The end of October marked a milestone in pharmacological informatics with the completion of the project to construct the website and database of www.guidetopharmacology.org. Funded jointly by the British Pharmacological Society (BPS), the IUPHAR Committee on Receptor Nomenclature and Drug Classification (NC-IUPHAR) and the Wellcome Trust, the two main aims begun in 2012 were:

(i) combining two older databases, IUPHAR-DB and the BPS Guide to Receptors and Channels, into one new resource, and

(ii) expanding the new database to encompass all human targets of prescription medicines, plus targets for likely future drugs.

The database is free for anyone to use. Its contents, described in detail in a recent article in Nucleic Acids Research (PubMed PMID 26464438), include curated information on 8,201 ligands, 2,764 targets, and 13,859 curated binding constants. It is easy to navigate, with several methods of searching and offers a choice of the depth of information that is returned. The website is enriched with numerous links to other resources, and can be accessed in turn from them. Critically, the information contained in the database is not gathered blindly by automatic data-mining, but is carefully curated with

Continued on page 2...
advice from the expert committees of NC-IUPHAR. Indeed, the process of meticulous curation has unearthed a surprising number of inconsistencies in other resources (a manuscript is in preparation). An extract of the database is published every two years, as the BPS / IUPHAR Concise Guide to Pharmacology. Being available in pdf format makes the most clinically important sections of the database available even away from internet access.

The IUPHAR / BPS Guide to Pharmacology database will continue to be maintained and updated thanks to on-going support from the British Pharmacological Society, NC-IUPHAR and the University of Edinburgh. In addition, a whole new section will be added over the next three years, thanks to further support from the Wellcome Trust. This new section, the Guide to Immunopharmacology, will provide curated information on the pharmacology of immunity and inflammation. Importantly, it will provide an alternative portal to the whole database, a portal that is designed to serve the needs of immunologists allowing, for example, searching by cell types or by inflammatory processes, as well as by targets and their ligands. The database has been designed so that other special portals may be added in the future, for other specialist communities. We expect the website to always be an important route for dissemination from NC-IUPHAR to the scientific community at large.

Jamie Davies, Database Principal Investigator
www.guidetopharmacology.org

The participants at the October NC-IUPHAR meeting in Paris toasted the Database Team on completing the initial construction.
Dear IUPHAR Member Societies, Division and Sections/Subcommittees,

The 18th World Congress of Basic and Clinical Pharmacology (WCP2018) will be held in Kyoto, Japan from July 1 to 6, 2018. The WCP2018 Organizing Committee, jointly formed by the Japanese Pharmacological Society (JPS) and the Japanese Society of Clinical Pharmacology and Therapeutics (JSCPT), plans to make WCP2018 a success by offering rich scientific contents and memorable experiences. We are contacting you today to invite proposals for the scientific program of WCP2018, consisting of about 25 plenary lectures and about 80 symposia/workshops, as well as oral and poster sessions. The theme is:

**Pharmacology for the Future – Science, Drug Development, and Therapeutics**

We wish to structure the program based on *Pillars* and *Platforms* *(tentative naming)*. *Pillars* represent the different fields of research, such as Neuro, Cardiovascular, Metabolic, Cancer, etc. *Platforms* represent different levels of research spanning from basic science to bedside, including drug discovery/development, disease-oriented research, clinical research, and patient care. *Platform* sessions may involve multiple fields of study for interdisciplinary or cross-sectional views of the pharmacological sciences. Sessions will be organized chronologically based on *Pillars* and *Platforms*, so every participant will easily locate sessions that appeal to his or her interests.

To optimize the scientific offerings, we have established a Program Committee chaired by Professors Norio Matsuki (Tokyo) and Hiroshi Watanabe (Hamamatsu). We have recruited experts to chair the Program Subcommittees (please see the attached list) to cover each of the prominent aspects of pharmacology, spanning from basic research to the bedside. The Program Committee will prioritize lectures on cutting edge science that have a strong impact on multiple disciplines.

Thus far, we have confirmed two distinguished scientists as plenary lecturers:
- **Prof. Shinya Yamanaka** (Kyoto) won the 2012 Nobel Prize for Physiology or Medicine for his discovery of induced pluripotent stem (iPS) cells, which now provide a platform for regenerative medicine and human disease cell-based drug development.
- **Prof. Karl Deisseroth** (Stanford) is one of the founders of optogenetics, which revolutionized the methodology for examining cell systems in the brain and other organs.

We believe it is essential to have your feedback to make WCP2018 a scientific success. Therefore, we invite you and your colleagues to submit no later than **February 29, 2016** your scientific session proposals as Word file attachments to **WCP2018@congre.co.jp** with the following details:

**Plenary Lectures**
- a. Tentative title of the lecture
- b. Name of the proposed lecturer

**Symposia/workshops**
- a. The theme of the symposium/workshop
- b. A list of the provisional organizer(s)

In proposing plenary lectures and symposia/workshops, please note it is not necessary at this stage to ask the candidates about their availability. During March 2016, the Program Committee will make necessary adjustments to fit the proposals into the timetable of WCP2018. We look forward to receiving your proposals and greatly appreciate your contributions to WCP2018.

Yours sincerely,

WCP2018 Organizing Committee
Shuh Narumiya, President
Shinich Kawai, Vice President
Masamitsu Iino, Secretary General

**Submission of proposals and inquiries**
WCP2018 Secretariat
E-mail: **WCP2018@congre.co.jp**
**www.WCP2018.org**
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<td>Neuroscience</td>
<td>Masayoshi Mishima</td>
<td>Ritsumeikan University</td>
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<td></td>
<td></td>
<td>Masahiro Nomoto</td>
<td>Ehime University</td>
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<tr>
<td>2</td>
<td>Pain</td>
<td>Hiroshi Ueda</td>
<td>Nagasaki University</td>
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<td></td>
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<td>Masahiko Shibata</td>
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<td>Cardiovascular System</td>
<td>Hiroshi Watanabe</td>
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<td>Akira Nishiyama</td>
<td>Kagawa University</td>
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<td>Nephrology and Urology</td>
<td>Yoshikatsu Kanai</td>
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<td>Hidetomo Kakizaki</td>
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<td>Masatada Makoto</td>
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<td>Shinichi Kawai</td>
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<td>Gastrointestinal System</td>
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<td>Takahisa Furuta</td>
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<td>Systems Biology</td>
<td>Hiroki Ueda</td>
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<td>11</td>
<td>Education and Training</td>
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<td>Shinichiro Ueda</td>
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<td>Hideki Hanaoka</td>
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<td>Hisakaze Hara</td>
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<td>Cancer</td>
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<td></td>
<td></td>
<td>Atsushi Otsu</td>
<td>National Cancer Center Exploratory Oncology Research &amp; Clinical Trial Center</td>
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<td>Rare Diseases</td>
<td>Masatoshi Hagiwara</td>
<td>Kyoto University</td>
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<td>Molecular Imaging</td>
<td>Kazuhiko Yonai</td>
<td>Toho University</td>
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<td>16</td>
<td>Infection/Global Infectious Diseases</td>
<td>Kenji Hirayama</td>
<td>Nagasaki University</td>
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<td>Natural Medicine and Traditional East Asian Medicines</td>
<td>Kichiro Tsutani</td>
<td>The University of Tokyo</td>
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<td>The Pharmaceuticals and Medical Devices Agency</td>
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<td>Takashi Fukuda</td>
<td>National Institute of Public Health</td>
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<td>Yoshito Kamio</td>
<td>Kitasato University</td>
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<td>Genomics/Pharmacogenomics/Personalized Medicine</td>
<td>Ichiro Imai</td>
<td>Kyoto University</td>
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<td>Pharmacometrics</td>
<td>Yuji Kumagai</td>
<td>Kitasato University</td>
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<td>Pharmacokinetics</td>
<td>Hiroshi Ehizen</td>
<td>Meiji Pharmaceutical University</td>
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<td>25</td>
<td>Pediatric Clinical Pharmacology</td>
<td>Hidetomi Kakeura</td>
<td>National Center for Child Health and Development</td>
</tr>
<tr>
<td>26</td>
<td>Industry Academia Collaboration</td>
<td>Chiko Katoide</td>
<td>Kyoto University</td>
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</table>
The future of Neuropsychopharmacology: What will be the role for the new IUPHAR Section?

Epidemiological data show that the disorders of the central nervous system (CNS), and in particular some neuropsychiatric disorders such as depression and Alzheimer’s disease, are among the most prevalent, devastating and yet poorly treated illnesses. The development of new drugs for CNS disorders has the potential to provide patients with significant improvements in quality of life, and to reduce the future economic burden on health-care systems. Because the approval of CNS drugs with novel mechanisms of action has been rare in recent years, there is the need to ameliorate the R&D process in this field. This scenario seems to be particularly true in the field of neuropsychopharmacology. We should remember that the first treatment advances in neuropsychopharmacology were serendipitous. Development of antidepressant agents began in the 1950s with the introduction of the monoamine oxidase inhibitor (MAOI) iproniazid, a compound that was initially developed for tuberculosis but was observed to also have mood-altering properties. Similarly, tricyclic antidepressants, such as imipramine, were initially developed as antihistaminergic agents. The ability of these agents to treat people with depression stimulated research focusing on the mechanism of action of these drugs rather than the disease process itself. In 1952 the field of Neuropsychopharmacology was revolutionized with the advent of chlorpromazine, the first in the class of conventional or “typical” antipsychotics. The discovery of the antipsychotic properties of chlorpromazine was a serendipitous finding, as it was initially developed as a synthetic antimalarial treatment during World War II (Nasrallah and Tandon, 2009).

For drug discovery in neuropsychopharmacology, a reverse translation approach (Pangalos et al. 2007) was initially employed. In this case, drugs already known to be clinically effective, such as the monoamine oxidase inhibitors, tricyclic antidepressants, and antipsychotics, were used to define mechanism of action and thereby gain insights into the underlying neurobiological abnormalities associated with these conditions. Such studies led to the monoamine theory of depression and to the identification of a relationship between dopaminergic transmission and the symptoms of psychosis (Millan et al. 2015; Pangalos et al. 2007). Such information was used to develop animal models for screening drug candidates in an attempt to enhance the safety and efficacy of existing medications and in the hope of discovering new pharmacophores that may be effective in the clinical management of these disorders.

