The March/April 2015 Newsletter of
The GP-TCM Research Association

Editorial

GP-TCM & GP-TCM RA: An Important Basis for the Elaboration of New Quality Monographs on TCM Herbal Drugs for the European Pharmacopoeia

Dr Gerhard Franz, Honorary Member, the GP-TCM RA
Professor emeritus, University of Regensburg, Germany
Chairman of the TCM Working Party of the European Pharmacopoeia
E-mail: Gerhard.franz@chemie.uni-regensburg.de

Monographs on herbal drug materials including those of Chinese Materia Medica (CMM) have been subject to considerable improvement in recent years. Due to the actual rapid development in Science in general and in many fields of Pharmacognosy in special, an important improvement of analytical methods is obvious which was urgently needed to implement high quality standards for all herbals in all the actual European Pharmacopoeia Monographs.

During the elaboration of any new TCM monograph, which is mostly based upon pre-existing data of the relevant Chinese Pharmacopoeia (Ch P), considerations always have to be taken into account into the relevant Technical Guide of the European Pharmacopoeia (Ph Eur). Consequently, all draft monographs must be accompanied by validation reports relating to the methods proposed.

Priority should be given to unambiguous definitions and identification of the TCM herbal drug material by macroscopic and microscopic examinations followed by HPTLC fingerprinting.

A key feature in the elaboration of any new TCM herbal drug monograph is the availability of a statistically relevant number of samples to be critically examined. In many cases it has been difficult in the past to obtain such a large variety of samples mostly from the European Market. It may be questioned that sometimes those samples commercially available in Europe have been specially prepared for the Western market and may be of different quality compared to CMM used in China. It further is difficult to obtain authenticated reference samples for the botanically identified herbal drugs of Chinese origin. Consequently, a continuous cooperation with specialists of the Ch P is essential in that they can assist in the elaboration of new monographs and in the provision of authenticated herbal drugs and reference samples.

Besides the unambiguous identification of the herbal drug material, the quantification of marker substances in herbal drugs in general and mainly in TCM is still a major problem and not easy to be resolved. For many CMM still no constituents with known therapeutic activity are documented in the relevant literature. In these cases plant specific natural substances have to be selected as the so-called analytical markers which have to be quantified accordingly. It can be questioned, if such assays for analytical markers newly included in a monograph are really essential. They are often rather expensive and may thus be the reason for a low degree of acceptance in pharmaceutical practice and consequently are not used much by the European shareholders. Alternatives have to be elaborated and validated such as semi-quantitative HPTLC methods which in some cases might replace the classical HPLC assay.

However, for all toxicological relevant herbal drugs, where the safety of the patient is in the focus of attention, clear-cut assay procedures must be implemented together with the appropriate limit values for the toxic compound(s) in question.

Consequently, one of the future goals for the TCM WP of the European Pharmacopoeia is the elaboration of a policy paper where the criteria for the elaboration and implementation of an assay should be determined. For the moment, it is still a case by case decision, if an assay and which type of assay has to be included in a new TCM herbal drug monograph of the Ph Eur.

Coming soon: In the next issue, Honorary Member Prof. Dr. Jan van der Greef will contribute an editorial entitled *GP-TCM & GP-TCM RA: Towards a New Generation of Global Health Care.*

Forum of GP-TCM RA Interest Groups

New On Good Practice in Chinese Patent Drug Research

Professor Aiping Lu
BoD Member & Clinical Studies Interest Group (CSIG) Chair
GP-TCM RA
Dean and Chair Professor in Chinese Medicine
School of Chinese Medicine
Hong Kong Baptist University
Hong Kong, China
E-mail: aipinglu@hkbu.edu.hk

Once again, GP-TCM RA has had a good year. I thank our Group Members, who continue to do an excellent job. Here, I'd like to discuss with GP-TCM RA members, especially members of the CSIG, on good practice in Chinese patent drug (CPD) research by posing three questions which are typically asked in research stories: what? why? and more importantly, how?

What are the important issues for CPDs? In broad terms they are no more than twofold: benefits and risks. Chinese drug regulatory agencies are increasingly pressed by the challenge of providing the appropriate instructions of CPDs on their benefits and risks. This question is not new, but has been made more prominent by recent high-profile drug alerts, including the need to improve the efficiency of drug development on one hand, and the need to avoid exposing patients to possibly ineffective treatments or unnecessary risks on the other.

Why is there a need for clinical studies for CPDs? Chinese Pharmacopoeia 2010 recorded 1,069 CPDs. Retrospectively gathered data have provided further support to the notion that current instructions-based prescription reduces efficacy rates and increases adverse drug reactions (ADRs). During the last two years, seven CPDs have been reported in National ADR Report due to safety concerns. Inevitably, a question arises as to whether it is possible to get more specific information (signs and symptoms, biomarkers, etc) on some of these CPDs by promoting information-based prescription.

