CLINICAL PHARMACOLOGY
MENTORING CENTERS

The Clinical Pharmacology Division of IUPHAR has developed an innovative new strategy to support building capacity in clinical pharmacology internationally, called the “Mentoring Centers” program. There is a pressing need to improve and optimize the use of medicines to maximize their effectiveness and minimize their harms. This can best be achieved by expanding the influence of clinical pharmacology and therapeutics (CPT) expertise around the world, especially in developing areas of the world. All countries face challenges over using medicines effectively, safely and cost effectively and CPT knowledge and skills are a key part of that strategy.

An important part of this strategy will be capacity building and this, in turn, will depend on centers that are willing to support, mentor or train future generations with skills to undertake CPT research and teaching, and to serve on governmental organizations involved in regulation and health technology assessment. One approach is to identify a list of high performing and recognised CPT departments that are willing and able to mentor newly established departments or those in developing areas. The Clinical Pharmacology Division has resolved to undertake a pilot program to establish the demand for, and value of, such a strategy.

The roles of the listed mentor centers might range from basic email contact and advice to collaborative research and researcher exchange. The Clinical Pharmacology Division identified several CPT Centers with expertise in specific areas of clinical pharmacology that are willing to provide mentorship and advice to developing clinical pharmacologists and departments. These include centers in Edinburgh, Scotland; Malaga, Spain; Busan, South Korea; Sydney, Australia; and Toronto, Canada. The details of this program are available on the IUPHAR website at the following address:

www.iuphar.org/index.php/clinical-division/mentoring-centers

The Division is planning two symposia for the 2018 World Congress of Basic and Clinical Pharmacology entitled,

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(continued)

‘Humanized Mouse Models and iPSC as tools to study drug toxicity’ and ‘Advances in Physiologically Based Pharmacokinetics and Pharmacokinetic Pharmacodynamic Modeling’ as well as two cutting edge lectures on ‘Realizing the Promise of Systems Pharmacology’ and ‘Conquering Hepatitis C: What Are the Next Steps’.

The Clinical Pharmacology Division has a close and effective collaboration with the Council for International Organizations of Medical Sciences (CIOMS). Three important new CIOMS publications have been recently released. The Development and Rational Use of Standardized MeDRA Queries, CIOMS X: Evidence Synthesis and Meta-analysis for Drug Safety and International Ethical Guidelines for Health-related Research involving Humans. Please visit http://www.cioms.ch for full details.


MedDRA® is a valuable health informatics tool used to code, report, analyse and communicate regulatory information for medicinal products for human use. This includes regulated safety data. To retrieve data on medical concepts from complex MedDRA-coded databases using consistent methodology, Standardised MedDRA Queries (SMQs) have been developed over the past decade by senior scientists from many countries under the guidance of CIOMS. This activity has been conducted in conjunction with the ICH MedDRA Management Board, the MedDRA Maintenance and Support Services Organization (MSSO), the Japanese MedDRA Maintenance Organization (JMO) and other stakeholders.

SMQs represent a standardised approach to establishing a baseline for the identification of Individual Case Safety Reports (ICSRs) that may represent defined medical conditions that have the potential to impact benefit-risk assessments. Examples of the valuable use of SMQs, such as monitoring of potential safety risks and analysis of aggregate data, are included in this report. The included examples are meant to illustrate the use of queries in systematic analyses (e.g. meta-analysis), interventional clinical trials, signal detection, safety signal assessment and other database searches. In clinical trials, SMQs can be used to compare investigational medical products to comparators, including placebo, and to other molecules in the same class or with a similar mechanism of action. SMQs can also serve as useful
tools in vaccine vigilance and technovigilance (medical devices). A critical design feature of each SMQ is consideration of the practical aspects required for implementation with real ICSR data. Prior to publication by the MSSO and JMO, the CIOMS working groups have extensively tested each SMQ for fit-for-purpose functionality with real world data in both health authority and company product databases. The descriptive material that accompanies each SMQ outlines benefits and applications of the specific SMQ, as well as identified limitations.

The aim of this publication is to inform regulatory authorities, scientific institutions, pharmaceutical companies and other organizations or individuals involved in pharmaceutical and other medicinal product development, about the purpose and appropriate use of SMQs in safety surveillance activities. MedDRA® is a product of the International Conference for Harmonisation (ICH) owned by the International Federation of Pharmaceutical Manufacturers Associations as trustee for ICH.

**CIOMS X: Evidence Synthesis and Meta-Analysis for Drug Safety**

At any point in the drug development process, systematic reviews and meta-analysis can provide important information to guide the future path of the development programme and any actions that might be needed in the post-marketing setting. This report gives the rationale for why and when a meta-analysis should be considered, all in the context of regulatory decision-making, and the tasks, data collection, and analyses that need to be carried out to inform those decisions.

There is increasing demand by decision-makers in health care, the biopharmaceutical industry, and society at large to have access to the best available evidence on benefits and risks of medicinal products. The best strategy will take an overview of all the evidence and, where it is possible and sensible, combine the evidence and summarize the results. For efficacy, the outcomes generally use the same or very similar predefined events for each of the trials to be included. Most regulatory guidance and many Cochrane Collaboration reviews have usually given more attention to assessment of benefits, while issues around combining evidence on harms have not been as well-covered. However, the (inevitably) unplanned nature of the data on safety makes the process more difficult.

Combining evidence on adverse events (AEs), where these were not the focus of the original studies, is more challenging than combining evidence on pre-specified benefits. This focus on AEs represents the main contribution of the current CIOMS X report. The goal of the CIOMS X report is to provide principles on appropriate application of meta-analysis in assessing safety of pharmaceutical products to inform regulatory decision-making. This report is about meta-analysis in this narrow area but the present report should also provide conceptually helpful points to consider for a wider range of applications, such as vaccines, medical devices, veterinary medicines or even products that are combinations of medicinal products and medical devices.

Although some of the content of this report describes highly technical statistical concepts and methods (in particular Chapter 4), the ambition of the working group has been to make it comprehensible to non-statisticians for its use in clinical epidemiology and regulatory science. To that end, Chapters 3 and 4, which contain the main technical statistical aspects of the appropriate design, analysis and reporting of a meta-analysis of safety data are followed by Chapter 5 with a thought process for evaluating the findings of a meta-analysis and how to communicate these.
CLINICAL PHARMACOLOGY ACTIVITIES

(continued)

The outcome of the CIOMS/WHO 1982 collaboration was entitled Proposed International Ethical Guidelines for Biomedical Research Involving Human Subject. The outbreak of the HIV/AIDS pandemic and proposals for large-scale trials of prevention and treatment for the disease, including research involving vulnerable populations, progress in product development and biotechnology, raised new ethical issues that had not been considered in former guidelines. CIOMS has posted to their website the text of the new International Ethical Guidelines for Health-related Research involving Humans. This final text was approved by the CIOMS Executive Committee during the XXII General Assembly of CIOMS on 29 November 2016. Please note that this in-press version will be replaced by the formal publication before 15 February 2017.

A Japanese and a Korean translation of the Clinical Pharmacology in Health Care, Teaching and Research – Considerations by IUPHAR have been completed and are available for download from the IUPHAR webpage (www.iuphar.org/index.php/clinical-division/reports). A Russian translation is nearly complete. The Division is very grateful to those international pharmacologists who have been involved in the complex process of translating this treatise into several languages.

Prof. Milou-Daniel Drici, Chair of the IUPHAR Pharmaco-epidemiology and Pharmacovigilance Subcommittee of the Clinical Pharmacology Division, is proud to announce on behalf of his colleagues the pending creation of the International Association of Addictovigilance, under the tutelage of its future President, Joëlle Micallef, MD, PhD from the Aix Marseille University. Addictovigilance is related to the psychoactive drug abuse monitoring (from medications to plants, chemical drugs and new psychoactive substances, for example) analyzed from a pharmacological point of view. Prof. Drici will co-organize with Prof. Micallef the first international workshop on Addictovigilance to be held around the end of 2017 or early 2018.

Contact clinical@iuphar.org or visit www.iuphar.org/index.php/clinical-division to view or participate in any of these clinical pharmacology initiatives.

IUPHAR Clinical Pharmacology Division
Darrell Abernethy, Chair
David Webb, Vice Chair
David LeCouteur, Secretary
María Isabel Lucena, Treasurer
IUPHAR Clinical Pharmacology in Developing Countries Subcommittee of the Clinical Pharmacology Division and the Medicines Utilization Research in Africa (MURIA) Group co-organized the Second Training Workshop on Drug Utilization Research in Africa

The joint efforts by IUPHAR Clinical Pharmacology in Developing Countries Subcommittee of the Clinical Pharmacology Division (www.DevelopingCountries.IUPHAR.org) and the drug utilization researchers from Africa and Europe to promote sustainable and Rational Use of Medicines (RUM) in Africa has led to the establishment of MURIA. It is a multidisciplinary research group established in January, 2015 that co-organized with IUPHAR the First Training Workshop on Drug Utilization Research between 27 and 29 July 2015 at the University of Botswana in Gaborone (1). Since then, the MURIA group has published several papers, started mentoring interested scientists across Africa and hosted the successful Second Training Workshop on Drug Utilization at the University of Botswana in Gaborone between 24th and 27th of July in 2016 (2, 3).

The workshop had over 120 participants (photo above) representing Australia, Botswana, Canada, Kenya, Namibia, Nigeria, Rwanda, South-Africa, Swaziland, Sweden, Tanzania, United Kingdom and Zimbabwe. It was sponsored by IUPHAR, the Botswana Public Officers’ Medical Aid Scheme (BPMVAS), the Ministry of Health in Botswana, as well as the Swedish Research Council. The University of Botswana kindly provided their facilities. The meeting was inaugurated by Professor Martin Makgwathi, Deputy Vice-Chancellor of Academic Affairs at the University of Botswana. He lauded the remarkable achievements of MURIA of expanding its membership to over 12 African countries and its global visibility and wide range of on-going research activities.

Participants subsequently attended either introductory or advanced workshops. The Introductory Drug Utilization (DU) workshop covered general information about DU research with an emphasis on methodologies such as ATC/DDD systems, qualitative DU research and statistical techniques applicable to DU research.

The advanced workshop featured four sessions. The first focused on advanced statistics including discussions on multilevel models and interrupted time series analyses. The second session addressed development of formularies and instigating Drugs and Therapeutic Committees (DTCs) across African nations. The roles of DTCs were illustrated by concepts from the Swedish ‘Wise List’ with its high adherence rates driven by scientific principles, physician trust and dissemination of recommendations (4,5). The session also discussed the Management Science for Health (MSH) support for developing DTCs in Swaziland, including the development of Standard Treatment Guidelines (STGs) (6). Furthermore, survey results of DTCs activities in Nigeria were

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presented. The findings suggest a lack of DTCs in many healthcare facilities and suboptimal functioning in areas where DTCs do exist. The second session concluded with a presentation on antibiotic restriction guidelines and an Antimicrobial Stewardship (AMS) program in South Africa. The third session discussed ways to strengthen research protocols and proposal writing as well as questionnaire-design for academic researchers. The last session addressed designing and undertaking of National and Cross-National Comparative (CNC) studies presenting a case-study of such studies in Nigeria, which prove challenging due to unrestricted availability of medicines and poor coordinated control of pharmaceutical policies (7, 8). The session also featured a presentation on the findings of the efavirenz (ART) studies in Uganda, illustrating the utilization of different expertise that has helped some African patients to learn more about the drug, thereby addressing earlier concerns (9, 10). The session closed with discussions on lessons learnt from the European CNS studies on the launch of generics as illustrated by the speed of their responses to generic Angiotensin Receptor Blockers (ARBs) compared with introduction of earlier generics (11).