Alternatively, in the pathology to drug approach, analysis of the pathophysiology of neuropsychiatric disorders represents the first step for the identification of novel disease pathways and the validation of new pharmacological targets. Understanding of these disease pathways can lead to the selection of novel drug targets and the parallel development of disease-relevant models for subsequent drug discovery processes and the development of new psychotropic drugs. Focusing on treatments that target disease pathophysiology will also improve the chances of developing therapies that go beyond current symptomatic therapies. Developing more predictive animal models of pathology is another key factor for the selection of drug candidates. Working on multiple targets within favored biological pathways, using both small-molecule and biotherapeutic approaches, can help balance pipeline risk and increase the chances of delivering truly novel compounds to the clinic.

In this context, the interaction between clinical and pre-clinical scientists involved in neuropsychopharmacology is essential to improve drug discovery processes in this field and to develop “innovative” drugs. Therefore, the objective of the IUPHAR Neuropsychopharmacology Section, as recently approved by its Executive Committee, is to encourage international co-operation in preclinical and clinical neuropsychopharmacology by:

- Supporting exchange of neuropsychopharmacology knowledge
- Developing more predictive animal models of neuropsychiatric disorders
- Evaluating the clinical impact of new drugs for mental illnesses
- Stimulating world-wide research in preclinical and clinical neuropsychopharmacology
- Promoting high scientific and ethical standards in preclinical and clinical research in the field of neuropsychopharmacology
- Improving the classification of psychotropic drugs to incorporate up-to-date knowledge in neuroscience and
- Promoting high ethical standards in the prescription and utilization of psychotropic drugs.

Continued on page 6...
NEUROPSYCHOPHARMACOLOGY SECTION
(continued)

One of the first aims of the Section will be working on the neuroscience-based nomenclature of psychotropic drugs proposed by the European College of Neuropsychopharmacology (ECNP) in partnership with the IUPHAR Committee on Receptor Nomenclature and Drug Classification (NC-IUPHAR) and in collaboration with the American College of Neuropsychopharmacology, the Asian College of Neuropsychopharmacology and the International College of Neuropsychopharmacology. A new template comprising a multi-axial pharmacologically-driven nomenclature was presented at the 27th Congress of the ECNP in Berlin during October 2014. According to this proposed classification system all psychotropic drugs can be classified according to:

1 - class (primary pharmacological target and relevant mechanism)
2 - family (reflecting the relevant neurotransmitter and mechanism)
3 - neurobiological activities
4 - efficacy and major side effects and
5 - approved indications

As the Anatomical Therapeutic Chemical (ATC) Classification System is unlikely to be able to describe all the potential clinical applications of psychotropic drugs, we believe that the IUPHAR Neuropsychopharmacology Section can interact with the four major colleges of neuropsychopharmacology to improve the classification system by combining the latest advances in neuropsychopharmacology with the ATC nomenclature based on approved indications.

Another task of the IUPHAR Neuropsychopharmacology Section will be defining new guidelines for psychotropic drug clinical studies. These will be recommended to the US Food and Drug Administration and the European Medicines Agency on behalf of IUPHAR.

The Neuropsychopharmacology Section has recruited prominent scientists in the field from around the world to serve on its Executive Committee, including Filippo Drago (Italy), S.J. Enna (USA), Siegfried Kasper (Austria), George Koob (USA), Carmine Pariante (UK), Wim van den Brink (The Netherlands), Pier Vincenzo Piazza (France), Giorgio Racagni (Italy), Kiyofumi Yamada (Japan), Gil Zalsman (Israel) and Joseph Zohar (Israel). During 2016 the Section plans to offer corresponding memberships for scientists working in the field. Please contact the Section Chair, Filippo Drago at NPP@IUPHAR.org to learn more.

Filippo Caraci, Gian Marco Leggio and Filippo Drago (Chair)
Neuropsychopharmacology Section

References
The Pharmaco-epidemiology Subcommittee of the IUPHAR Clinical Division is moving from the starting blocks to real-life. The Subcommittee’s objective is to support development of pharmaco-epidemiology as a field within our international union as well as helping other IUPHAR member societies with their specific needs. It aims to address education, research, and the dissemination of relevant and evolving information pertinent to the field. We define pharmaco-epidemiology broadly to include not only risk assessment and management but, more generally, drug utilization, pharmacovigilance, outcome research, comparative effectiveness and pharmaco-economics. The fast-growing field of pharmaco-epidemiology was initially driven by regulatory requirements to pro-actively monitor the risk associated with pharmaceutical drugs following their approval. More recently, a strong driver has been the health technology assessment (HTA) agencies and the stakeholders wanting to know the true value delivered by their products. Pharmaco-epidemiology is a multidisciplinary field encompassing such areas as pharmacology, epidemiology, statistics, simulation sciences and health economics sciences.

The first pharmaco-epidemiology educational event will be held in Cairo, Egypt on March 5th, 2016. The aim is to train, and exchange information with, local pharmacologists and pharmaco-vigilance experts. This is a joint initiative sponsored by the Egyptian Society of Pharmacology and Experimental Therapeutics and the IUPHAR Subcommittee. Please see page 8 for more details.

The second educational event is currently being planned. The theme will be the back- or retro-translation of clinical data to the preclinical laboratory bench. Morocco and Thailand are under consideration as sites for this meeting. If you have an interest in contributing to this new promising initiative as a member, or you simply wish to learn more about pharmaco-epidemiology, please contact any of the below core members.

Milou-Daniel Drici (Chair: drici.md@chu-nice.fr)
Mondher Toumi (Mondher.Toumi@univ-amu.fr)
Joseph Wettstein (jgwettstein@bluewin.ch)

Continued on page 8...
The British University in Egypt is hosting the 55th Annual Conference of the Egyptian Society of Pharmacology & Experimental Therapeutics and the European-Egyptian Collaboration in Pharmacovigilance Workshop co-organized by the Pharmaco-epidemiology Subcommittee of the IUPHAR Clinical Pharmacology Division.

**MARCH 5TH, 2016 at 9 A.M.**
in the Auditorium of the British University in Egypt

The objective of the Conference is to expand the concept of pharmacovigilance among Egyptian healthcare providers as well as initiate ongoing communication between Egyptian policy makers and European collaborating partners to establish common pharmacovigilance guidelines at the international level.

Distinguished European guests will provide an update on the latest advances in the field. Egyptian academic scientists and physicians will offer an educational perspective to promote pharmacovigilance practice in Egypt. Egyptian policy makers will deliver the latest developments on regulatory matters concerning this topic.

For more information, email Dr. Mohamed Khayyal at mtkhayyal@gmail.com
The IUPHAR Education Section (IUPHAR-Ed) aims to support pharmacology educators in promoting innovative teaching, learning and assessment of basic, clinical and translational pharmacology to higher education pharmacology students and wider audiences across the globe. This brief report summarizes some of the recent activities and events from the last year.

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

New Section Officers were elected at the meeting in Cape Town to serve until IUPHAR 2018 in Kyoto. Those elected were Simon Maxwell (UK) as Chair, Shirra Moch (South Africa) as Deputy-Chair, Liz Davis (Australia) as Secretary, and Robert Likic (Croatia) as Treasurer. They will be joined by six new Executive Committee members: Thomas Griesbacher (Austria), Helen Kwanashie (Nigeria), Dave Lewis (UK), Atsuro Miyata (Japan), Jelle Tichelaar (Netherlands) and Paul White (Australia).

**IUPHAR/ASPET Pharmacology Education Project (PEP)**

IUPHAR and the American Society for Pharmacology and Experimental Therapeutics (ASPET) have formed a collaboration to develop an open access education website for which the key goals are:

1. to support students of the pharmacological and other biomedical sciences, medicine, nursing and pharmacy,
2. to provide support for the pharmacology education community that provides much of the teaching for those groups,
3. to provide a ‘stepping stone’ towards some of the cutting edge pharmacological data curated within the *IUPHAR/BPS Guide to Pharmacology* and allow those who are less familiar with such material to have some understanding of the concepts involved, and
4. to achieve this within a simple, attractive and easily searchable resource with an intuitive layout.

The project will be available online in early 2016 at www.PharmacologyEducation.org. This initiative should be particularly attractive for those in resource-poor countries or where the discipline of pharmacology is less well developed. The initial Editorial Board includes John Szarek (US) and myself as Co-Leads as well as Leszek Wojnowski, Antonio Sarikas (Germany), Liz Davis (Australia), Kelly Karpa (US), and Chay-Hoon Tan (Singapore). This group will undoubtedly expand and I hope that contributing to this project will progressively be seen as a major activity for the members of IUPHAR-Ed.

**Integrative Organ and Systems Pharmacology (IOSP) Initiative**

The IOSP initiative is led by Dave Lewis (UK), who is helping to organize another African meeting in Pretoria run by the South African Association for Laboratory Animal Science (SAALAS). Dave and Professor Christiaan Brink (former Chair of IUPHAR-Ed) were keynote speakers. The meeting attracted over 50 high-profile delegates from government, research councils and academia.

**Historical perspective**

Like other Sections, IUPHAR-Ed would like to wish IUPHAR a very happy 50th birthday. With this important anniversary in mind we thought we would take a walk down memory lane by contacting Professor Bevyn Jarrott (Australia) who was instrumental in establishing the Section in the early 1990s. Bevyn kindly responded with his reminiscences of the early development and progress as follows: “I have attached a factual timeline of what happened from 1990-2002 when I was actively involved and even given some references to back up the statements.” See the table on the next page.

“The IUPHAR Teaching committee did not have a budget to develop initiatives but we were able to use our University resources for developing a website. IUPHAR was probably the first of the ICSU unions to do this. While it was a useful and cheap way to communicate information, the hopes that it could become a repository of lectures for pharmacology students did not happen as Universities felt that doing this raised copyright and intellectual property issues. Also national pharmacology societies such as the British Pharmacology Society had developed extensive software suites focusing on practical experiments and had constraints about providing these programs outside of the UK. Nevertheless, the IUPHAR website was able to act as a clearinghouse to review and publicise such software and publicise meetings.

