and Clinical Pharmacology (IUPHAR) established its Integrative and Organ Systems Pharmacology (IOSP) Initiative in 2007 with the objective to educate and train the next generation of in-vivo pharmacologists to address the global shortage of pharmacologists with the knowledge, skills and expertise necessary to undertake such studies. Many national pharmacological societies, governments and industry have committed significant funding towards training that next generation. Whilst many of these initiatives have ended, there is still a need to provide an education and training in in-vivo pharmacology, not only for colleagues new to the discipline, but also established researchers who require continued professional development and training throughout their careers. Since its inception, the IUPHAR IOSP Initiative has, with support from the International Council for Science and the American Society for Pharmacology & Experimental Therapeutics, organised 2 - 4 day courses in Africa, Thailand and India. The most recent was the WCP2014 IOSP satellite workshop held at the University of KwaZulu-Natal and described on pages 16 - 18. It was an excellent example of benefits to be achieved through international collaborations in the provision of education and training. The next IOSP workshop is planned for the 2016 PharFA meeting in Ethiopia, with discussions underway for both early-career and more advanced IOSP workshops in China in the future.

To supplement the education and training provided by these workshops, and to facilitate colleagues' continued professional development and research, Dr. Dave Lewis (University of Leeds, UK) developed a free website, *Education and Training Resources in In-Vivo Sciences (ETRIS)*<sup>2</sup> at [www.etris.leeds.ac.uk](http://www.etris.leeds.ac.uk), which directs colleagues to free, open access e-learning

The collage displays six examples of educational resources:

- HUMANE ENDPOINTS**: A website for laboratory animal experimentation, featuring a main menu and an article titled "Humane endpoints in laboratory animal experimentation".
- Procedures With Care**: A website with a search bar and navigation tabs for "Home", "Administration of Substances", and "Aseptic Technique". It includes sections for "Administration of Substances" and "Aseptic Technique in Rodent Surgery".
- IMPRESS**: The International Mouse Phenotyping Resource of Standardized Screens, with a navigation bar (HOME, PIPELINES, ONTOLOGY SEARCH, GLOSSARY, HELP, CONTACT US) and a welcome message.
- INVIVOSTAT**: Statistical Software, featuring a navigation bar, a "What is InVivoStat?" section, and a "Specification" section.
- jove**: A video resource titled "Principles of Rodent Surgery for the New Surgeon" by Kathleen R. Pritchett-Corning, Guy D. Miller, Yung Luo, and William J. White.
- NC 3Rs**: The National Centre for the Replacement, Refinement & Reduction of Animals in Research, showing a resource for "Rat" with a video thumbnail and a list of topics including "Blood sampling" and "Surgical techniques".

Below the screenshots, a list of URLs is provided:

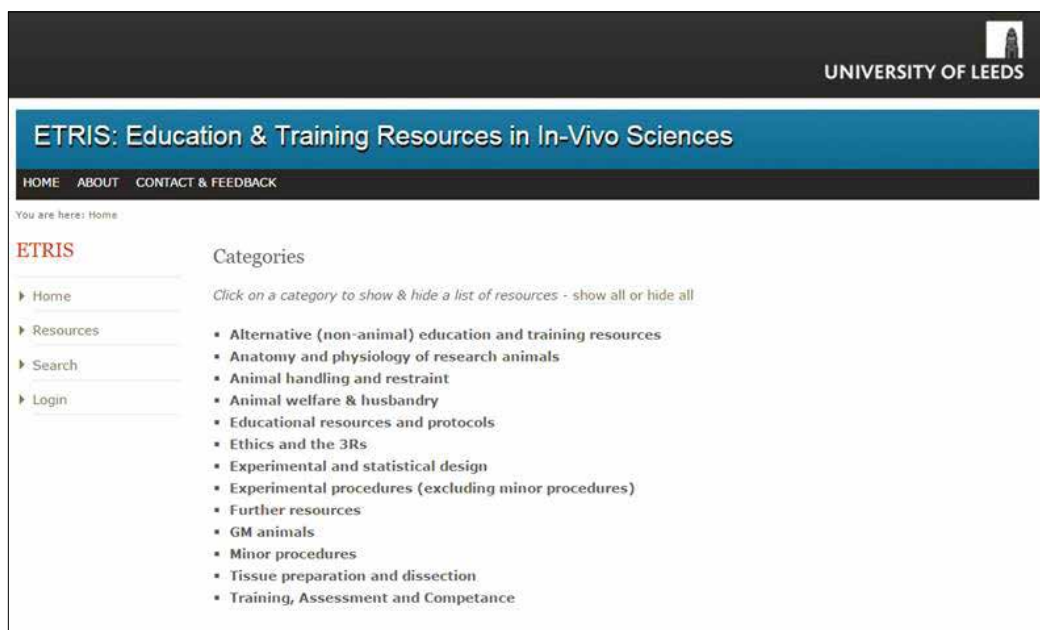
- <http://www.humane-endpoints.info/eng/>
- <http://www.mousephenotype.org/impress>
- [www.jove.com/video/2586/](http://www.jove.com/video/2586/)
- <http://www.procedureswithcare.org.uk/>
- [www.invivostat.co.uk](http://www.invivostat.co.uk)
- <http://www.nc3rs.org.uk/our-resources/blood-sampling>



## ETRIS and IOSP (continued)

resources in in-vivo pharmacology ranging from animal welfare, handling and husbandry to surgical procedures.

Whilst many excellent in-vivo e-learning resources are locked behind commercial or organisational websites, ETRIS provides direct links to those free, open access, or open educational e-resources that deliver training or facilitate research in in-vivo pharmacology. No log-in or registration is required. Individual resources are accompanied by a descriptive paragraph outlining what is in the resource, who developed it, copyright or access restrictions and suggested usage or audience. Resources are grouped into thirteen categories (see below screen shot) including animal welfare and husbandry, ethics and the 3Rs, experimental and statistical design, and surgical procedures. Additional categories will be added as the website expands.



The vision is for ETRIS to be a living repository, which grows as colleagues submit more resources for inclusion, increasing its usefulness. This will only happen with the help of the community. Therefore, if you have any e-learning or training resources including, but not restricted to, videos, podcasts, guidance notes, software or educational protocols that you are willing to share, or know of any relevant resources on open access websites, please contact ETRIS' developer, Dr. Lewis, at [3Rs@leeds.ac.uk](mailto:3Rs@leeds.ac.uk). Resources do not have to fall within existing categories. To realise the maximum benefit of the repository, we also want ETRIS to be adopted and, more importantly, used by in-vivo pharmacologists across the world. Therefore, please utilize ETRIS, link to it from your institutional or company biomedical services or national society websites, share the site with your colleagues at home and abroad. Your feedback on the site or individual resources would also be appreciated. The financial support of the University of Leeds through the award of a Teaching Fellowship to Dave Lewis to develop ETRIS is gratefully acknowledged.



The IUPHAR IOSP Initiative is currently chaired by Dr. Dave Lewis. Moving forward, discussions at the IUPHAR Education Section business meeting at WCP2014 highlighted the need, not only to continue with these courses, but also to provide them in other regions of the world. To expand the initiative requires the identification of colleagues who would be willing to work in partnership with Dr. Lewis to organise and hold an IOSP course in their country or in partnership with a national/regional pharmacological society. If you are interested in organising an IOSP course or know of colleagues who may be interested themselves, please email [3Rs@leeds.ac.uk](mailto:3Rs@leeds.ac.uk) or the IUPHAR Administrative Office ([IUPHAR@kumc.edu](mailto:IUPHAR@kumc.edu)). •

Dave Lewis, Chair, IUPHAR IOSP Initiative (I<sup>3Rs</sup>), [3Rs@leeds.ac.uk](mailto:3Rs@leeds.ac.uk)



# IUPHAR Education (IUPHAR-Ed) Section Report



It is my pleasure to provide my first report as the chair of the International Union of Basic and Clinical Pharmacology Education (IUPHAR-Ed) Section. The objective of IUPHAR-Ed is to support educators in pharmacology in promoting innovative teaching, learning and assessment of basic, clinical and translational pharmacology to higher education pharmacology students and wider audiences across the globe. This brief report highlights some of the important events of a busy 2014.

## Retiring Officers

I would like to begin by recording our gratitude to the IUPHAR-Ed officers who stood down last summer. Tiaan Brink (South Africa), as past chair, gave excellent leadership over the last four years culminating in the planning of a very successful Education Satellite Meeting before the 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology (WCP2014) in Cape Town, South Africa. All this was achieved with the additional contributions of David Dewhurst (UK) as treasurer and P.K. Rangachari (Canada) as deputy-chair. We wish them well for the future.

## IUPHAR-Ed Satellite Meeting

IUPHAR-Ed was pleased to be able to run another successful Pharmacology Education Satellite Meeting in association with WCP2014. The plenary speakers were Helen Kwanashie (Nigeria) - *Pharmacology education in Africa: Challenges and opportunities* - and Leszek Wojnowski (Germany) - *Internet-based solutions to alleviate shortages of pharmacology faculty in developing countries*. In addition, there were several excellent free communications, a poster session and five roundtable discussions on key topics in education: flipped lectures, assessing pharmacology for healthcare students, faculty development, students as agents of change and interprofessional education in pharmacology. A busy Saturday was rounded off with an enjoyable gala dinner giving everyone the chance to meet old friends, make new ones and shake off the effects of jet-lag. The Satellite finished with the IUPHAR-Ed General Assembly including the award of the Section prizes, the election of new officers (see below) and two important presentations. First, Bevyn Jarrott (Australia) offered his reflections on the history and development of IUPHAR-Ed. He was the founding chair and driving force behind the establishment of an IUPHAR Teaching Section and our current position owes much to his work and that of his successors, Ian Hughes (UK), Joan Lakosi (USA) and Tiaan Brink. Second, we were pleased to welcome Masamitsu Iino, President of WCP2018 (Kyoto, Japan), who indicated his commitment to supporting education events as part of that congress. IUPHAR-Ed is grateful to the following for sponsoring the Satellite Meeting: North-West University Faculty of Health Sciences, HB Healthcare, Reaxys, Lasec, Reckitt-Benckiser, Elsevier, and Springer.

## IUPHAR-Ed Awards

An important new development for the IUPHAR-Ed has been the establishment of awards to recognise those who have made important contributions to pharmacology education, both at junior and senior levels. The international judging panel was chaired by Liz Davis (Australia). The IUPHAR-Ed outstanding Early Educator Award, sponsored by the North-West University School of Pharmacy, recognises an individual in the early stage of their career who has created novel teaching practices in response to a particular challenge to improve student learning outcomes. The 2014 award went to Jelle Tichelaar (Netherlands) for a project entitled, *A feasibility study of a learner centered student run clinic (LC-SRC) with the emphasis on pharmacotherapy*. The IUPHAR-Ed Teaching Excellence Awards have been established to recognise outstanding pharmacology educators who have made a sustained and significant contribution to education and/or training in pharmacology in any context. The three worthy award winners in 2014 were Evan Begg (New Zealand), Helen Kwanashie (Nigeria) and Shiela Doggrell (Australia).



## IUPHAR-Ed Report (continued)

### IUPHAR-Ed Executive Committee (2014–2018)

Elections were undertaken for the new Section officers and Councilors, who will serve on the IUPHAR-Ed Executive committee for the next four years. The elected officers were Simon Maxwell (UK) as chair, Shirra Moch (South Africa) as deputy-chair, Liz Davis (Australia) as secretary, and Robert Likic (Croatia) as treasurer (photographs at right). They will be joined by six new Executive Committee members: Thomas Griesbacher (Austria), Helen Kwanashie (Nigeria), David Lewis (UK), Atsuro Miyata (Japan), Jelle Tichelaar (Netherlands) and Paul White (Australia).



Simon Maxwell - Chair



Shirra Moch - Deputy-Chair



Liz Davis - Secretary



Robert Likic - Treasurer

### WCP2014

There were three education sessions during the main WCP2014 Congress. Monday morning began with two plenary presentations, *Of molecules and markets: Culturing pluripotent learners in a standards-based world* by P.K. Rangachari and *Challenges of training tomorrow's prescribers* by Simon Maxwell.

Monday afternoon included an education symposium entitled *2020 Vision for Pharmacology Education* with six talks:

- *Pharmacology teaching, learning and assessment in the 'e-space' - strategies and implementation* by David Dewhurst (UK),
- *Developing an online education resource in pharmacology and therapeutics for medical students* by Robert Likic (Croatia),
- *Flipping the classroom: Using technology to build core learning structures in clinical pharmacology* by Shirra Moch (South Africa),
- *e-Learning 2.0 - The Teaching Resource Centre as tool for integrative pharmacology and therapeutics* by Justin Hay (the Netherlands),
- *Delivering a national strategy for e-assessment in clinical pharmacology and prescribing* by Simon Maxwell (UK), and
- *Influences on the uptake of technology for teaching and assessment of pharmacology? Can IUPHAR help?* by Liz Davis (Australia).

The following afternoon there was a symposium on delivering education in developing countries: *Internet-based solutions to alleviate shortages of pharmacology faculty in developing countries*, organised by John Szarek (USA) and Leszek Wojnowski (Germany).