On Days 2 and 3 the participants presented in 35 oral and 18 poster presentations (2, 3) their completed, on-going, and planned research activities to improve drug utilization, especially on antimicrobials. Of particular note was the presentation and subsequent discussions about the pilot Point Prevalence Study (PPS) on antibiotics use carried out in Botswana by a group of participants from health institutions, government agencies and private and public health institutions in collaboration with WHO and MURIA members (12). This initiative has cascaded into a planned cross-national study in 11 African countries.

Finally, the results of the African Pharmacology Science Gateway/MURIA survey on African Researchers’ needs of information and IT tools were presented and discussed. Identified key pertinent areas included continued training in Drug Utilization methods and statistics; prescription databases; widening academic and clinical networks; and continued funding for conferences. These themes were carried forward as part of the discussion for proposed activities for the rest of 2016 and 2017.

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This interactive and educative exchange gained positive feedback from attendees who found the workshops and symposia presenters knowledgeable and relevant. Participants left the winter in Botswana with enthusiasm looking forward to next MURIA Group meeting on June 26-28, 2017 in Namibia.

The MURIA group is grateful to IUPHAR for its support for scholarships. Drs. Ogunleye and Fadare want to thank IUPHAR for the support they received to participate in the workshop.

Olayinka O. Ogunleye
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Clinical Pharmacology in Developing Countries Subcommittee of the Clinical Pharmacology Division
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References


IUPHAR Executive Committee Meeting in Melbourne, November 2016
Current and Future Directions

The IUPHAR Executive Committee (above) met this month in Melbourne to discuss future strategies. We were the guests of Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) and the Melbourne Convention Bureau, in conjunction with the ASCEPT-MPGPCR meeting, and we thank President Dom Geraghty (at center in front row of above photo) and his team for their remarkable hospitality. It is also the first time that a python (with me at right) and a crocodile (with IUPHAR Treasurer Petra Thürmann at middle right) have attended the meeting!

We overviewed our main activities and the funding necessary to maintain these activities at an appropriate level. The depth and diversity of these multiple initiatives are highlighted in this issue of Pharmacology International. We discussed different priorities around the world, with many actions planned in China, an alliance with the Indian Pharmacology Society, and continued interactions with the Pharmacology for Africa (PharfA) initiative, among other international organizations. The Clinical Pharmacology Division Chair, Darrell Abernethy (at right with a wallaby), presented the goals and achievements of the Division, many of which are described on the preceding pages.

We thank our sponsors but finance is extremely tight, being mainly dependent on society membership dues and grants. The Wellcome Trust previously funded the

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development of [www.guidetopharmacology.org](http://www.guidetopharmacology.org) as a progression from the original IUPHAR-db.org. The British Pharmacological Society (BPS) provides the current funding for a Senior Curator and a Senior Developer for the ongoing maintenance and development of the Guide to Pharmacology database (see page 18) and website ([www.guidetopharmacology.org](http://www.guidetopharmacology.org)) with the University of Edinburgh providing the funding for web hosting. These generous donors offer much needed stability to the Edinburgh database group, allowing IUPHAR to attract further funding. This work is supported by >90 subcommittees of >700 scientists, and >100 high quality publications (h-index 77).

### Global Deaths High Income

![Global deaths in high income versus low income countries](http://vizhub.healthdata.org/gbd-compare)

**blue:** non-communicable diseases, **red:** communicable diseases, **green:** injuries, depth of colour: how recently it developed

**Source:** [http://vizhub.healthdata.org/gbd-compare](http://vizhub.healthdata.org/gbd-compare)

### Global Deaths Low Income

Healthcare

Fortunately, the Wellcome Trust renewed its funding in order to develop the Guide to Immunopharmacology, (see page 19) which focuses on the immunopharmacological drug targets, including antibodies. Leveraged by this support, we plan to apply for further funding in conjunction with the IUPHAR ImmunoPhar Section and the International Union of Immunological Sciences (IUIS). The goal is to advance IUPHAR into the rapidly growing area of immunopharmacology, offering major progress for healthcare, as world health problems are divided between high income and low income. Per its Statutes, IUPHAR is committed to ‘helping in all ways the development of pharmacology throughout the world, particularly in emerging economies’, which in turn will benefit health care worldwide.

Currently, 4800 million people live in developing countries, of which 2700 million live on less than US$2 a day. Much of the world’s population has limited access to evidence-based clinical medicine based on studies with new chemical entities (NCEs) or antibodies due to the expense. While many more of these 2700 million people have access to natural products and traditional medicine (NPs), there is little clinical evidence for NP efficacy or if/how they work. NPs are often described as affecting the inflammation/immune system but without a consensus on the standardisation of protocols. Therefore, immunopharmacological drug targets are crucial for new drug discovery, particularly in, and for, the developing world. For example, immunological therapy for cancer has revolutionised the field. However, immunological protocols are poorly defined in particularly, but not exclusively, the developing world and are inadequate to support competitive research. IUIS and IUPHAR seek to provide simple, validated immunological protocols around drug targets, which can be performed in laboratories without major facilities.

In order to meet specific health needs in the developing world, where financial support for research tends to be insufficient, academic drug research has stepped in and many developing countries are prioritising such an approach. However, drug discovery and development is difficult and expensive and requires great knowledge. James Barrett (at right), Councillor of the Executive Committee, proposed that IUPHAR establish a specific committee to help drug discovery in the developing world and we encouraged him to further explore
this proposition. This action also shows how IUPHAR supports many healthcare priorities of the World Health Organization (WHO) such as:

◊ Promote drug discovery R&D, with open-source knowledge, databases, and compound libraries,
◊ Support early-stage drug discovery and development, particularly in developing countries,
◊ Stimulate global cooperation in R&D
◊ Encourage research on mechanisms of action and PK of natural products and traditional medicines towards evidence-based medicine,
◊ Capacity building for clinical trials, particularly in developing countries,
◊ Encourage development of regulatory affairs in developing countries

Education

IUPHAR promotes pharmacological training in developing countries by providing competent expertise and seed-funding for training workshops. Since 2014 IUPHAR has supported two practical Integrative and Organ Systems Pharmacology (IOSP) training courses to improve animal research in Africa and two in China through the efforts of the IUPHAR IOSP Initiative Chair, David Lewis (at right, see page 16 for details). A pharmacovigilance and regulatory affairs meeting was organized in Cairo in 2016 by Milou-Danial Drici, Chair of the Pharmacovigilance Subcommittee, with another planned in Mumbai during 2017. Clinical pharmacology education workshops are also scheduled in China during 2017.

With funding from the American Society for Pharmacology and Experimental Therapeutics, the Chinese Pharmacological Society, the Japanese Pharmacological Society, and the Hungarian Society for Experimental and Clinical Pharmacology, we are currently populating the IUPHAR Pharmacology Education Project (www.PharmacologyEducation.org), to give the world a drug education resource. This needs pharmacological content and it is a major priority to provide this, so we are very interested in educators around the world to volunteer content for this freely-available resource to train people in pharmacology.
Collaboration

The Executive Committee takes seriously the aims and functions described in the IUPHAR Statutes. The first listed aim is ‘promoting cooperation between societies representing pharmacology and related disciplines throughout the world’. As a result, IUPHAR has organised and/or supported through its Committees, Division, Sections and Subcommittees, the following events since 2014:

- World Congress for Basic and Clinical Pharmacology, including multiple education aspects, links with toxicology, animal training, clinical pharmacology and cutting edge research [Cape Town, South Africa in 2014]
- Integrative and Organ Systems Pharmacology workshops [Durban, South Africa in 2014; Beijing & Yantai, China in 2016; India & China in 2017]
- Pharmacoepidemiology-vigilance workshop [Cairo, Egypt in 2016 and Mumbai, India in 2017]
- Pharmacogenetics-genomics symposia [Kuala Lumpur, Malaysia in 2015; Cape Town, South Africa in 2016]
- Clinical Pharmacology in Developing Countries workshops [Gaborone, Botswana in 2016 and Namibia in 2017]
- World Conference on the Pharmacology of Natural and Traditional Medicine [Singapore in 2015; Aberdeen, United Kingdom in 2017]
- IUPHAR Executive Committee meetings [Cape Town, South Africa in 2014; Xi’an, China in 2015; Melbourne, Australia in 2016; Rimini, Italy in 2017]
- Drug Metabolism & Drug Transport symposium at the International Congress of Toxicology [Merida, Mexico in 2016]
- Nomenclature Committee meetings [Edinburgh, United Kingdom and Paris, France in 2014, 2015, 2016 & 2017]
- Immunopharmacology conferences [Varadero, Cuba in 2015 and 2017]
- Gastrointestinal Pharmacology conferences [Budapest, Hungary in 2014; Grenoble, France in 2015; Novigrad and Osijek, Croatia in 2016; Lagos, Nigeria in 2017]
- Geriatric Clinical Pharmacology symposium [Hong Kong in 2015]
- Drug Discovery and Development symposia [Xi’an, China in 2016]
- IUPHAR and therapeutic targeting symposium [Melbourne in 2016]

Much of the Executive Committee discussions focused on the factors for success of the next World Congresses of Basic and Clinical Pharmacology in Kyoto (WCP2018) and Glasgow (WCP2022). Masamitsu Iino (at right with a koala) presented with brio the latest progress of the outstanding WCP2018 Program Committee (see page 39). David Webb (at right accompanied by a koala and its handler) summarized the WCP2022 Organizing Committee’s site visits.

A rendezvous in Kyoto for all pharmacologists on July 1 – 6, 2018! We hope to meet you there.

Michael Spedding
IUPHAR Secretary General

Lynn LeCount
IUPHAR Administrative Officer
Creditworthy Courses in Croatia

Established in 1994, the IUPHAR Gastrointestinal (GI) Section has successfully organized during the past 20 years numerous conferences and symposia to exchange original ideas and preliminary results among its members. During 2016 two educational opportunities, a drug discovery symposium and a summer school on stress, were hosted in Croatia.