The most important role of the committee was to identify pharmacologists in the 60+ national societies with an interest and commitment to teaching pharmacology in educationally valid and challenging ways to students. The satellite meetings at the time of the world congresses of pharmacology was considered the best way to bring these pharmacologists together to discuss their teaching strategies and form collaborations and friendships. The cost of attending these satellites was kept at a minimum to facilitate attendance. Pleasingly, the quality of the presentations at the satellites has been recognised by the program committees of the IUPHAR congresses and recent congresses have scheduled at least one symposium and a plenary lecture of education issues. Hopefully this will continue.”

*Continued on page 10...*
Better Medicines through Global Education and Research

EDUCATION SECTION
(Continued)

History of the IUPHAR Education Section 1990–2002

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<th>Year</th>
<th>Commentary</th>
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<tr>
<td>1990</td>
<td>A new IUPHAR Executive Committee was appointed at the General Assembly at the 11th IUPHAR Congress in Amsterdam. Its President was Prof Setsuro Ebashi (Japan) and BJ was a member. Teaching of pharmacology was one of three main programmes proposed and was Chaired by BJ. See TiPS, Vol.11, p.352, Sept 1990.</td>
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<tr>
<td>1992</td>
<td>BJ contributed two articles to the IUPHAR Newsletter entitled (i) ‘The future of pharmacology as an academic discipline’; and (ii) ‘The future of clinical pharmacology as an academic discipline’. These articles catalysed discussion of this important issue and led to a seminal article in TiPS, Vol 15, p.17-19, Feb 1994 entitled ‘Wither, whether and whither pharmacology’ by Clive Page, Morley Sutter and Michael Walker. This led to vigorous discussion by other pharmacologists in subsequent issue of TiPS.</td>
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<tr>
<td>1994</td>
<td>BJ was invited to a pre-congress satellite meeting at McMaster University (Canada) by Prof PK Rangachari entitled ‘Pharmacologists for the future: Needs, challenges, responses’ where he reported on the desire of the IUPHAR Executive to foster commitment to teaching of pharmacologists and this led to the establishment of a committee including PK Rangachari (Canada), Ian Hughes (UK), David Dewhurst (UK), Thomas Griesbacher (Austria), Joan Lakoski (USA), Henk Van Wilgenburg (Netherlands) and Maria Salazaar-Bookman.</td>
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<td>1995</td>
<td>BJ launched the IUPHAR Teaching Committee website (produced by the University of Melbourne) at the first EPHAR meeting in Milan. See TiPS, Vol.16, p.294, Sept 1995.</td>
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<td>1996</td>
<td>TiPS published a special issue on ‘What to do with a degree in Pharmacology’ edited by Clive Page and Deborah Girdlestone (Vol.17, Feb 1996) with articles by notable pharmacologists with commitments to teaching (Ian Hughes (UK), Paul Seale (Australia), Michael Walker (Canada), Akihiro Ohnishi (Japan), Jean Devlin (USA), John Perkins (USA) and David Webb (UK).</td>
</tr>
<tr>
<td>1998</td>
<td>BJ and Joan Lakowski secured funding to run a 3-day pre-congress satellite meeting at the Rockerfeller Foundation’s Villa Serbelloni in Bellagio (Italy) prior to the 13th IUPHAR Congress in Munich (Germany). The title of the meeting was ‘PHARNET - establishing international cooperation in pharmacology teaching on the World Wide Web’ and it involved 28 pharmacologists from a wide range of countries. The IUPHAR Executive were pleased by the outcome and, at the General Assembly, an official Teaching Section was approved with BJ as the Chair for 1998–2002.</td>
</tr>
<tr>
<td>2000</td>
<td>BJ attended the IUPHAR Clinical Pharmacology and Therapeutics meeting in Milan and the Teaching Section had a booth publicising the teaching material and software available to clinical pharmacologists.</td>
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<tr>
<td>2002</td>
<td>A further pre-congress satellite was held at Monterey, California prior to the 14th IUPHAR Congress with the theme ‘Teaching pharmacology tomorrow - tools and techniques’. This was highly successful with approximately 60 attendees from many countries. Pleasingly, the program committee of the 14th Congress allocated a symposium on teaching of pharmacology in San Francisco. The General Assembly appointed Prof Ian Hughes (UK) to succeed BJ as the Chairperson from 2002–2006.</td>
</tr>
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BJ – Bevyn Jarrott (Australia)

Any readers who would wish to become more involved in the activities of IUPHAR-Ed should contact either myself or Liz Davis at Education@IUPHAR.org. I would like to end by taking this opportunity to wish you all well for 2016.

Simon Maxwell
Chair, IUPHAR-Ed
The Conference was co-organized by the IUPHAR Section on the Pharmacology of Natural Products (SPNP), the Department of Pharmacology of the Yong Loo Lin School of Medicine of the National University of Singapore, the Pharmacological Society of Singapore (PSS) and the Section on the Pharmacology of Traditional Chinese Medicine and Natural Products of the Chinese Pharmacological Society (CHPHARS). IUPHAR provided support and guidance for organizing the conference, and Prof. Michael Spedding, the IUPHAR Secretary General, attended the conference and offered a plenary lecture. The Conference was held in the Peter & Mary Fu Auditorium in the Translational Medicine Building of the Yong Loo Lin School of Medicine in The National University of Singapore.

As the third international conference sponsored by the IUPHAR-SPNP, the theme of this Conference was *Harnessing the Pharmacological Frontiers for Natural Products Drug Discovery and Development*. Over 300 participants from China, Hong Kong, Chinese Taipei, Macau, Malaysia, India, Indonesia, Thailand, Philippines, Korea, Japan, Latvia, Saudi Arabia, Nepal, Italy, the United Kingdom, France and the United States attended the proceedings.

The Opening Ceremony was graced by the guest of honor, Prof. Teck Hua Ho, the Tan Chin Tuan Centennial Professor and the Deputy President of Research and Technology of the National University of Singapore. Prof. Ho delivered the Opening Address, which was followed by welcome speeches by Prof. Michael Spedding, Prof. Yongxiang Zhang, the CNPHARS Vice President and Secretary General and IUPHAR-SPNP Chair, and Prof. W.S. Fred Wong, the WCPNTM2015 Local Organizing Committee Chair and the PSS President. The ceremony was honored to have Prof. Guanhua Du, the CNPHARS President, in attendance.

The scientific program comprised five plenary speeches, 29 invited lectures, ten young scientist oral presentations and 148 poster presentations over the three-day Conference. The program offered five specialized sessions: Phytochemistry and Phytopharmaceuticals, Natural Product Preclinical Pharmacology I & II, Natural Product Clinical Pharmacology, and Emerging Technologies in Natural Product Drug Development. Each session began with a plenary speech, the first of which was delivered by Prof. Jerold Chun (at left) of the Scripps Research Institute, USA. He presented a succinct summary of the G protein-coupled receptor pharmacology of sphingolipids, and their relevance to autoimmune diseases. Then Prof. Chun detailed the discovery process of the sphingosine-1 phosphate receptor agonist fingolimod for the treatment of multiple sclerosis, from the original isolation from Chinese medicinal fungi *isaria sinclairii* to pre-clinical and clinical trials. His success in developing fingolimod into an FDA-approved drug provided an outstanding example for researchers in natural product drug discovery.

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For the second plenary speech, Prof. Dayue Darrel Duan (at right) of the University of Nevada, USA, highlighted the challenges that Western Medicine now faces in the definition of a disease entity in the “omics” era with multiple genetic and multiple phenotypic characteristics. These are the same challenges Traditional Chinese Medicine (TCM) has experienced for many years. He introduced a new platform called “Phenome-Wide Association Study (PheWAS)” to link phenome-genome database to redefine human diseases. With the well-defined clinical disease phenome, another new trans-discipline term “pharmacophenomics” has emerged to complement pharmacogenomics, pharmacoproteomics and pharmacometabolomics. Prof. Duan stressed that pharmacophenomics will provide a new paradigm for studying drug response, including therapeutics and toxicities at the level of systems biology, leading ultimately to target identification and personalized medicine.

The third plenary speech, entitled Trials and Tribulations of Developing Natural Product Drugs, was elegantly delivered by Prof. David J. Newman (at right) of the National Cancer Institute, USA. He recounted the development of three natural product-based drugs for anti-tumor therapy, with each drug following a different path of development. The first described path related to Picato®️, originally isolated from the spurge Euphorbia peplus L and used primarily as folklore medicine by the Australian aborigines, was developed for actinic keratosis (pre-melanoma) by a small biotech firm. The next path was the development of epoxomicin at Yale University. Epoxomicin was first isolated from the Actinomycetes strain but the source microbe was subsequently “lost”. The compound had to be totally synthesized from scratch. This proteasome inhibitor was later purchased by Amgen and sold under the name Kyprolis®️. The final path was the development of Halichondrin B by the National Cancer Institute. Starting from a very small amount of material from a Japanese sponge Halichondria okadaii, it ultimately required a complex total synthesis of a novel anti-tubulin cytotoxic drug Halaven®️ in collaboration with Eisai Pharmaceutical Company. Prof. Newman emphasized that a close relationship between medicinal chemistry and pharmacology is the key to success.

Prof. Juntian Zhang (at right) of the Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, China, gave a detailed account of his life-long expedition in TCM drug discovery research as the fourth plenary speech. He focused on how TCM are characterized by producing multi-target effects in complicated diseases. Prof. Zhang first described the anti-cerebral ischemic effects of Salvianolic acid, which was isolated from Salvia mitorrhiza, encompassing damage repair of the blood-brain barrier, improvement of cerebral blood flow, neurogenesis and angiogenesis, anti-platelet function, and antioxidant activity. Then he elaborated on a second compound (-)clausenamide, which was isolated from Clausena lanseum (Lour.) skeels, with potent anti-dementia activity for improving cognition, inhibiting Aβ toxicity and tau hyper-phosphorylation, and enhancing synaptic plasticity and synapotogenesis. Currently (-)clausenamide is in Phase II clinical trials in China.
The last plenary speech was delivered by Prof. Michael Spedding (at right) of Spedding Research Solutions SARL, France, who championed the major role that IUPHAR can play in reconciling the historically different perspectives on natural products/traditional medicine and synthetic chemistry/new molecular chemical entities. The key, Prof. Spedding reported, is to identify and create synergies between them. In partnership with the British Pharmacological Society, IUPHAR has constructed an online, freely available database (www.guidetopharmacology.org) of the molecular targets within the human genome including a list of the preferred ligands for these sites. The database is actively promoted worldwide by the larger pharmacological societies, resulting in a large, international user-base. The data are now being extended to the molecular targets of natural products. IUPHAR can be a partner in developing new therapeutic paradigms by offering expert assessment of complex research areas at clinical and preclinical levels. This is a unique international cooperative initiative.