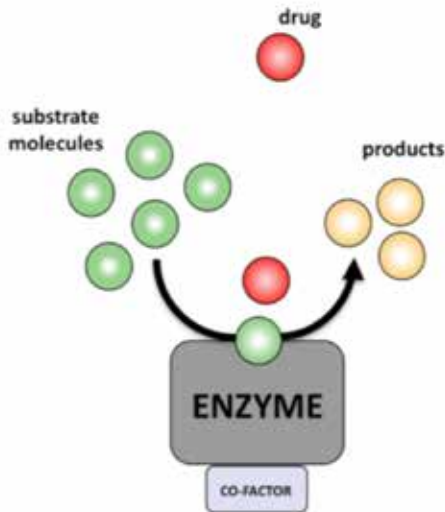
Continued on page 23...

## IUPHAR-Ed Report (continued)

IUPHAR/ASPET  
**Pharmacology Education Project**

Home About Pharmacology Clinical Pharmacology Drugs Therapeutics Resources

Search



**Welcome**

Welcome to the *IUPHAR/ASPET Pharmacology Education Project* for learners in pharmacology and clinical pharmacology.

This website is being developed by the **International Union of Basic and Clinical Pharmacology (IUPHAR)** in collaboration with **American Society for Pharmacology and Experimental Therapeutics (ASPET)** as a learning resource to support education and training in the pharmacological sciences. The materials will be of value to students of pharmacology, clinical pharmacology and indeed anyone who is looking to develop a stronger grasp of the pharmacological sciences. The aim is to produce a simple, attractive easily searchable resource that will support students of the biomedical sciences, medicine, nursing and pharmacy as well as those who teach them. It is also intended that it will set in context and act as a 'stepping stone' towards some of the cutting edge data curated within the **IUPHAR/BPS Guide to Pharmacology** and allow those who are less familiar with such material to have some understanding.

**Pharmacology News**

**ASPET 2015 Annual Meeting - Boston, 28th March-1st April**

The 2015 annual meeting of the **American Society of Pharmacology and Experimental Therapeutics** will be held in conjunction with the **Experimental Biology 2015**

09/10/2014 - 5:00pm [Read more](#)

**Pharmacology 2014 - London, 16-18 December**

*Pharmacology* attracts around 900 scientists each year, mostly from the UK but also many from across Europe and from overseas.

09/10/2014 - 4:56pm [Read more](#)

**IUPHAR/ASPET Pharmacology Education Project launched**

The IUPHAR/ASPET Pharmacology Education Project will be launched in Cape Town, South Africa during WCP2014. The project is being lead by Dr John Szarek (US) and Professor Simon Maxwell (UK).

11/07/2014 - 11:40am [Read more](#)

[View all news](#)

The Pharmacology Education Project (PEP) is being developed by the International Union of Pharmacology and Clinical Pharmacology (IUPHAR) and the American Society for Pharmacology and Experimental Therapeutics (ASPET) as a service to the international pharmacology community.

Drupal site built by The University of Edinburgh

**IUPHAR**  
International Union of Basic and Clinical Pharmacology

**ASPET**  
American Society for Pharmacology and Experimental Therapeutics

### IUPHAR/American Society for Pharmacology & Experimental Therapeutics (ASPET) Pharmacology Education Project (PEP)

IUPHAR and ASPET have formed a collaboration to develop an open access education website (screen shot above) for which the key aims will be (i) to support students of the pharmacological and other biomedical sciences, medicine, nursing and pharmacy, (ii) to provide support for the pharmacology

*Continued on page 24...*





## IUPHAR-Ed Report (continued)

education community that provides much of the teaching for those groups, (iii) to provide a 'stepping stone' towards some of the cutting edge pharmacological data curated within the IUPHAR/British Pharmacological Society (BPS) [GuideToPharmacology.org](http://GuideToPharmacology.org) and allow those who are less familiar with such material to have some understanding of the concepts involved, and (iv) to achieve this within a simple, attractive and easily searchable resource with an intuitive layout (see website screen shot on page 23). This initiative should be particularly attractive to those in resource-poor countries or where the discipline of pharmacology is less well developed. The initial Editorial Board includes myself and John Szarek (USA) as co-Leads as well as Leszek Wojnowski (Germany), Antonio Sarikas (Germany), Liz Davis (Australia), Kelly Karpa (USA), and Chay-Hoon Tan (Singapore). This group will undoubtedly expand and I hope that contributing to this project will be seen as a major activity for the members of IUPHAR-Ed.

### Other Initiatives

IUPHAR-Ed continues to maintain its commitment to supporting education in less established centres. A major part of that commitment is the IUPHAR Integrative Organ and Systems Pharmacology (IOSP) Initiative (see pages 19 - 20), ably led by David Lewis (UK). The IOSP ran another successful workshop at the University of KwaZulu Natal, South Africa in July, organised locally by Johannes Bodenstern and colleagues (see pages 16 - 18). Members of IUPHAR-Ed have also been happy to deliver lectures and other educational events remotely. Tiaan Brink and I enjoyed our participation in the International Symposium on Medicines and Patient Safety held at the University of Rwanda in November. We have previously supported young pharmacologists with travel bursaries to present their work and will continue to support global networking whenever our funds permit it.

### Future

Finally, I would like to look to the future. It will remain a challenge to keep in touch with members of the Section in the coming years without a major Congress but we hope to continue regular online meetings, harness the benefits of social media and also provide more information on the IUPHAR website in coming months. The development of the IUPHAR/ASPET Pharmacology Education Project (PEP) should be an important focus for the Section and the IUPHAR IOSP Initiative will organise further events while its funding continues. If you and your colleagues feel that you can make a contribution to the work of IUPHAR-Ed then please contact me ([s.maxwell@ed.ac.uk](mailto:s.maxwell@ed.ac.uk)) or the Secretary ([elizabeth.davis@monash.edu](mailto:elizabeth.davis@monash.edu)). •

Simon Maxwell, Chair, IUPHAR Education (IUPHAR-Ed) Section

## Drug Metabolism and Drug Transporter Section Latest News

The Drug Metabolism and Drug Transporter (DMDT) Section contributed to several symposia in the World Congress of Basic and Clinical Pharmacology 2014 (WCP2014) programme and also held a business meeting during the Congress to elect some new officers and members of the executive board. An important feature of our participation in WCP2014 involved four symposia, which we proposed jointly with the Pharmacogenetics & Pharmacogenomics Section. We are grateful to the conference organisers for accepting all four symposia, which were each well attended with good discussion.

Details of the symposia were as follows: (i) *Epigenetic regulation of drug metabolizing enzymes and transporters* chaired by Ingolf Cascorbi with Magnus Ingelman-Sundberg, Ingolf Cascorbi and Matthias Schwab as speakers, (ii) *Pharmacogenetics in infectious disease* chaired by Ann Daly with Pedro Gil, Adalberto Santos and Eleni Aklillu as speakers, (iii) *Role of drug transporters in interindividual variations in drug response* chaired by Matthias Schwab with Matthias Schwab, Frans Russel and Christoph Funk as speakers and (iv) *Understanding drug-induced liver injury: CYP450 and the immune system* chaired by Allan Rettie with James Lewis, Jack Uetrecht and Ann Daly as speakers.

The Section business meeting received a report from Voula Papaioannidou (Thessaloniki, Greece) concerning the 8<sup>th</sup> Southeast European Congress on Xenobiotic Metabolism and Toxicity in Thessaloniki, Greece in October, 2010 (see <http://xemmet2010.web.auth.gr>). Dr. Papaioannidou reported that this meeting had been very successful, attracting many delegates from the region, and thanked the Section for their financial support. Future activities planned by the Section include joint sessions at other meetings (e.g., International Congress of Toxicology), more joint activities with other sections, especially the Pharmacogenetics & Pharmacogenomics Section, and a session at the World Congress of Basic and Clinical Pharmacology 2018 in Kyoto. The Section also paid tribute to Professor Gabrielle (Gay) Hawksworth who died in 2012 since the last business meeting. Gay had made an important contribution to the development of the section, and to IUPHAR generally, and will be greatly missed.

The Section elected as new executive board members Eddie Morgan, Momir Mikov, Nuala Helsby, Hiroyuki Kusuhara and Daniel Antoine and now has the following board membership:

<u>Chair:</u>	Ann Daly (UK)
<u>Vice Chair:</u>	Matthias Schwab (Germany)
<u>Secretary:</u>	Collen Masimirembwa (Zimbabwe)
<u>Treasurer:</u>	Eddie Morgan (USA)
<u>Past Chair:</u>	Allan Rettie (USA)
<u>Councilors:</u>	Momir Mikov (Serbia), Nuala Helsby (New Zealand), Enrique Sanchez Pozzi (Argentina), Hiroyuki Kusuhara (Japan), Guang-Ji Wang (China), and Daniel Antoine (UK)

Ann Daly, Chair, IUPHAR Drug Metabolism and Drug Transporter Section



*Members of the Drug Metabolism and Drug Transporter and the Pharmacogenetics & Pharmacogenomics Sections on a visit to Table Mountain during WCP2014 (L → R): Ingolf Cascorbi, Ann Daly, Matthias Schwab, Andrea Schwab and Magnus Ingelman-Sundberg*



## Gastrointestinal Section 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection

The 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection was held in Budapest September 24 - 26, 2014. The Symposium was a satellite meeting of the 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology 2014. The meeting was organized by the Hungarian Society for Experimental and Clinical Pharmacology, the Department of Pharmacology and Pharmacotherapy, Semmelweis University and the Drug Discovery and Safety Centre, Semmelweis University, under the auspices of the Medical Section of the Hungarian Academy of Sciences and the IUPHAR Gastrointestinal (GI) Section. The main organizer and chair of the symposium was Prof. Klara Gyires, of the Department of Pharmacology and Pharmacotherapy, Semmelweis University, and the co-chair was Prof. Beata Sperlagh, the secretary general of the Hungarian Society for Experimental and Clinical Pharmacology. The organizers wish to acknowledge and thank Richter Gedeon, Antibe Therapeutics, MDE Heidelberg Biological Research Sigma Aldrich, Medicina Publishing House, Ballagi LTD and Foundation of Drug Research in Hungary for their meeting support.

The Symposium followed a range of internationally acknowledged and successful series. The first meeting was held in 1986 in Heidelberg, the next three in USA, then in Ukraine (2008), in Russia (2011) and in Hawaii (2012). The symposium traditionally covered a wide range of topics associated with cell, tissue damage / protection in upper and lower parts of the GI tract. In the present Symposium, the topics have been extended to other organs, e.g., injury /repair of cardiac and neuronal tissues, as was emphasized by Prof. Gyires during the opening ceremony.



*Symposium participants standing in the entrance  
of the main building of the Hungarian Academy of Sciences in Budapest*

*Continued on page 27...*



## 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection (continued)

In previous symposia most of the participants have been leading experts of their research area. The 8<sup>th</sup> Symposium followed this tradition by inviting keynote speakers from 14 countries: Austria, Canada, Croatia, Germany, Hungary, Italy, Japan, Korea, Norway, Russia, Singapore, Ukraine, United Kingdom, and USA. The total number of Symposium participants was about a hundred. During two and half days, 37 oral presentations were given and 30 posters were discussed in two sessions.



(L → R) Profs. P. Sikiric (Croatia), K. Takeuchi (Japan) and B. Callingham (UK) intently following the opening program



Profs. Koji Takeuchi (second from left) and Gyula Mózsik (center) with their Andre Robert Prizes accompanied by Profs. Duan Chen (left), Sandor Szabo (second from right) and Klara Gyires (right)

The Andre Robert Prize was established on behalf of this symposia series to commemorate the work of Andre Robert, MD, PhD, originator of the concept of “gastric cytoprotection”, who founded this symposia series in the mid-1980s in conjunction with Prof. Sandor Szabo. The award has now been passed to the GI Section to continue the tradition. During the opening ceremony, Profs. Duan Chen and Klara Gyires, president and vice-president, respectively, of the GI Section, along with Prof. Szabo, immediate past president of the GI Section,

awarded the Andre Robert Prize to Gyula Mózsik, professor emeritus, University of Pecs, Hungary, and to Koji Takeuchi, professor emeritus, Kyoto Pharmaceutical University, Japan. Both recipients have made several major and original contributions to the field of GI pharmacology, especially in relation to gastric cytoprotection.

The scientific program started with State of the Art Lectures, which focused on novel mechanisms, concepts on gastrointestinal mucosal injury and protection. As an example, Prof. Szabo reviewed new developments in the field of cell necrosis, apoptosis, necroptosis, and the potential mechanisms of gastroprotection, e.g., the role of slightly increased vascular permeability and perivascular edema as a histodilutional barrier. Prof. K. Rainsford emphasized the importance of cofactors



that contribute to the development of serious GI complications of nonsteroidal anti-inflammatory drugs (NSAIDs). Prof. J. Wallace (photo above) summarized the role of H<sub>2</sub>S in mucosal defense and the beneficial effect of H<sub>2</sub>S donors in increasing the resistance of the mucosa to injury induced by NSAIDs. Prof. A. Tarnawski emphasized the significant advantage of confocal laser endomicroscopy over standard histologic and electromicroscopic assessment, e.g., allowing in vivo monitoring of mucosal structure and function. Prof. J. Szolcsanyi overviewed the discovery and mechanism of the gastroprotective action of capsaicin, and finally, Prof. P. Holzer (photo at left) focused on intestinal microbiota, the gut brain axis and the protection of gut and brain.



Continued on page 28...

## 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection (continued)

The remaining part of the scientific program included three sessions on Injury / Protection of Gastrointestinal Mucosa (13 speakers), NSAIDs and Gastrointestinal Tract (five speakers), Gastrointestinal Malignant Diseases (five speakers), Cardioprotection (four speakers) and Neuroprotection (four speakers) as well as the two excellent sessions featuring 30 posters.