How will clinical studies achieve these ambitions? Multi-trial design and multi-disciplinary studies should be valued for its utility. In traditional clinical studies, it may be possible to test CPDs by careful attention to their dosage, interaction potential and prescribing patterns. However, trial design bias is an often overlooked, but essential, aspect of clinical study. Our unpublished meta-analysis of *Tripterygium wilfordii* Hook. f. toxicity profile indicates that three design types (randomized controlled trials, controlled trials and non-controlled trials) influenced the estimates of relative risk. Thus, to obtain more accurate and complete data, multi-trial designs may be valuable. This issue will be explored further in the next GP-TCM RA Annual Meeting in Mons, Belgium. Furthermore, many clinical projects with excellent test efficiency have a strong multi-disciplinary character. Multi-disciplinary designs may help to provide investigators with efficient and innovative strategies to get superior results. However, so far, pharmacogenetics has not perceptibly improved the risk/benefit of some widely-used CPDs that are genetically susceptible and associated with serious ADRs. In addition, network pharmacology might be used to guide test designs to promote individualized therapy. Multiple pathways of drug distribution and elimination, and efficacy and toxicity of metabolites, require various biomarkers identified among components of targeted pathways. Biomarker groups will help predict the efficacy and toxicity of drugs. The clinical impact of predictive factors of efficacy and toxicity will be discussed in future GP-TCM RA CSIG discussions.

Above all, at present, prescribing physicians usually lack an adequate understanding of CPDs with current instructions. I propose to focus attention on accumulating evidence to provide clear indication for CPDs in future clinical studies.

GP-TCM RA News

1. Chinese newspapers report recent TCM-related visits in China by Professor Rudolf Bauer （鲍儒德, University of Graz), Past President of GP-TCM RA visited China.


玉林日报
YULIN RIBAO
2015年4月 17 星期五 农历乙未年二月廿九
玉林日报社出版 国内统一刊号:CN45—0009 A1
第6574期（总第11599期）今日8版 玉林新闻网 http://www.gxylnews.com

第七届中国（玉林）中医药博览会
开幕式
健康 发展 合作 共赢

鲍儒德：
中草药产品进入欧洲市场
需符合欧洲法律法规要求
□本报记者 陆小青

“非常期待能在2016年的第16届国际传统药物学大会上邀请到在座的各位，这次会议将会是国际上非常高级别的会议。”国际传统药物学会候任主席、奥地利格拉茨大学药学院院长、教授鲍儒德盛情邀请与会人员参加将在“南方药都”玉林召开的第16届国际传统药物学大会。

“第16届国际传统药物学大会是由国际传统药物学会、广西药用植物园和玉林市政府共同举办的一次国际级别的会议，我们主要是想推动国际中草药以及国际传统药物学的新发展，议题将主要围绕传统药物学的‘保护、继承、创新、发展’展开。”鲍儒德介绍说。

在当天的论坛演讲中，鲍儒德还向与会人员详细介绍了中草药在欧洲的监管现状、问题与展望。

鲍儒德介绍说，中草药产品可作为膳食补充剂或者药物进入欧洲市场，用于保健或疾病治疗，这两种进入类别均需相应的欧洲法律法规要求；同时，药品可作为新药、文献齐全产品和传统药物进入欧洲市场。为了确保安全性和有效性，中草药产品必须经过严格的质量监控，而质量监控应当以《欧洲药典》为基准。

对于文献齐全产品和传统药物，二者的有效认证和安全认证需以文献数据为基准，同时建立对应的专著。另外，仍需要更多研究来提升中草药的临床实证，增加欧洲对于相关成分和药物作用机理的了解。

玉林金线莲引起外宾“惊艳”
□本报记者 邹江

“玉林的金线莲很快将漂洋过海，在国外‘安居乐业’！”容县大容神农业有限公司总经理黄勇威说起这届药博会的“开门红”一脸的喜悦。

原来其所在的容县模范4月16日迎来了参观的外国贵宾。其第一位贵客是泰国的勿洞市市长容志江，这位市长刚开始了解金线莲就表现出了浓厚的兴趣，原来勿洞市是一个橡胶种植大市，现在正在准备大力发展林下经济。在了解金线莲的生长特性后，他认为与玉林气候相似的勿洞市，发展这种珍贵的中草药前景看好。药博会回去后，他将组团到容县金线莲基地参观，做好引进的前期工作。

而第二位贵人则是奥地利格拉茨大学药学院院长、教授鲍儒德。这位专家是药博会请来的重量级的国际药物学专家，在中草药质量的控制、鉴别等方面建树颇高。他对金线莲在清热凉血、祛风利湿、强心利尿、固肾、平肝等方面效果很是惊叹，现场拿来植株样品，准备回国后用科学的方法对药物的治疗活性成分、指标成分进行含量测定，这将对金线莲今后的深度利用产生重大影响。

大容山金线莲是本报记者在第六届药博会上发现的“明星”，这种药草号称“药王”，市场价值非常高。大容神农业有限公司则开发出了人工繁殖、种植金线莲方法。在容县县委、县政府的大力支持下，金线莲产业去年发展很快，现在玉林产的金线莲已经进驻桂林市各大药店及南宁市大型药店及大卖场，最近大容神农业有限公司又与香港一家大型连锁保健营养品机构洽谈，相关出口手续正在办理。金线莲是从药博会走出去的，相信有了这个平台助力，金线莲会越走越远。

Upper panels: *Yulin Daily*, 17th April 2015 reports, on 16th April, 2015, Prof. Rudolf Bauer attended the Opening Ceremony of the Seventh China (Yulin) TCM Exposition;
Lower panels: Prof. Bauer talked about regulation of TCM products in the EU and interacted with local farmers.