At least 90 graduate students, both local and from overseas, contributed oral or poster presentations. The plenary and invited speakers were mobilized as judges for the best young scientist oral and poster presentations. During the Closing Ceremony, Profs. Michael Spedding, Yongxiang Zhang, Guanhua Du and W.S. Fred Wong honored the winning young scientists with the three awards for best oral presentations presented to Tze Khee Chan (National University of Singapore, Singapore), Li-Yuan Li (Tsinghua University, China), and Zhong-Rong Zhang (the Chinese University of Hong Kong, Hong Kong, China). There were 12 prizes for top poster presentations, of which first place was awarded to Hong Yong Peh (National University of Singapore, Singapore) by Dr. Michael Spedding (at right). The Conference confered a special recognition and commendation to Prof. Juntian Zhang, at age 84, for his life-long commitment and contribution to natural product pharmacology research, and for being an unremitting role model for young scientists to aspire to research excellence.

All Conference abstracts were published in the *Chinese Journal of Pharmacology and Toxicology* (25 (Suppl 1):1-120, 2015) and some of the speakers were invited to contribute review articles to a special issue of the journal, *Pharmacology & Therapeutics*. The Conference website, together with the scientific program, may be viewed at http://www.pharmconf.org.

The Organizing Committee would like to acknowledge the generous sponsorship by the Lee Foundation, Eli Lilly and Company, Yoo Loo Lin School of Medicine, the National University of Singapore, and many local biotech companies and research suppliers, including Scientific Resources, Merck Millipore, Sigma-Aldrich, Singlab Technologies, Bronjo Medi, Cerebos and Research Instruments.

The 4th World Conference on the Pharmacology of Natural and Traditional Medicines will be held in Aberdeen, UK in 2017. More information will be posted in *Pharmacology International* as the details become available.

W.S. Fred Wong, Chair, WCPNT2015 Local Organizing Committee
Ying Zhao, Secretary, IUPHAR Section on Pharmacology of Natural Products
Yongxiang Zhang, Chair, IUPHAR Section on Pharmacology of Natural Products
The Immunopharmacology (ImmuPhar) Section continues its work to improve its visibility and attract new members by its presence on the web (www.immuno.iuphar.org), FaceBook (www.facebook.com/immunopharmacology) and LinkedIn (www.linkedin.com/groups/7484359/profile).

ImmuPhar has co-sponsored two workshops. The IUPHAR ImmuPhar / European Histamine Research Society (EHRS) Roundtable on “Histamine and Immune System: Pros & Cons” in Malaga, Spain in May, 2015 in conjunction with the Federation of European Pharmacological Societies (EPHAR) meeting. The IUPHAR ImmuPhar Section also organized a joint session during the 12th Congress of the European Association for Clinical Pharmacology & Therapeutics Congress (EACPT) in Madrid, Spain in June, 2015 on “The Immunopharmacology of TNFα: Disease Transcending Therapies”. The group also contributed significantly to the 1st International Convention on Immunopharmacology-Vaccipharma in Varadero Beach, Cuba in June 2015, which was organized by the Cuban Pharmacology Society.

In September, an article entitled The expanding role of immunopharmacology: IUPHAR Review 16” was published in the British Journal of Pharmacology (http://onlinelibrary.wiley.com/doi/10.1111/bph.13219/abstract). The article presents the section and provides a recent overview of the many drugs and strategies covered by this expanding field of research. ●

Mauro Teixeira
Secretary, ImmuPhar

INTERNATIONAL UNION OF BASIC AND CLINICAL PHARMACOLOGY REVIEW

The expanding role of immunopharmacology: IUPHAR Review 16

Ekaterini Tilligada, Masaru Ishii, Carlo Riccardi, Michael Speckling, Hans-Uwe Simon, Mauro Martins Teixeira, Mario Landys Chovel Cuervo, Stephen T Holgate and Francesca Levi-Schaffer
GASTROINTESTINAL SECTION

Summers Schools on Stress: From Hans Selye’s original concept to recent advances

Profs. Arpad Somogyi (Berlin, Germany/Brussels, Belgium), Sandor Szabo (Irvine, CA, USA) and Yvette Tache (Los Angeles, CA, USA) are the last three of the 40 PhD students mentored by Hans Selye, the ‘father of biological stress’ (photo at right). In 2013 they initiated a series of symposia and conferences on the origins and modern developments in the stress response. The first symposium was held in 2013 at the Hungarian Academy of Sciences in Budapest, Hungary. Former students or coworkers of Hans Selye have given overviews of biologic stress research ranging from the original ideas to historical milestones, to the state-of-the-art. The subsequent conference was held in 2014 in Zagreb, Croatia. As many stress-related diseases are associated with gastrointestinal structural and functional disorders with significant pharmacological implications, it was decided to formalize the series in honor of Prof. Selye and to name it “the Summers Schools on Stress”. Because the topics covered and the quality of the presentations are high, the program has been approved for accreditation by the University of California, Irvine, USA.

This year the Summer School on Stress (some of the participants are pictured at left) was held in Grenoble, France, June 29th through July 2nd. It was hosted by the Clinique Universitaire d’Hépato-Gastroentérologie and Grenoble Institute of Neuroscience (GIN, INSERM U836), CHU de Grenoble. The Local Organizing Committee Chair was Prof. Bruno Bonaz, known internationally for his expert research, diagnosis and treatment of irritable bowel syndrome (IBS) and inflammatory bowel diseases (IBD). He was assisted by Valerie Sinniger, PhD and Chantal Baumes. The international faculty members included Prof. Somogyi, Szabo & Tache (the course directors), Profs. Bruno Bonaz, Thierry Bougerol (both from France), Stefan Brunnhuber (Germany), Frédéric Canini (France), Ludmila Filaretova (Russia), Sonia Pellissier (France), Martina Rojnic Kuzman (Croatia), Amandine Rubio (France), Vassilia Theodorou (France), Jackie Wood (USA), and Oksana Zayachkivska (Ukraine). The main topics were the origins of the stress concept and the seminal discoveries of Hans Selye, such as distress vs. eustress & transtress – similarities in the adrenal glands, differences in the brain; the neuroendocrine mechanisms of stress; physiologic and pharmacologic actions of glucocorticoid; stress and structural GI diseases, e.g., gastro-duodenal ulcers, IBD; stress and functional GI disorders, e.g., motility disorders, IBS; PTSD & organ systems involved in biologic stress; management strategies for stress-pharmacologic interventions and/or life style changes.

Continued on page 16...
In addition to the 30-40 minute interactive presentations, there was a successful poster session (photo at left), of the abstracts submitted from mostly young participants, both medical and PhD students, from Croatia, France, Hungary, Russia, Slovakia and Ukraine. There were several excellent open forum discussions.

An educational sight-seeing tour (photo at right) of Grenoble and its surroundings culminated with a group dinner in a mountain-top restaurant (below left), which offered memorable views of the city (below right) and the surrounding mountains that served as the backdrop to the 1968 Winter Olympic Games.

The next “Summer School on Stress: From Hans Selye’s Original Concept to Recent Advances” will be held at the relatively new University of Osijek, Croatia from June 13th through 17th, 2016, immediately following the IUPHAR GI Section Special Symposium in Novi Grad, Croatia on the Adriatic coast. The website is already open for early registration, participation and abstract submission at www.stresseducation.org.

Sandor Szabo
GI Section
This series of conferences known as the International Conference on Ulcer Research (ICUR) began in Copenhagen in 1970. Previous meetings have been held in Germany, Hungary, Japan, USA, Israel, China and Croatia. Historically this conference series has focused almost entirely on peptic ulcer disease. The recent conferences have been expanded to include discussion of the pathogenesis, prevention and treatment of ulcerative and inflammatory diseases.

The 15th meeting of this series was organized in Canada for the very first time by Dr. John L. Wallace of the University of Calgary in the Fairmont Chateau Laurier Hotel in Ottawa, Canada on October 1st – 4th, 2015. It included about 70 delegates from Argentina, Brazil, Canada, China, Croatia, Czech Republic, France, Germany, Iran, Ireland, Italy, Hungary, Japan, Korea, Mexico, Nigeria, Norway, Poland, Russia, Switzerland, Turkey, Ukraine, the United Kingdom and the United States. The Opening Lecture was delivered by Dr. Peter Ernst on “Precision gastroenterology: Finally something gastroenterologists can talk about at dinner!” The six scientific sessions were accompanied by 30 poster presentations and a boat cruise of the Ottawa River for the entertainment of the participants.

The 15th ICUR was co-sponsored by the Canadian Association of Gastroenterology, and endorsed by the IUPHAR GI Section and by the Inflammation Research Network of Canada. Financial support was provided by Abbvie Canada, AltaPharm International, Antibe Therapeutics, Astellas Pharma (Japan), the Canadian Association of Gastroenterology, the Canadian Institutes of Health Research (Institute of Nutrition, Metabolism and Diabetes) and Kaken Pharmaceutical (Japan).
Better Medicines through Global Education and Research

DEVELOPING COUNTRIES SUBCOMMITTEE OF THE CLINICAL PHARMACOLOGY DIVISION

THE MEDICINES UTILIZATION RESEARCH IN AFRICA (MURIA) GROUP AND IUPHAR CO-ORGANIZED A WORKSHOP IN BOTSWANA FOR THE PROMOTION OF RATIONAL USE OF MEDICINES

The improper use of medicines is a major cause of poor therapeutic responses as well as adverse drug reactions, and has considerable financial consequences (1-4). In the present era of global economic recession, there is a need for the judicious use of resources to benefit all citizens in developing countries. Therefore, the promotion of the Rational Use of Medicines (RUM) should be a healthcare priority in African countries. Still, there is limited information available on how appropriately medicines are prescribed and used in Africa (5).

