



Editorial

The Convergence of “Current Mainstream Medicine” and “Traditional Chinese Medicine” Principles

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Through the advancement of our knowledge about biological and medical sciences, new technologies including multiplex -omics, there is now increased recognition that a molecular medicine approach is insufficient in resolving complicated unmet needs in diseases including cancer, cardiovascular disease, neuro-degeneration, metabolic disorder and autoimmune disease. A systems biology / integrative medicine approach with holistic consideration will be needed. To meet the complex needs of patients, the scope of medicine needs to be expanded beyond therapeutic medicines to include preventative, functional and adjuvant medicines. And through precision medicine, which identifies unique characteristics of a patient’s diseased tissue, based on biomarkers, target-oriented drugs may further help address patient needs.

All of these new approaches and new scope of activities are consistent with the principles of Traditional Chinese Medicine (TCM), which was first described at least 1800 years ago. TCM combines a holistic approach for treating human symptoms, preventive approach to aging-related symptoms and diseases, and personalized approach by the TCM practitioner to diagnose, prescribe and prepare a specific treatment to meet the needs of the individual patient – which may incorporate a unique combination of herbs or special preparation procedures. The convergence of principles in current mainstream medicine and TCM could lead to a complimentary approach in future medicine.

In order to advance TCM, there are several challenges that need to be overcome. These key issues center around evidence-based data and quality control. There needs to be reliable preclinical and clinical data to substantiate the claims, including information about active chemicals, mechanism of action and drug-drug interactions, current clinical evaluation. There needs to be strict quality control, including the sourcing of high quality ingredients, good manufacturing processes and validation of the finished product. All of these challenges are solvable, but require the collaboration of individuals or institutions with different expertise.

It should be recognized that the source of high quality herbs is the most urgent and critical issue today. There is too much emphasis on yield versus quality cultivation. The dramatic changes in our natural environment, caused by human use, are having a dangerous effect. “Without good quality herbs, there will be no high quality materia medica. Without high quality materia medica, there will be no high quality TCM or botanical medicine”.

(Edited by Peikwen Cheng. The work is supported by CA-154295. Y.C. Cheng is a fellow of the National Foundation of Cancer Research. The same editorial note will be published on the website of “Consortium for Globalization of Chinese Medicine” (tcmedicine.org)



The Society for Medicinal Plant and Natural Product Research (GA) congratulates Nobel Prize winners for the discovery of natural product-derived drugs



The Nobel Prize for Medicine 2015 was awarded for the discovery of two natural products that brought breakthroughs in the therapy of tropical parasitic diseases. Youyou Tu received the prize for her discovery of the anti-malarial compound artemisinin, and William C. Campbell and Satoshi Ōmura for their discovery of the avermectins as potent anthelmintics.

The discovery of artemisinin as an exquisitely potent antimalarial compound from the traditional Chinese herb *Artemisia annua* demonstrates the potential ethnomedicine-

based drug discovery, and the importance of plant-derived drugs. Artemisinin has unique structural features, such as rare trioxan and peroxide substructures that are essential for the activity. Artemisinin derivatives were brought into the clinic in the 1990s. Artemisinin-based combination therapies (ACTs) are today a main pillar for the treatment of malaria. Artemisinin is also remarkable in another sense, as it was one of the plant-derived compounds to be produced in an industrial semi-biotechnological process. It is more than justified to say that artemisinin opened the door to metabolic engineering of plant-derived natural products.

The avermectins were isolated by Satoshi Omura from a soil streptomycete. The semi-synthetic ivermectine was subsequently developed as a veterinary anthelmintic, before being introduced as a drug for human use. Ivermectine is a broad-spectrum antiparasitic agent which is highly effective for the treatment of onchocerciasis (river blindness) and strongyloidiasis.

The Society for Medicinal Plant and Natural Product Research (GA) congratulates the Nobel Prize Winners for their breakthrough discoveries! We are proud that two of them selected *Planta Medica*, the official journal of GA, as a medium for reporting some of their important findings. Youyou Tu published some of her seminal work on *Artemisia annua* and peroxidic lactones in *Planta Medica* [1], and Satoshi Omura some of his later work [2-6].