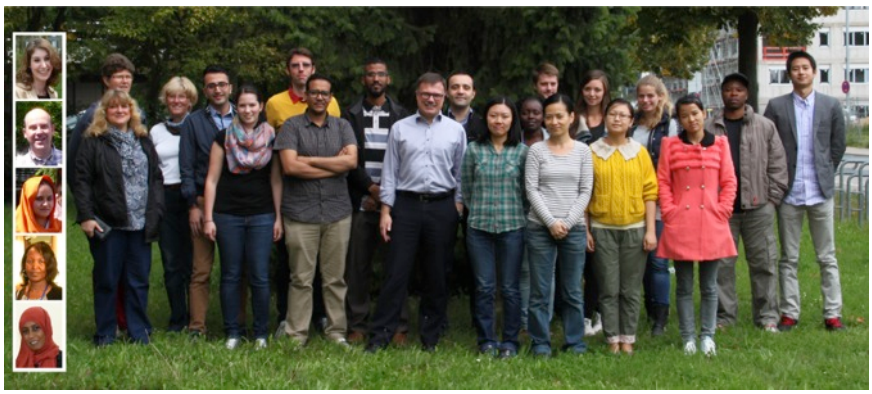
2. Dr Qihe Xu (徐启河, King's College London, UK), Co-Editor of the *GP-TCM RA Newsletters*, visited Beijing, Taipei and Taichung in March/April 2015. Supported by an Exchange in Education and Research grant from Ministry of Education, China, Dr Xu visited Beijing University of Chinese Medicine on 16th and 17th March 2015. He talked about his research on vitamin A *regulation of renal defences* and discussed with staff and students on education and research collaborations. Supported by Ministry of Science & Technology, Taiwan, Dr Xu visited Taipei and Taichung from 6th April to 12th April. In Taipei, he visited National Taiwan University and the National Research Institute of Chinese Medicine in National Yang-Ming University, where he talked about GP-TCM, GP-TCM RA, King's Centre for Integrative Chinese Medicine and his research on anti- and pro-fibrotic botanicals; in Taichung, he visited China Medical University and talked on the quest for modernisation of TCM: A global view from Europe.



Left: *Qihe at National Taiwan University (NTU) with Prof. Lee-Yan Sheen.*
Middle: *Qihe at National Yang-Ming University with Prof. Yi-Tsau Huang and his colleagues.*
Right: *Qihe at China Medical University, with Prof. Yang-Chang Wu and Prof. Wen-Huang Peng.*

Sounding Board: This section is reserved for GP-TCM RA members to express their opinions, share their views and comment on publications in previous issues of the GP-TCM RA Newsletters. All members are sincerely invited to contribute proactively. Please e-mail your Co-Editors Dr Tai-Ping Fan (tpf1000@cam.ac.uk) and Dr Qihe Xu (qihe.xu@kcl.ac.uk).

1. Professor Thomas Efferth – New Blood in the BoD: Thomas has officially joined the GP-TCM RA BoD since January 2015. Apart from Thomas, all other BoD members were re-elected founding BoD members. Thus, GP-TCM RA members might wish to know more about Thomas and his research. Here is a piece of contribution from Thomas.



We wish you support the "Sounding Board" column as much as Thomas does!

Professor Thomas Efferth is Chairman of the Department of Pharmaceutical Biology, Institute of Pharmacy and Biochemistry, Johannes Gutenberg University, Mainz, Germany. He is biologist by training (Technical University of Darmstadt, Germany). His doctoral thesis was completed at the German Cancer Research Center (DKFZ), Heidelberg, Germany (1990). Dr. Efferth was awarded the Ludolf-Krehl-Prize of the Southwest German Association for Medicine (1991), the Willmar-Schwabe-Award of the German Society for Medicinal Plant Research (2006), and the CESAR Award for Translational Oncology (2011). He headed a research group for Pharmaceutical Biology at DKFZ (2005-2009) and was associate professor (apl) at the University of Heidelberg (2007-2009). In 2009, he took over the Chair of Pharmaceutical Biology (full professorship) at the Johannes Gutenberg University, Mainz. Furthermore, he is honorary professor at the Northeast Forestry University, Harbin, China and visiting professor at the Zhejiang Chinese Medical University, Hangzhou, China. Thomas Efferth has published over 350 PubMed-listed papers and in peer-reviewed journals in the field of cancer research, pharmacology, and natural products (Hirsch-factor: 48; citation rate: >8000) and a textbook on 'Molecular Pharmacology and Toxicology' (Springer Publisher; 2006). He holds five patents. The scientific results were communicated in over 150 oral presentation and invited lectures and over 150 poster presentations at national and international conferences and meetings. He is co-editor and editorial board member of 30 scientific journals and scientific advisory board member of the German Pharmaceutical Society and several other institutions.