In order to advance research on RUM, a planning committee met in Port Elizabeth, South Africa in January, 2015 to establish strategies for collaboration across several African nations. Professor Ilse Truter at the Nelson Mandela University hosted the meeting, which was initiated together with representatives from the IUPHAR Developing Countries Subcommittee of the Clinical Pharmacology Division. The meeting drew participants from Botswana, Kenya, Namibia, Nigeria, South Africa, Swaziland, Sweden and the United Kingdom. African delegates discussed their current research on drug utilization while the European participants, Profs. Jaran Eriksen and Brian Godman, reviewed ongoing cross-country projects in African countries (5). The discussions in Port Elizabeth centered on the needs for an interdisciplinary and multinational group of healthcare professionals to foster drug utilization research in Africa. Subsequently the Medicines Utilization Research in Africa (MURIA: http://muria.nmmu.ac.za) group was formed. The promotion of RUM in Africa will be achieved through training, collaboration, sharing of information and facilitating access to data across Africa. It was during this meeting that the planning began for a two and a half day training workshop and symposium targeting African scientists to be hosted by the University of Botswana in July, 2015 and co-organized by MURIA, University of Botswana, Karolinska Institutet in Sweden and IUPHAR.

This first MURIA workshop (one and a half days) and symposium (one day) was made possible by funding from the Swedish Research Council, the University of Botswana, the Ministry of Health in Botswana and IUPHAR and its Clinical Pharmacology Division. The meetings took place at the University of Botswana on July 27th to 29th, 2015. The event was opened by the Honorable Minister for Health Dorcas Makgato of the Republic of Botswana (at left). She dwelt on the emerging problems of antimicrobial resistance and emphasized the need to promote RUM of, especially, antibiotics, anti-Tuberculosis (TB) drugs and antiretrovirals (ARVs). She also

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addressed the issue of non-communicable diseases and the importance of generic medicines in reducing healthcare costs and improving access to medicines (6).

The delegates included 103 physicians, pharmacists and other healthcare professionals from academia, medical aid groups and government agencies in eight African countries as well as Australia, Saudi Arabia, Sweden and the United Kingdom. Participants were researchers from universities, practicing physicians and pharmacists, representatives from ministries of health and national agencies in the healthcare sector. As many as 20 pharmacists from regional pharmacy service units across Botswana took part as well.

The interactive workshop provided a choice of introductory or advanced workshops on drug utilization methods and research. The introductory group dealt with the topics of drug utilization data sources, drug classification systems, such as by the Anatomical Therapeutic Chemical / Defined Daily Dose (ATC/DDD) concepts, use of DDDs/1000 inhabitants/day (DIDs) to assess drug utilization across countries and standard drug use indicators. Different approaches of influencing RUM through education, economics, engineering and enforcement were also discussed. The main issues addressed by the advanced group included antibiotic drug utilization research, assessment of antibiotic prescribing, use of qualitative methods in drug utilization research, challenges for comparative cross-national and pharmacoconomics studies in Africa. Questionnaires and household surveys for collecting drug utilization data were highlighted during the second day of the workshop. Of particular interest, the importance of ethics and the practical challenges in drug utilization research were discussed as well as the use of databases to explore drug safety and the importance of communications in drug utilization research, as exemplified by a high level of adherence of physicians in Sweden to the “Wise List” (7). See page 21 for additional information.

The workshop was followed by a one day symposium featuring 18 oral and 18 poster presentations. As most of the oral and poster presentations centered around the utilization of antibiotics, the adverse effect profile of ARVs, antihypertensives, anticonvulsants, medication adherence and generic medicines (6), the participants agreed to focus on collaborative drug utilization research in the following disease conditions: HIV/TB, malaria, central nervous system and non-communicable diseases (diabetes mellitus, hypertension, cancer). Research collaboration in the areas of generic medicines, drug utilization using databases, and economic aspects of drug use were also discussed for possible action. Volunteers were tasked with overseeing the various identified topics.

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The African e-Infrastructures discussion and collaboration forum of the African Pharmacology Science Gateway (Sci-GalA: www.sci-gaia.eu) will be used to facilitate access to resources and interactions which enhance research and capacity building across Africa (8). Membership in the MURIA Group (www.muria.nmmu.ac.za) is open to professionals from academia, healthcare institutions and regulatory bodies at no cost. The next meeting, planned for July, 2016 in Gaborone, Botswana, has the potential to become the starting point for introduction of drug utilization methods and studies across African countries to improve RUM, which will broaden the impact of clinical pharmacologists in African countries.

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References


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The concept of Essential Medicines

The concept of essential medicines was introduced by the World Health Organization (WHO) in 1977 to promote rational use of resources available for healthcare systems. According to the WHO definition, essential medicines are those medicines that satisfy the needs of the majority of the population (1). Criteria for the selection of essential medicines include efficacy, safety, cost-effectiveness and relevance to the health of the community. Such medicines should be available at all times and at all levels of the health care system in a country (2). The main objective is to select a limited number of essential medicines that will result in a cost-effective use of resources while at the same time improve the knowledge about medicines and their use, procurement, storage and dispensing of drugs among the healthcare staff (3). The WHO Essential Model List (EML) is currently in its 19th edition (1). This list comprises 498 medicines, of which 372 are part of the core list for basic medical conditions and 126 are for specialized care. The WHO EML serves as a template to be used by different countries to develop their own EML based on their specific characteristics including morbidity patterns, healthcare systems and available resources (3,4). At present, approximately 130 countries including sub-Saharan Africa and Asia have national EMLs (2). In Nigeria, the first EML was published in 1989 and the current 5th revision is from 2010 (5). This is an example of how the implementation of the essential medicines program has had an impact on healthcare delivery in many countries (6).

The “Wise List”, created by the Drugs and Therapeutics Committee (DTC) of the Stockholm Healthcare Region in Sweden has generated international interest because of its wide acceptance and high adherence in both primary and hospital care (7,8). This list is no more than about 200 medicines for common diseases and conditions and another 100 for specialized care in Stockholm, Sweden. The reason for such small numbers is that it is not feasible for any physician to be familiar with more than a limited number of medicines. Recently an English version was released (9). The model should be of interest globally and, specifically, for developing countries. Research from many developing countries has shown low acceptability and poor adherence to EMLs causing non-rational use of medicines (10-12). We believe that developing countries can learn from the Swedish experience using similar approaches in the selection of medicines, in integrating communication of treatment recommendations and assessing its impact on prescribing (7-8). In particular, we find of value the focus on inter-professional collaboration and the use of multifaceted approaches (13). The aim of this commentary is to review the similarities and differences between the latest version of the Nigerian EML and the Stockholm “Wise List” to identify the potential value of this concept for the Rational Use of Medicines in developing countries.

Composition and structure of the lists

The Nigerian EML (5) contains approximately 350 medicines classified for basic healthcare facilities and for specialized medical conditions while the “Wise List” comprises about 300 medicines: 200 for common diseases and 100 for specialized care (7). There are similarities in the composition of the members of the DTC groups that developed the two lists. They include experts in general practice, internal medicine, clinical pharmacology, clinical pharmacy and representatives from the government and the
community. One of the innovative approaches for the “Wise List” concept is the inclusion of therapeutic recommendations for most medical conditions and for the elderly and children as well as “Wise Advice”.

The “Wise Advice” consists of considerations for areas where the quality of prescribing can be improved. These chapters have elevated the status of the “Wise List” from being simply a list of medicines to becoming an inseparable companion for healthcare practitioners. The approach is, in fact, a combination of standard treatment guidelines and of a list of essential medicines. The interval between updates of the EMLs is quite different between the developing country Nigeria and the well-established Sweden. While the “Wise List” is reviewed every year in Sweden, the latest 5th edition of the Nigerian EML was released in 2010, about seven years after the previous edition. This irregularity of new versions will affect delivery of quality healthcare for the people because the delays in generating the revised list slows removal of medicines that have been found ineffective or toxic, the inclusion of new indications for older drugs, and drugs new to the market.

Drug use in special populations

Special attention is required when prescribing for special populations such as children and the elderly. The “Wise List” includes a sub-section focusing on medicine use in these categories of patients that is of value. This is an important area where EMLs in developing countries can be improved (5,14)

Monitoring and evaluation of adherence to recommendations

Since the release of the first version of the “Wise List” in 2001, a number of initiatives have been undertaken in Stockholm to evaluate its impact. Studies have been conducted on the knowledge and attitudes of physicians and the public towards the EML and the adherence to recommendations is reported as high as 87% among general practitioners (7,15,16). This is most likely explained by the trust in the recommendations (7,15,16). Several developing countries can improve the effectiveness of their national EMLs by adopting some of the described methods to ascertain the level of adherence and acceptability in their populations and healthcare systems.

Enforcement of laws and regulations

The success of the Swedish model can be attributed to inter-professional collaboration on drug recommendations, use of continuous medical education as well as enforcement of regulations regarding drug procurement. There is a need to regulate means of procurement and selection of medicines by local authorities and prescribing guidelines by healthcare facilities in Nigeria. While DTCs should be in the vanguard of this change, they are almost non-existent in many healthcare facilities in the country. Establishing suitably composed and functioning DTCs will go a long way towards promoting the rational use of medicines in Nigeria. It is our conviction that involvement in DTCs should be a priority for clinical pharmacologists to promote evidence-based selection
and the use of affordable medicines among colleagues collaborating across national borders (17). The DTC concept is an important area for such fruitful collaborations as outlined in the strategic document jointly published by WHO, Council for International Organizations of Medical Sciences (CIOMS) and the IUPHAR Clinical Pharmacology Division (17). The key focus of clinical pharmacologists is to train and strengthen knowledge in drug evaluation and drug selection in healthcare systems. Their skills can contribute to the cost-effective use of medicines in healthcare systems as new, more expensive medicines are introduced (17).