1. Tu YY, Ni MY, Zhong YR, Li LN, Cui SL, Zhang MQ, Qang WZ, Hi Z, Li XT: Studies on the Constituents of *Artemisia annua* Part II. **Planta Med** 1982; 44:143-145 www.thieme-connect.com/products/ejournals/pdf/10.1055/s-2007-971424.pdf
2. Sugawara A, Kimishima A, Takada H, Hirose T, Matsumaru T, Ōmura S, Sunazuka T: Toward the Total Synthesis of Luminamicin, a Specific Anti-Anaerobic Bactericide. **Planta Med** 2013;79:CL19 www.thieme-connect.de/products/ejournals/abstract/10.1055/s-0033-1348544
3. Ichino C, Kiyohara H, Soonthornchareonnon N, Chuakul W, Ishiyama A, Sekiguchi H, Namatame M, Otaguro K, Omura S, Yamada H: Antimalarial Activity of Biflavonoids from *Ochna integerrima*. **Planta Med** 2006; 72:611-614 www.thieme-connect.de/products/ejournals/html/10.1055/s-2006-931569
4. Nunome S, Ishiyama A, Kobayashi M, Otaguro K, Kiyohara H, Yamada H, Omura S: *In Vitro* Antimalarial Activity of Biflavonoids from *Wikstroemia indica*. **Planta Med** 2004; 70:76-78 www.thieme-connect.de/products/ejournals/html/10.1055/s-2004-815462
5. Yamada H, Otsuka Y, Ōmura S: Structural Characterization of Anti-Complementary Polysaccharides from the Leaves of *Artemisia princeps*. **Planta Med** 1986; 52:311-314 www.thieme-connect.de/products/ejournals/abstract/10.1055/s-2007-969162
6. Yamada H, Ohtani K, Kiyohara H, Cyong JC, Otsuka Y, Uneo Y, Omura S: Purification and Chemical Properties of Anti-complementary Polysaccharide from the Leaves of *Artemisia princeps*. **Planta Med** 1985 www.thieme-connect.de/products/ejournals/pdf/10.1055/s-2007-969424.pdf

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).



News from GP-TCM RA members

1. President-Elect Tai-Ping Fan visited GP-TCM RA members in Macau, Beijing and Xi'an as well as making new contacts in Xiamen University, Union of International Standardization of Ginseng, and Jilin Yatai Pharmaceuticals 吉林亚泰制药 (12 September – 5 October 2015).



With Prof. Shaoping Li 李绍平, a TCM glycoscience expert Visit to Union of International Standardization of Ginseng



Lecturing at Beijing University of Chinese Medicine (BUCM) <http://www.bucm.edu.cn/tbgz/30519.htm>