The focus of Dr. Efferth's research is on tumor pharmacology and the development of novel options for treatment and diagnosis of cancer. A major topic is research on natural products derived from medicinal plants:

- *Molecular pharmacology and toxicology of natural products.* Drug resistance and severe side effects represent major obstacles of current chemotherapy. This necessitates the identification of novel compounds from plants with anticancer activity. The aims are (a) the identification of novel compounds with improved therapeutic properties against drug-resistant tumors and the analysis of underlying molecular modes of action. Current research project focuses on phytochemicals and plant extract that modulate ABC-transporter-mediated multidrug resistance and that act as inhibitors of epidermal growth factor receptors or vascular endothelial growth factor receptors. A long-term project (since 1996) on the anticancer activity of antimalarial artemisinin-derivatives resulted in a recent a clinical phase II trial demonstrating a survival advantage of colorectal cancer patients, if treated with artesunate.
- *Genome-wide expression profiling and genomic aberrations in tumors.* Drug resistance of tumor cells reduces the probability for patients to be cured and reduce survival. The knowledge of

determinants which affect drug responsiveness of tumors and prognosis of patients would allow the design tailor-made treatment protocols for each individual patient. The aim is to develop techniques for the predictive determination for individualized therapy options and the implementation of natural products for treatment.

2. Terminolgy and translation in academia and TCM.

Feb.19, 2015 kick-started a lunar year named after one of the 12 Chinese animal zodiac signs that collectively refers to goat, sheep and ram. Should this zodiac sign be translated into the Goat, the Sheep or the Ram? Mesmerising debates in public media broke around the Chinese New Year. Conclusion? Neither is perfect nor wrong! Though puzzling, such varied translation does little harm. Similar difficulties common in academia and science, however, do pose serious challenges. British universities historically called their heads Vice-Chancellor, Provost, Principal or Rector, but these titles can hardly be understood outside the UK. To inform international audience, heads of many British universities have adopted joint titles, such as President and Principal (King's College London). However, many senior academics in British universities, such as those known as Readers, remain frustrated. Readers are equivalents to Full Professors (without a chair) in British universities, but no consensus exists on translation of these titles. This has created unnecessary confusion, potentially undervalued academics bearing the titles and may have hindered their international collaboration. Accurate terminology and translation is more fundamental in modernisation of TCM. In the case of Chinese materia medica, different plants used nondiscriminatively for medicinal purposes under common names have caused devastating consequences (Y.P. Zhu. Adverse Drug React Toxicol Rev 21, 171-177; 2002). The FP7 GP-TCM project and follow-on international collaborations have developed guidelines on naming plant materials to safeguard efficacy, safety and science (K Chan, et al. J Ethnopharmacol 140, 469-475; 2012; D. Rivera, et al. J Ethnopharmacol 152, 393-402; 2014). These guidelines must be promoted vigorously and implemented as widely as possible. On the other hand, although an organ in modern anatomy is often referred to in the same Chinese character for a functional organ system in TCM, the same Chinese character such as 肾 (Shen), may not be translated into the same English word "kidney", which only has an anatomic meaning in modern medicine and the Western culture. As such, simply translating "肾" in TCM into "kidney" is misleading. To address many issues like this, an ISO technical committee dedicated to TCM has been created in 2009. Some progress has been made, but challenges remain (http://www.iso.org/iso/standards_development/technical_committees/other_bodies/iso_technical_committee.htm?commid=598435). Nonetheless, terminology/translation is such a fundamental issue that must be addressed. The sooner the better, as Confucius said, "*If the name is not right then speech will not be in order and if speech is not in order then nothing will be accomplished.*"

In *Journal of Traditional and Complementary Medicine*, an online dictionary for translating TCM related terminology is provided: http://dict.paradigm-pubs.com/test31.htm.

You are invited to use this online tool and let the Editor-in-chief of *Journal of Traditional and Complementary Medicine*, Prof. Lee-Yan Sheen, and your GP-TCM RA Newsletter Co-Editor Dr Qihe Xu know what you think: lysheen@ntu.edu.tw and qihe.xu@kcl.ac.uk

European observation

1. What does the EU Clinical Trials Regulation spell for the future of medical research?
http://biome.biomedcentral.com/what-does-the-eu-clinical-trials-regulation-spell-for-the-future-of-medical-research/?utm_campaign=BMC14880&utm_medium=BMCemail&utm_source=Teradata

2. Research at Kew overhauled for leaner times. Stokstad E. *Science*. 2015: 347(6225):936. The Royal Botanic Gardens, Kew, one of the world's largest collections of plants and fungi, has shrunk its scientific workforce by 18% and undergone a major reorganization. Recent independent reviews had urged Kew to focus its research program. The organization also

faced budget cuts, compounded by significant bills for maintenance of its historic grounds and buildings. A new strategy, described in a 5-year plan released this week, emphasizes collections-based research, particularly in fungi and plant health. The plan sets research targets, such as charting the evolutionary relatedness of plant and fungal species by 2020, and lists several new communication products. A new website, for example, will offer information on traits, distributions, and evolutionary relationships of plants and fungi. An annual report, called the *State of the World's Plants*, will identify important issues in plant health and conservation.
http://www.sciencemag.org/content/347/6225/936.summary