Conclusions

Despite four decades of the WHO concept of essential medicines, non-rational use of medicines is still a major issue in many developing countries. The Swedish model with a “Wise List” concept builds on joint recommendations in primary and hospital care with the involvement of trusted pharmacotherapeutic experts and clinical pharmacologists with a strict policy for handling conflict of interests (7). Such a comprehensive approach may likewise improve the level of acceptance and adherence of EMLs in developing countries. We recommend that clinical pharmacologists and pharmacotherapeutic experts in developing countries should work towards improving drug use practices in these countries by studying the “Wise List” concept through the recently released English translation as an opportunity to learn vicariously from the Swedish experience (7,12).

J.O. Fadare, O.O. Ogunleye, L.L. Gustafsson (Chair)

Developing Countries Subcommittee of the Clinical Pharmacology Division

REFERENCES


Better Medicines through Global Education and Research

**Go on – make a difference!**

Help promote research in developing countries.

Whether you are a dynamic young pharmacologist or a senior scientist you can play your part in training early career scientists in developing countries by joining the AuthorAID programme and becoming a mentor. AuthorAID ([www.authoraid.info/en/mentoring](http://www.authoraid.info/en/mentoring)) is a Not For Profit organisation that runs an online programme to put young scientists in developing countries in contact with experienced researchers willing to act as their mentors to give constructive advice. AuthorAID also provides online courses on research writing and proposal writing for researchers in developing countries that complements the monitoring program.

The International Union of Basic and Clinical Pharmacology (IUPHAR) is promoting this opportunity to mentor early career pharmacologists in developing countries. So, we first need to recruit experienced pharmacologists to act as mentors. **Is this something you could sign up to do?** There are already over 10,000 researchers participating in the AuthorAID mentoring program. Surely it is time that pharmacologists became involved?

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**What sort of potential mentor is AuthorAID looking for?**

- An experienced researcher, with a track record of publications
- Someone who is diplomatic and can encourage and support early-career researchers in developing countries
- Someone who is committed and enthusiastic and who is not looking for academic gain

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**SUPPORTING DEVELOPING COUNTRY RESEARCHERS IN GETTING PUBLISHED**

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**Need more help?**

Visit [www.authoraid.info/help](http://www.authoraid.info/help) and see the AuthorAID guidelines for more information. For a generic example of how AuthorAID might work, follow Rahim on his mentoring journey at: [www.authoraid.info/en/mentoring/authoraid-mentoring-journey](http://www.authoraid.info/en/mentoring/authoraid-mentoring-journey)
YOUR OPINION BY MARCH 1st, 2016 PLEASE

Council for International Organizations of Medical Sciences (CIOMS)

Working Group on the Revision of

CIOMS 2002 International Ethical Guidelines for Biomedical Research Involving Human Subjects

www.cioms.ch/index.php/guidelines-test

In 2010 the Executive Committee of CIOMS decided to revise the CIOMS Ethical Guidelines for Biomedical Research, which was last revised in 2002. Since then, several developments have taken place, both in the field of biomedical research itself and in the field of research ethics, with the recent revision of the Declaration of Helsinki in 2013 being a good example. The research and research ethics community, as well as the wider public, are now cordially invited to provide the CIOMS Working Group with comments before March 1st, 2016. The Working Group will then process the comments and suggestions, and submit the final document to the Executive Committee of CIOMS. This Committee will approve the document.

Status of the current draft: The current version of the CIOMS guidelines is a draft. Although guidelines address specific issues, such as choice of the control, individual informed consent, and research with children, the CIOMS guidelines should be read and understood as a whole. In the final version the Working Group will add introductory texts, a glossary and appendices.

Literature and guidance documents: The draft guidelines are based on the results of literature searches and ethical reflection within the Working Group. Certain papers and guidelines have been particularly valuable for the current draft guidelines, such as the Declaration of Helsinki of the WMA, the Ethical considerations in biomedical HIV prevention trials of UNAIDS and Standards and operational guidance for ethics review of health-related research with human participants of the WHO. All sources used will be acknowledged in the final document.

Major changes: Most guidelines have been substantially revised. Guidelines have also been merged where possible. At the same time, new guidelines have been added to address new, pressing issues that require ethical guidance (such as disaster research or implementation research). The Working Group has also decided to merge the “Green Book” (the CIOMS Guidelines for Biomedical Research, 2002) with the “Blue Book” (the CIOMS Guidelines for Epidemiological Research, 2009) since the two guidelines substantially overlap each other. The scope of the guidelines has been broadened from biomedical research to health-related research with humans.

Providing feedback: The proposal is now open for feedback at www.cioms.ch/index.php/guidelines-test. Below each guideline there are two boxes: one for general comments and one for specific comments. Please provide us as much as possible with concrete, specific comments and text proposals. Since we expect to receive a great number of suggestions, we’d like to caution that we won’t be able to respond individually to each commentator.

We are grateful for your support of this important project and hope the revised CIOMS Guidelines will help to foster ethical research worldwide.

J.J.M. van Delden
President, CIOMS
Prescribing Safety Assessment
Promoting effective and safe medicines use by medical graduates

Prescribing medicines is an important part of the work of newly qualified doctors in most countries. This process is an important influence on patient outcomes and also represents an important source of clinical risk and cost. With the increasing complexity of modern therapeutics and the healthcare environment it has become a particularly challenging task for the trainee doctors involved. They have to find an individualized treatment strategy (i.e. right medicine, dosage, route, and frequency of administration) while taking into account diagnostic uncertainty, co-morbidity, genetics, and interacting drugs. These new doctors are also expected to be able to counsel their patients and plan follow up for the many medicines they encounter.

Unfortunately, prescribing is sometimes sub-optimal and recent studies in UK hospitals have raised concerns about high rates of prescribing errors (around 10% of prescriptions) and avoidable adverse drug reactions. Although there are various factors involved, it is clear that part of the strategy for improvement will involve heightened knowledge and skills in relation to the use of medicines.

Against this background, the British Pharmacological Society and Medical Schools Council have been developing the Prescribing Safety Assessment (PSA). The PSA designed to be a valid and reliable assessment that will allow final year medical students to demonstrate that they have the necessary knowledge, skills and judgement (in relation to the safe and effective use of medicines) to begin their work as junior prescribers in UK hospitals. It is an open book assessment with candidates having access to the British National Formulary throughout. The PSA is delivered online from a ‘cloud-based’ server and comprises 8 sections containing items that cover different aspects of the clinical activity undertaken by prescribers (see figure). The question scenarios can be set in any one of 7 different clinical settings. All candidates have access to practice papers in advance of the main PSA so that they can practise their skills and familiarize themselves with the PSA environment.

After several years of piloting the PSA was widely implemented for the first time in 2014 (PSA2014). PSA2015 ran from February through June and involved 31 UK medical schools and 7,576 UK final year medical students who took one of the four PSA papers available, with an overall pass rate of 91%. Many of those who failed underwent a period of remediation and passed a re-sit.

The establishment of the assessment has provided a much higher profile for clinical pharmacology in UK medical schools and, along with the associated training materials is appreciated by students who recognize the importance of medicines to their future careers.

For the future, the PSA is committed to undertaking careful evaluation of its impact
on learning, outcomes and attitudes towards safer medicines use and an active research group has been initiated to undertake this work. The PSA has also established a number of international collaborations with the aim of establishing whether this process of training and assessment might have wider application.

Simon Maxwell
Medical Director, Prescribing Safety Assessment
https://prescribingsafetyassessment.ac.uk

Reference
IUPHAR Congratulates the Member Societies Celebrating Milestone Anniversaries during 2016

British Pharmacological Society
1931 - 2016

Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists
1966 - 2016

Brazilian Society of Pharmacology and Experimental Therapeutics
1966 - 2016

South African Society for Basic and Clinical Pharmacology
1966 - 2016

Turkish Pharmacological Society
1966 - 2016

Hong Kong Pharmacology Society
1986 - 2016

Maltese Pharmacology Society
2006 - 2016
The national congress celebrating the 30th anniversary of Chinese Pharmacological Society (CNPHARS) was held in Beijing, China on November 2 - 5, 2015. More than 1,000 delegates attended the event to witness this historical moment. During the congress, the award ceremonies for the 5th CNPHARS Lifetime Achievement Award and the 19th CNPHARS-SERVIER Young Pharmacologist Award were held. In addition, plans to establish the North American Chapter of CNPHARS (NAC-CPS) were announced.

Prof. Yongxiang Zhang (top left), the CNPHARS Vice-President and Secretary-General, presided over the opening ceremony. Prof. Paul M. Vanhoutte (top right), the IUPHAR Past President, Prof. Masamitsu Iino (center left), the IUPHAR Second Vice-President and Secretary-General of the 18th World Congress of Basic and Clinical Pharmacology, Dr. W.S. Fred Wong (center right), the Pharmacological Society of Singapore President, and Prof. Lei Wu (lower right), Director of the 9th Bureau of the Department of Health Sciences, National Natural Science Foundation of China, expressed warm congratulations to CNPHARS for its 30th anniversary during their opening ceremony talks. In his speech entitled “CNPHARS: Thirty years retrospect and prospect”, Prof. Guanhua Du (lower left), the CNPHARS President, described the establishment of CNPHARS, its development and growth, then offered a glimpse of the organization’s role in the future. The International Union of Basic and
CNPHARS 30th Anniversary
(continued)

Clinical Pharmacology (IUPHAR) and the Asian Pacific Federation of Pharmacologists (APFP) sent CNPHARS congratulatory letters on its first 30 years of success. The “scientific feast” of the congress was composed of plenary lectures, symposia, a young pharmacologists’ oral English presentation competition and a poster session. Twelve pharmacologists from Canada, China, Japan and the United States delivered plenary lectures. There were in total 75 invited speakers in nine symposia who spoke on topics in a broad range of interests, such as network pharmacology, traditional Chinese medicine (TCM) and natural medicine, cardiovascular pharmacology, clinical pharmacology, neuro- and the pharmacology of sleep, molecular pharmacology, anti-inflammatory & immunopharmacology, renal pharmacology, new drug discovery & screening, and frontiers in pharmacology. Fifteen selected young pharmacologists participated the oral English presentation competition, of which six received awards for excellence. In addition, winners of the 19th CNPHARS-Servier Young Pharmacologist Awards received their certificates (below).