Prof. WU Qing 吴清, Dr. FANG Fang 方芳 and Prof. SUN Jianning 孙建宁 of BUCM

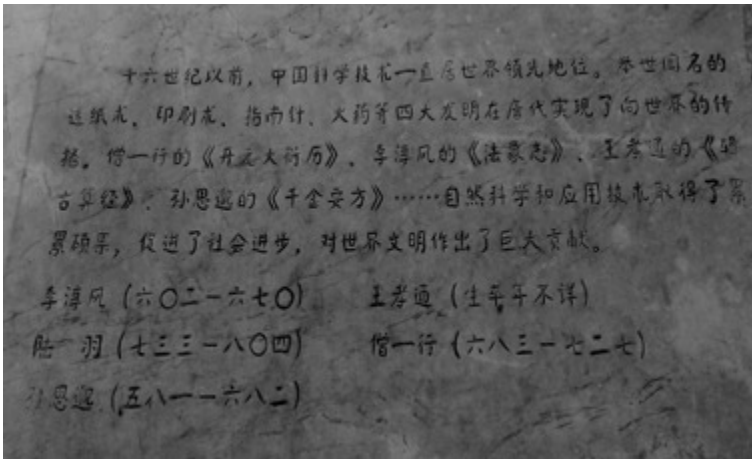


http://www.rg3.com.cn/html/news_149_983_1.html

Presentation at Ginsenoside Rg3 SHENYI CAPSULE Symposium at 2015 Chinese Society of Clinical Oncology Annual Meeting. From L to R: Prof. 刘基巍, Prof. FU Li 富力, Prof.于世英, Academician SUN Yan 孙燕院士, Prof. Young-Joon Surh 徐荣俊, Tai-Ping Fan 樊台平, Mr YU Mingshi 于明士



Seminar at College of Life Sciences, Northwest University, Xi'an



Carving and statue in remembrance of SUN Si-miao 孙思邈 (581-682) the Tang Dynasty medical scientist - also known as the "Medicine King" for his influential 《千金要方》 (Prescriptions) and 《唐新本草》 (New Tang Materia Medica)

2. Congratulations to Dr Fan QU for his "Heel Award 2015: Excellence in Integrative Medicine Research Award". Dr Fan QU, Associate Professor, Co-Chair of the Pharmacology and Toxicology Interest Group, GP-TCM RA, was honoured with the award by the European Society of Integrative Medicine on 26 September 2015, in Greater Copenhagen, Denmark. This international prize recognizes innovative and excellent scientific projects in the field of integrative medicine (cooperation of conventional and complementary medicine).





3. The 2015 theSCENTEdDrop Award goes to Professor Thomas Efferth's Team

The working group headed by Professor Thomas Efferth at the Institute of Pharmacy and Biochemistry – Therapeutic Life Sciences at the Johannes Gutenberg University (Mainz, Germany) is two-time winner in the category "Science, Health, and Research" in the theSCENTEdDrop Competition for networking and awarding of people and institutions which work with local herbs and fragrant plants in Graz, Austria. Onat Kadioglu and Thomas Efferth are studying the medicinal properties of sage – the annual theme of the competition – in terms of their molecular mechanisms.

Sage (*Salvia officinalis*) is used as dietary supplement and reveals diverse medicinal activities, including cytotoxicity towards cancer cells. Kadioglu and Efferth investigated possible modes of action to explain its activity towards drug-resistant tumor cells (Kadioglu O, Efferth T. Pharmacogenomic Characterization of Cytotoxic Compounds from *Salvia officinalis* in Cancer Cells. *Journal of Natural Products* 2015; **78**(4):762-75). The authors found that a panel of drug-resistant tumor cell lines expressing diverse mechanisms of multidrug resistance (P-glycoprotein, ABCB5, BRCP, mutant EGFR, mutant TP53, mutant RAS) did not exert cross-resistance towards two chemical constituents of *Salvia officinalis* (ursolic acid and pomolic acid). This implies that otherwise drug-resistant and refractory tumors might be successfully treated by these compounds. Using bioinformatics analysis of microarray data, they identified novel determinants of cellular responsiveness to these two phytochemicals. Molecular *in silico* docking indicated that the two plant acids bound to target proteins of the anti-apoptotic NF-κB pathway with even higher binding affinity as the known NF-κB inhibitor, MG-132. Kadioglu and Efferth concluded that the lack of cross-resistance to classical drug resistance mechanisms may open new opportunities to develop new treatment strategies to fight cancer.

FURTHER INFORMATION on Professor Efferth's research at <http://www.pharmazie.uni-mainz.de/Ak-Efferth/>

FURTHER INFORMATION on the competition at <http://www.thescenteddrops.eu/>



The recipients of the 2015 theSCENTEdDrop Award in the six categories of the competition. Professor Thomas Efferth (at position 8 from the left) received the award in the Science, Health, and Research category as well as for the online audience voting. (photo/©: theSCENTEdDrop)



4. "An Overview Adverse Drug Reactions to Traditional Chinese Medicines". This new article by Prof Kelvin Chan has been published online in *British Journal of Clinical Pharmacology*. The author has requested that you have free access to the article. You can read the article on Wiley Author Services by clicking the link below and registering. Your e-mail will not be used for any other purpose.
<http://authorservices.wiley.com/bauthor/collpubs.asp>