New **3. GVK Biosciences: European Medicines Agency recommends suspending medicines over flawed studies:** A number of medicines for which authorisation in the European Union (EU) was primarily based on clinical studies conducted at GVK Biosciences in Hyderabad, India should be suspended, says the European Medicines Agency (EMA). The recommendation is based on findings from an inspection that raised concerns about how GVK conducted studies at the Hyderabad site on behalf of marketing authorisation holders. Upon the request of the European Commission, EMA's Committee for Medicinal Products for Human Use (CHMP) looked at over 1,000 pharmaceutical forms and strengths of medicines studied at the GVK site. For over 300 of them, sufficient supporting data from other sources were available; these will therefore remain on the market in the EU as EMA is satisfied with the available data. For medicines that lack data from other studies, the CHMP recommended suspension unless they are of critical importance for patients because alternatives will not be able to meet patients' needs. There is no evidence of harm or lack of effectiveness linked to the conduct of studies by GVK Biosciences.
http://www.ema.europa.eu/ema/index.jsp?curl=pages/news_and_events/news/2015/01/news_detail_002256.jsp&mid=WC0b01ac058004d5c1

New **4. Redirection home:** Europe's researchers should grab every opportunity to ensure that funds redirected towards strategic investment will not miss science altogether – *Nature* reports on 04 February 2015: http://www.nature.com/news/redirection-home-1.16834

New **5. Acupuncturist sentenced for aristolochic acid poisoning** in Belgium (published in French on 01/23/2015) A Chinese acupuncturist at her thirties living in Tremelo, Belgium, was sentenced Friday by the Criminal Court of Leuven to twelve months imprisonment, three years suspension and a fine of 156 euros. She was prosecuted for prescribing to one of her patients suffering from sleep disorders a mixture of herbs containing aristolochic acid, found carcinogenic and banned in Europe. The accused said she did not know that herbs were contaminated, the judge ruled that she should be aware of. The acupuncturist in question has studied traditional medicine in China for five years before coming to attend Social Anthropology courses in Belgium. She began as an acupuncturist but also specialized in healing plants. His victim, a sexagenarian of Vossem, requested her services in summer 2010. Suffering from sleep disorders, she was prescribed a mixture of herbs. She then rapidly fell ill, lost her hairs and lost the sense of taste. Her health has been deteriorating and she had to undergo a kidney transplant last summer. The court had already granted, provisionally, 5,000 euros in damages to the victim, who is about to lose her second kidney. An exact sum will be determined after further auscultation by a forensic doctor. The acupuncturist must also pay court costs, some 1,800 euros.
http://m.lavenir.net/cnt/DMF20150125_00591459

New **6. Corruption: Good governance powers innovation.** Based on a report in *Nature* on 18th Feb. 2015, Corruption is a barrier to innovation, warns Alina Mungiu-Pippidi. Greater scrutiny of public spending is needed if science and technology are to fulfil their potential… In the European Union (EU), the private sector's capacity for innovation strongly correlates with control of corruption (a correlation of 0.84), with quality of national scientific research institutions (0.85), and with gross domestic expenditure on research and development (0.9).
http://www.nature.com/news/corruption-good-governance-powers-innovation-1.16927?WT.ec_id=NATURE-20150219

7. Traditional medicine enters UK market. By Cecily Liu (China Daily; updated: 2015-03-03. The first traditional Chinese medicine to obtain market approval from the United Kingdom's Medicines and Healthcare Products Regulatory Agency can now be sold over the counter in the country. The medicine, Phynova Joint and Muscle Relief Tablets, was developed by Phynova Group, a life sciences company in Oxford, England. An announcement outlining the MHRA's approval was made on Monday at the GREAT Festival of Creativity in Shanghai. The move marks a significant development in the MHRA policy. It is the first time that the European Union's Traditional Herbal Medicinal Product Directive, introduced in April 2004, has successfully been used to register a TCM product in the UK. The EU directive, which was designed to protect consumers and guarantee that the treatment is safe and meets high standards, has resulted in many Chinese medicines that are popular in European countries no longer being available over the counter without a prescription. Robert Miller, chief executive officer of Phynova, said that the approval process took around three years, but he expects the period to be shorter for other medicines the team will put forward for approval in the future. The active ingredient in the tablets is a plant called *Siegesbeckia Orientalis*, which is prepared in Nanning, capital of the Guangxi Zhuang autonomous region, by a Chinese company called Purapharm Pharmaceutical Co, and the finished product is manufactured in the UK by a company called Surapharm Services Ltd.
http://www.chinadaily.com.cn/business/2015-03/03/content_19699320.htm

8. Funding research for three decades. Since 1984, the Framework Programmes for research and innovation have been funding breakthroughs across Europe. The *Horizon* magazine looks at the people and events that have helped shape European research policy, taking you behind the scenes during the pivotal moments from the last 30 years of research funding. These articles have been brought together into a special *Horizon* supplement to commemorate the 30th anniversary of the Framework Programmes: http://horizon-magazine.eu/key-themes/30th-anniversary

Breakthroughs in genomics, epigenomics and proteomics

1. Beyond the genome. A *Nature* Editorial on 18th Feb. 2015. Studies of the epigenomic signatures of many healthy and diseased human tissues could provide crucial information to link genetic variation and disease. Insights into three fundamental aspects of epigenetics emerge: how the epigenome affects gene expression; how the epigenome changes during stem-cell differentiation (that is, during normal development); and how it changes during disease.