*Prof. T. Brzozowski (Poland) poses a question during the discussions*



*Prof. J. Wood (USA) has a question for the speaker - seated at left is Prof. K.B. Hahm (Korea)*

As the speakers' topics suggest, most of the lectures focused on current status of the mechanism of gastric and intestinal mucosal injury / protection, e.g., the protective effect of carbon monoxide (Prof. T. Brzozowski), duodenal bicarbonate secretion associated with ATP and P2Y<sub>1</sub> receptors (Prof. J. Wood), gender differentiation in bicarbonate secretion and association with ASIC3 (Prof. K. Takeuchi), molecular mechanism of H. pylori induced tissue damage (Prof. H. Kim), esophageal mucosal lesions (Prof. O. Zayachkivska), the role of corticotropin receptors in gastric mucosal defense (Prof. L. Filaretova), the protective effect of the stable gastric pentadecapeptide, BPC 157 (Prof. P. Sikiric), and the differences in the centrally induced gastroprotection (Prof. K. Gyires). The lectures related to NSAIDs and Gastrointestinal Tract revealed new mechanisms of mucosal damage/protection, e.g. dysfunction of local defense system in NSAID-induced lesions (Dr. T. Tomita), the aggravating effect of antisecretory drugs on diclofenac-induced intestinal lesions and the usefulness of mucosal protective agents (Prof. H. Satoh), the smooth muscle and vascular actions of ibuprofen and diclofenac (Prof. B. Callingham), changes in NO synthase under stress and blockade of COX-1/COX-2 and 5-LOX (Prof. A. Y. Sklyarov), and the results

of human phase I study with capsaicinoids against diclofenac and aspirin-induced mucosal injury (Prof. Gy. Mózsik). Lectures focusing on injury and protection of intestinal mucosa analyzed the protective role of heme-oxygenase 1 expressed by macrophages in colitis (Prof. Y. Naito), changes of colonic ion transport and mucus secretion by ceftriaxone (Dr. G. Tolstanova), furthermore, the protective role of TRPA1 ion channel (Prof. Zs. Helyes) and the Harkany medical water (Prof. E. Pintér) on experimental colitis. The lectures on mucosal injury and repair in malignant diseases associated with GI tract analyzed the mechanism of sulphoraphane-induced chemoprevention (Prof. A. Yanaka), the cytoprotection



*Professor H. Satoh (Japan) among PhD students*

*Continued on page 27...*



## 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection (continued)

by omega-3 fatty acid against H. pylori-induced carcinogenesis (Prof. K.B. Hahm), the triple role of autophagy in cytoprotection (Dr. C.M. Zhao), fluorescence based co-culture of normal and malignant cells which method may have a benefit for estimating cancer therapeutic effects (Prof. H. Matsui), and the role of substance P in gastric MALT lymphoma formation (Prof. M. Nakamura).



*Discussion between Profs. K. Rainsford (at left), S. Szabo (center) and J. Szolcsányi (at right)*

Interesting lectures were given on the role of the vagal nerve in the control of body weight (consequently it may be a new target for obesity treatments) (Prof. D. Chen) and the beneficial role of stem cells in tissue injury (Prof. G. Varga). Moreover, cardioprotection associated with endogenous cannabinoids (Prof. P. Pacher), ischemia / reperfusion (Prof. R. Schulz) and extracellular vesicles (Dr. Z. Giricz), were also discussed. Novel mechanisms of neuroprotection and neurodegeneration was also a new important topic at the symposium: the role of kynurenines (Prof. L. Vécsei), the reasons behind the clinical translational failure - namely the experimentally protective agents failed to be effective in clinical trials - (Prof. L. Csiba), the effect of novel, (hetero)aryl-alkenyl propargylamine compounds with putative MAO-B inhibitory and neuroprotective properties in different experimental models of Parkinson's disease (Prof. B. Sperlagh), and WNT-signaling (P. L. R. Ee) were also analyzed.

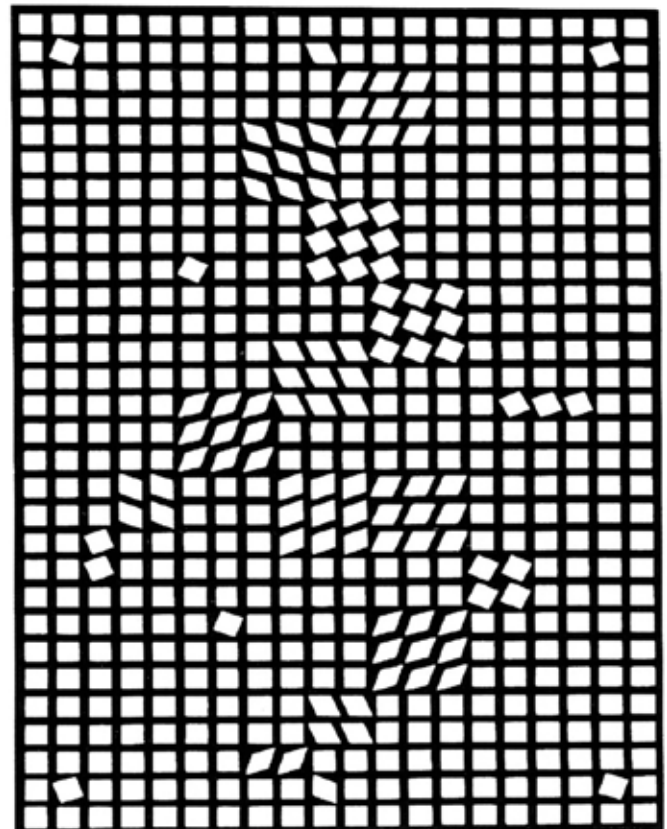
As a special guest, the Honorary Membership-Lecture of the Hungarian Society for Experimental and Clinical Pharmacology was given by Prof. E. Adeghate (United Arab Emirates) on the cytoprotective role of incretins in diabetes mellitus.

The symposium abstracts were published in *Digestive Disease and Sciences* (59:1647-1670, 2014). The program of the 8<sup>th</sup> International Symposium on Cell / Tissue Injury and Cytoprotection / Organoprotection is available on the Symposium website, <http://www.congressline.hu/isctico2014>. *Inflammopharmacology*, a peer-reviewed journal, offered the possibility for rapid publication of the presentations.

The interesting and extensive discussions suggest that the extension of the research topics of the Symposium proved to be very useful. It is hoped that crosstalk between scientists in different fields will stimulate initiation of new research topics and collaborations.

The 9<sup>th</sup> International Symposium on Cell/Tissue Injury and Cytoprotection / Organoprotection, as the official meeting of IUPHAR GI section, will be held in September, 2016 in Krakow, Poland, organized by Prof. T. Brzozowski. •

Klara Gyires, Vice Chair, IUPHAR Gastrointestinal Section



*OP-ART dedicated  
to the symposia  
by Victor Vasarely*

*Vasarely*





## Meet the IUPHAR Immunopharmacology (ImmuPhar) Section

The Immunopharmacology (ImmuPhar) Section is a group of scientists and clinicians, working in universities and industries, who are interested in the interrelationships between the disciplines of pharmacology and immunology.

Immunopharmacology is one of the youngest areas of pharmacology dealing with the selective modulation (i.e. upregulation or downregulation) of specific immune responses and, in particular, of immune cell subsets.

For many years, modifiers of the biological response of the immune system or immunomodulating agents have been used in clinical practice despite severe side effects. In recent years, greater knowledge of mediator and cell types involved in immune and inflammatory responses and great advances in biotechnology have made available new classes of immunomodulating drugs with much improved selectivity.

ImmuPhar was launched in 2013 and held its inaugural business meeting during the World Congress of Basic and Clinical Pharmacology in Cape Town (photograph below). Several actions were planned in response to the



meeting to improve visibility of the Section and raise the necessary funds for its operation. The acronym, ImmuPhar, and new logo were created. Three subcommittees will be created to generate the relevant material and discussion points with the Nomenclature Committee (NC-IUPHAR) and for dissemination of information: i. Antibodies as therapeutics; ii. Molecular targets for immunodulatory drugs (molecular oriented); iii. Targets in immune-related diseases (disease oriented). In addition, an international advisory board will be created to help run the Section. Further information will soon be available on our homepage. In the meantime, please contact the Section for further information. •

Mauro Teixeira, Secretary, IUPHAR ImmuPhar, [mmtex@icb.ufmg.br](mailto:mmtex@icb.ufmg.br)

## Geriatric Clinical Pharmacology Subcommittee of the IUPHAR Clinical Pharmacology Division WCP2014 Symposium

During the World Congress of Basic and Clinical Pharmacology (WCP2014) in Cape Town, the Geriatric Clinical Pharmacology Subcommittee presented a symposium on *Optimal Prescribing in Older Patients: The Challenge of Multiple Comorbid Conditions and Polypharmacy*. The titles of the talks were:

- *Multiple Comorbid Conditions and Disease-based Treatment Guidelines: The Therapeutic Dilemma for Older Persons with Geriatric Syndromes* by Assoc. Prof. Sarah Hilmer (Australia)
- *Methods to Assess Drug Burden and Polypharmacy* by Prof. Petra Thürmann (Germany)
- *Deprescribing to Limit Polypharmacy: The Evidence Base* by Prof. David LeCouteur (Australia)
- *Effects of New Drugs in Older Patients: What is Known at the Time of Drug Approval* (Prof. Darrell Abernethy (USA))



*Sarah Hilmer (at left) and David LeCouteur (at right) offer insights on issues faced by geriatric patients*

This symposium highlighted the challenges of optimizing prescribing for complex older patients, who are frequently prescribed multiple medicines for their multiple concurrent medical conditions. Older patients are major users of medicines and are often quite different from patients in clinical trials, particularly those done prior to drug approval. The development, validation and implementation of pharmacological approaches to assessing the cumulative risks of medicines in older people were reviewed. There was lively discussion with the audience about deprescribing (withdrawing) medicines that may cause older people more harm than good.

After the symposium at WCP2014, members of the Geriatric Clinical Pharmacology Subcommittee had the opportunity to meet Dr. Joseph Fadare, a clinical pharmacologist from Nigeria, who is conducting studies on drug utilization in old age. With the global increase in ageing and non-communicable diseases, there is a need for measures of high risk prescribing and for therapeutic guidance that applies to older people in the developing world.

The Geriatric Clinical Pharmacology Subcommittee will present a symposium entitled, *Understanding and Optimising the Effects of Multiple Medicines in Old Age*, encompassing clinical, epidemiologic and educational angles, at the Joint Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) / British Pharmacological Society (BPS) Scientific Meeting to be held at the University of Hong Kong on May 19 - 21, 2015. •



# The IUPHAR Clinical Pharmacology Division

is pleased to announce  
the formation of the

## **PHARMACOEPIDEMIOLOGY & PHARMACOVIGILANCE SUBCOMMITTEE**

Membership is open to pharmacologists, pharmaco-epidemiologists, pharmacovigilants, clinical pharmacologists, and clinicians interested in the interrelationships between the disciplines of pharmacology and epidemiology, who are affiliated with an IUPHAR member society. IUPHAR member societies and their sections are also eligible for affiliation.

The Pharmacoepidemiology & Pharmacovigilance Subcommittee Officers are:

Chair:	Milou-Daniel Drici (France)
Vice Chair:	Simon Thomas (UK)
Secretary:	Mondher Toumi (USA)

Applications for individual membership or affiliation membership as a society or section are to be submitted to the Pharmacoepidemiology & Pharmacovigilance Subcommittee Secretary. Affiliated societies and sections are entitled to nominate one delegate to the business meetings of the Pharmacoepidemiology & Pharmacovigilance Subcommittee. For more information, contact the secretary, Dr. Mondher Toumi (USA) at [mto@creativ-ceutical.com](mailto:mto@creativ-ceutical.com), the chair, Prof. Milou-Daniel Drici (France) at [drici.md@chu-nice.fr](mailto:drici.md@chu-nice.fr) or the vice chair, Prof. Simon Thomas (UK) at [simon.thomas@ncl.ac.uk](mailto:simon.thomas@ncl.ac.uk). •



# Incoming Officers of the Pediatric Clinical Pharmacology Section

The International Union of Basic and Clinical Pharmacology (IUPHAR) Section of Pediatric Clinical Pharmacology is pleased to introduce the incoming officers elected by the Section at the 17<sup>th</sup> World Congress of Basic and Clinical Pharmacology recently held in Cape Town, South Africa. We first want to acknowledge the vision, diligence and superb leadership provided by Kalle Hoppu, MD, PhD (Finland), who served for six years as chair of the Pediatric Clinical Pharmacology Subcommittee (2004 - 2010) then as the first chair of the Pediatric Clinical Pharmacology Section (2010 - 2014).



Over the next four years, the Section will be led by Gregory L. Kearns, PharmD, PhD (USA), as chair. Dr. Kearns is a pediatric clinical pharmacologist who currently holds the Marion Merrell Dow / Missouri Chair in Pediatric Medical Research at the University of Missouri – Kansas City and the Children’s Mercy Hospital (CMH). Additionally, he holds professorial appointments in Pediatrics and Preventive Medicine and Public Health at the University of Kansas School of Medicine and serves as the chief scientific officer for CMH. A past president of the American Society for Clinical Pharmacology and Therapeutics (ASCPT), Dr. Kearns continues to serve ASCPT as its secretary/treasurer. Over the past 30 years, Dr. Kearns’ research has focused on studying the impact of ontogeny and pharmacogenomics on drug disposition and action.