Drug Development and New Frontiers in Gastrointestinal Diseases

Held 9 - 11 June 2016 in Novigrad, Croatia, Professors Predrag Sikiric (Croatia) and Duan Chen (Norway) oversaw the organization of the conference. The key topics for the symposium were: 1) preclinical/clinical interface in validating drug targets, drug repurposing and their biomarkers in GI; 2) pharmacological aspects of gut microbiota, inflammation and metabolic diseases; 3) GI immunity, metabolism and potential drug development; 4) GI mucosal injury and permeability; 5) gut-brain axis in neurological diseases; and 6) rethinking of stress and stress significance in GI tract.

The symposium included a full range of academic sessions, plenary lectures, oral and poster presentations. The following lectures were featured:

- Tomasz Brzozowski (Poland) *Gaseous mediators in protection of the stomach: Do they interact each other?*
- Andre Buret (Canada) *Enteropathogens disrupt microbiota biofilms to cause post-infectious inflammation*
- Duan Chen (Norway) *Repurposing Botox to target the vagus nerve for treatments of gastric cancer and obesity; Roles of GLP-1 and PYY in diabetes remission following gastric bypass surgery; Targeting the vagus nerve for obesity control*
- Ronnie Fass (USA) *Non-medical therapeutic modalities for GERD: What’s in the toolbox?; How to optimize medical treatment for GERD in 2016*
- Ludmila Filaretova (Russia) *Rethinking of stress and stress significance in GI tract; Analgesic effect of Corticotropin-Releasing Factor (CRF): Involvement of CRF receptors subtype 1 and 2, opioid receptors and glucocorticoid*
- Kavita Gulati (India) *Sexual dimorphism during stress gastric ulceration and its regulation by nitric oxide: An experimental study*  
- Klara Gyires (Hungary) *Endocannabinoids and gastric mucosal defense (oral)*
- Ki Baik Hahm (Korea) *8-OHdG as anti-inflammatory, anti-cancer, and anti-metastatic agent through inhibiting ERM signaling in GI diseases*
GASTROINTESTINAL SECTION SYMPOSIUM
Creditworthy Courses in Croatia
(continued)

- Gaetano Iaquinto (Italy) *The role of AIEC in Crohn’s Disease: Clinical, immunohistochemical and pathogenetic aspects*;
- Joshua Ko (Hong Kong, China) *Exploration of the novel anticancer mechanisms of medicinal compounds by regulation of calpain and S100A4 in the treatment of colon cancer*;
- Martina Lovric Bencic (Croatia) *BPC 157: Link between GI-tract and cardiovascular system*;
- Jong Min Park (Korea) *Cytoprotective mechanisms of BPC 157 applicable to various kinds of gastrointestinal diseases*;
- Kim Rainsford (UK) *What is the place of stress conditions in NSAID- and Helicobacter pylori-related upper Gastrointestinal ulcerogenesis*;
- Arunabha Ray (India) *The brain-immune axis and stress ulcerogenesis: A pharmacological analysis*;
- Sven Seiwerth (Croatia) *The BPC 157 story: A pathology view point*;
- Rosa Serio (Italy) *Angiotensin II type-2 receptor inhibitor reduces severity of 2,4-dinitrobenzene sulfonic acid-induced colitis in rat*;
- Predrag Sikiric (Croatia) *Was Robert wrong? Novel concept of cytoprotection and adaptive cytoprotection: Role of pentadecapeptide BPC 157 and NO-system; BPC 157 significance of cytoprotection: Blood vessels*;
- Sandor Szabo (USA) *Ulcerative & inflammatory GI lesions: Prevention and/or treatment?; Ulcer development and healing: A life-time focus on vascular factors*;
- Ivana Tlak Geiger (Croatia) *Appliance of BPC 157 for Nosema spp. invasions control in honeybee colonies* (*Apis mellifera*);
- Gabor Varga (Hungary) *Mesenchymal stem cells as potential tools to treat inflammatory diseases*;
- Nathalie Vergnolle (France) *Proteases and inflammatory bowel diseases: What’s up Doc?*;
- John L. Wallace (Canada) *H2S-based anti-inflammatory drugs: Lost and found in translation*;
- Jack Wood (USA) *Dopaminergic neurotransmission in the ENS*;
- Zoltan Zadori (Hungary) *The role of alpha2-adrenoceptors and imidazoline receptors in murine colitis*;
- Oksana Zayachkivska (Ukraine) *Stress and foregut: Novel pharmacological implications*;

Other symposia of related interest were convened in conjunction with the IUPHAR GI Section symposium. The Croatian Surgical Society organized a lecture on ‘Fistulas Healing and GI-tract Healing’. A symposium entitled, ‘Protection of Gastroduodenal Mucosa: From Drugs to Bacteria’ was held by the Adriatic Club for Mucosal Immunology; the Croatian Society for Mucosal Immunology (Croatian Medical Association); and the Section for Mucosal Immunology, Nutritive Allergy and Intolerance within the Croatian Society of Gastroenterology.

The GI Section cordially invites you to the next IUPHAR GI-Section Meeting being held in Novigrad, Croatia on 8 - 10 June 2017 at the Hotel Maestral (see page 49 for details). The theme is ‘Drug Development and New Frontiers in Gastrointestinal Diseases’ as a contribution towards the celebration by the Medical Faculty University of Zagreb, Croatia on its hundredth anniversary (www.gi-iuphar-section-meeting-2017.com). We look forward to welcoming you to Novigrad!

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Summer School on Stress: From Hans Selye’s Original Concept to Recent Advances

On the 80th anniversary of the first description of biologic stress by Hans Selye (Nature, 1936), the June 13-17, 2016 event was held at the Strossmayer University School of Medicine in Osijek, Croatia. The Local Organizing Committee, under the leadership of Professor Marija Heffer and PhD Candidate Marta Balog, created a very original illustration for the cover of this year program (at right). These educational research conferences are sponsored by the IUPHAR GI Section since one of the main stress-related diseases are gastrointestinal structural and functional disorders, with huge pharmacological implications. The course directors are the last three (out of the 40) PhD students of Hans Selye, the ‘father of biologic stress’: Professors Arpad Somogyi (Germany/Belgium - photo at left), Sandor Szabo (USA) and Yvette Tache (USA). After the initial symposium at the Hungarian Academy of Sciences in Budapest, Hungary in 2013, the subsequent week-long summer conferences were held in Zagreb, Croatia (2014) and Grenoble, France (2015).

This year’s event was held in the old, but renovated, historic building of the Rectorate of this rapidly growing university in Eastern Croatia, the former Yugoslavia, shadowed by the more established universities of Zagreb and Belgrade. It was attended by about 60 students and young investigators, mostly PhD and medical students, from Croatia, Serbia, Hungary, Slovakia, Ukraine and Russia. As in previous years, the program included invited lectures by the course directors and core international faculty such as Professors Bruno Bonaz (France), Ludmila Filaretova (Russia), Klara Gyires (Hungary), Martina Rojnic Kuzman (Croatia), Predrag Sikiric (Croatia), Jackie Wood (USA), and Oksana Zayachkivska (Ukraine). There were also longer presentations by experts from local and regional universities in Croatia, Serbia, Austria, Hungary and Slovakia.

The topics covered the origins of stress concept and the seminal discoveries of Hans Selye: distress vs. eustress and transtess – similarities in the adrenal glands, notable differences in the brain; the neuroendocrine mechanisms of stress; physiological and pharmacological actions of glucocorticoids; stress and structural GI diseases (e.g., gastro-duodenal ulcers, IBD); stress and functional GI disorders (such as motility disorders); IBS; PTSD; and other organ systems involved in biologic stress; management strategies

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for stress-pharmacologic interventions or life style changes. This year we also hosted very interesting lectures by a veterinary expert, Dr. Jelena Suran (Croatia), on stress in animals and plants as well as a neuropsychiatrist, Dr. Janos Filakovszky (Austria/Slovakia) on stress in the workplace. In addition to these 30-minute interactive presentations, there was a successful poster competition accompanied by a session of short oral presentations (photo at right) based on the submitted abstracts from mostly young participants, primarily medical and PhD students. Several open forum discussions were initiated throughout the course to involve participants and share ideas (photo at right).

As in previous years, we had an educational, historic sight-seeing tour of Osijek for the international participants (photo below), pointing out the statutes of two Nobel Prize winners in chemistry, Professors Leopold Ruzicka (below left) and Vladimir Prelog (below right), who were born or studied in Osijek.

The 2017 (when Hans Selye would have been 110 years old) “Summer School on Stress: From Hans Selye’s original concept to recent advances” will be held in Komarno, Slovakia where Selye grew up, went to elementary and high school (gymnasium) and his father had a private clinic. The local organizer is the relatively new “Selye Janos Egyetem/Universitat” in Komarno, Slovakia. The dates are June 26-30, 2017 (see page 49) and the conference website (www.stresseducation.org) will be soon open for early registration, participation details and submission of abstracts.

Predrag Sikiric, Sandor Szabo, and Duan Chen (Chair, GI@IUPHAR.org - www.GI.IUPHAR.org)
IUPHAR Gastrointestinal Section
IUPHAR’s IOSP Initiative
Sharing best practice in laboratory animal pharmacology

IUPHAR’s Integrative and Organ Systems Pharmacology (IOSP) initiative was established in 2007 with the aim of providing an introductory education and training in in-vivo or whole animal pharmacology. Since then, 3-4 day workshops have been held in countries as far afield as India, Thailand and Ghana. These workshops have been targeted principally at early-career researchers, although many more senior colleagues have also attended.

The field of laboratory animal sciences, animal welfare and ethics is changing rapidly with many new advances. There is an increasing realisation of the need to up-skill more experienced researchers. Indeed, in some countries, for example within Europe, it is now a legal requirement for all those who design or undertake studies using laboratory animals to engage in Continuing Professional Development in the discipline throughout their careers. With this in mind, the IOSP initiative, whilst still continuing to offer introductory courses, has expanded its portfolio to include more advanced courses in animal welfare, ethics and the principles of humane experimental techniques, courses for animal facility managers and, with a view for developing sustainability within host countries, “Train the Trainer” courses and Continuing Professional Development (CPD) resources and activities.

In partnership with the Chinese Pharmacological Society, Capital Medical University (Beijing, China) and Yantai University (Yantai, China), two advanced IOSP courses were created and delivered in July, 2016. Their theme of Safety Pharmacology focused on sharing good practice in animal welfare, ethics and the principles of humane experimental techniques, but also pharmacology education. Delegates included both early career and established researchers (photo at right), and pharmacology educators. The intention is to create sustainability within China so these educators may use the learning and resources developed for these courses to deliver similar courses in Chinese within their own institutions and networks.

Focusing on the specific needs within the sector, a 2 day workshop for animal facility managers was held in Potchefstroom in partnership with the South African National Pre-clinical Drug Development Platform (PCDDP, North-West University, Continued on page 17...
Potchefstroom, South Africa), the South African Society for Basic and Clinical Pharmacology, and Pharmacology for Africa. A satellite workshop to the 2016 All Africa Congress of Pharmacology and Pharmacy, the workshop shared best practice in animal models, animal welfare, housing and husbandry, and the design of animal facilities.

