



# World Congress of Basic and Clinical Pharmacology

## 2014 Meeting in Review

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The 17th World Congress of Basic and Clinical Pharmacology was held at the Cape Town International Convention Centre, South Africa, over the week of July 13–18, 2014. It was the first World Congress meeting to be held on the African continent and was attended by up to 1500 scientists, representing 74 countries, including several members of ASPET's leadership and general membership. By all accounts, it was an extraordinarily successful event, for the high quality of the science presented, superb organization by the meeting organizers and WCP senior leadership (Drs. Douglas Oliver and Tiaan Brink), and the unforgettable venue at the foot of South Africa's fabled Table Mountain and the nearby Cape of Good Hope with the confluence of the Indian and Atlantic Oceans.

A strong cultural overtone for the meeting was set during an opening ceremony that featured a powerful presentation of traditional African dances and an inspiring charge to meeting attendees from the Deputy Minister of Health, Honorable Mathume Joseph Phaahla, that emphasized the need for new therapeutic agents and treatment modalities for combatting the spectrum of infectious diseases prevalent on the African continent, including malaria, Ebola, HIV, and tuberculosis. He noted the tremendous growth recently in the African pharmacological societies, many of whom were in attendance, and welcomed the opportunity that this meeting could provide for new partnerships between African and world brethren to address this and other daunting health challenges facing the African people. The opening ceremony ended with an outstanding presentation from Dr. Robert Lefkowitz, who took the audience on his remarkable journey

of pharmacological discovery of G protein-coupled receptor function and structure that culminated in him receiving, along with long-time collaborator Brian Kobilka, the Nobel Prize in Chemistry in 2012. As someone not steeped in the intricacies of cellular GPCR action, I found it incredibly educational and moving—something commented on by others attending the reception that followed.

The scientific meeting itself was populated with an incredible diversity of topics that cannot be fully captured in this brief communication; my interests, of course, gravitated toward drug metabolism and clinical pharmacology. One of note was a plenary session on epigenetics featuring a talk from Magnus Ingelman-Sundberg (Karolinska Institute) on preferential cytosine methylation in transcriptionally active genes of the liver and tissue specific-effects of SNPs on epigenetic control of gene expression, contributing to inter-individual differences in enzyme function.



*A scenic view of Cape Town*

There was also a provocative presentation from Dr. Ingolf Cascorbi (Christian Albrechts University Kiel) on the role of miRNA in the regulation of drug metabolizing enzymes and transporters that included evidence of coding and 5'-flanking sequence variation affecting miRNA control of protein synthesis. In a plenary session on drug hypersensitivity reactions, Simon Mallal (Vanderbilt University) reviewed the immune aspects of these adverse reactions with a focus on abacavir hypersensitivity. In the last part of his presentation he discussed the co-evolution of herpes viruses (CMV the most ancestral form, and HSV1 and HSV2 showing the most recent divergence) and HLA-A and HLA-B genes. As a consequence, target organ-specific reactions may be a function of drug-related alterations in epitope binding to viral-specific T cells present due to chronic infection. In his presentation "Pharmacogenomics: Improving the Safety of Drugs," Munir Pirmohamed (University of Liverpool) addressed differences in study design that may have contributed to the discordant conclusions from two large studies investigating the impact of pharmacogenomics on warfarin treatment – the US-based COAG study and the European EU-PACT study. The COAG study found no significant benefit of pharmacogenomic testing whereas EU-PACT concluded that genotype-based dosing was associated with a higher percentage of time in the therapeutic INR range relative to standard dosing during the initiation of warfarin therapy; both studies were published in the same issue of the *New England Journal of Medicine* late last year. At the conclusion of his presentation, he suggested the need for continued investigation of this evolving therapeutic paradigm. Finally, in a related symposium on drug-induced liver injury, Dr. James Lewis (Georgetown University) provided a comprehensive overview of the clinical aspects of DILI, emphasizing the need for development of predictive biomarkers. Despite years of research, there have been no good models for studying immune-mediated DILI. With this in mind, Dr. Jack Uetrecht (University of Toronto) described how inhibition of immune tolerance in mice by injection of mice lacking PD-1 with antibodies to CTLA-4 (PD-1 and CTLA-4 are T-cell surface protein that dampen T-cell responses) allowed for immune-dependent liver injury caused by amodiaquine. Focusing on human studies, Dr. Ann Daly (Newcastle University) described the identification by genome-wide association of



*Table Mountain National Park, Cape Town*

the HLA\*33-01 allele as a predisposition toward DILI caused by a number of drugs. She also reported the association of the T-cell protein tyrosine phosphatase PTPN22 in DILI arising from co-amoxiclav therapy.

There was a considerable amount of business conducted at the Cape Town meeting in addition to the scientific presentations. Something that should be of interest to many ASPET members was a meeting to discuss the IUPHAR-ASPET Pharmacology Education project. This multi-national collaboration, spearheaded by Dr. John Szarek and Dr. Simon Maxwell, among others, is intended to generate novel, web-based educational tools for the pharmacology community that hopefully will enhance the delivery and uptake of pharmacological knowledge by the next generation of healthcare educators and providers. ASPET has invested in the creation of the educational website and one of its early platforms, the Guide to Receptors and Channels. Continued support for this endeavor will most certainly be a topic of future council meetings. Of course, another essential element of the WCP meeting was the voting that took place during the general assembly of the Council of the International Union of Basic and Clinical Pharmacology. Despite stiff competition from Melbourne, Florence, and Toronto, it was Glasgow, Scotland, that was ultimately selected as the site for the 2022 WCP meeting. For those who cannot wait that long, you should mark your calendars now for the next WCP meeting in 2018 in lovely Kyoto, Japan.