Facundo Garcia Bournissen, MD, PhD (Argentina), will continue to serve the Section in the capacity of vice chair. Dr. Garcia Bournissen is a pediatrician who completed his PhD degree at the University of Toronto and his fellowship in Pediatric Clinical Pharmacology from the Hospital for Sick Children. He currently serves in the post of associate researcher at the Argentine National Council for Scientific and Technical Research and as a pediatric clinical pharmacologist at the Buenos Aires Children’s Hospital Ricardo Gutierrez. Dr. Garcia Bournissen’s research involves the design and performance of clinical trials for neglected diseases in special pediatric populations and also lactating mother-infant pairs.



Shinya Ito, MD, FRCPC (Canada), will serve the Section in the capacity of secretary. Dr. Ito is professor and head of the Division of Clinical Pharmacology and Toxicology and senior scientist in the Research Institute of the Hospital for Sick Children in Toronto. At present, he is also serving as a clinician scientist (pediatrician) in the Department of Pediatrics at the University of Toronto and the president of the Canadian Society of Pharmacology & Therapeutics. Dr. Ito’s research focuses on breast

# Pediatric Clinical Pharmacology Section (continued)

feeding pharmacology, global research education in pediatric clinical pharmacology and developmental pharmacogenomics.

Madlen Gazarian, MBBS (HonsI), MSc (ClinEpi), FRACP (Australia), will continue to serve the Section in the capacity of treasurer. Dr. Gazarian is a consultant pediatrician specializing in clinical pharmacology and therapeutics, clinical epidemiology, health services research, pharmacoepidemiology and pharmacovigilance. Dr. Gazarian completed her sub-specialty training in Clinical Pharmacology and Pediatric Rheumatology and her Masters in Clinical Epidemiology at the University of Toronto and Hospital for Sick Children, Toronto. She is currently an honorary associate professor in the School of Medical Sciences, University of New South Wales, Australia. Dr. Gazarian provides expertise and leadership in pediatric medicines and therapeutics issues to a range of Australian and international organizations which include the International Pediatric Association, the Global Research in Pediatric Research (GRiP) Network and the International Society of Pharmacoepidemiology. Dr. Gazarian's research focuses on evidence-based therapeutic decision-making, rational medication use and medicines safety evaluation and improvement.



The Section has identified several strategic priorities in its work plan for the upcoming 24 months. These include :

- greater interaction with the World Health Organization (WHO) to ensure the constant representation of pediatric clinical pharmacologists on the Committee for the Selection and Use of Essential Medicine and other WHO working groups focusing on the treatment of conditions impacting infants, children and adolescents;
- expanding collaborations between IUPHAR and learned societies in the USA, Canada and Europe, which have a focus on pediatric clinical pharmacology
- continuing our active support of the Global Research in Pediatrics (GRiP) Network through the contribution of time and effort to the dissemination of education in pediatric clinical pharmacology to pediatricians and other professionals involved in either the care of pediatric patients or the development of treatments for them. •

Greg Kearns, Chair, IUPHAR Pediatric Clinical Pharmacology Section

# Pharmacology from Cape Town to Kyoto

It is a great privilege and also a major responsibility to be elected secretary general of the International Union of Basic and Clinical Pharmacology (IUPHAR) to help guide us from Cape Town in 2014 to Kyoto in 2018. We can also look forward to Glasgow, with congratulations to the British Pharmacological Society (BPS) on their winning bid for WCP2022. S.J. Enna (USA) was elected president and Petra Thürmann (Germany) as Treasurer. Together with the new Executive Committee, Lynn LeCount and Leigh Ann Arbuckle in the Administrative Office, we look forward to serving you, and also to driving IUPHAR and pharmacology to a central position in health care and research.

Pharmacology is at a critical phase where we desperately need new drugs in many areas from antibiotics to tuberculosis to neurodegeneration, but where the key role of pharmacology may be under-appreciated, and some countries cannot afford adequate health care. IUPHAR wishes to address these issues in several ways, both clinically and preclinically.



2014 - 2018 IUPHAR executive officers  
(L → R) S. J. Enna (president), Petra Thürmann (treasurer), and Michael Spedding (secretary general)

First we will foster education worldwide. The IUPHAR IOSP Initiative has been successful. We now have a partnership with the American Society for Pharmacology & Experimental Therapeutics (ASPET) for an educational website (see pages 21 - 24), known as the IUPHAR/ASPET Pharmacology Education Project (PEP). The IUPHAR sections are now engaged in a series of new initiatives and applying for funding for them worldwide.

In this respect, in my last responsibility for IUPHAR, I served as secretary then chair of the IUPHAR Nomenclature Committee (NC-IUPHAR) for over two decades. During that time we have seen the committee grow from a group classifying G protein coupled receptors to an organisation with >80 expert subcommittees (672 scientists) freely giving their time to creating a public knowledgebase. The IUPHAR database, which has become the IUPHAR/BPS [GuideToPharmacology.org](http://GuideToPharmacology.org) (see page 38), describes the drug binding sites in the human genome. This is already the main scientific output of IUPHAR with a publication h-index of >72.

The Chinese, Japanese, Indian and Australian societies will promote it actively as an international pharmacology knowledgebase. The incorporated social networks will be used to integrate individual African scientists in their international development through Pharmacology for Africa (PharfA). We are very actively searching innovative ways to finance the long term future of [GuideToPharmacology.org](http://GuideToPharmacology.org). We hope that this can be a world-wide flagship cooperative initiative.

Nevertheless, drug discovery, although a great hope for the future, has not led to all the benefits that we expected. Indeed, the failure rate in the development of drugs for Alzheimer's disease is 99.6%. This is unsustainable. One reason may be that other targets are more important than those addressed. Hence IUPHAR has made recommendations on current knowledge on alternative splicing, heterodimers, allostery, epigenetic targets and work on non-coding RNAs in alliance with Human Genome Organisation Gene Nomenclature Committee (HGNC). The



Immunopharmacology (ImmuPhar) Section has started a major initiative in immunological/inflammatory drug targets. We also support the role of academic drug discovery in rare and tropical diseases.

How does all this relate to the World Congress of Basic and Clinical Pharmacology? We had a fabulous meeting in Cape Town. The science was great - graced by a Nobel prize winner. The student helpers were exemplary (see photograph at left), which indicates

Continued on page 36...



## Pharmacology from Cape Town to Kyoto (continued)

a very healthy future for pharmacology in South Africa. Music was everywhere and the organisation was impeccable. Many, many contacts were made. We were perhaps a little short on overseas participants, but the organisers could not have done more.



The official dinner had memorable entertainment, but also a really stirring political address by the South African Minister of Science and Technology, Naledi Pandor (photograph at left). She did not give the 'usual' political speech, but instead described the real problems facing South Africa healthcare, including the desperate statistics on HIV/AIDS, tuberculosis and malaria, Africa's big killers. She also announced that the University of Cape Town and the South African Medical Research Council (MRC) have a R370 million biotechnology partnership to develop new medicines, vaccines and other biotechnologies to combat these diseases,

and to create value by research. The funding and support partners are the Bill and Melinda Gates Foundation and the Departments of Science and Technology and Health. In this respect, the very next day, IUPHAR organised a symposium on how academic research can discover new drugs for rare and tropical diseases, with powerful consortia engaged in novel research – the participants agreed to act as consultants for South African science, a truly beneficial role for the organising capacity of IUPHAR in the increasingly global drug discovery efforts. Africa has fully organised its pharmacology with PharfA, uniting all African pharmacologists. IUPHAR will help with social networking and also using the [GuideToPharmacology.org](http://GuideToPharmacology.org) as a worldwide resource.

We can also look forward to the Kyoto meeting in 2018, which is in very good hands. Drs. Shuh Naruyama (president) and Masamitsu Iino (secretary) met with the WCP2018 International Advisory Board while in Cape Town.

Not all is good news, however. Our good friend who led the database initiative in Edinburgh, Prof. Tony Harmar (photograph at right), died of cancer in April. There is short description of his IUPHAR contributions on page 37. We are grateful to Prof. Jamie Davies, of Edinburgh, for stepping in to ensure continuity. His work, intelligence and sheer unflappability are a great succour in running this busy team.



We have a new IUPHAR Executive Committee (see page 39) and we achieved a great deal, to be confirmed at the next Executive Committee meeting in Xi'An, China in May, on our way from WCP2014 (Cape Town) to WCP2018 (Kyoto) and WCP2022 (Glasgow). However, IUPHAR is a world-wide endeavour and all are welcome to participate – please contact us at [IUPHAR@kumc.edu](mailto:IUPHAR@kumc.edu).



Michael Spedding, Secretary General of IUPHAR



# Anthony J. Harmar

## Awarded J.R. Vane Medal Posthumously

Anthony (Tony) John Harmar FRSE, (28<sup>th</sup> November 1951 – 10<sup>th</sup> April 2014) was awarded the J.R. Vane Medal by the British Pharmacological Society (BPS) as a tribute to his work. Our good friend died of cancer in April. He and I had complementary roles in the IUPHAR Nomenclature Committee (NC-IUPHAR), with Tony developing the database in Edinburgh, while I chaired the NC-IUPHAR committees. We communicated weekly for more than a decade while NC-IUPHAR was transformed from a group classifying G protein coupled receptors (GPCRs) to an organisation with >80 expert subcommittees (672 scientists) classifying all the drug binding sites in the human genome in the IUPHAR database, which is now the IUPHAR/BPS [GuideToPharmacology.org](http://www.guidetopharmacology.org). IUPHAR recommendations are authoritative with a publication h-index of >72. Tony himself had an h-index of 40 from ~200 papers in neuroscience.

Tony held a first degree in Biochemistry and a PhD in Pharmacology from the University of Cambridge (UK) followed by postdoctoral research at the Friedrich Miescher-Institut (Basel, Switzerland) and the Department of Pharmacology, University of Bristol (UK). After working with John Kelly in the MRC Brain Metabolism Unit in Edinburgh (UK) from 1981, he was appointed chair in Molecular Pharmacology at the University of Edinburgh in 2001.

His expert knowledge and breakthroughs in class II GPCRs were critical to the field. He cloned several of the receptors and created many transgenic animals. This led to research showing that rhythmic activity of the “master clock” driving circadian rhythms, located in the suprachiasmatic nuclei (SCN) of the hypothalamus, which is dependent upon signalling between SCN neurons, mediated by the neuropeptide, vasoactive intestinal peptide (VIP). Mice lacking a receptor for VIP (the VPAC2 receptor, first identified by Tony in 1993) lack robust circadian rhythms of behaviour, electrical activity and gene expression in the SCN (*Cell*, 2002). His research showed that food intake is an effective zeitgeber capable of coordinating circadian rhythms of behavior, peripheral clock gene expression, and hormone secretion, even in the absence of a functional SCN clock.

This knowledge led to Tony being invited to join NC-IUPHAR as an expert in the subject. Tony’s contribution to NC-IUPHAR was not restricted to class II GPCRs because he helped establish the free online IUPHAR database. Tony grew the team to five curators at the University of Edinburgh, tightly linked with the subcommittees in conjunction with the chair. He was the main investigator in the Wellcome Trust grant award. In 2012 the IUPHAR database was viewed 131,000 times by 67,000 individuals from 166 different countries, or over 350 visits each hour. Tony was an instrumental member of the team that put together the IUPHAR/BPS [GuideToPharmacology.org](http://www.guidetopharmacology.org) and the recent *Concise Guide To Pharmacology*, published with the BPS. The [GuideToPharmacology.org](http://www.guidetopharmacology.org) is now a world-wide knowledgebase housing the combined data on therapeutic targets, drugs, and other ligands. This is, and will be, a key educational resource for all pharmacologists worldwide.

Tony had great force of character with a very special sense of humour, which could be wicked! He was a very talented musician and led various chorals. During all the time of his illness, Tony was always positive and creative in inventing ways to surmount it. Our thoughts are with his wife, Jillian, and their family. •

Michael Spedding, Secretary General, IUPHAR



## New database version released 5th November 2014!

The latest database version (2014.3) was released on 5th November and includes many content updates and new website enhancements. The current release now covers 7220 distinct ligands interacting at 2708 protein targets (see [full statistics](#) on our About page). For a full list of updates take a look at our latest [blogpost](#).

### New Hot Topics

#### *Crystal structure of a human GABA<sub>A</sub> receptor*

Recommended by Chris Southan

#### *X-ray structure of the mGlu<sub>5</sub> receptor*

Comments by Fiona Marshall

The team from Heptares have published the structure of the transmembrane domain of the mGlu5 receptor in *Nature*. The structure is in complex with the negative allosteric modulator (NAM) mavoglurant, which is currently in clinical trials for OCD and depression and has previously been evaluated in Fragile X disorder. The overall structure is similar to the recently published structure of the related mGlu1 receptor, however, the ligand binds much deeper within the transmembrane domain.