Whilst the learning from these courses is invaluable, there is a need for greater provision of CPD in the discipline. With this in mind, the Chair of the IOSP initiative, Dave Lewis, University of Leeds, UK, is working collaboratively with colleagues across the sector to create laboratory animal sciences CPD activities and resources. The idea being that the resources will be developed as open educational resources, in a format that they could be used by others. As an example, the resources would consist not only of a description of the activity but also the information required to deliver it (handouts, trainer notes, etc.). These information packages will be shared with the community by uploading them onto ETRIS (www.etris.leeds.ac.uk), an online repository of free-to-use laboratory animal sciences open educational resources. Educators and trainers would then combine different resources and activities together to deliver tailor-made courses at their own Institutions or networks.

These are exciting times for the IOSP initiative; a lot is happening, with ambitious plans for the future. However, to realise our goals, we need the help and support of colleagues. We are eternally grateful to colleagues within the Chinese and South African pharmacological societies, Pharmacology for Africa, PCDDP and Capital Medical, Yantai and North-West Universities for their help in creating and delivering our activities in 2016. However, we are looking to both individuals and representatives of national or regional pharmacological societies to take this forward. If the above has whetted your appetite, and you can see the benefits of introductory or advanced IOSP courses, or “Train the Trainer” courses within your own region, country or Institution, please get in touch with Dave Lewis (IOSP Chair, 3rs@leeds.ac.uk) to discuss how we can work together to achieve this. Similarly, if colleagues have CPD resources or activities they are willing to share, or know of such resources, please also get in touch.

Dave Lewis
Chair, IUPHAR IOSP Initiative
http://www.iuphar.org/index.php/sections-subcoms/education/resources

Some of the participants in the satellite workshop to the 2016 All Africa Congress of Pharmacology and Pharmacy
NEW HOT TOPICS

Comments by Curation Team

X-ray structure of the endothelin ETB receptor
Endothelin is a peptide that acts via two G-protein coupled receptors. ET\textsubscript{A} mainly causes vasoconstriction. In contrast ET\textsubscript{B} predominantly acts as a beneficial clearing receptor and by the release of endothelium derived relaxing factors, vasodilatation [1,2]. This paper describes for the first time the crystal structure of the endothelin ET\textsubscript{B} receptor [3]. To date less than 20 structures of Family A, GPCRs (targets of nearly half of all drugs) have been solved experimentally. The number solved for small peptides ligands is limited to the opioid receptor and the 13 amino acid neurotensin. Read more

Will the real splice variants please stand up?
The number of alternative mRNA splice forms that map to human protein coding loci has increased to the point that nearly all proteins have such associated database records. This gives rise to the paradox that the gene build pipeline from the latest Ensembl GRCh38 reference genome assembly indicates 19,919 protein coding loci (which shrinks to 19,022 with HGNC annotation...
stringency) but 198,002 transcripts (i.e., nearly 10 transcripts per protein). There is no question that a small number of these alternative splice forms, AS, (plus alternative initiations) have not only been verified to exist as proteins, have some kind of alternative biochemical functions and are also of pharmacological importance [1] Read more

GtoImmuPdb Update
In October we debuted the alpha-release (v1.0) of the Guide to IMMUNOPHARMACOLOGY, an important step towards the public deployment of the first beta-release of GtoImmuPdb, scheduled for Spring 2017. We expect to make further alpha-releases over the next few months as additional features are added. The portal has its own unique branding (header bar, logo and colour scheme) to distinguish it, but retains many of the layout features from the main GtoPdb site. This consistency should help users already familiar with GtoPdb to orientate themselves with the new GtoImmuPdb. Read more •
Professor Sérgio Henrique Ferreira was a full Professor of the Department of Pharmacology, Ribeirão Preto Medicine School (FMRP), University of São Paulo (USP), with a brilliant and widely awarded scientific career. Professor Ferreira graduated in Medicine from USP in 1960, and got his PhD in Pharmacology from FMRP in 1964. From 1967 to 1975, he did his postdoctoral studies at the Royal College of Surgeons of England. Born in 1934, he would have been 82 years old on October 4th.

Professor Ferreira gained a reputation in Brazil and abroad after discovering the “potentiation factor of bradykinin,” a substance derived from the venom of the Brazilian Jararaca snake, which is able to reduce blood pressure. Investigating the pharmacological mechanism involved in this important effect, Professor Ferreira demonstrated that the substance present in the venom inhibited the degradation of bradykinin by inhibiting kininase II, therefore increasing the half-life of bradykinin. Subsequent experiments showed that the substance also inhibited the production of angiotensin II. This work, mostly in the Department of Pharmacology of FMRP, was fundamental to the development of a new class of drugs for the treatment of hypertension, inhibitors of angiotensin-converting enzyme, and Captopril, the first drug made available in this class. The scientific contributions of Professor Ferreira were not limited to cardiovascular pharmacology as he later extended his research to include the inflammatory process. Mediators of inflammatory pain and the mechanisms of action of peripheral analgesics to develop new drugs for pain treatment were major areas of interest for Professor Ferreira during the recent decades.

Professor Ferreira became a member of the Brazilian Academy of Science on March 29, 1984. He was President of the Brazilian Society for the Progress of Science from 1997 to 1999 and was eventually bestowed the title of Honorary President. He also served as President of the Brazilian Society of Pharmacology and Experimental Therapeutics, the Federation of Experimental Biology Societies in Brazil, and the Brazilian Society for the Study of Pain. From 2002 to 2010, Professor Ferreira was a Councilor on the IUPHAR Executive Committee. Among the numerous awards and distinctions received by Professor Ferreira from national, foreign and international entities, the most prestigious was the Grand Cross Class in Biology, the highest honor of the National Order of Scientific Merit, which was presented by the Brazilian government.

Fernando de Q. Cunha
Francisco S. Guimarães
University of São Paulo

Edited by Lynn LeCount

At right: Professor Ferreira was the plenary lecturer on “Innovations in Peripheral Analgesia” during the IXth World Conference on Clinical Pharmacology and Therapeutics in July, 2008.
As many readers of Pharmacology International will be aware, on 23 June 2016 the majority of voters in the United Kingdom (UK) referendum on membership of the European Union (EU) chose to leave. On behalf of the British Pharmacological Society (BPS), I wanted to share how we have sought to represent our international membership during the period of political uncertainty before and since the vote.

**Our position**

The BPS is a global community: our journals have a global readership, a fifth of our membership is international, and we represent scientists from more than 60 countries worldwide. I discussed in an article in the June, 2016 issue of this publication how proud I am of the Society’s long-standing reputation for international collaboration such as the BPS/IUPHAR Guide to PHARMACOLOGY – and these partnerships will continue.

The referendum result will require a period of reflection and organisation across many sectors in the UK and EU, including pharmacology and our counterparts across the science community. The BPS is already investing in research, monitoring policy news and undertaking collaborative policy responses to ensure that science as a whole, and pharmacology in particular, is positioned as a vital part of the UK’s relationship with the EU.

When the formal mechanism for exiting the EU (known as Article 50) is triggered by the UK Government, probably in March 2017, there will be a process for re-negotiating key arrangements such as Horizon 2020 funding, free movement of people and access to a single market – to name just three of the many policy areas that are acutely relevant to pharmacologists. The BPS aims to directly influence these negotiations as and when they occur by sharing our members’ expertise and insights.

The BPS intends to remain an active member of both the Federation of European Pharmacological Societies (EPHAR) and the European Association for Clinical Pharmacology and Therapeutics (EACPT). In the week following the referendum, the Society was pleased to play its part as a key sponsor of the EPHAR congress in Istanbul.

The BPS also believes that it will be crucial for British scientists to maintain healthy and productive collaborations with international colleagues, and continue to build the strongest science within the broader international community. So, our commitment, contribution and cooperation with IUPHAR and its many member societies will only be strengthened over time.
BPS: Before and After ‘Brexit’ (continued)

Our work before the referendum

Back in February, 2016 the Prime Minister announced that UK voters would be given the chance to vote in a referendum on membership of the EU in June. The BPS team set to work reviewing the available literature and other evidence about the impact of the vote across the breadth of pharmacology as a discipline and on our members based in both the UK and EU.

The resulting research was collated into a summary of the areas of the pharmacological landscape connected with the EU. This was carefully developed with input and approval from Trustees, and published on the BPS website at www.bps.ac.uk/europe and in our Pharmacology Matters magazine in time for the final weeks of the campaign.

The BPS felt very keenly the responsibility for trying to produce a breakdown of evidence that didn’t actively favour either the ‘leave’ or ‘remain’ campaigns, as the debate had already become heated and partisan. In addition, there were restrictions on the activity of charities like the BPS during the campaign period.

Our work since the referendum

It quickly became apparent that there are aspects of the relationship between the UK and EU relevant to pharmacology that will take a significant amount of time to fully resolve – although the BPS activity in response to the referendum began immediately. As President, I contacted all members the very same day that the result was announced to explain the Society’s commitment to fulfilling the needs of its members regardless of geography. This message was published on the BPS website and social media.

Less than a week after the referendum, the BPS was a co-sponsor for ‘2016 Links Day’, an annual half-day of discussion in the UK Parliament which strengthens dialogue between parliamentarians and around 200 individuals from across the scientific community. The event was focused on the theme of ‘Science after the referendum: What next?’ and was attended by the Minister for Universities and Science and other key policymakers engaged in science policy.

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Prof. Jozef Glasa (far left) welcomes the BPS representatives (L→R) Prof. Jane Mitchell, Dr. Nicholas Kirkby, Prof. David Webb, Dr. Emma Morrison and Ms. Teesha Bhuruth to the Slovakian Clinical Pharmacology Society meeting in Bratislava, October 2016.
The same day, the UK Parliament launched an urgent inquiry into ‘Leaving the EU: Implications and opportunities for science and research’. We collected members’ experiences of the immediate impact of the referendum and any concerns about the effects of Brexit throughout the summer, which shaped our submission for this important inquiry (published online at www.bps.ac.uk/europe).

In addition, we have been working with other UK learned societies to agree on national negotiation priorities for science, and identify opportunities to support work campaigning for the needs of science. It was heartening to see that the Royal Society, along with national academies across the UK and Europe, launched the ‘Science is Global’ campaign about the importance of the international nature of research.

It is fair to say that scientists in the UK struggled to engage the public with the evidence in favour of remaining in the EU, and experts as a group were even discredited by politicians in the heated debate around Brexit. No doubt this will resonate with colleagues experiencing similar rhetoric about experts in the United States, Europe, Australasia and elsewhere. Given this, BPS will be expanding its resources for pharmacologists to support improved engagement with public audiences at international, national and local levels.

Looking ahead: 2017 and beyond

In April, 2016 the BPS announced that it would establish a new International Advisory Group to represent the interests and views of our many international members. A call for expressions of interest was released this autumn, and the Society will soon announce the initial membership for this group effective 1 January 2017. If you need any further information about this new group, please do not hesitate to get in touch with Teesha Bhuruth, Membership & Community Officer (Teesha.Bhuruth@bps.ac.uk / +44 [0] 20 7239 0178).