http://www.nature.com/news/beyond-the-genome-1.16929?WT.ec_id=NATURE-20150219
***Nature Method* commentary:**
http://www.nature.com/nmeth/journal/v12/n3/full/nmeth.3315.html?WT.ec_id=NMETH-201503

2. Epigenomics: Roadmap for regulation. Romanoski CE, et al. *Nature* 2015; 518: 314–316. A package of papers investigates the functional regulatory elements in genomes that have been obtained from human tissue samples and cell lines. The implications of the project are presented here from three viewpoints. See Articles p.317, p.331, p.337 & p.344 and Letters p.350, p.355, p.360 & p.365 (*Nature* 2015; 518). The topic in brief:

- Epigenomics is the study of the key functional elements that regulate gene expression in a cell.
- Epigenomes provide information about the patterns in which structures such as methyl groups tag DNA and histones (the proteins around which DNA is packaged to form chromatin), and about interactions between distant sections of chromatin.

- They also contain information about regulatory elements in DNA itself: both those that lie in the promoter region immediately upstream of where a gene's transcription begins, and those in distant enhancer sequences.
- The ENCODE Project[1] aimed to catalogue the regulatory elements in human cells, studying the epigenomic signatures of cells grown in culture. The Roadmap Epigenomics Project builds on this by analysing samples taken directly from human tissues and cells — embryonic and adult, diseased and healthy.
- The researchers have linked these epigenomic data to the corresponding genetic information, producing reference epigenomes for 127 tissue and cell types.
- The result is a representation of how epigenomic elements regulate gene expression in the human body.

www.nature.com/nature/journal/v518/n7539/full/518313a.html

New **3. Tissue-based map of the human proteome**. Uhlén M, et al. *Science* 2015; 347(6220):1260419. A freely available interactive resource is presented as part of the Human Protein Atlas portal (www.proteinatlas.org), offering the possibility to explore the tissue-elevated proteomes in tissues and organs and to analyze tissue profiles for specific protein classes. Comprehensive lists of proteins expressed at elevated levels in the different tissues have been compiled to provide a spatial context with localization of the proteins in the subcompartments of each tissue and organ down to the single-cell level.
http://www.sciencemag.org/content/347/6220/1260419.short

This project has also been commented by *The Scientist*:
http://www.the-scientist.com//?articles.view/articleNo/41959/title/Human-Proteome-Mapped-Again/

New **4. Lagging-strand replication shapes the mutational landscape of the genome**. Reijns MA et al. *Nature* 2015 Jan 26. doi: 10.1038/nature14183. [Epub ahead of print]. The emRiboSeq sequencing method is used to track polymerase activity genome-wide in vivo; despite Okazaki fragment processing, DNA synthesized by error-prone polymerase-α (Pol-α) is retained in vivo and comprises 1.5% of the genome, establishing Pol-α as an important source of genomic variability and providing a mechanism for site-specific variation in nucleotide substitution rates.
http://www.nature.com/nature/journal/vaop/ncurrent/full/nature14183.html?WT.ec_id=NATURE-20150129

New **5. Resolving the complexity of the human genome using single-molecule sequencing**. Chaisson MJP, et al. *Nature* 2015; 517: 608-611. Single-molecule, real-time DNA sequencing is used to analyse a haploid human genome (CHM1), thus closing or extending more than half of the remaining 164 euchromatic gaps in the human genome; the complete sequences of euchromatic structural variants (including inversions, complex insertions and tandem repeats) are resolved at the base-pair level, suggesting that a greater complexity of the human genome can now be accessed.
http://www.nature.com/nature/journal/v517/n7536/full/nature13907.html?WT.ec_id=NATURE-20150129

New **6. Comprehensive genomic characterization of head and neck squamous cell carcinomas**. The Cancer Genome Atlas Network. *Nature* 2015; 517: 576-582. The Cancer Genome Atlas presents an integrative genome-wide analysis of genetic alterations in 279 head and neck squamous cell carcinomas (HNSCCs), which are classified by human papillomavirus (HPV) status; alterations in *EGFR*, *FGFR*, *PIK3CA* and cyclin-dependent kinases are shown to represent candidate targets for therapeutic intervention in most HNSCCs.
http://www.nature.com/nature/journal/v517/n7536/full/nature14129.html?WT.ec_id=NATURE-20150129

New **7. Whole genomes redefine the mutational landscape of pancreatic cancer.** Nicola

Waddell, Marina Pajic, Ann-Marie Patch et al. *Nature.* 2015;518(7540):495-501. A whole-genome sequencing analysis of 100 pancreatic ductal adenocarcinomas has discovered known and newly identified genetic drivers of pancreatic cancer; these genetic alterations can be classified into four subtypes, which raises the possibility of improved targeting of clinical treatments.
http://www.nature.com/nature/journal/v518/n7540/full/nature14169.html

New **8. Genome-scale transcriptional activation by an engineered CRISPR-Cas9 complex.** Konermann S, et al. *Nature* 2015; 517: 583-588. The CRISPR-Cas9 system, a powerful tool for genome editing, has been engineered to activate endogenous gene transcription specifically and potently on a genome-wide scale and applied to a large-scale gain-of-function screen for studying melanoma drug resistance.
http://www.nature.com/nature/journal/v517/n7536/full/nature14136.html?WT.ec_id=NATURE-20150129