To read more visit... [www.GuideToPHARMACOLOGY.org](http://www.GuideToPHARMACOLOGY.org)



The screenshot shows the IUPHAR/BPS Guide to PHARMACOLOGY website. At the top, there is a search bar and the site title. Below the navigation menu, the main content area is divided into several sections:

- Targets:** A list of target classes including G protein-coupled receptors, ion channels, nuclear hormone receptors, kinases, catalytic receptors, transporters, enzymes, and other protein targets. A search button is provided.
- Ligands:** A list of ligand categories including approved drugs, synthetic organics, metabolites, natural products, endogenous peptides, other peptides, inorganics, antibodies, and labelled ligands. A search button is provided.
- Get email updates:** A form for entering an email address and selecting a preferred format (HTML or text), with a subscribe button.
- The Concise Guide to PHARMACOLOGY 2013/14:** A section featuring a cover image of the book and a link to access the table of contents.
- What's new to Guide to PHARMACOLOGY:** A section titled 'New version (2014.3) released 5th Nov 2014!' with a sub-section for 'Target updates' listing GPCR updates such as Class Frizzled GPCRs, Lysophospholipid (LPA) receptors, Lysophospholipid (S1P) receptors, and Melanin-concentrating hormone receptors.
- Latest News:** A section titled 'From our blog' with two news items: 'Proteases in the latest GtoPdb release' and 'Retrospective entity linking from the literature: IUPHAR by guidetopharmacology'.



# Meet the 2014 - 2018 International Union of Basic and Clinical Pharmacology (IUPHAR) Executive Committee

IUPHAR has a very diverse Executive Committee. Representing four continents and twelve countries, the fifteen members encompass a broad spectrum of expertise and offer IUPHAR experience from academia, industry and government. Following is a brief summary describing each member.

## President



S. J. Enna (USA) received his B.A. degree (1965, Biology) from Rockhurst University, Kansas City, Missouri and both his M.S. (1967, Pharmacology) and Ph.D. (1970, Pharmacology) degrees from the University of Missouri-Kansas City. Postdoctoral training in pharmacology was completed at the University of Texas Southwestern Medical School in Dallas, at F. Hoffmann-La Roche in Basel, Switzerland, and the Department of Pharmacology and Experimental Therapeutics at Johns Hopkins University School of Medicine in Baltimore. Dr. Enna spent 10 years on the faculty at the University of Texas Medical School at Houston in the Departments of Pharmacology and Neurobiology then joined Nova Pharmaceutical Corporation in Baltimore as senior vice president and scientific director 1986 - 1990, then executive vice president 1990 - 1992. Dr. Enna chaired the Department of Pharmacology, Toxicology and Therapeutics at the University of Kansas Medical School 1992 - 2003. He is currently associate dean for research and graduate education as well as professor of Physiology

and of Pharmacology at the University of Kansas Medical School.

Dr. Enna served for six years as editor-in-chief of *The Journal of Pharmacology and Experimental Therapeutics*, and is currently co-editor of *Current Protocols in Pharmacology*. He is also editor-in-chief of *Biochemical Pharmacology*, executive editor-in-chief of *Pharmacology & Therapeutics* and series editor of *Advances in Pharmacology*. Besides his editorships, Dr. Enna serves on the editorial boards of *Brain Research*, *Life Sciences* and *CNS Drug Reviews*.

He has been the recipient of Research Career Development Awards from the National Institute of Mental Health and the National Institute for Neurological, Communicative Disorders and Stroke, the John Jacob Abel Award and the Torald Sollmann Award from the American Society for Pharmacology and Experimental Therapeutics, the Daniel H. Efron Award from the American College of Neuropsychopharmacology, and a PhARMA Foundation Excellence Award. He is currently a member of the Basic Pharmacology Advisory Committee of the PhARMA Foundation. Dr. Enna has held many elective offices in professional societies including the presidency of the American Society for Pharmacology and Experimental Therapeutics (ASPET). He served as IUPHAR secretary general before being elected as president this year.

Dr. Enna's research interests include neuropharmacology, neurochemistry and neuropsychiatric disorders. He has made significant contributions in defining the pharmacological and biochemical properties of neurotransmitter receptors, in particular those for GABA. He has also conducted research into the effects of hormones on neurotransmitter receptor function and receptor responses to psychotherapeutics, the development of receptor antagonists for NMDA, cholinergic muscarinic and bradykinin receptors, and the identification of the cellular components of coincident signaling in brain. Dr. Enna's research is described in over 200 published research reports, reviews, and book chapters.

## First Vice President



Graeme Henderson (United Kingdom) obtained a BSc (Hons) in Pharmacology from the University of Glasgow and a PhD in Neuropharmacology from the University of Aberdeen where he worked under the supervision of Hans Kosterlitz and John Hughes. He has held academic positions at the University of Loyola and the University of Cambridge. He is currently a full professor of Pharmacology at the University of Bristol where he was chair 1991 - 1999. At the University of Bristol he teaches pharmacology to medical, dental, veterinary and science students. He is an author of the pharmacology textbook, *Rang & Dale's Pharmacology 7<sup>th</sup> edition*, and is a member of the editorial board of *Current Opinion in Pharmacology*.

He has been a long serving office bearer in the British Pharmacological Society (BPS), serving as scientific meetings vice president then as president of the Society 2005 - 2007. More recently he has served as the first vice president of IUPHAR since 2010.



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

Dr. Henderson's research interests center on how opioid drugs exert their profound effects on the brain. Current research, funded by the MRC and BBSRC, UK, focuses on the molecular and cellular mechanisms underlying opioid tolerance and on how perturbation of tolerance may contribute to acute, unexpected 'overdose' deaths in opioid addicts. He is a member of the Independent Scientific Committee on Drugs, a body which assesses the potential harm of recreational drugs.

### Second Vice President



Masamitsu Iino (Japan) received his MD in 1980 and his PhD in 1976 from the Tohoku University School of Medicine. His postdoctoral training was in the Department of Neuroscience, Physiology and Pharmacology at the University College London before returning to an assistant professorship in the Department of Pharmacology at the Tohoku University School of Medicine through 1984. Dr. Iino spent eleven years in the Department of Pharmacology at the University of Tokyo then in 2007 became vice dean of the University of Tokyo Graduate School of Medicine. In 2011 he was named

director of the Center for Disease Biology and Integrative Medicine. Dr. Iino served on the editorial board of the *Journal of Physiology* 2003 - 2010.

The Japanese Pharmacological Society awarded Dr. Iino with the 1990 Award for Encouragement of Young Investigators. In 2001, he received the Uehara Prize from the Uehara Memorial Foundation. Dr. Iino has been a member of the Japanese Pharmacological Society since 1976. He joined the Scientific Council in 1984 before becoming a member of the Standing Committee in 2000 and a member of the Board of Directors in 2006. In addition, Dr. Iino belongs to the Japanese Society of Physiological Society, the Japan Neuroscience Society, the Society for Neuroscience and the Physiological Society. Dr. Iino is secretary general of the 2018 World Congress of Basic and Clinical Pharmacology, to be held in Kyoto July 1 - 6, 2018. He has served on the IUPHAR Executive Committee as second vice president since 2010.

Dr. Iino discovered regenerativity of intracellular  $Ca^{2+}$  mobilization, a fundamental mechanism that provides  $Ca^{2+}$  signals with their versatility in the regulation of cell functions. Indeed, the intracellular  $Ca^{2+}$  signal is one of the most important biosignals regulating a vast array of cell functions. He then clarified the molecular basis of the regenerative  $Ca^{2+}$  mobilization mechanism and showed that the mechanism is responsible for the generation of diverse spatiotemporal patterns of  $Ca^{2+}$  signals such as  $Ca^{2+}$  oscillations. The importance of his finding is such that it can be now found in textbooks. Furthermore, using innovative imaging methods he has clarified many physiological functions including the physiological significance of  $Ca^{2+}$  oscillations. He is now extending the scope of his study to identify new physiological and pathophysiological cell functions in the central nervous system that are regulated by  $Ca^{2+}$  signals using new methods based on his previous findings

## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

### Secretary General



Michael Spedding (France) graduated with a BSc. Hons Pharmacy from Sunderland Polytechnic School of Pharmacy in 1971. He completed his preregistration pharmacist's requirements to obtain an MRPharmS from Sunderland General Hospital before completing his PhD under the direction of D.F. Weetman and A.J. Sweetman of Sunderland Polytechnic and R.T. Brittain of Glaxo, where he differentiated adenosine and ATP receptors.

After spending four years as a lecturer in pharmacy/pharmacology for Sunderland Polytechnic, Dr. Spedding joined Merrell Dow Research Institute in Strasbourg in 1978 where he became the project leader for cardiovascular drugs, assisting in the discovery of D,L- $\alpha$ -difluoromethylornithine (DFMO) and earned an international reputation on calcium channels, defining allosteric mechanisms of drugs at channels, multiple different drug binding sites and the first effects of calcium channel modulators in the brain. In 1985, he was appointed the pharmacology director and therapeutic area director for Preclinical and Clinical Central Nervous System (CNS) Drugs in the Edinburgh labs of Syntex – the group progressed drugs for stroke, angina and sexual dysfunction into late clinical development. Dr. Spedding then joined the Institute de Recherche Servier in Paris in 1992 where he advanced from research center director to scientific director in 2004. During his tenure, he served as the scientific liaison director for Egis Pharmaceuticals, PLC in Budapest and set up key enabling experiments on new drugs and disease targets. He built two research centres for Servier. He has been associated with the passage of 11 drugs into clinical trials. After twenty two years with Servier, Dr. Spedding launched a research company, Spedding Research Solutions, where he specializes in new approaches in psychiatry, neuroinflammation and amyotrophic lateral sclerosis. Dr. Spedding's research has been published in over 190 full scientific papers with an h-index of 56 and he has initiated more than 20 patents. In his spare time he has cumulated several decades of athletic competition and a scientific interest in human performance and ageing.

Dr. Spedding has been elected to the French Academy of Pharmacy and as a fellow of the BPS. In addition, he has a long history with IUPHAR, where he has served on the Nomenclature Committee (NC-IUPHAR) as secretary for a decade before being appointed as the chair in 2002.

### Treasurer



Petra A. Thürmann (Germany) graduated from the Johann Wolfgang Goethe University with her MD in 1987. For the next decade she advanced from physician to assistant lecturer, clinical pharmacology consultant and, eventually, professor at the Johann Wolfgang Goethe University. Dr. Thürmann achieved habilitation and *venia legendi* (Privatdozentin) in clinical pharmacology in March, 1997. Shortly thereafter, she assumed the directorship of the Institute of Clinical Pharmacology at the HELIOS Klinikum Wuppertal. She went on to serve as the medical vice-director of the HELIOS Klinikum Wuppertal from 1999 until 2003. In addition Dr. Thürmann was appointed professor and chair of Clinical Pharmacology at the Witten/Herdecke University in Germany.

Dr. Thürmann has held many elected and appointed offices. She served as a member of the Drugs in Statutory Health Insurance Commission 2000 - 2003 then she became an adjunct member of the German Medical Association Drug Commission in 2004 and was promoted to full member in 2006. Since 2011, Dr. Thürmann has sat on the Advisory Council on the Assessment of Developments in the Health Care System of the German Ministry of Health. She joined the IUPHAR Division of Clinical Pharmacology in 2002 and became the treasurer of the Division in 2004, followed by the secretary of the Division from 2006 until she was elected as the IUPHAR treasurer earlier this year.

Specializing in clinical pharmacology, Dr. Thürmann studies pharmacovigilance, safe prescribing, geriatric pharmacotherapy (PRISCUS list), multidisciplinary interventions in nursing homes and primary care, as well as gender related differences in drug therapy and phase I studies in cardiovascular drugs.



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

### Councilors



James E. Barrett (USA) is professor and chair of Pharmacology and Physiology and founding director of the Drug Discovery and Development Program at Drexel University College of Medicine and founding director of the Clinical and Translational Research Institute, Drexel University. He received his PhD from Pennsylvania State University followed by postdoctoral training in neuropsychopharmacology at the Worcester Foundation for Experimental Biology. He has served on the faculty at the University of Maryland and at the Uniformed Services University of the Health Sciences (USUHS) where he was professor in the Department of Psychiatry. Dr. Barrett joined Wyeth as vice president of Neuroscience Discovery Research following the merger with Lederle Laboratories where he had been director of Central Nervous System Research. Prior to his current position at Drexel University College of Medicine, he was senior vice president, chief scientific officer, and president over research at Adolor Corporation, a company focused on pain pharmaceuticals. He moved to Adolor after serving as president of Research and Development at Memory Pharmaceuticals, a biopharmaceutical company dedicated to the development of drugs for the treatment of debilitating CNS disorders.

He has published more than 275 scientific articles, books and abstracts in the areas of neuropharmacology, neurobiology, behavioral pharmacology, translational research and neuroscience and serves on several editorial boards. He has served as president of the Behavioral Pharmacology Society and of the American Society for Pharmacology and Experimental Therapeutics (ASPET). Dr. Barrett was chair of the Board of Publication Trustees for ASPET and has served on the Board of Directors for the Federation of American Societies for Experimental Biology (FASEB), where he was a member of the Science Policy Committee and the Public Affairs Committee as well as chair of the “Breakthrough Series in Science” and “Horizons in Bioscience” Series. Dr. Barrett recently joined the Board as series editor for the Handbook of Experimental Pharmacology. He has received the Solvay-Duphar Award for Research on Affective Disorders, the George B. Koelle Award from the Mid-Atlantic Pharmacology Society for contributions to teaching and research and, most recently, the P.B. Dews Lifetime Achievement Award for Research in Behavioral Pharmacology. Dr. Barrett has been named by ASPET as the 2015 recipient of the Torald Sollmann Award.

In addition to being a member of ASPET, he is also a member of the American Association for the Advancement of Science, the American Pain Society and is a fellow of the American College of Neuropsychopharmacology. His current research emphasis is in the area of pain, its co-morbid pathologies, and on basic mechanisms and new therapeutics.