CNPHARS was a section of the Chinese Association of Physiological Sciences until 1984, when it became an independent national academic society and a full member of IUPHAR and APFP in the same year. In 1985, CNPHARS received official approval by the China Association for Science and Technology. The main objectives of CNPHARS are to promote national and international scientific exchanges and collaborations in pharmacology and the related disciplines. During the past 30 years, CNPHARS has helped inspire its members
to dedicate themselves to pharmacology through cooperative projects and seek innovation to advance the discipline.

Through the joint efforts of its membership, CNPHARS has helped benefit society through academic exchanges, promotion of scientific and technological innovation, advancing the development of the discipline, interfacing with the government on key aspects of public healthcare affairs, serving its members and, most importantly, cultivating young talent for the next generation of pharmacologists. At this time, CNPHARS has 26 sections covering basic and clinical pharmacological fields, such as cardiovascular pharmacology, cancer pharmacology, neuropsychopharmacology, the pharmacology of TCM and natural medicine, drug toxicology, anti-inflammatory & immunopharmacology, therapeutic drug monitoring, drug clinical trials, drug-induced diseases, drug metabolism, etc. In addition, CNPHARS also publishes eight periodicals, of which the *Acta Pharmacologica Sinica* is a member of the Nature Publishing Group.

TCM is a very important component of the Chinese medicinal system. The 3rd World Conference on the Pharmacology of Natural and Traditional Medicines co-sponsored and organized by IUPHAR Section of Natural Product and CNPHARS has become an iconic scientific meeting on TCM and natural products research. In May 2015, the annual meeting of IUPHAR executive committee and the Symposium on the Challenges in Drug Discovery and Development were held in Xi’an, China. Eight experts recruited by IUPHAR and CNPHARS elaborated their opinions how to expand and enrich new drug research and development in China, especially with regard to modern technologies that can help yield effective and safe therapeutics from TCM. In order to accelerate progress in this area, CNPHARS has made the internationalization of TCM and natural products a top priority.

True to its mission, CNPHARS has emphasized international communication and collaboration in pharmacology. Most recently, CNPHARS has established regular bilateral conferences with the Japanese Pharmacological Society, French Pharmacology Society, Russian Scientific Society of Pharmacology, British Pharmacological Society, and American Society for Pharmacology and Experimental Therapeutics. There have been 17 Chinese pharmacologists serving as councilors or section chairmen within IUPHAR and APFP. With support and guidance from IUPHAR and APFP, CNPHARS has successfully hosted several international pharmacological meetings during the past 30 years including the 5th SEAWP-RFP Meeting (Beijing, 1988) , the 15th World Congress of Pharmacology (Beijing, 2006) and the 12th APFP meeting (Shanghai, 2013), etc. Establishing a North American chapter of CNPHARS (NAC-CPS) will help to facilitate more interactions for the society. Such collaborations demonstrate that CNPHARS continuously seeks opportunities to benefit pharmacologists both at home and abroad, which in turn strengthens CNPHARS itself. Thanks to 30 years of growth and improvement, today CNPHARS is a vigorous society that plans to further its domestic and international academic exchanges and collaborations. In particular, CNPHARS looks forward to expanding its relationship with IUPHAR and APFP, as well as other pharmacology societies, to improve human health for a better tomorrow.

Ying Zhao, Secretary, CNPHARS
Yongxiang Zhang, Vice-President and Secretary-General, CNPHARS
Guanhua Du, President, CNPHARS
For the last 25 years the Federation of European Pharmacological Societies (EPHAR) has been following its main goal – promoting the progress in research and education in the field of pharmacology and related sciences. EPHAR particularly encourages cooperation between national and/or regional pharmacological societies in Europe. At the moment, EPHAR has 29 member societies among the various European countries.

The EPHAR Silver Jubilee was officially celebrated in September 2015, when EPHAR President Thomas Griesbacher organised the 21st Scientific Symposium of the Austrian Pharmacological Society as a joint meeting with the British Pharmacological Society and the Pharmacological Societies of Croatia, Serbia and Slovenia. The meeting in Graz had several symbolic meanings. In 1936 the Nobel Prize was awarded to two distinguished pharmacologists, Otto Loewi, who conducted his experiments proving...
EPHAR 25th Anniversary
(continued)

neurotransmission in Graz, Austria, and Sir Henry Hallett Dale, the famous British pharmacologist, a father of receptor-mediated pharmacology of adrenergic and histamine system. For this reason, the British Pharmacological Society also organized one of its courses in Advanced Pharmacology, the General and Advanced Receptor Theory Workshop, in Graz.

Since EPHAR is encouraging young pharmacologists to follow their dreams, we are very proud that the 2015 EPHAR Young Investigator Award Winners, Tamás Szél from Szeged, Hungary and Georg Kranz from Vienna, Austria were given the opportunity to present their results at this jubilee event.

Starting with a joint symposium on the Immunopharmacology of TNFα during the 12th Congress of Clinical Pharmacology in Madrid this June, EPHAR also has started a closer collaboration with the European Association for Clinical Pharmacology and Therapeutics (EACPT). In addition, the two federations have also awarded two joint Young Investigator Awards in Translational Pharmacology to the recipients Daniel Antoine, UK, and Christoph Schneider, Switzerland. Both federations have committed themselves to continue on these lines also in the future.

EPHAR is also very happy that in this special anniversary year the most likely important project in its history, the European Certified Pharmacologists (EuCP) Programme (www.eucp-certification.org), was formally adopted by 17 of its member societies, with three societies already submitting their national EuCP schemes to the EuCP Committee for evaluation. The importance of certifying pharmacologists whose range of knowledge and experience covers the entire discipline from basic aspects and research through to clinical studies and pharmacotherapy is also highlighted by the fact that EACPT has joined EPHAR in this project, making the EuCP Programme a joint venture of the two federations.

EPHAR hopes that it can continue to support the interests of the entire discipline of pharmacology in the years to come. Times have become more difficult for sciences in a world where resources of support are limited and demands for immediate economic return of research seem to have become one of the key factors guiding decision-makers world-wide. In such an environment, cooperation not only between individual scientists, but also between national or specialized scientific societies and, indeed, also umbrella organizations, becomes more and more important. While much hard work remains to advance our discipline of pharmacology, EPHAR and all its representatives are ready and enthusiastic to support this goal.

Mojca Kržan, Executive Committee, EPHAR
Thomas Griesbacher, President, EPHAR
It with great sadness that we inform the membership of the death of Dr. William W. Fleming and his wife of 62 years, Dolores. Dr. Fleming and his wife passed away on Wednesday, April 29, 2015 in their home in Tionesta, PA. Bill was born in Washington, D.C. January 30, 1932. In early 1946 he moved with his mother to Montana where he graduated from Great Falls High School in 1950. While in high school, he met his wife to be, Dolores Atchison, and they were married in 1952.

Dr. Fleming received numerous fellowships during his undergraduate, doctoral and postdoctoral training. With a scholarship, he attended Harvard University, majoring in biology and receiving his A.B. degree cum laude in 1954. Bill received his PhD in biology in 1957 from Princeton University with an emphasis on microvascular physiology. He returned to Boston and the Department of Pharmacology at Harvard Medical School where he began studying autonomic and cardiovascular pharmacology with Drs. Otto Krayer and Ule Trendelenburg with the support of a National Institute of Health (NIH) postdoctoral fellowship. It was during this postdoctoral experience that Bill was exposed to and became immersed in the discipline of pharmacology which he embraced for the remainder of his illustrious scientific career.

Dr. Fleming left Harvard in 1960 for West Virginia University where he was an Assistant Professor of Pharmacology. In 1964, he was promoted to Associate Professor of Pharmacology and in 1966, he became Professor and Chair of Pharmacology, a position that he held until his retirement in 1999. Bill also held the Mylan Endowed Chair of Pharmacology in memory of Bill Fleming.
In Memory of Bill Fleming

Pharmacology at West Virginia University from 1986 until his retirement. Dr. Fleming was the consummate teacher and his excellence in teaching was widely recognized by the many awards he received at West Virginia University, including the P.L. MacLachlan Memorial Award for Excellence in Teaching in Basic Medical Science. Dr. Fleming was internationally recognized for his research as well as his ability to mentor PhD students and postdoctoral fellows from all over the world. In 2001, Bill was awarded the Order of the Vandalia by WVU for his outstanding service to the state.

Dr. Fleming’s professional service included three four-year terms on NIH study sections, reviewing grant applications, seven years as a consultant to the Meade Johnson pharmaceutical company and appointments to the Editorial Boards of the Journal of Pharmacology and Experimental Therapeutics, and Life Sciences and as an ad hoc reviewer for Science, Biochemical Pharmacology, the European Journal of Pharmacology, and the American Journal of Physiology, to name a few. Dr. Fleming was a member of the American Society of Pharmacology and Experimental Therapeutics (ASPET), the American Association for the Advancement of Science (AAAS), the Society for Neuroscience (SfN), the American Heart Association (Fellow of the Council on Hypertension Research), and the Association for Medical School Pharmacology Chairs (AMSPC). In addition to his service on multiple ASPET committees, he is a past president of ASPET, AMSPC and a past chair of the Board of Publications Trustees. Dr. Fleming also served as President of the International Union of Pharmacology, a position that enabled him to travel widely. After his retirement, he was a Visiting Professor at the University of Nevada at Reno. At the time of his death, Dr. Fleming was not only an Emeritus Professor of Pharmacology and Toxicology in the School of Medicine at West Virginia University but also an Adjunct Professor of Pharmacology in the School of Medicine at the University of Pittsburgh.