As a result, BPS will be well-placed to represent all of our members, and to share their considerable expertise in the development of new policy. We also look forward to continuing our collaborations with partners across pharmacology internationally.

The BPS recognises that IUPHAR will be particularly important in the coming years in promoting the value of pharmacology in all its forms on an international stage. We will remain a vocal supporter of IUPHAR as a global network – and leader – in pharmacology.

David Webb
President, British Pharmacological Society

President-Elect Prof. Steve Hill co-hosted a networking evening for our international members at Experimental Biology in San Diego, USA, April 2016.
The 14th National Conference of Chinese Pharmacological Society featuring the 20th Anniversary Symposium of the CNPHARS-Servier Prize for Young Investigators in Pharmacology

The 14th National Conference of Chinese Pharmacological Society (CNPHARS) featuring the 20th Anniversary Symposium of the CNPHARS-Servier Prize for Young Investigators in Pharmacology, held in Beijing October 22-25, 2016, was attended by around 800 delegates. Representing IUPHAR were Profs. S.J. Enna, IUPHAR President; Masamitsu Iino, IUPHAR Second Vice-President and Secretary-General of the 18th World Congress of Basic and Clinical Pharmacology; and Kim Brøsen, Chair of the IUPHAR Nominating Committee. Distinguished guests included Profs. Kenneth Thummel, Immediate Past President of the American Society for Pharmacology and Experimental Therapeutics (ASPET); Masayoshi Mishina, President of the Asia Pacific Federation of Pharmacologists (APFP); and Wing-Ho Yung of the Chinese University of Hong Kong. Dr. Jinhui Gu, Director of the Division of Major Special Projects, Department of Health Science, Technology and Education, National Health and Family Planning Commission of the People’s Republic of China, was an honored guest of the conference.

Prof. Yongxiang Zhang (upper left), the CNPHARS Vice-President and Secretary-General, presided over the opening ceremony. Prof. Guanhua Du (lower left), the CNPHARS President, expressed a warm welcome to all the guests and attendees. Prof. S.J. Enna summarized and acknowledged the CNPHARS activities in IUPHAR during recent years. Profs. Masamitsu Iino and Kenneth Thummel highlighted in their speeches the value of the CNPHARS contributions to international pharmacology development. Dr. Jinhui Gu, who is responsible for the Major New Drug R&D Program, one of the major National Science and Technology Projects, expressed his congratulations to CNPHARS and encouraged Chinese pharmacologists to strengthen their scientific and technological innovation to help advance international academic exchanges and collaboration.

The annual CNPHARS conference is the largest national pharmacology meeting, showcasing the top tier of pharmacology research within China. The 14th conference program included plenary lectures, an academician rostrum session, symposia, poster presentations and featured a special symposium to celebrate the 20th anniversary of the CNPHARS-Servier Prize for Young Investigators in Pharmacology. The plenary lecturers (at right in the below order) offered participants a full spectrum of research interests:

- Prof. S.J. Enna, USA, “Drug discovery: An alternative approach for lead generation”
- Prof. Masamitsu Iino, Japan, “Calcium signaling in the brain in health and disease”
- Prof. Kim Brøsen, Denmark, “Interindividual differences in the pharmacokinetics and pharmacodynamics of metformin”
- Prof. Kenneth Thummel, USA, “Pharmacogenetic discoveries and clinical associations in Alaska native populations”
- Prof. Masayoshi Mishina, Japan, “From molecular regulators of synapses to learning and memory”
- Prof. Wing-Ho Yung, China, “Plasticity of the motor cortex: Focusing on dopamine and its receptors”

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During the academician rostrum session, four academicians (at right in the below order) from the Chinese Academy of Engineering delivered updates on innovations and advancements in precision medicine from traditional Chinese medicine (TCM):

- Prof. Baofeng Yang, “Innovation and speculation of medicine”
- Prof. Guangji Wang, “Pharmacokinetics and pharmacodynamics related research of multi-component TCM”
- Prof. Honghao Zhou, “Current status of individualized/precision medicine”
- Prof. Jian Ding, “Precision medicine and individualized antitumor medicine”.

Prof. Zhang introduced the goals and implementation plan for the Five-Year Plan of the Major New Drug R&D Project. Thus, the invited lectures were carefully chosen to introduce and characterize interdisciplinary applications of the newest technologies. Thirty-six invited speakers reported their latest research results during the five thematic symposia on new drug discovery, TCM and network pharmacology, molecular and biochemical pharmacology, therapeutic drug monitoring, and drug-induced disease. Some of the newly introduced propositions resulted in lively discussions and the lectures delivered by the young pharmacologists were thoughtful and energetic.

The CNPHARS-Servier Prize for Young Investigators in Pharmacology was established 20 years ago, thanks to the joint efforts of Prof. Paul M. Vanhoutte, Prof. Juntian Zhang, and other experts. The Servier Research Institute and the CNPHARS collaboration recognizes and encourages the brilliant performance of Chinese young scientists, who demonstrate their willingness to work in China and contribute to the Chinese new drug research and development. During these past two decades a total of 158 individuals have received the “CNPHARS-Servier Prize for Young Investigators in Pharmacology”. It has played an important role to engage the young generation of Chinese pharmacologists by rewarding their efforts to expand knowledge and be innovative in research while taking a positive role in promoting the goals of CNPHARS. It has also contributed towards retaining talented young investigators within Chinese pharmacology research. To date, 140 laureates are active in China in pharmacological research and related areas. Some of the past award recipients have become directors and academic leaders in prestigious universities and research institutions. Over the past two decades, significant improvements in Chinese research and living conditions for bioscientists have attracted more and more young Chinese researchers to return from abroad to dedicate themselves to scientific research in their motherland. Both CNPHARS and the Servier Group agree the prize should be continued with plans to routinely evaluate the procedures to ensure constant improvement now and into the future.

The Award Ceremony and 20th Anniversary of the CNPHARS-Servier Prize for Young Investigators in Pharmacology were celebrated on the afternoon of October 24th, 2016. Mr. Olivier Laureau, President of the Servier International Research Foundation and of Servier SAS; Dr. Emmanuel Canet, Senior Executive Vice-President Research and Development; and Dr. Pierre Renard, Deputy Director Centre of Excellence Research and Biopharmacy, attended and offered remarks during the ceremony. Prof. Zhibin Lin, Emeritus President of CNPHARS, and Prof. Du gave speeches describing the history of the prize and summarizing their thoughts about the future plans for the prize. They expressed the sincere gratitude of the CNPHARS to the Servier Group. Ten founders and senior contributors (at left), including Dr. Canet, Prof. Vanhoutte, Dr. Renard, and Dr. Xuan Wang from the Servier Group, and Prof. Zhang, Prof. Lin, Prof. Du, Prof. Zhang, Prof. Dingfeng Su, and Prof. Xuejun Li from CNPHARS, were each awarded a handprint to honor their contributions in establishing and maintaining the prize program. The atmosphere of the ceremony was collegial, exciting and unforgettable. A commemorative book was published before the ceremony to memorialize the event.

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To honor the past recipients of the CNPHARS-Servier Prize for Young Investigators in Pharmacology (photograph above), a special symposium was held after the ceremony. All five speakers were past CNPHARS-Servier Prize awardees who are currently famous pharmacologists in China, including:

- Dr. Anyang Sun at Shanghai University of Medicine and Health Sciences
- Dr. Chaoyu Miao in the Second Military Medical University
- Dr. Liwu Fu in Sun Yat-Sen University Cancer Center
- Dr. Yuxian Shen in Anhui Medical University, and
- Dr. Fang Hua in the Institute of Materia Medica, Chinese Academy of Medical Sciences.

Their presentations were well received by the experts and representatives from Servier Group in the audience (photograph below).

The conference and celebration was a great success. We are very grateful to our distinguished guests from IUPHAR, APFP, ASPET, etc., for making a special trip to participate in this important event and offering lectures during the conference. We are also very grateful to IUPHAR for its past and ongoing support and assistance. CNPHARS is always seeking to broaden international academic exchanges and cooperation to help promote the progress and development of international pharmacological research. In this new millennium, CNPHARS will adhere to its long-standing mission dedicated to improving the health and welfare of humankind. 

Ying Zhao, Director of Administrative Office, CNPHARS
Yongxiang Zhang, Vice-President and Secretary-General, CNPHARS
Guanhua Du, President, CNPHARS
Merger of the
International Council for Science
and the
International Social Science Council

The International Council for Science (ICSU) is a non-governmental organisation with a global membership of national scientific bodies (122 members, representing 142 countries) and international scientific unions (31 members). ICSU mobilises the knowledge and resources of the international scientific community to strengthen international science for the benefit of society. [www.icsu.org]

The International Social Science Council (ISSC) is a membership-based non-governmental organization, and the primary global body representing the social sciences, including economic and behavioural sciences. Its mission is to strengthen social science to help solve global priority problems. Through its members and programmes, the ISSC reaches hundreds of thousands of individual social scientists working across a wide range of disciplines and representing all parts of the world. [www.worldsocialscience.org]

At a joint General Assembly held in Oslo on October 24, 2016, a large majority of the member delegates of ICSU and ISSC voted to merge the two organizations to form a single entity by October, 2018. Delegates also approved the creation of a Task Force to develop transition plans, including legal requirements, new statutes and governance structures for the merged organization. The Task Force proposal will be put to a vote during a joint meeting of ICSU and ISSC delegates in October, 2017 at the 32nd ICSU General Assembly in Taipei. If these plans are endorsed, the transition will be implemented and overseen by the ISSC and ICSU executives. A General Assembly of the new organization is tentatively planned for October, 2018. The ICSU delegates also voted to extend the mandates of their Executive Board until October, 2018. In June, 2016 ISSC Members had already agreed to extend the term of their current Executive Committee until completion of the merger process. ●

Urs T. Ruegg
IUPHAR Liaison to ICSU
2017 Anniversaries

IUPHAR congratulates these member societies on their anniversaries:

Swedish Society for Pharmacology, Clinical Pharmacology and Therapeutics
1907 - 2017

Japanese Pharmacological Society
1927 - 2017

Belgian Society of Fundamental and Clinical Physiology and Pharmacology
1947 - 2017

Korean Society of Pharmacology
1947 - 2017

Russian Scientific Society of Pharmacology
1952 - 2017

Egyptian Society of Pharmacology and Experimental Therapeutics
1957 - 2017

Hungarian Society for Experimental and Clinical Pharmacology
1962 - 2017

Asia Pacific Federation of Pharmacologists
1972 - 2017

Latvian Society of Pharmacology
1972 - 2017

Spanish Society of Pharmacology
1972 - 2017

Pharmacological Society in Taiwan
1982 - 2017

Pharmacological and Therapeutic Society of Thailand
1982 - 2017

European College of Neuropsychopharmacology
1987 - 2017

International Society for Serotonin Research
1987 - 2017

French Society of Pharmacology and Therapeutics
1997 - 2017
In 2017, the Japanese Pharmacological Society (JPS) will mark the 90th anniversary of its founding. More than two thousand of our members will celebrate this event at the 90th Annual Meeting at Nagasaki City, Japan on March 15–17, 2017.