Francesca Levi-Schaffer (Israel) is a professor at the Hebrew University of Jerusalem (HUJI) in the Institute for Drug Research of the School of Pharmacy, Faculty of Medicine. She holds the Isaac and Myrna Kaye chair in Immunopharmacology. Prof. Levi-Schaffer was chair of the Department of Pharmacology and Experimental Therapeutics and head of the Teaching Unit of Pharmacology and Experimental Therapeutics in the HUJI Faculty of Medicine, School of Pharmacy 2006 - 2009. She is an honorary senior lecturer at the National Heart and Lung Institute of the Imperial College in London. Prof. Levi-Schaffer was born in Italy and completed her PharmD degree at the University of Milan. In 1984 she received her PhD degree in Immunology from the Weizmann Institute. Her post-doctoral training was at Harvard Medical School 1984 - 1986.

*Continued on page 43...*



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

Prof. Levi-Schaffer has published 148 articles in peer-reviewed journals, 62 reviews and editorials and 20 book chapters. She has one patent and two provisional patents pending. She was elected chair of the Israel Academy of Sciences and Humanities delegation to WorldPharma2010. In 2012, she was instrumental in the establishment of the IUPHAR Immunopharmacology (ImmuPhar) Section and serves as the first Section chair. She currently is a member of the Board of Directors of the World Allergy Organization (WAO), a member of the Israeli Ministry of Health Committee for Human Experimentation of New Drugs, a member of the Management Committee of EU COST Action BM1007 Mast Cells and Basophils – Targets for Innovative Therapies, and a member of the Editorial Board of the BMC Immunology. She also served as vice president of the European Mast Cell and Basophil Research Network 2009 - 2013 and a member of the Executive Committee of the International Eosinophil Society 2003 - 2013. In addition, she has been recognized through several international prizes and awards for her scientific activity.

Prof. Levi-Schaffer's expertise is in the area of immunopharmacology of allergy. The main goal of her last 10-12 years of research has been to identify new targets for prophylaxis/treatment of allergic diseases and their consequences such as fibrosis and angiogenesis by specifically studying the two main effector cells of allergy, i.e. the mast cells and the eosinophils. Her research focuses on mast cell and eosinophil cross-talk (AEU) in allergy, mast cells and surface inhibitory and activating receptors; the role of mast cells and eosinophils in hypoxia (allergy, COPD); mastocytosis treatment; autism and allergy; atopic dermatitis, the microbiome and the AEU; bispecific antibodies as novel drugs for allergy.



Eeva Moilanen (Finland) is professor of Pharmacology at University of Tampere School of Medicine in Tampere, Finland, where she completed her Licentiate in Medicine in 1985, her Doctor in Medical Sciences in 1989. In 1987, she was awarded a research fellowship from the Finnish Rheumatology Fund. Beginning as an assistant at the University of Tampere in 1984, she steadily progressed to professor in 1999. In addition, she became a Docent of the University in 1994.

Dr. Moilanen is interested in inflammation, especially the roles of MAP-kinase/phosphatase pathways, and of nitric oxide and eicosanoids in inflammatory lung diseases, in rheumatoid arthritis, osteoarthritis and in allergic diseases. Her work appears in around 250 publications and more than 350 abstracts. In addition to her research, Dr. Moilanen has had since 1993 a part time appointment as a physician in the Department of Clinical Chemistry, at the Research Unit, and at the Hospital Pharmacy, Tampere University Hospital. She has mentored numerous trainees and overseen 17 doctoral theses. In addition, Dr. Moilanen has lectured on various topics of pharmacology, toxicology and clinical pharmacology for medical students since 1984, and written 19 chapters on inflammatory mediators, anti-inflammatory and analgesic drugs, and on immunopharmacology in Finnish textbooks for medical students. Dr. Moilanen has been intensively involved in the application of problem based learning method in pharmacology studies in the medical curriculum at University of Tampere. She is responsible for pharmacology studies at Tampere University Medical School.

Dr. Moilanen is active in academic publishing having served as an associate editor for *Life Sciences* and is currently an associate editor for *Mediators of Inflammation*, an editor of *British Journal of Pharmacology* and reviews editor for *Basic and Clinical Pharmacology and Toxicology*. She is a member of the Finnish Pharmacological Society and was elected president of the Federation of European Pharmacological Societies in 2008.



Bhagirath Patel (India) is the director of the Sat Kaival College of Pharmacy, Anand, the head of the Department of Pharmacology, and serves as a founding executive member and honorary director of the Shivrath Centre of Excellence in Clinical Research, a joint venture with the Gujarat State Biotechnology Mission and the Department of Science and Technology, a governmental institution in Gujarat, India. He received his bachelor's and master's degrees from Gujarat University, India then obtained his doctorate from Hemchandracharya North Gujarat University (HNGU).

Dr. Patel was elected as the finance secretary of the Indian Pharmacological Society (IPS) 2010 - 2013. His grass roots level principle is that as financial stakes increase and decisions become more complex, it's imperative that cash and treasury management solutions succeed. The strategies put forward were simple yet specific - increase the inflow of resources. Under his guidance, IPS membership increased from 2,700 to 4,100.

At the community level, Dr. Patel is a founding member of the Hir Foundation, a non-profit, non-government organization working for child education. He held the Rotary International Presidency of the Modasa Club 1999 - 2000 and was an active Gujarat University senate member in 1992 - 1993.

Continued on page 44...



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

His scientific strengths include clinical trials, drug utilization studies, adverse drug monitoring, patient counseling and pharmacovigilance, with a niche on handling various analytical instruments. Dr. Patel is an author of 34 scientific publications and serves as a peer reviewer for scientific journals. As a speaker, he has presented at various international podiums including the United Kingdom, the USA and Canada.



Yong-Xiang Zhang (PR China) completed his undergraduate training in 1986 at the Department of Pharmacology in Qingdao Medical College before obtaining his graduate degree and MD in 1991 at the Beijing Institute of Pharmacology and Toxicology. During that time he was an assistant teacher and studied immunopharmacology. After graduation, Dr. Zhang became an assistant researcher in the Department of Immunopharmacology at the Beijing Institute of Immunopharmacology before undertaking his postdoctoral studies with the Faculty of Pharmaceutical Sciences at Tokyo University. He was appointed in 1994 to associate professor in the Department of Immunopharmacology before advancing to assist director of the Beijing Institute of Pharmacology and Toxicology in 1996. During this same period, Dr. Zhang obtained his PhD from the University of Tokyo as a visiting scholar before returning to the Beijing Institute of Pharmacology and Toxicology, where he rose through the ranks over the next three years to professor in the Department of Immunopharmacology. Since 2000 Dr. Zhang has served as the director of the Beijing Institute of Pharmacology and Toxicology.

Dr. Zhang's research experience includes pharmacological studies of antitumor, immunomodulating and cognition-enhancing drugs, especially drug targets in conjunction with neurodegeneration, with an emphasis in traditional Chinese medicine where he concentrates on prescription, active fraction and pure components.

He is the editor-in-chief of the *Chinese Journal of Pharmacology and Toxicology* and he is an editorial board member of *Chinese Medicine*, *Acta Pharmacologica Sinica*, and the *Asian Journal of Traditional Medicine*. A long-time member of the Chinese Pharmacological Society, Dr. Zhang currently holds appointments as secretary general and vice president. He is also active in the Asia Pacific Federation of Pharmacologists. In addition, he is the chair of the IUPHAR Section of Pharmacology of Natural Products. His leadership made possible the World Conferences on the Pharmacology of Natural and Traditional Medicines held in Huangzhou in 2009 and in Macau in 2012. Dr. Zhang has served as an IUPHAR councilor since 2010.

### Past President



Patrick du Souich (Canada) concluded his term as the IUPHAR president in July, 2014. Prior to that post he was chair of the IUPHAR Division of Clinical Pharmacology 2004 - 2010 after serving as the vice chair 2000 - 2004. Dr. du Souich recently retired from the Faculty Medicine at the University of Montreal where he consulted with patients, taught and performed clinical research.

Dr. du Souich began his career with an MD from the University of Barcelona in 1968 then obtained a PhD in pharmacology from the Autonomous University of Barcelona in 1976. He completed his postdoctoral training at the University of Texas, San Antonio

Continued on page 45...



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

and the University of New York, Buffalo as well as being awarded an International Merck Sharp & Dohme fellowship. Dr. du Souich obtained board certification as a specialist in clinical pharmacology in both Canada and Spain.

He held several elected offices, including president of the Canadian Society for Clinical Pharmacology 1988 - 1990, vice president of the InterAmerican Society for Clinical Pharmacology and Therapeutics 1990 - 1992, and the secretary of the World Congress of Pharmacology and Therapeutics in 1994. Among his numerous awards are recognition from the Spanish Society of Clinical Pharmacology, the Canadian Society of Pharmacology and Therapeutics, and the Quebec Health Research Foundation. Dr. du Souich has served on several editorial boards, notably the *Canadian Journal of Physiology and Pharmacology*, the *British Journal of Pharmacology* and *Acta Pharmacologica Sinica*.

Dr. du Souich researched pharmacodynamics and pharmacokinetics, with a particular interest in the regulation and role of cytochrome P450, the effect of inflammatory reactions and hypoxia on the biotransformation of drugs, and the mechanism of action of chondroitin sulfate. His work appears in over 200 articles, chapters and books.

### Division of Clinical Pharmacology Chair



Darrell R. Abernethy, MD, PhD (USA), is associate director for drug safety in the Office of Clinical Pharmacology at the Food and Drug Administration. Prior to then he was chief science officer at the United States Pharmacopeia 2007 - 2009. Dr. Abernethy received his MD (AOA) and PhD (Pharmacology) degrees from the University of Kansas School of Medicine in 1976. Further clinical training was in Internal Medicine at Jackson Memorial Hospital/University of Miami through Board Certification in Internal Medicine. He then did post-doctoral fellowship training in clinical pharmacology at the Massachusetts General Hospital. Dr. Abernethy joined the faculty at Tufts University School of Medicine as assistant professor of Psychiatry and Medicine in 1981. He moved to Baylor College of Medicine in 1983 where he advanced to associate professor of Medicine in the Division of Hypertension and Clinical Pharmacology. In 1986 he moved to Brown University School of Medicine as chief of the Division of Clinical Pharmacology. He was subsequently promoted to professor of Medicine at Brown. In 1994 Dr. Abernethy became the Francis Cabell Brown professor and director of the Division of Clinical Pharmacology at Georgetown University School of Medicine, where he served until 1999. He then moved to become chief of the Laboratory of Clinical Investigation at the National Institute on Aging until 2007.

Dr. Abernethy has contributed to understanding of mechanisms of peripheral distribution of drugs and drug disposition and effect in obesity. He also has contributed to the knowledge base in pharmacokinetic/pharmacodynamic relationships of cardiovascular drugs in aging and has advanced the concept that the pathophysiology of aging must be considered when interpreting drug effects in the aged patient. Currently Dr. Abernethy is studying the role of genetic polymorphisms of drug effectors that effect responses to cardiovascular drugs. He is also developing a Drug Burden Index to better quantify the effects of multiple medications on functional performance in older adults. These efforts have resulted in 199 publications of original research and over 50 book chapters and reviews.

Dr. Abernethy has participated in, and continues to participate actively, in service and organizational activities which promote the safe and effective use of medications in aged patients. As an extramural investigator, he served on the NIGMS Pharmacological Sciences study section (1988-1992), the FDA generic drugs (1990-1992) and cardiorenal (1992 - 1996) advisory committees, and served as chair of the VA Merit Review Geriatrics subcommittee (1998 - 2000). As an educator, he served on the National Board of Medical Examiners Pharmacology Test Committee (1992 - 1996), was chair of the NBME (now called USMLE) Applied Pharmacology Committee (1997-2000), the Step 1 Test Committee (2006) and serves on the USMLE biostatistics task force. He was recently named chair on the USMLE Pharmacology Test Committee (2009-present). Dr. Abernethy served as vice chair of the IUPHAR Division of Clinical Pharmacology 2010 - 2014 before being elected as chair this year.

Editorial activities include membership on the editorial boards of *Clinical Pharmacology and Therapeutics*, *Molecular Interventions*, the *Journal of Clinical Psychopharmacology*, *Drugs*, *Cardiovascular Drug Reviews*, as associate editor of the *Journal of Pharmacology and Experimental Therapeutics*. Dr. Abernethy served as editor-in-chief of *Pharmacological Reviews* 2001 - 2006 and is now deputy editor of *Pharmacology Research & Perspectives*.

Continued on page 46...



## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

Organizational and public service have included serving as president of the American Society of Clinical Pharmacology and Therapeutics (1991-1992) and on the Gerontology Committee of the United States Pharmacopoeia (1990-2005) that he subsequently chaired (1999-2005). He also served on the USP Medicare Medication Guidelines committee, a group designated by the US Congress to establish the basis for the Medicare Prescription Drug Benefit (2004-2005). In 2005 he was elected president of the USP Convention for the 2005 - 2010 cycle.

### Division of Clinical Pharmacology Vice Chair



David Webb (United Kingdom) was born, educated and trained in London, and gained his MB BS in 1977 (University of London), MD in 1990 (University of London) and DSc in 2000 (University of Edinburgh). He was appointed as the Christison Professor of Therapeutics & Clinical Pharmacology at the University of Edinburgh in 1995. He has held positions as a physician and clinical pharmacologist/toxicologist at the Royal Infirmary of Edinburgh since 1990, and runs Edinburgh's Hypertension Excellence Centre. Dr. Webb ran the University Department of Medicine (1970 - 2001), established the Centre for Cardiovascular Science and Wellcome Trust-funded Cardiovascular Initiative (since 1998), and is currently director of Wellcome Trust - and Medical Research Council - funded Translational Medicine and Therapeutics Initiatives (since 2007). He is a fellow of the Royal College of Physicians (Edinburgh and London), the Academy of Medical Sciences, the Royal Society of Edinburgh and the American Heart Association.