Dr. Fleming was the recipient of numerous professional and career awards and published over 130 full-length scientific publications. He was the recipient of a Fogarty Senior International Fellowship, ASPET’s Otto Krayer Award in 1986 and the Torald Sollman Award in Pharmacology in 1999. As part of three research sabbaticals, Dr. Fleming served as Visiting Professor in the laboratory of Professor Geoffrey Burnstock in the Department of Zoology at the University of Melbourne and Adelaide, Australia (1969). In 1978, Dr. Fleming was a Visiting Professor in the laboratory of Dr. T. B. Bolton in the Department of Pharmacology at St. George’s Hospital at the University of London. In 1987, he was Visiting Professor at the University of Adelaide in the laboratory of Dr. S. Johnson. Dr. Fleming’s research focused on understanding the influence of external chronic interventions on the responsiveness of smooth muscle and other excitable tissues to drugs, physiological manipulations. He was a pioneer in the concept of supersensitivity and subsensitivity of excitable membranes and helped define and characterize these concepts and their underlying mechanisms. His observations have had major implications for our understanding of tolerance and drug dependence as well as epilepsy and hypertension. His research on the cellular mechanisms responsible for the change in responsiveness of the effector cells following chronic alteration in neuronal input provided the first description of a single molecular alteration responsible for the augmentation of effector cell sensitivity to drugs.

In 2003, he and his wife, Dolores, moved to Tionesta, PA, where one of their daughters resides and he resumed his lifelong interest in building ship models to the scale of 1:350. He had built a fleet of over 50 ships mostly from vessels active during World War II. He was also known for his extensive model train collection which occupied an entire room of their home.

In addition to the lifelong friends and colleagues they had in the scientific community, Dr. Fleming and his wife are survived by their two daughters, Jennifer Hitchcock and her husband Mark of Tionesta, PA, Lisa Foster and her husband, Preston, of San Antonio, TX, a son, Dr. David Fleming and his wife Kathleen of Edwardsburg, MI, five grandchildren, Matthew Fitchcock and his girlfriend, Angela Vitale of Conway, SC, Christopher Hitchcock and his wife, Amy of Pittsburgh, PA, Kara Foster and Paige Foster, both of San Antonio, TX, Lincoln Fleming of Michigan and a great-grandson, Owen Hitchcock.

David A. Taylor, PhD and David P. Westfall, PhD
Reprinted from “The Pharmacologist” with permission from ASPET
Jean-Philippe Pin is Awarded the Galien Prize

Jean-Philippe PIN, Director of the Institute of Functional Genomics (UMR 5203 CNRS – U 1191 INSERM) at the University of Montpellier, France, has been awarded the highly prestigious Galien Prize, offered by the pharmaceutical industry to academic scientists who have made major breakthroughs in pharmaceutical science. Jean-Philippe is a highly successful researcher who has defined the pharmacology of family C G-protein-coupled receptors (GPCRs), particularly the metabotropic GABA and glutamate receptors. Inherent to this work is the fundamental discovery that GPCRs may heterodimerise, which gives their characteristics, opening up entirely new pharmacological concepts and therapeutic possibilities (see his PubMed entries). He has also developed an entire set of biological tools/biosensors etc which have entirely changed the field.

Jean-Philippe has been a major supporter of IUPHAR as a member of the Committee on Receptor Nomenclature and Drug Classification (NC-IUPHAR) for a decade, where he contributed to www.guidetopharmacology.org for all the family C GPCRs, in addition to writing the pivotal reviews that defined the full criteria for the definition of heterodimers, and prevented a tsunami of papers falsely claiming heterodimers from overexpression of recombinant GPCRs. IUPHAR congratulates Jean-Philippe on this prestigious prize, which is a very just recognition of some remarkable pharmacology.

Michael Spedding
IUPHAR Secretary-General
Upcoming Events

January
Winter Meeting of the Norwegian Society for Pharmacology and Toxicology
January 28 - 31, 2016 in Beitostølen, Norway
http://www.nsft.net/vintermotet

February
13th Meeting of the Asia Pacific Federation of Pharmacologists in conjunction with 38th Meeting of the Pharmacological and Therapeutic Society of Thailand
February 1 - 3, 2016 in Bangkok, Thailand
http://www.apfpbangkok2016.com

March
55th Annual Conference of the Egyptian Society of Pharmacology & Experimental Therapeutics featuring the European-Egyptian Collaboration in Pharmacovigilance Workshop co-organized by the Pharmaco-epidemiology Subcommittee of the IUPHAR Clinical Division
March 5, 2016 in Cairo, Egypt
Email Dr. Mohamed Khayyal at mtkhayyal@gmail.com
117th Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics
March 8 - 12, 2016 in San Diego, California, USA
http://www.ascpt.org/Meetings
89th Annual Meeting of the Japanese Pharmacological Society
March 9 - 11, 2016 in Yokohama, Japan
http://www.pharmacol.or.jp/shukai/list.html

April
Experimental Biology '16 sponsored by the American Society for Pharmacology and Experimental Therapeutics
April 2 - 6, 2016 in San Diego, California, USA
http://www.aspet.org/Meetings.aspx?id=426

June
Annual meeting of the Hungarian Society for Experimental and Clinical Pharmacology in conjunction with the Hungarian Physiological Society and the Hungarian Anatomical and Microcircular Society
June 1 - 4, 2016 in Pécs, Hungary
http://mapharm.hu/node/48
4th annual Summer School of Stress: From Hans Selye’s Original Concept to Recent Advances co-organized by the IUPHAR Gastrointestinal Section
June 13 - 17, 2016 in Novi Grad, Croatia
http://www.StressEducation.org
7th European Congress of Pharmacology by the Federation of European Pharmacological Societies and the Turkish Pharmacological Society
June 26 - 30, 2016 in Istanbul, Turkey
http://www.ephar2016.org

Please email IUPHAR@kumc.edu to have your IUPHAR member society event listed here.
2016 IUPHAR-GI on Drug Development and New Frontier in Gastrointestinal Diseases

June 9 to 11, 2016

The 2016 International Symposium of Basic and Clinical Pharmacology on Gastrointestinal Tract will be held at the Hotel Maestral in Novigrad, Croatia.

Key Topics:
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
6) Rethinking of stress and stress significance in GI tract

The symposium will include a full range of academic sessions, plenary lectures, and industrial sessions. For further information about abstract submission, registration, hotel, and potential publications of full manuscripts, please visit www.gi-iuphar-section-meeting-2016.com or contact symposium planning committee chair, Prof. Predrag Sikiric, at sikiric@mef.hr or +385 (1) 4566 833.
Welcome to a three-day workshop and site visit on

Second Course on Interface Management of Pharmacotherapy

Catalan pharmaceutical model for access and use of medicines based on health outcomes
- Workshop on different models of collaboration among primary health care and hospital clinicians, pharmacists, clinical pharmacologists and administrative managers
- Site visit to the Catalan model

October 17-19/2016 Barcelona, Spain
Catalan Health Service

Aims: To understand how multifaceted models can improve adherence to drug recommendations and quality of drug use across primary and hospital care. This will be achieved by:

A: Catalan Health Service and international speakers and experts from WHO, Sweden, Germany, France and the United Kingdom.

B: Presentations of different “Interface Models” including the Catalan model for access and use of medicines based on health outcomes.

C: Participants exchanging experiences and discussions how the rational use of medicines including the interface between hospitals and primary care, the involvement of various specialists, the use of quality prescription indicators, e-prescribing or clinical decision support systems, can be improved in their countries with ever growing pressure on resources.

Target groups of participants:

- Senior medical and administrative managers and their advisors at hospitals, primary care boards, Ministries of Health, health authorities, health insurances agencies, in National Drug Policy programmes and researchers in the field.

- Chief physicians, hospital and primary care pharmacists, clinical pharmacologists and leaders of Drug and Therapeutics Committees (DTC).

Better Medicines through Global Education and Research

Catalan model for access and use of medicines based on health outcomes

A comprehensive approach for improving the quality of drug use in a metropolitan healthcare regions including:

- The Catalan Program of Harmonization for primary health care (PHC) and hospital drugs
- Quality prescription indicators for PHC and hospitals
- Local DTC including PHC and hospitals
- Medication review and reconciliation programs
- e-prescribing system
- Mailing system between GPs and hospital physicians to share e-prescribing
- Electronic tools to support safe e-prescribing

Application: The course/site visit is open to 25–30 participants from all over the world. Participants should apply for the course electronically to amgarcia@catsalut.cat where you also can ask for the application form. The application should contain information about:

- Personal details, including address, telephone and e-mail
- Rationale for attending
- Brief CV
- How the participant envisions covering his/her costs
- Any other important issues for consideration

Our ambition is to get back to those applicants who have been accepted as participants for the course by the beginning of May 2016. We will keep a waiting list for the course. Participants will be admitted to the course when the course fee has been paid.

Course fee: 500 Euro. International participants pay to account holder Fundació Institut Català de Farmacologia:

Caixabank. Av Diagonal 621, 08028, Barcelona, Spain

IBAN NO: ES94 2100 5000 5602 0012 8935 SWIFT: CAIXESBBXXX

The course fee covers all course material as well as transport for the site visits.

Host and organisation: The Catalan Health Service in collaboration with Fundació Institut Català de Farmacologia, Piperska Group, IUPHAR (subcommittee for clinical pharmacology in developing countries) and WHO Europe.

Accommodation: Participants must cover their own accommodation costs. Hotel information will be provided.

Scholarships: Scholarships may be provided for participants from developing and emerging countries.

International Scientific Committee: Antoni Gilabert (Barcelona), Eduard Diogène (Barcelona), Corine Zara (Barcelona), Antònia Àgustí (Barcelona), Brian Godman (Stockholm/Glasgow), Lars Gustafsson and Eva Andersén-Karlsson (Stockholm), Hanne Bak Pedersen (WHO Copenhagen), Nicola Magrini (WHO Geneva), Martin Fromm (Erlangen), Marie-Camille Lenormand (Paris).

Contact information: Practical/organizational through Executive Secretary Ana García (amgarcia@catsalut.cat) and scientific through Eduardo Diogène (ed@icf.uab.cat) and Corine Zara (czara@catsalut.cat).
Contributions:
We welcome contributions from member societies, divisions, sections and committees. Please submit articles and photographs to IUPHAR@kumc.edu at least one month prior to the cover date.

Membership:
The members of IUPHAR are national, international, and special research interest societies. If you are an individual, please visit www.IUPHAR.org for additional information on the societies you may be interested in joining.