The Founding of the JPS

The decision to establish the JPS was made in 1926 at a meeting of the subcommittee on pharmacology convened for that purpose at the Seventh General Assembly of the Japan Medical Congress. The next year the JPS was founded with the express purpose of further developing the field of pharmacology by sharing scientific knowledge on pharmacology gained through research conducted in close collaboration with fellow scientists affiliated with related academic societies throughout the world. On April 1, 1927, the first meeting of the JPS was held at the University of Tokyo with 59 papers presented.

The present JPS membership is about 4,700, made up of pharmacologists from universities both within and beyond Japan, as well as from the pharmaceutical industry. About a thousand papers are presented at each JPS annual meeting, making it one of the most active pharmacological societies in the world. The JPS is proud of the many important contributions made by our members to medical research over the years, including the discovery of troponin by Setsuro EBASHI, the development of calcium antagonists for hypertension by Koroku HASHIMOTO, and the discovery of statins for hyperlipidemia by Akira ENDO.

Official Publications

The Journal of Pharmacological Sciences (at right), the official journal of the society, was first established as the Japanese Journal of Pharmacology in 1951. The journal was renamed the Journal of Pharmacological Sciences in 2002. We published its 100th volume last year. The editors of the Journal make every effort to publish high quality papers selected from among those submitted by researchers from around the world. In addition to the English-language journal, the JPS publishes Folia Pharmacologica Japonica (at left) as its official Japanese-language journal, which was founded in 1941. The monthly journal not only publishes scientific papers but also serves as a vehicle for the interaction of the society members.

The Promotion of International Relations

Before World War II, many Japanese pharmacologists went to Germany as postgraduate fellows to study in the laboratories of Oswald SCHMIEDEBERG and others. In the 1950s, the American pharmacologists McKeen CATTELL and Maurice SEEVERS visited Japan as Unitarian Service Committee members to provide new information and techniques to the JPS members. Their visit had significant influence on Japanese pharmacology. After the 1960s, the number of Japanese pharmacologists studying abroad rapidly increased and they have accomplished significant achievements and contributions to the pharmacological communities world-wide.

During the 1960s, pharmacologists from the American Society for Pharmacology and Experimental Therapeutics and other societies made efforts to further establish pharmacology as an independent discipline. JPS representative Hiroshi KUMAGAI was among those who were involved in the negotiation with the International Union of Physiological Sciences to form an independent International Union of Pharmacology.

Continued on page 30...
In July, 1981, the JPS hosted the 8th International Congress of Pharmacology in Tokyo for the first time in Asia. Setsuro EBASHI played a significant role as the president of the meeting, and later assumed the office of president of the IUPHAR (1990–1994). Since the late 1990s, Makoto ENDO, Masayoshi MISHINA, and Masamitsu IINO have served on the IUPHAR Executive Committee. The JPS has also been actively involved in the IUPHAR Nomenclature Committee (NC-IUPHAR) since 2012, with Kozo KAIBUCHI and Yoshikatsu KANAI joining the committee.

**Future Perspectives**

Pharmacology requires the multidisciplinary integration of research at various levels from laboratory bench to patient bedside, so it demands that we utilize a wide spectrum of approaches to achieve our final goal to deliver new therapeutics to those who are suffering. It is therefore of the utmost importance to have full participation of researchers with diverse backgrounds for the advancement of the pharmacological sciences. The JPS is not only intent on satisfying the intellectual curiosity of its diverse membership but it is also devoted to promoting their optimal interaction to help create the ideal conditions for forging the new ideas needed for the advancement of therapeutics. We wish to welcome participants from abroad at our annual meetings, where English is now used for oral and poster presentations. Along this line of globalization of our conferences, we are particularly honored to host the next World Congress of Basic and Clinical Pharmacology in Kyoto in 2018. The JPS, in collaboration with the Japanese Society for Clinical Pharmacology and Therapeutics, will welcome pharmacologists from all over the world (http://www.wcp2018.org). Through these activities, we seek to achieve further advancement of the JPS. We warmly extend an invitation to all researchers in pharmacology and related fields of research to participate in our future activities.

Akinori Akaike, Ph.D.
President
The Japanese Pharmacological Society

Opening ceremony of 8th International Congress of Pharmacology in Tokyo in July, 1981
During 2017 the Egyptian Society of Pharmacology & Experimental Therapeutics (ESPET) celebrates its 60th year of existence. In 1957, the Society was created as a branch of the Egyptian Medical Association. In those days, the number of active pharmacologists did not exceed 30 members. Today the number of pharmacologists in Egypt exceeds one thousand, albeit not all of them are active members of the Society. They include graduates of the faculties of medicine, pharmacy, veterinary medicine, and biological sciences.

ESPET was one of the earliest African Societies to join IUPHAR and has constantly tried to consolidate relations between both African and Arab societies of pharmacology by participating in the creation of the Union of African Societies of Pharmacology (UASPHAR) under the Presidency of E.E. Galal (at right) with member states including the Anglophonic and Francophonic ones including Egypt, Nigeria, Ghana, Kenya, Cameroon, Uganda, Sudan and Algeria. The first Conference of UASPHAR was held in 1983 in Lagos, Nigeria, followed by 2nd and 3rd reunions in Cairo. However, because of the lack of funds, difficulty in communication at the time, and political issues, the existence of UASPHAR was short-lived and ended after 1986.

ESPET continues to keep strong links with other African societies of pharmacology and gratefully acknowledges the enormous efforts of the South African Society of Basic and Clinical Pharmacology in its quest to unite pharmacologists from all over the African continent under the flag of Pharmacology for Africa (PharA). ESPET congratulates the South African Society of Basic and Clinical Pharmacology on its 50th anniversary in 2016.

ESPET publishes a scientific journal, holds annual conferences to promote the teaching of evidence-based medicine, and hosts workshops for continued medical education. These efforts include introducing computer simulations for practical pharmacology and promoting the teaching of clinical pharmacology as a discipline. The 60th anniversary will be celebrated in Cairo in January, 2017 and will feature a workshop in collaboration with Danish colleagues, Drs. Mogens Nielsen and Michael-Robin Witt, on models for investigating drugs for neuropsychiatric disorders.

The founding president, the late Professor Mohamed Amin Khayyal (1904 – 1971: photo at left) had obtained his PhD with Dr. A.J. Clark in Edinburgh, UK and, after returning to Cairo, he established the cornerstone of teaching pharmacology in Egypt at the Faculty of Medicine, Cairo University. The department hosted eminent pharmacologists such as
Sir John H. Gaddum, who incidentally started his teaching career in Cairo in 1934. There he became involved in research on chemical neurotransmission with Professor Mohamed Amin Khayyal before returning to London to join University College and later to follow A.J. Clark as the chair of the Pharmacology Department in Edinburgh.

Professor Mohamed Amin Khayyal was succeeded by Professor Essam E. Galal as president of ESPET. He was an endocrinologist who was also the secretary of the Egyptian Pugwash Committee. The Society continued to flourish under his leadership for many years. Professors Mohamed T. (at left) and Mahmoud A. (at right) Khayyal followed in their father’s footsteps by becoming pharmacologists and contribute to the current success of ESPET. Professor Mohamed T. Khayyal now serves as the ESPET president and is Professor of Pharmacology, Faculty of Pharmacy, Cairo University. Professor Mohamed T. Khayyal was elected as a councilor to the IUPHAR Executive Committee from 2000 – 2008. Professor Mahmoud A. Khayyal is honorary secretary of ESPET, a member of the IUPHAR Clinical Pharmacology Division, and is Emeritus Professor of Pharmacology, Al-Azhar University in Cairo.

IUPHAR wishes ESPET another 60 years of success! ●

References
In March 1984, representatives of neuropsychopharmacological societies from across Europe sat down to dinner in Copenhagen to mark the 25th anniversary of the then Scandinavian Association of Psychopharmacology. European integration was in the air. The question was raised: might there be a case for a European structure, to give European neuropsychopharmacologists a platform to exchange and promote the region’s best research?

To follow up on this idea, a meeting was held in Copenhagen in May, 1985. The rationale of a pan-European organisation was so powerful that it was decided to take it further: a European College of Neuropsychopharmacology (ECNP) would be founded. A Working Group was formed to plan the association’s inaugural scientific congress, which was held in Brussels in 1987. Some 500 people attended from across Europe, a remarkable turnout for a new entrant. ECNP was formally launched. The College’s constitution came two years later in Gothenburg – the same governance structure that serves ECNP today.

In 1993 the College established a permanent secretariat in Utrecht, the Netherlands. It had one room and a part-time secretary, but it was the beginnings of the ECNP Office. Permanent management meant organisational continuity, and with it financial stability. The 9th ECNP Congress in Amsterdam in 1996 was the first to be co-ordinated in-house. The College has never looked back.

Today, the ECNP Congress attracts some 5,000 participants from around the world (at left), and has become the benchmark scientific meeting in its field. But that is not all. As well as the congress, the College now organises a wide range of meetings, educational initiatives and scientific programmes, almost all of them organised by the ECNP Office and funded by the College. Every year more than 400 junior scientists attend ECNP educational meetings (at right), from our Workshop in Nice, France, to our Clinical School in Oxford, Child and Adolescent School in Venice, Clinical Research Methods Workshop in Barcelona, and half dozen Seminars across Eastern Europe. Our...
ECNP at 30
(continued)

Better Medicines through Global Education and Research

research networks programme now includes 13 Networks, covering many of the major challenge areas in brain research and treatment, and connects hundreds of researchers across Europe. The Experimental Medicines Network drove the successful bid for IMI2 funding worth 16 million euros earlier this year. The Neuroscience-based Nomenclature (NbN) project to reform the naming conventions of psychotrophic drugs, a unique collaboration, spearheaded by ECNP, between the world’s leading scientific societies in neuropsychopharmacology – including IUPHAR – is driving an important shift in how psychiatric medicines are understood by clinicians. Finally, the ECNP journal, European Neuropsychopharmacology (ENP - cover at right), is developing as a premier publication for applied and translational neuroscience.

Together, these activities and initiatives make ECNP the largest non-institutional supporter of applied neuroscience research and education in Europe.

The characteristics that have defined ECNP for 30 years – its focus on high-quality research and education; excellent organisation; constructive, but independent engagement with industry; and close co-operation with national European and international organisations – continue to shape its strategic direction and guide its future.