Dr. Webb's main clinical and research interest is in hypertension, focusing on arterial stiffness, endothelial dysfunction and kidney disease. His work on the hormone endothelin over a period of more than 20 years has underpinned current clinical trials of endothelin antagonists in hypertension, diabetes and chronic kidney disease. He has published over 500 peer-reviewed papers on clinical pharmacology and cardiovascular disease (h-Index over 70), and five books on cardiovascular topics. He is involved in teaching and training, mainly of postgraduate physicians and scientists (>30 PhDs to date).

Dr. Webb is president-elect of the BPS for 2016 - 2018, having previously held a number of officer roles, including vice president-clinical and vice president-meetings, and was awarded the biennial Silver Medal for research in 1994, and the Lilly Prize and Gold Medal for contributions to clinical pharmacology in 2003. In addition to serving as the vice chair of the IUPHAR Division of Clinical Pharmacology, he is future president of the IUPHAR World Congress of Basic & Clinical Pharmacology to be held in Glasgow in 2022, having been president of the European Society for Clinical Pharmacology & Therapeutics (EACPT) Congress in 2009.

Dr. Webb is a non-executive director of the Medicines and Healthcare products Regulatory Agency (MHRA), an Executive Agency of the UK Department of Health. MHRA also incorporates the National Institute for Biological Standards and Control (NIBSC), for which Dr. Webb chairs the Scientific Advisory Committee. In Scotland, he has chaired the Scottish Medicines Consortium (SMC: Scotland's equivalent of NICE), and been president of the Scottish Society of Physicians and vice-president of the Royal College of Physicians of Edinburgh.

In his spare time, he enjoys holidays with his wife, who is a pediatric endocrinologist, and three sons, with a focus on rock climbing, ski touring and biking – no beach holidays!

*Continued on page 47..*

## Meet the 2014 – 2018 IUPHAR Executive Committee (continued)

### Division of Clinical Pharmacology Secretary



David Le Couteur (Australia) is a clinical pharmacologist and geriatrician, currently professor of Geriatric Medicine at the University of Sydney, director of the Centre for Education and Research on Ageing (CERA), director of the Biogerontology Laboratory of the ANZAC Research Institute and senior staff specialist physician in Geriatric Medicine at the Concord Repatriation General Hospital in Sydney. Since 2001 he has directed CERA, which is a large multidisciplinary ageing research organization and a collaborative centre of the International Association for Gerontology and Geriatrics (IAGG). His research is translational gerontology, spanning from biogerontology (nutrition, liver pharmacology and physiology, liver endothelium and ageing), clinical research (geriatric pharmacology and the application of evidence based medicine to older people) and pharmacoepidemiology.

He was president of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT 2011 - 2013) before becoming secretary of the IUPHAR Division of Clinical Pharmacology this year. He served on several Australian Federal medicines committees: the Pharmaceutical Benefits Advisory Committee, the Australian Drug Evaluation Committee, and is now a member of the Advisory Committee on the Safety of Medicines. He has served on several education and training committees in the Royal Australasian College of Physicians and is a board member of the Australian Medicines Handbook. He was recipient of the American Society for Clinical Pharmacology and Therapeutics 2013 William B. Abrams Award for his contributions to geriatric clinical pharmacology and has recently co-authored the chapter on the biology of ageing in Harrison's Principles of Internal Medicine (19th Edition). Academic metrics include more than 250 publications and chapters, 17 Australian NHMRC research grants and 31 post-graduate research students

### Division of Clinical Pharmacology Treasurer



M. Isabel Lucena (Spain) is full professor of Pharmacology, head of the Pharmacology Department, School of Medicine at the University of Malaga and University Hospital. She is also scientific director of the Biomedical Research Institute of Malaga (IBIMA).

In addition to serving as treasurer of the IUPHAR Clinical Pharmacology Division, Dr. Lucena is a member of the European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP), the European Medicines Agency, the Networked Biomedical Centre for Research into Hepatic and Digestive Diseases (CIBERehd) and an external expert of the Safety of Medicinal Products for Human Use Committee of the Spanish Medicine Agency (AEMPS). As founder and coordinator of the Spanish Drug Induced Liver Injury (DILI) Registry, Dr. Lucena enabled the first network specialized in the study of Drug Induced Liver Injury and of the brands Spanish Latin-American DILI Network ([www.SpanishDILI.uma.es](http://www.SpanishDILI.uma.es)) and the recently set up Prospective European DILI Registry funded by the European Association for the Study of the Liver.

Her work on the Clinical Networks in Drug-Induced Liver Injury has offered an opportunity for advancing Safety Science and translational research in DILI, providing new insights in clinical phenotypes and severity, and allowing performing pharmacogenetic and mechanistic approaches. The discovery, qualification and validation of new mechanistic and liver specific biomarkers for drug susceptibility, diagnosis and outcome will be dealt through a partnership in the European IMI SAFE-T Consortium "Safer and faster Evidence Based Translation". The use of integrated systems pharmacology-based prediction of drug hepatotoxicity offers the opportunity to identify clinical risk modifiers, improve drug design, implement safe personalized medicine and inform drug development.

The members of the 2014 - 2018 Executive Committee of the International Union of Basic and Clinical Pharmacology look forward to working with you and your colleagues to better medicines through global research and education. •



# Hard at Work behind the Scenes

A lot of work is required to keep an organization the size of IUPHAR moving forward. Most people don't realize how many committees and participants contribute to its success. So, this is an acknowledgment and thank you to the individuals who have agreed to serve on some of the committees that support IUPHAR:

## 2014 – 2018 Internal Auditors



Kathie Knights  
Australia



Johannes Knollmeyer  
Germany

## 2014 – 2018 Membership Committee



David Flockhart  
USA



Yu Huang  
Hong Kong



Karl Netter (Vice Chair)  
Germany



Regina Pekelmann Markus (Chair)  
Brazil



Bernd Rosenkranz  
South Africa

# Hard at Work behind the Scenes

(continued)

## 2014 – 2018 Nomenclature Committee and Guide to Pharmacology

### Outgoing Chair

Michael Spedding, France

### Vice Chairs

Anthony Davenport, UK - Chair Evolving Pharmacology  
Rick Neubig, USA - GPCRs  
Eliot Ohlstein, USA – Editor

### Members

Stephen Alexander, UK  
Thomas Bonner, USA  
William Catterall, USA  
Arthur Christopoulos, Australia  
John Cidlowski, USA  
Sir Colin T. Dollery, UK  
Doriano Fabbro, Switzerland  
Kozo Kaibuchi, Japan  
Yoshikatsu Kanai, Japan  
John Peters, UK  
Alex Phipps, UK  
Jean-Philippe Pin, France

### Ex Officio

S.J. Enna, USA - IUPHAR President  
Petra Thürmann, Germany - IUPHAR Treasurer  
Simon Maxwell, UK - Educational Site Project Leader  
Jamie Davies, UK - Database Principal Investigator  
Joanna Sharman, UK - Database Developer  
Adam Pawson, UK - Senior Database Curator  
Helen Benson, UK - Database Curator  
Elena Faccenda, UK - Database Curator  
Christopher Southan, Sweden - Chemical Curator  
Veronika Divincova, UK - Project Administrator  
Elsbeth Bruford, UK - representing HGNC

### Past Chairs (ex officio)

Paul Vanhoutte, China  
Robert Ruffolo, USA

### Corresponding members

Susan Amara, USA  
Michel Bouvier, Canada  
Thomas Burris, USA  
Stephen Charlton, UK  
Moses Chao, USA  
Steven L. Colletti, USA  
Graham Collingridge, UK  
Sue Duckles, USA  
Richard Eglen, UK  
Steven Foord, UK  
David Gloriam, Denmark  
Gillian Gray, UK  
Debbie Hay, New Zealand  
Allyn Howlett, USA  
Franz Hofmann, Germany  
Yu Huang, Hong Kong  
Ad P. Ijzerman, The Netherlands  
Michael F. Jarvis, USA  
Bong-Kiun Kaang, Korea  
Terry Kenakin, USA  
Janos Kiss, Hungary  
Chris Langmead, Australia  
Vincent Laudet, France  
Margaret (Mandy) MacLean, UK  
Fiona Marshall, UK  
Alistair Mathie, UK  
Ian McGrath, UK  
Graeme Milligan, UK  
Stefan Offermanns, Germany  
Richard Olsen, USA  
Helgi Schiöth, Sweden  
Graeme Semple, USA  
David Searls, USA  
Roland Staal, USA  
Bart Staels, France  
Georg Terstappen, Germany  
Mary Vore, USA

### Clinical Translational Pharmacology Group

Ed Bullmore, UK  
Sir Colin T. Dollery, UK – Core Member  
Robert Dow, UK  
Garrett Fitzgerald, USA  
Alex Phipps, UK  
Patrick du Souich, Canada  
David Webb, UK  
Don Birkett, Australia



# Hard at Work behind the Scenes

(continued)

## 2014 – 2018 Nomenclature Committee and Guide to Pharmacology (continued)

### Drug Target and Chemistry Curation Subcommittee

Christopher Southan, Sweden - Chair  
Helen Benson, UK  
Michael Gilson, USA  
Arnaud Gohier, France  
Edgar Jacoby, Belgium  
Chido Mpamhanga, UK  
Plamen Petrov, Sweden  
Roger Sayle, UK  
David Sharpe, UK  
Michael Spedding, France  
Paul Thiessen, USA

### Protease and Hydrolase Subcommittee

Anthony J. Turner, UK - Chair  
David Fairlie, Australia  
Christopher M. Overall, Canada  
Neil Rawlings, UK  
Christopher Southan, Sweden

### Ligand-gated ion channels

John Peters, UK - Liaison for all subcommittees

### Voltage-gated ion channels

William Catterall, USA - Liaison for all subcommittees

### Nuclear hormone receptors

John Cidlowski, USA - Principal liaison for all subcommittees  
Thomas Burris, USA - Liaison for all subcommittees

### Transporters

Stephen Alexander, UK - Chair  
Susan Amara, USA  
Yoshikatsu Kanai, Japan  
Mary Vore, USA

### Kinases

Doriano Fabbro, Switzerland - Chair



# Hard at Work behind the Scenes

(continued)

## Nominating Committee of the 2018 - 2022 Executive Committee



Kim Brøsen (Chair)  
Denmark



Kathy Giacomini  
USA



Mohamed Khayyal  
Egypt



John Miners (Vice Chair)  
Australia



Zhi-Bin Lin  
PR China



Simon Maxwell  
UK



Carlo Riccardi  
Italy

## 2014 – 2018 IUPHAR Administrative Office



Leigh Ann Arbuckle  
Treasurer's Assistant



Lynn LeCount  
Administrative Officer



## New Scope for the Flagship Journal of the Chilean Society of Pharmacology

The Chilean Society of Pharmacology ([www.SOFARCHI.cl](http://www.SOFARCHI.cl)) is pleased to announce *La Revista de Farmacología de Chile* ([www.SOFARCHI.cl/publicaciones-SOFARCHI](http://www.SOFARCHI.cl/publicaciones-SOFARCHI)), the official journal for the dissemination of basic and clinical pharmacology in Chile, has expanded its scope to encourage international submissions. The journal publishes original and review articles from a broad spectrum of pharmacology areas and has recently been indexed in Latindex ([www.Latindex.org](http://www.Latindex.org)) and in SCIELO (Scientific Electronic Library Online).



Currently *La Revista de Farmacología de Chile* publishes papers in English, Spanish and Portuguese to fulfill the aim of propagating pharmacology research in Latin America. On behalf of the editorial board, I invite pharmacologists from all continents to submit research papers or reviews in the field of their experience. The format and submission instructions may be downloaded from [www.SOFARCHI.cl/medios/revistas/Instrucciones\\_Revista\\_de\\_Farmacologia\(2014\).pdf](http://www.SOFARCHI.cl/medios/revistas/Instrucciones_Revista_de_Farmacologia(2014).pdf).

We look forward to hearing from you.

Ramón Sotomayor-Zárate  
Editor, *La Revista de Farmacología de Chile*

## **International Council for Laboratory Animal Science (ICLAS) Seeks Award Nominees by January 15, 2015**

ICLAS is soliciting nominations for two awards to be presented at our General Assembly to be held in association with the Canadian Association for Laboratory Animal Science (CALAS/ACSAL) Symposium, May 30 - June 2, 2015 in Montreal, Canada (<http://CALAS-ACSAL.org/symposium>). ICLAS is looking for nominees for the Mühlbock-Nomura Award and the Bennet Cohen Award.

The Mühlbock-Nomura Award honors a researcher whose work demonstrates or supports the value of high quality, genetically and microbiologically defined laboratory animals in research. It is the oldest and most prestigious recognition that ICLAS confers. The Award was named after a renowned scientist and one of the early fathers of ICLAS, Professor O.F.E. Mühlbock of the Netherlands. Since 1988, the Award has been conferred at each General Assembly on a number of distinguished scientists, including a Nobel laureate, all of whom supported the value of using high quality, genetically and microbiologically-defined laboratory animals in research. In 2013 it was renamed as the "Mühlbock-Nomura Award" in recognition of the contribution made by Dr. Tatsuji Nomura both to ICLAS and in the field of laboratory animal quality.