Future meetings:

New **1. The 4th GP-TCM RA Annual Meeting:** Joint Meeting of the GP-TCM Research Association, the TCM Chemistry Specialty Committee and the TCM Pharmaceutical Analysis Specialty Committee of the World Federation of Chinese Medicine Societies (13th - 15th July 2015, Mons, Belgium): The meeting will be open from 13th to 15th July 2015; a pre-meeting debate on regulatory challenges and a get-together party will take place on the 12th. This conference will focus on relevant and contemporary issues of research progress in traditional Chinese medicine and natural medicines, especially on the topics of Chinese medical theory natural product chemistry, herbal analysis, pharmacology and toxicology, quality control and standardization, clinical studies, regulatory affairs as well as acupuncture and moxibustion. The meeting will provide an excellent platform for regulatory-industrial-academic exchanges and potential innovative research collaborations on various challenges of Traditional Chinese Medicine. We will also invite representatives from the European regulatory agencies. The meeting will focus on "Traditional medicines: Science meets culture" and will fit in the major Mons 2015 event, as the town is the European capital of culture for 2015. You will find the exact programme, as well as more detailed and constantly updated information about the meeting in the Internet at
www.umons.ac.be/tcm-mons2015

Please register and reserve your hotel rooms quick! Places are limited…




2. Nordic Natural Products Conference (NNPC) 2015: "Natural Products Research – Past, Present & Future" in honour of Prof. Lars Bohlin will be held June 15-16, 2015 in Almedalsbiblioteket, lecture hall E22 at Uppsala University Campus Gotland in the medieval city of Visby. Abstract submissions are cordially invited, and should be submitted before April 15th to christina.weden@fkog.uu.se using the abstract form available on the NNPC 2015 website:
www.fkog.uu.se/nnpc

3. The 19th International Congress PHYTOPHARM 2015 which will be organized on July 21-24, 2015 in Bonn, Germany. Scientific program of Congress will consist of plenary lectures, oral communications and 8 symposia: (i) Medicinal plant products: challenges, safety and efficacy**; (ii)** Quality control of natural medicinal preparations**; (iii)** Pharmacology and Ethnopharmacology; **(iv)** Technology of natural medicinal products; **(v)** Advances in clinical studies of Phytotherapeutics**; (vi)** Regulation of herbal medicinal products and food**; (vii)** Supplements in Russia, the European Union and the USA; and (viii) Good practices in TCM. Special exhibitions will be organized during

Congress.
http://www.ipharm.sp.ru/phyto2015.html

4. The 9th SFRR-Africa and 4th IAMBR International Conference to be held in Mauritius at Hennessy Park Hotel from July 27-29 2015. The meeting are organized by the Society for Free Radical Research-Africa (SFRR-Africa) and the International Association for Medical and Biomedical Research (IAMBR). This conference will address current scientific challenges in nutrition and its impact on the management of health and diseases, therapeutic interventions, **pharmaceuticals from marine flora and fauna, pharmacognosy,** molecular biology and biomarkers of oxidative stress and occupational and environmental health. The deadline for abstract submission and registration is **April 15 2015**. Meeting announcement can be found: http://vcilt.uom.ac.mu/sfrr/images/img/announcement.pdf

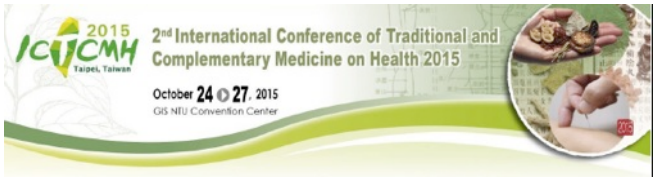
New **5. The 14th Meeting of Consortium for Globalization of Chinese Medicine (CGCM) will** be held in **London ON, Canada on August 18 - 20, 2015**. Pre-meeting Workshops will also be held on **August 17, 2015**. The Meeting is organized by University of Western Ontario (Western University). It provides a platform for regulatory-industrial-academic exchanges and potential research collaborations on various frontiers of TCM.

For more details, please refer to the meeting website: http://conference.uwo.ca/cgcm.

- **Abstract submission deadline:** May 31, 2015.
- **Early registration deadline:** May 29, 2015 (EST 4pm). https://www.conference.uwo.ca/cgcm_reg/index.cfm
- **Accommodation reservation:** http://conference.uwo.ca/cgcm/accommodation.cfm
- **Travel grant:** To support postgraduates to attend the 14th CGCM Meeting, up to 50 Travel Grants are now open for application. Awardees will receive travel grant, free accommodation (shared room) and waiver of registration fee. You may wish to encourage your postgraduates to submit abstracts and apply for the Travel Grant.