But much has changed in 30 years. In 1987 the future of treatment lay in medicines, and the riddle of the biological bases of brain disorders seemed only a step or two away from being solved. Thirty years later the underlying biology remains elusive, but ground-breaking discoveries have led neuroscience into to exciting new areas of research investigating the brain basis of emotion, cognition and action. This understanding has opened up whole new treatment avenues, from dead brain stimulation to the talking therapies. From pharmacology ECNP has expanded its remit to encompass interventions across the range of applied and clinical neuroscience. As the College enters its fourth decade it will be focused more than ever on connecting the steadily proliferating fields of brain research and bringing them to bear on the challenges of human illness.
The need to do so arguably gets constantly greater. For disorders of the brain, public research funding significantly lags behind the public health need, and private-sector funding is being comprehensively reconfigured. European researchers are increasingly thrown back on their own resources. Meanwhile, in one form or another, disorders of the brain now affect one out of three Europeans. Our work with the European Brain Council has helped raise awareness of the challenge in Brussels.

This environment makes the College’s mission vitally relevant. The role of ECNP as a hub connecting laboratory discoveries with clinical applications is served with such focus by no other organisation in Europe. Collaboration at a European level is vital to harness scarce expertise, increase patient participation in research, and bring together centres of excellence in joint projects. To have a European-wide body stimulating and co-ordinating this co-operation is becoming more important than ever.

Thirty years is not a long time in which to apply any basic science advances to medical practice. ECNP looks forwards keenly to the excitement of seeing the recent decades of brain research translated into enduring patient benefit. ●

ECNP at 30
(continued)

Celso Arango (at right)
Universitario Gregorio Marañón
European College of Neuropsychopharmacology (ECNP)
President

Guy M. Goodwin
University of Oxford
ECNP Past President

Alexander Schubert
ECNP Executive Director
In 1985, Paul Vanhoutte proposed the formation of a serotonin club to a group of colleagues. His tireless efforts to mobilize serotonin researchers throughout the world led to what is today known as the “International Society for Serotonin Research” (ISSR). The first official dinner meeting of the “Serotonin Club” was in April, 1986 at the FASEB meeting in St. Louis, USA. However, the “Serotonin Club” was not formally constituted until August, 1987 at a small dinner party of serotonin researchers in Sydney, Australia, almost 30 years ago. A few days later, a satellite meeting to the 10th International Congress of Pharmacology was held on the beautiful Heron Island, Queensland, Australia on September 4-6, 1987. The satellite was the first “serotonin symposium”. It is here where the “Serotonin Club” was truly born. Two years later, the proceedings of this meeting were published in a book “Serotonin – Actions, Receptors and Pathophysiology”, edited by some of the leaders in the field at that time (Ewan Mylecharane, James Angus, Ivan de la Lande and Patrick Humphrey). We recommend taking a look at this book for the historical perspective it gives to the then greatly unappreciated importance of serotonin. In 2013 the “Club” was renamed the “International Society for Serotonin Research”. From its humble beginnings, this organization is now the premier society for all biomedical scientists with an interest in serotonin.

The ISSR has been led by giants in serotonin research, beginning with Paul Vanhoutte, followed by Pramod Saxena, Elaine Sanders-Bush, A. Richard Green, Patricia Whitaker-Azmitia, Ewan Mylecharane, David Nelson, Daniel Hoyer, Mark Geyer, Charles Marsden, Theresa Branchek, Julie Hensler and Maarten van den Buuse. Of course, the job of these Presidents has always been made easy thanks to the tireless and dedicated efforts of “The Club’s” secretary-treasurers, Ewan Mylecharane, Richard Green and Sheryl Beck. A major contribution of the ISSR to the field of pharmacology, was...
ISSR Celebrates its 30th Anniversary
(continued)

its formation of a nomenclature committee in the 1980s to deal with the increasing complexities of classifying serotonin receptors as more (and more) subtypes were identified. This committee continues to be very active, and is currently chaired by Daniel Hoyer and Nicholas Barnes. The basic principles and guidelines developed by this committee formed a template that ultimately led to the creation of the IUPHAR Committee on Receptor Nomenclature and Drug Classification (NC-IUPHAR).

The ISSR currently boasts a membership of over 350. Conferences are held biennially, attracting serotoninologists from the world over. A special feature of these meetings are the plenary lectures, named after the titans who contributed to the discovery of serotonin – The Irvine Page (established in 1990), Maurice Rapport (established in 2006) and Paul Vanhoutte (established in 2016) Distinguished Lectures. Past recipients of the Page Lecture are Stephen Peroutka, Michel Hamon, Barry Jacobs, Pramod Saxena, David Nichols, John Harvey, Joel Bockaert, Bryan Roth, Elaine Sanders-Bush, Herbert Meltzer and Trevor Sharp. Past recipients of the Rapport Lecture are Richard Green, Dennis Murphy, Manfred Gothert, Ewan Mylecharane, Charles Marsden and Daniel Hoyer. The inaugural Vanhoutte lecture was given this year at the “Serotonin in Seattle” meeting, most fittingly, by Paul Vanhoutte himself. The ISSR meetings are held as official satellite meetings to IUPHAR whenever possible, and always at outstanding venues. In the recent past these include Sapporo (Japan, 2006), Oxford (UK, 2008), Montreal (Canada, 2010), Montpellier (France, 2012), Hermanus (South Africa, 2014) and Seattle (USA, 2016).

While there will be no meeting in the year of our 30th anniversary, we are excited to announce that in 2018 the ISSR meeting will be held in Cork (Ireland), with John Cryan and Harriet Schellekens heading up the local organizing committee. We hope that you will come and join what will be a dynamic meeting, filled with cutting edge science, plenty of networking opportunities, especially for junior investigators, and a social program that will be, without doubt, delightful (‘tis the luck of the Irish, afterall).

Lynette C. Daws, PhD, President
Kelly A. Berg, PhD, Secretary/Treasurer

Please join us in beautiful Ireland at the University of Cork for the 19th meeting of the ISSR in 2018.
Make sure you’re heading in the right direction

Find your next career opportunity at

www.PharmacoCareers.org

Whether you’re actively searching for a new job or not, don’t miss what could be your next career opportunity. Post your anonymous curriculum vitae now to start building a better career in pharmacology.

Search over 1,200 career possibilities available in pharmacology and the related disciplines or create a personal job alert to be notified of new jobs that match your criteria. Be available for your next career opportunity, visit www.PharmacoCareers.org, where employers search for pharmacology professionals.
On behalf of the Japanese Pharmacological Society (JPS) and the Japanese Society of Clinical Pharmacology and Therapeutics (JSCPT), I cordially invite you to the 18th World Congress of Basic and Clinical Pharmacology (WCP2018) to be held from July 1 to 6, 2018, in Kyoto, Japan. The main theme of WCP2018 is “Pharmacology for the Future -Science, Drug Development and Therapeutics-.” We are now witnessing huge waves of revolutionary changes in biomedical sciences such as individual genome sequencing, stem cell biology including iPSCs, structural biology, nanotechnology and systems biology. It is the tradition of pharmacology to take all the elements in other disciplines of science to carry out our science as in the old saying, “a pharmacologist is a jack of all trades.” We intend to organize, in collaboration with our neighboring national societies, a variety of scientific programs that allow exposure of participating pharmacologists to these new waves of science. We believe such scientific interactions will facilitate interdisciplinary studies among life sciences and medicine that will serve human health. Emphasis will also be given to the scientific programs related to drug development and therapeutics, where researchers from academia interact with those from industry so that we together fulfill our time’s needs for innovation. Besides science, WCP2018 will provide you a rare chance to experience old Japanese culture. Kyoto was the capital of Japan for over 1,000 years and still remains the heart of culture in Japan. Shrines, temples and historical sites in Kyoto have remained the same for centuries. Visit one of these spots and meditate there; you will feel the breath of many hundred-years of culture.

Getting off the beaten path and exploring some of the hidden areas of Kyoto will surely yield further rewards to you. July in Kyoto is the summer festive season. The Gion Festival goes on for the entire month of July and is one of the most famous festivals in Japan. It dates back to the year 869, when the people were suffering from plague and pestilence and started this festival to get rid of these maladies. It is therefore a good time to have the Pharmacology Congress and we sincerely look forward to seeing you at WCP2018 in Kyoto.

Mark your calender

Registration Opens ➤ August, 2017
Abstract Submission Opens ➤ August, 2017
Abstract Submission Close ➤ December, 2017
Early Bird Registration Deadline ➤ March, 2018
Late Registration Deadline ➤ May, 2018
Final Program Available ➤ June, 2018

*The exact dates will be announced on the WCP2018 official website: http://www.wcp2018.org/
Scientific Program

Confirmed Speakers

Opening Lecture

TBA

Tasuku Honjo, M.D., Ph.D.
Kyoto University, Japan

Plenary Lectures

Recent Progress in IPS Cell Research and Application (tentative)

Shinya Yamanaka, M.D., Ph.D.
Kyoto University, Japan

The Cardiovascular Effects of Peptidase Inhibition (tentative)

Nancy J. Brown, M.D.
Vanderbilt University Medical Center, USA

TBA

Karl Deisseroth, M.D., Ph.D.
Stanford University, USA

Why TGN1412 was safe and BIA 10-2474 dangerous. The case for mechanism based drug development (tentative)

Adam Cohen, M.D., Ph.D.
Centre for Human Drug Research, the Netherlands

Tang Prize Lecture

Genome Engineering: Technologies and Applications (tentative)

Feng Zhang, Ph.D.
McGovern Institute, USA

Continued on page 41...
# Program at a Glance

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**Congress Secretariat**  
c/o Congress Corporation  
Kohsai-kaikan Bldg., 5-1 Kojimachi, Chiyoda-ku, Tokyo 102-8481, Japan  
TEL: +81-3-5216-5318  FAX: +81-3-5216-5552  E-mail: wcp2018@congre.co.jp

[http://www.wcp2018.org/]
Upcoming Events

January

Winter Meeting of the Norwegian Society for Pharmacology and Toxicology
January 26-29, 2017 in Beitostolen, Norway
http://nsft.net/nsfts-vintermote-2017

March

83rd Annual Meeting of the German Society for Experimental and Clinical Pharmacology and Toxicology (DGPT) and 19th Annual Meeting of the Network of Clinical Pharmacology (VKliPha) in collaboration with the AGAH
March 6-9, 2017 in Heidelberg, Germany
http://www.gpts-kongress.de

Workshop for Junior Scientists organized by the European College of Neuropsychopharmacology (ECNP)
March 9-12, 2017 in Nice, France
https://www.ecnp.eu/meetings/workshops/workshop2016.aspx?ec_as=C2AF852EE07B47BDA8FF5EDCD1A3CCD

Therapeutic Innovation from Dejima: The 90th Annual Meeting of the Japanese Pharmacological Society
March 15-17, 2017 in Nagasaki, Japan
http://www2.convention.co.jp/jps90/indexE.html

118th Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics
March 15-18, 2017 in Washington, DC, USA
http://www.ascpt.org/ASCPT-2017-Annual-Meeting

Institute for Translational Medicine & Therapeutics (ITMAT) coorganized by the British Pharmacological Society
March 17, 2017 in Edinburgh, Scotland, UK
https://www.bps.ac.uk/itmat