The Bennet Cohen Award recognizes a person whose work advances the 3Rs in laboratory animal use and care. It was created to recognize an individual who has achieved prominence in promoting and advancing the 3Rs of "reduction, refinement and replacement" in the use of laboratory animals in research, teaching and testing, first described in 1959 by Russell and Burch. Since 1995, the award has been presented at each General Assembly.

The awardees will ideally be present at the international scientific meeting May 30 - June 2, 2015 in association with the ICLAS General Assembly. At this meeting, each awardee will be allotted time in the scientific program to present her or his work to the meeting attendees in a keynote address. Travel expenses, hotel, and meeting registration costs will be covered for award winners. Information on the CALAS Symposium may be found at <http://CALAS-ACSAL.org/symposium>.

Nominations should include a brief CV (no more than 3 pages) and a statement justifying the nomination. Any individual, association, or institution may nominate an individual for an award. Please submit your nomination(s) to [info@ICLAS.org](mailto:info@ICLAS.org). Award nominations must be received by January 15, 2015.

Cynthia Pekow, DVM, DACLAM  
Acting Secretary General, ICLAS  
[www.ICLAS.org](http://www.ICLAS.org)





# Upcoming Events

## *March*

**Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics**

March 4 - 7, 2015 in New Orleans, Louisiana, USA

<http://www.ascpt.org/Meetings/Future-Annual-Meetings>

**European College of Neuropsychopharmacology Workshop for Junior Scientists**

March 11 - 15, 2015 in Nice, France

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

**Next Generation Pharmacogenomics, partially sponsored by the Asia Pacific Federation of Pharmacologists and the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists in conjunction with the University of Malaysia**

March 11 - 13, 2015 in Kuala Lumpur, Malaysia

<http://goldenhelix2015.um.edu.my>

**Experimental Biology '15, sponsored by the American Society for Pharmacology and Experimental Therapeutics**

March 28 - April 1, 2015 in Boston, Massachusetts, USA

<http://www.aspet.org/EB2015>

## *May*

**Tomorrow's Medicines - Pharmacology, Patients and Populations: A Joint Meeting of the Asia Pacific Federation of Pharmacologists, Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists, the British Pharmacological Society, and the Hong Kong Pharmacology Society**

May 19 - 21, 2015 in Hong Kong, SAR

<http://ascept-bps2015.com>

## *June*

**IMMUNOPHARMACOLOGY - VACCIPHARMA 2015 organized by IUPHAR Immunopharmacology (ImmuPhar) Section and the Cuban Society of Pharmacology**

June 14 - 19, 2015 in Varadero Beach, Cuba

<http://www.immunovaccipharmacuba.com>

**Congress of the European Society for Developmental, Perinatal, and Pediatric Pharmacology**

June 23 - 26, 2015 in Belgrade, Serbia

<http://www.esdppp.org/site/2015-congress-belgrade>

**12th Congress of the European Association for Clinical Pharmacology and Therapeutics (EACPT 2015)**

June 27 - 30, 2015 in Madrid, Spain

<http://www.eacpt2015.org>

To post your events here, please e-mail the details to [iuphar@kumc.edu](mailto:iuphar@kumc.edu).





# Exploiting the new pharmacology and application to drug discovery

BPS supported focused meeting in association with NC-IUPHAR

The focus will be on new concepts and developments in pharmacology and how they can be exploited in drug discovery including: new strategies for targeting calcium channels, tyrosine kinases, microRNAs, epigenetics, new developments in monoclonal antibodies, allosteric modulators, biased signalling, receptor structure. The meeting will include invited expert speakers, contributed free communications and poster presentations, with prizes for young investigators.

## Bursaries

Available to BPS members who are presenting a poster or an oral at the meeting.

## Keynote speakers:

Sir Colin Dollery, GlaxoSmithKline, UK - *Anthony Harmar Memorial Lecture*

Bill Catterall, University of Washington, USA

## Speakers:

Andrew Baker, University of Glasgow, UK

Anthony Davenport, University of Cambridge, UK

Chris Langmead, Monash University, Australia

Francesca Levi-Schaffer, Hebrew University of Jerusalem, Israel

Fiona Marshall, Heptares Therapeutics, UK

Alex Phipps, Roche Pharmaceuticals, UK

Rab Prinjha, GlaxoSmithKline, UK

Helgi Schiöth, Uppsala University, Sweden

Mary Vore, University of Kentucky, USA

For more information or to register  
your interest please contact:

t: +44 (0)207 239 0176

e: [meetings@bps.ac.uk](mailto:meetings@bps.ac.uk)

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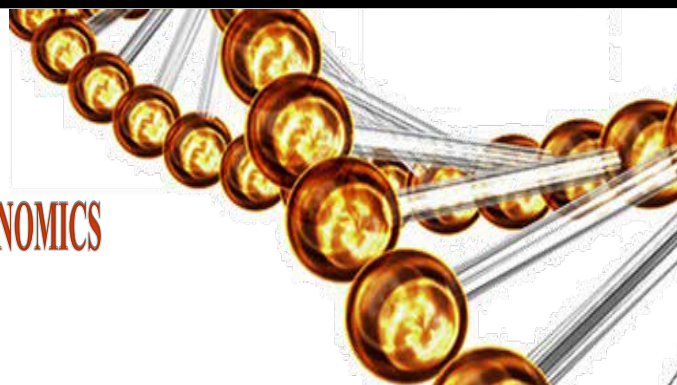




## NEXT-GENERATION PHARMACOGENOMICS

11 - 13 MARCH 2015

TM CONVENTION CENTRE,  
KUALA LUMPUR, MALAYSIA



### The 2015 Golden Helix Symposium "Next Generation Pharmacogenomics"



The 2015 Golden Helix Symposium "Next Generation Pharmacogenomics" will be held in Kuala Lumpur, Malaysia, March 11-13, 2015. Pharmacogenomics seeks to apply technologies, methods and discoveries from the field of genomics to improve the efficacy and safety of therapeutics. Pharmacogenomics has the potential to lead to personalized medicine, which is the use of information and data from the patient's genotype, or level of gene expression to select a medication, provide a therapy, or initiate a preventative measure that is particularly suited to that patient at the time of administration. This concept has been highlighted as "therapy with the right drug at the right dose in the right patient".

South East Asia (SEA) is a melting pot of many ethnic groups in which the study of Pharmacogenomics in this region would be interesting as it is necessary in order that the benefit of this knowledge would impact on patient care now and in the future. This will probably be one of the biggest conference/symposium on pharmacogenomics in this region. It will bring together researchers in the field of pharmacogenomics, and those involved will not only be updated on new knowledge in this field, but will also facilitate collaborations, and also spur others to carry out more research in this important field.

The Symposium Faculty consists of internationally renowned speakers mostly from Southeast Asian countries but also from Europe and the US. The meeting will mark the official partnership with the Genomic Medicine Alliance and the SEAPharm Consortium and will focus on the recent trends in the field of Pharmacogenomics and Personalized Medicine. Lastly, the meeting will feature the 2015 Genomic Medicine Alliance - Public Health Genomics award, presented for the best abstract submitted for this meeting. As Chairman of the Organising Committee, I would like the opportunity of welcoming you to our capital city, Kuala Lumpur for a fruitful and stimulating exploration into "Next Generation Pharmacogenomics".

#### Organisers:



#### IMPORTANT DATES

Registration Open

10<sup>th</sup> November 2014

Abstract Submission Open

10<sup>th</sup> November 2014

Abstract Submission End

15<sup>th</sup> February 2015

Deadline for Early Bird

31<sup>st</sup> December 2014

#### WHO SHOULD PARTICIPATE ?

- \* Pharmacologists
- \* Geneticists
- \* Pharmacists
- \* Biotechnologists
- \* Clinicians
- \* Scientists & Researchers
- \* Students & Research Assistants
- \* Medical Research Institutes & Universities
- \* Research Funding Agencies
- \* Research Companies
- \* Those Who are Interested in Pharmacogenomics Studies

## Register Now !

<http://GoldenHelix2015.um.edu.my/GoldenHelix>







[www.ascept-bps2015.com](http://www.ascept-bps2015.com)

# ASCEPT-BPS JOINT SCIENTIFIC MEETING



**Tomorrow's medicines: pharmacology, patients and populations**

**19-21 May 2015  
University of Hong Kong**

**O**n behalf of **ASCEPT** and **BPS** we invite you to attend the Joint ASCEPT-BPS Scientific Meeting to be held at the University of Hong Kong from Tuesday 19 to Thursday 21 May 2015. The meeting represents the first joint meeting between the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) and the British Pharmacological Society (BPS) and will be held in association with the Hong Kong Pharmacology Society (HKPS) and the Asia Pacific Federation of Pharmacologists (APFP). The theme for the meeting is **Tomorrow's medicines: pharmacology, patients and populations**.

This meeting will showcase the world class research undertaken by ASCEPT and BPS members, as well as members and researchers from other pharmacological societies and countries in the Australasian region. Importantly, this meeting offers the opportunity to network with colleagues and other leading international and national scientists and academics during both social and scientific sessions of the programme.

The meeting will include eleven topical symposia, four stimulating plenary lectures, a number of relevant oral paper and poster sessions, and a trade display, as well as a welcome reception and meeting dinner at a famous Hong Kong landmark!

## Important dates

- Abstract submission – **now open**
- Registration – **now open**
- Abstract submission deadline – **30 January 2015**
- Early registration deadline – **31 March 2015**

## Confirmed symposia include:

- Immunopathogenesis and therapeutics of atherosclerosis
- Novel targets harnessing the therapeutic potential of NO: Nitroxyl, soluble guanylate cyclase and beyond
- Frontiers in neuropharmacology: Molecular targets and translational opportunities
- Phenotyping vs genotyping – choosing the right tool for dose individualisation
- Ion channels as therapeutic targets
- Dimerization and biased signalling of GPCRs
- Toll-like receptor 4: Breaking down the barriers
- Improve ethnic bridging to foster clinical development in China/Asia
- Efficacy and safety: The yin and yang of Chinese and herbal medicines
- Pharmacology education in the 21st Century – to cyberspace and beyond
- Understanding and optimising the effects of multiple medicines in old age

**Download the full programme at: [www.ascept-bps2015.com](http://www.ascept-bps2015.com)**

## Sponsor and exhibitor opportunities

A range of sponsor and exhibitor opportunities are available for the meeting. To obtain a copy of the prospectus, please visit the website or contact the meeting secretariat, Expert Events.

## For more information about the meeting

Please visit [www.ascept-bps2015.com](http://www.ascept-bps2015.com) or contact the meeting secretariat:

### Expert Events

Telephone: +61 7 3848 2100

Email: [ascept-bps2015@expertevents.com.au](mailto:ascept-bps2015@expertevents.com.au)

Post: PO Box 351, Hamilton Central QLD 4007 Australia





## Invitation

The Cuban Society of Pharmacology and the International Union of Basic and Clinical Pharmacology (IUPHAR) Immunopharmacology (ImmuPhar) Section are organizing the First International Convention, IMMUNOPHARMACOLOGY-VACCIPHARMA 2015, scheduled for June 14-19, 2015 at the Meliá Marina Varadero Hotel, in Varadero beach, Cuba. This Convention is the fusion of the 3rd International Congress on Immunopharmacology (IMMUNOPHARMACOLOGY 2015) and the 3rd International Congress on Pharmacology of Vaccines (VACCIPHARMA 2015)

These Congresses will be running in parallel, organized in the following Workshops and Symposia:

### IMMUNOPHARMACOLOGY CONGRESS:

- Third Workshop on New advances in Immunopharmacology
- Third Workshop on Neuroimmunology, Neuroimmunopharmacology and Neuroimmunomodulation
- Third Symposium on Pharmacology of Cytochrome P 450 and transporters

### VACCIPHARMA CONGRESS:

- Third Workshop on Pharmacology of Prophylactic vaccines
- Third Workshop on Pharmacology of Therapeutic vaccines
- Third Regional Meeting on Combined Vaccines (DTP/HB/Hib/IPV)
- Third Symposium on Veterinary Vaccines

### SATELLITE SYMPOSIA:

- First Symposium on Kinases: Protein kinases as Talented Pharmacological Targets
- First Symposium on Atherosclerosis: From Basic Research to New Therapeutic Strategies
- Third Symposium on Bioprocesses for vaccines and immunotherapeutic products

### OTHER ACTIVITIES:

- Parallel Commercial Fair for the Exhibition of Products and Services



[www.ImmunoVacciPharmaCuba.com](http://www.ImmunoVacciPharmaCuba.com)





*European Association  
for Clinical Pharmacology  
and Therapeutics*

**ONE VIBRANT COMMUNITY OF CLINICAL PHARMACOLOGISTS**

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**THE 12<sup>TH</sup> CONGRESS OF THE  
EUROPEAN ASSOCIATION FOR  
CLINICAL PHARMACOLOGY  
AND THERAPEUTICS (EACPT)**

MADRID, SPAIN  
JUNE 27-30, 2015

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[www.eacpt2015.org](http://www.eacpt2015.org)



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L→R: Lynn LeCount, Jennifer McNichols,  
S. J. Enna and Leigh Ann Arbuckle

## Contributions:

We welcome contributions from member societies, divisions, sections and committees. Please submit articles and photographs to [IUPHAR@kumc.edu](mailto:IUPHAR@kumc.edu) at least one month prior to the cover date.

## Membership:

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