6. The 63rd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), to be held in Budapest, Hungary, August 23-27, 2015. http://ga2015.hu/

New **7. ICTCMH 2015: The 2nd International Conference of Traditional and Complementary Medicine on Health will be held in Taipei, Taiwan, October 24-27, 2015.**



The Journal of Traditional and Complementary Medicine (JTCM) is pleased to be hosting the 2nd International Conference of Traditional and Complementary Medicine on Health, ICTCMH 2015. JTCM is a global platform for communication and research about Eastern and Western traditional and complementary medical science. On behalf of the organizing committee, I am pleased to invite you to participate in ICTCMH 2015, which began in 2013 with ICTCMH 2013. ICTCMH 2015 will accelerate the globalization of traditional and complementary medicine through academic convergence, communication, exchange, and collaboration. The conference will convene international experts in traditional medicine, preventive herbal medicine, and dietary therapy to share recent findings and enhance international collaboration in the

increasingly globalizing field of traditional and complementary medicine. We are pleased to invite individuals from a wide range of professional backgrounds to participate in this unique conference, including healthcare professionals, policy makers, researchers, advocates, and anyone interested in health promotion and prevention medicine.

http://www.ictcmh2015.org.tw

8. The China Academy of Medical Sciences (CAMS) and *The Lancet* family of journals invite abstract submissions from China for *The Lancet*-CAMS Health Summit, which will be held in Beijing, China on Oct 30–31, 2015.

http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2814%2961406-9/fulltext

New **9. The 16th Congress of the International Society of Ethnopharmacology (ISE) will held in Yulin, Guangxi, China, on May 16-18, 2016.** The ISE is an international society of researchers dedicated to the interdisciplinary study of the pharmacological activities of traditional medicines. ISE is also committed to preservation and conservation of such practices for future generations.
http://www.ethnopharmacology.org

New **10. Other meetings:**
http://www.jtcmplatform.org.tw/category/Conference/

Other recommended readings

New **1. Elio Di Rupo, former prime minister and current Mayor of Mons, the host city of the 4th GP-TCM RA Annual Meeting, emphasizes the importance of Belgium-China relationship in an interview with China Daily.** He says China is one of the most important countries and one that Belgium does not ignore…
http://europe.chinadaily.com.cn/epaper/2015-04/17/content_20453302.htm

New **2. *World Journal of Traditional Chinese Medicine* published its first issue**: Launching ceremony of the journal was held at BON TV on January 31, 2015. Spearheaded by Editors-in-chief De-an Guo (GP-TCM RA President) and Jing-Yan Han (GP-TCM RA Clinical Studies Interest Group Co-Chair), the official journal of the *World Federation of Chinese Medicine Societies* plans to publish 4 issues per year. Please find the PDF file of all 8 manuscripts and the online first papers in the first issue at the journal's website (open-access): www.wjtcm.org

New **3. Supplements Industry Derides NY Attorney General's DNA Tests:** The stengths and limitations of DNA tests of herbal products.
http://www.dddmag.com/news/2015/02/supplements-industry-derides-ny-attorney-generals-dna-tests?et_cid=4408194&et_rid=45532557&type=cta

…, but the Story Is Not Over…
http://www.dddmag.com/news/2015/02/ny-attorney-general-expands-herbal-supplement-investigation?et_cid=4431358&et_rid=45532557&type=headline

New **4. *Nature Methods* "Method of the Year 2014" and "Methods to Watch":**
http://www.nature.com/nmeth/focus/moy2014/index.html#mtw

New **5. Regulation on traditional and complementary medicine practices in Turkey published in October 2014**
http://www.al-monitor.com/pulse/originals/2014/12/turkey-alternative-medicine-legalized.html#

New **6.** Yasuteru Sakurai et al. **Two-pore channels control Ebola virus host cell entry and are drug targets for disease treatment.** *Science* 2015;347:995-998. In a new study published in *Science*, tetrandrine – an alkaloid found in *Stephania tetrandra* (commonly known as stephania root or '*han fang ji*') and other Japanese and Chinese herbs – inhibited infection of human white blood cells in petri dish experiments and also showed therapeutic efficacy in lab mice.
http://www.sci-news.com/medicine/science-tetrandrine-stephania-tetrandra-japanese-chinese-herbs-blocking-ebola-virus-02545.html

New **6**. Maegawa H, et al. **Regulation of traditional herbal medicinal products in Japan.** *J Ethnopharmacol.* 2014;158 Pt B:511-5. Kampo medicines are the main traditional herbal medicines in Japan and are classified as pharmaceuticals. They are based on ancient Chinese medicine and have evolved to the Japanese original style over a long period of time. Ethical Kampo formulations are prescribed in general practice by physician under the National Health Insurance reimbursement system. Over-the-counter (OTC) Kampo formulations can be purchased and used for self-medication in primary health care settings. Kampo medicines have a substantial role in the Japanese healthcare system. In the early 1970s, "The Internal Assignments on the Review for Approval of OTC Kampo Products", known as "210 OTC Kampo Formulae", was published by the Ministry of Health and Welfare (currently the Ministry of Health, Labour and Welfare). In 2008, "210 OTC Kampo Formulae" was revised and presented as "The Approval Standards for OTC Kampo Products" and now 294 Kampo formulae are listed in the standards. These products have had wide spread usage in Japan. Crude drugs and Kampo extracts have been listed in The Japanese Pharmacopoeia. Both The Approval Standards and The Quality Standards play a key role in regulation of Kampo products. "Application Guideline for Western Traditional Herbal Medicines as OTC Drugs" was published in 2007. Other ethnopharmaceuticals mostly from Europe could be approved as OTC drugs in Japan.
http://www.sciencedirect.com/science/article/pii/S0378874114005169

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