April

2017 Congress of the French Society of Pharmacology and Therapeutics
April 19-21, 2017 in Rouen, France

Experimental Biology ’17 Annual Meeting of the American Society for Pharmacology and Experimental Therapeutics
April 22-26, 2017 in Chicago, IL, USA
https://www.aspet.org/eb2017

Pharmacovigilance in Elderly Populations so-organized by the IUPHAR Pharmacopeidemiology and Pharmacovigilance Subcommittee of the Clinical Pharmacology Division
April 29-30, 2017 in Mumbai, India
admin@iuphar.org for more information

Continued on page 43...
Upcoming Events

June

**Symposium on Drug Development and New Frontiers in Gastrointestinal Diseases**
Presented by the **IUPHAR Gastrointestinal Section** as a contribution to **100 years of Medical Faculty University of Zagreb**
June 8 - 10 in Zagreb, Croatia

**2017 Annual Meeting of the Canadian Society of Pharmacology and Therapeutics**
June 14 - 16, 2017 in Halifax, Nova Scotia, Canada
[https://pharmacologycanada.org/pages/national](https://pharmacologycanada.org/pages/national)

**37th Congress of the Spanish Society of Pharmacology** with guest society the **British Pharmacological Society**
June 18 - 21, 2017 in Barcelona, Spain

**2017 Congress of the European Society for Developmental Perinatal and Pediatric Pharmacology**
June 20 - 23, 2017 in Leuven, Belgium
[http://www.esdppp.org](http://www.esdppp.org)

**13th European Congress of Clinical Pharmacology and Therapeutic**
June 24 - 27, 2017 in Prague, Czech Republic

**First National Workshop of the Immunopharmacology and Biotechnology Section of the Cuban Society of Pharmacology, the IV International Congress on Immunopharmacology (IMMUNOPHARMACOLOGY 2017) with participation by the IUPHAR ImmuPhar Section), and the IV International Congress on Pharmacology of Vaccines (VACCIPHARMA 2017)**
June 25 - 29, 2017 in Varadero Beach, Cuba
[http://www.immunovaccipharmacuba.com](http://www.immunovaccipharmacuba.com)

**3rd MURIA Training Workshop on Drug Utilization Research** co-organized by the **IUPHAR Clinical Pharmacology in Developing Countries Subcommittee** of the Clinical Pharmacology Division
June 26 - 28, 2017 in Namibia

**Summer School on Stress: From Hans Selye’s original concept to recent advances** co-organized by the **IUPHAR Gastrointestinal Section**
June 26 - 30, 2017 in Komarno, Slovakia
[http://www.stresseducation.org](http://www.stresseducation.org)

July

**Scientific Frontier in Natural Product-Based Drugs** by the **Pharmacological Society of Singapore** and the National University of Singapore Departments of Pharmacology & Pharmacy
July 6 - 7, 2017 in Singapore
[http://medicine.nus.edu.sg/medphc](http://medicine.nus.edu.sg/medphc)

IUPHAR Member Societies: To include your events here, please e-mail the details to [iuphar@kumc.edu](mailto:iuphar@kumc.edu).
Better Medicines through Global Education and Research

Pharmacology International

December 2016

ITMAT IN EDINBURGH
Big Data & the Development of New Medicines
Friday 17 March 2017
Edinburgh, UK

Book your place online at www.bps.ac.uk/ITMAT for what promises to be an exciting and engaging meeting – with an international faculty of speakers:

- Professor Patrick Vallance, President, Pharmaceuticals R&D, GlaxoSmithKline
- Dr Ewan Birney, Director, European Bioinformatics Institute (EMBL-EBI), part of the European Molecular Biology Laboratory
- Professor Sir Rory Collins, Nuffield Department of Population Health, University of Oxford
- Professor Andrew Morris, University of Edinburgh and Director, Farr Institute Scotland
- Dame Anna Dominiczak, Regius Professor of Medicine, University of Glasgow and Director of the University of Glasgow Cardiovascular Research Centre
- Meirav Pevsner-Fischer, Department of Immunology, Weizmann Institute of Science
- David Porter, University of Pennsylvania Health System, Jodi Fisher Horowitz Professor of, Leukemia Care Excellence, Director, Blood and Marrow Transplantation
- Mathias Uhlen, KTH Biotechnology, AlbaNova University Center, Royal Institute of Technology (KTH), Stockholm, Sweden
- Nick Stroustrup, Department of Systems Biology, Harvard University
- Mukesh Jain, Director of Case Cardiovascular Research Institute, Case Western Reserve University
- Esther Lutgens, Department of Medical Biochemistry, Academic Medical Center, University of Amsterdam

This is the first time that the ITMAT Meeting has been held in Europe. ITMAT, which was the first institute for translational medicine in the world, supports work at the interface of basic and clinical research, focusing on developing new and safer medicines with the leadership of Professor Garret FitzGerald.

The one-day programme will bring together a faculty of globally-recognised speakers, thanks to support from the British Pharmacological Society and the Royal Society of Edinburgh. The organisers look forward to welcoming attendees from the UK and around the world, both early and established researchers, from across science and medicine.

Registration deadline: 10 March 2017
Abstract submission deadline: 20 Jan 2017
Member bursary deadline: 20 Jan 2017

British Pharmacological Society/ITMAT
Member registration £80.00
Student registration £50.00

Non members
Full registration £95.00
Student registration £60.00

Social event
Drinks reception & dinner on 17 March 2017 £45.00

For more information about attending or presenting please contact meetings@bps.ac.uk or visit www.bps.ac.uk/ITMAT
Experimental Biology 2017

The American Society for Pharmacology and Experimental Biology (ASPET) invites all IUPHAR members to attend the ASPET Annual Meeting at Experimental Biology 2017 in Chicago, Illinois, USA, April 22-26. Experimental Biology (EB) is a multi-disciplinary scientific meeting bringing together six societies and more than 14,000 scientists from all over the world.

The ASPET program includes a wide variety of scientific symposia with invited and abstract-based speakers, award-winning lecturers, poster sessions, division-focused sessions, education and career development sessions, a student and postdoc poster competition, and numerous mixers and networking events.

At the Annual Meeting you will learn about the latest developments in your field to push your research forward. Not only will your participation help you gain scientific information, but it will also bring you in contact with others from your scientific community who can advise you on any research issues and career concerns.

**Upcoming Deadlines:**

- **February 8, 2017**
  Late-breaking abstract deadline

- **February 23, 2017**
  Registration discount deadline

- **March 31, 2017**
  Hotel discount deadline

For more information about the meeting, to register, or to submit a late breaking abstract, visit [www.aspet.org/eb2017](http://www.aspet.org/eb2017). We look forward to seeing you there!
The IUPHAR Pharmacoepidemiology and Pharmacovigilance Subcommittee of the Clinical Pharmacology Division announces its co-organization and participation in a workshop session and panel discussion on

**Pharmacovigilance in Elderly Populations**

**Mumbai, India**

**29 - 30 April 2017**

Prescribing practices and disease prevalence vary among world regions and age groups. These factors directly affect drug safety, as well as its evaluation, and subsequent regulatory decisions. In the elderly, comorbidities such as polypharmacy, social deprivation and cognition-related difficulties for compliance influence the outcomes. Epidemiology of the real condition of the use of medicines in the elderly is crucial for evaluating safety, effectiveness, access and affordability but often insufficiently addressed, especially in developing countries, due to the paucity of databases, funding, and trained manpower. Such difficulties result in challenges for reaching public health policy decisions.

This workshop will bring together international experts in these pertinent areas as well as regulators in India. They will share their experiences related to the increasing and diverse use of medicines in the elderly along with the challenges related to regulatory and prescribing decisions. This session will be appropriate for teachers and students, pharmacologists, pharmacists, physicians, research scientists, policy makers and pharmaceutical companies.

For further information, please email the Subcommittee Chair Prof. Milou-Daniel Drici at admin@iuphar.org.
You are cordially invited to the symposium on

Drug Development
and New Frontiers in Gastrointestinal Diseases

as a contribution to 100 years of Medical Faculty University of Zagreb in Croatia

Hotel Maestral, Novigrad, Croatia
8 - 10 June 2017

www.gi-iuphar-section-meeting-2017.com
2017 CSPT Annual Meeting

Wednesday, June 14 - Friday June 16, 2017

Mark your calendars!!! The dates have been set for our 2017 Annual Meeting which will take place at Dalhousie University in Halifax, Nova Scotia.
Please join us to honor

**Hans Selye**

in the year of his 110th birthday!

26 - 30 June 2017

J. Selye University
Komárno, Slovakia

[www.stresseducation.org](http://www.stresseducation.org)
These Congresses will be running in parallel, organized in the following workshops and symposia:

**IMMUNOPHARMACOLOGY CONGRESS**
- Fourth Workshop on New Advances in Immunopharmacology
- Fourth Workshop on Neuroimmunology, Neuroimmunopharmacology and Neuroimmunomodulation
- Fourth Symposium on Pharmacology of Cytochrome P450 and transporters

**VACCIPHARMA CONGRESS**
- Fourth Workshop on Pharmacology of Prophylactic vaccines
- Fourth Workshop on Pharmacology of Therapeutic vaccines
- First Symposium on Vaccine Technology and Bioprocesses

**SATELLITE SYMPOSIA**
- Second Symposium on Atherosclerosis: From Basic Research to New Therapeutic Strategies
- First Cuban Symposium on NF-κB
- First Symposium on Gene Therapy

**The key objectives of the Convention are:**
- To provide a progressive state-of-the-art report for scientists, manufacturers, regulators and healthcare workers in the fields of immunological research and the development and research on vaccines.
- To promote the experience exchange, the presentation of results and the discussion on topics related with the activities scheduled, as well as creating a suitable framework for collaboration.
- To contribute to the acceptance of new products, methods and technologies.

Deadline for submitting abstracts is March 15, 2017

www.IMMUNOVACCIPHARMACUBA.com
INTERNATIONAL CONFERENCE ON THE MECHANISM OF ACTION OF NUTRACEUTICALS
27TH - 29TH SEPTEMBER 2017, AECC, ABERDEEN, SCOTLAND

WWW.ICMAN-ABERDEEN-2017.ORG

MAIN CONFERENCE THEMES:
- Novel Sources of Nutraceuticals and Natural Products
- Novel pathways and mechanisms of action
- Drug-nutrient interactions
- Bioavailability of nutraceuticals and Natural Product pharmaceuticals
- East meets West - the convergence between nutraceuticals, TCM & Western medicine
- Personalised nutrition and medicine

LUNCHTIME WORKSHOP TOPICS:
- Novel tools for nutraceutical/NP pharmaceutical research
- Regulation and Health Claims
- Nutraceuticals and TCM’s in practice
- Developing a database of nutraceuticals and NP-pharmaceuticals
- Social Responsibility and Sustainability of exploiting natural resources
- Biotechnology and upscaling of production

NEW DEVELOPMENTS:
ICMAN 2017 will be held as a joint meeting with the IUPHAR Natural Product Section

KEEP AN EYE ON:
Natural Product Biotechnology 2017 will precede ICMAN

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