European Observation and EU-China Cooperation

1. A New Co-Funding Mechanism Launched for EU-China R&I Activities: A new Co-Funding Mechanism (CFM) for research and innovation between the EU and China was announced by Commissioner for Research, Science and Innovation, Carlos Moedas and Chinese Minister for Science and Technology, Wan Gang, at the "Joint Conference in Promoting Excellence through Enhanced EU-China Researcher's Mobility and Cooperation" conference in Beijing, China.

The Commission expects that to spend over €100 million in Horizon 2020 on the Europe-based partners of joint projects with China, with China matching resources to approximately 200 million RMB per year for China-based partners. The CFM was agreed as part of the 17th EU-China Summit held in June 2015 in Brussels. It aims to support joint research and innovation activities on strategic topics such as:

- Food
- Agriculture
- Biotechnology
- Green transport (including aviation)
- Sustainable urbanisation
- Information and communication technologies
- Energy
- Health
- Mobility of young researchers <http://ec.europa.eu/research/index.cfm?pg=newsalert&year=2015&na=na-070915>

2. Science Europe Position Statement on Joint Programming. The statement comes five years after the launch of the first Joint Programming Initiatives (JPIs) and has the aim of encouraging discussion amongst stakeholders, including the European Commission and EU Member States, on the role and impact of JPIs and their future direction.

The paper highlights the added value of JPIs from Science Europe Member Organisations' perspectives and discusses how this contrasts with the current way this is depicted and also gives two recommendations: one on the evaluation of JPIs and the other on their governance. As well as describing Science Europe members' experiences with Joint Programming, the paper also discusses the current narrative of the purpose of JPIs being to reduce fragmentation by building critical mass. The paper asks whether fragmentation is as much of an issue as it is thought and whether it is always a negative. The position statement suggests moving away from discussions on fragmentation and instead to base policy decisions for JPIs on their scientific impacts. The two recommendations made in the Science Europe position statement are: (i) Base future discussions on a thorough assessment of existing JPIs, and focus future negotiations on fundamental issues; (ii) Open up the JPI governance to stakeholder input. JPIs are Member State led initiatives that combine aspects of national research programmes. Their aim is to address major societal challenges, to reduce fragmentation and to avoid duplication. There are currently 10 JPIs:

- Neurodegenerative Disease Research (JPND)
- Agriculture, Food Security and Climate Change (FACCE)
- A Healthy Diet for a Healthy Life
- Cultural Heritage and Global Change: A Challenge for Europe
- Urban Europe
- Connecting Climate Knowledge for Europe (CliK'EU)
- More Years, Better Lives – The Potential and Challenges of Demographic Change
- Antimicrobial Resistance (AMR)
- Water Challenges for a Changing World
- Healthy and Productive Seas and Oceans (OCEANS)

http://www.scienceeurope.org/uploads/PublicDocumentsAndSpeeches/SE_Position_Statement_Joint_Programming.pdf



3. The European health report 2015: Targets and beyond – reaching new frontiers in evidence. The European health report is a WHO flagship publication, published every three years. The 2012 report set the baseline for monitoring progress towards the six targets of the European policy framework, Health 2020.

The 2015 report presents the progress made since the baseline. An assessment of the available data on all the targets reveals that the European Region is on track, but much potential remains for further health gains and reductions in inequalities. The 2015 report gives an update on the challenges in measuring and reporting on progress towards Health 2020, particularly in measuring well-being, and proposes new sources of qualitative evidence to describe and monitor well-being.

Facts and figures are not enough to report meaningfully on what it means to be healthy and well in Europe. The 2015 European health report argues that new forms of evidence are necessary to fully international capture this. Stronger collaboration is required to advance the agenda for health-information research and development in the Region.

<http://www.euro.who.int/en/data-and-evidence/european-health-report/european-health-report-2015/ehr2015>

4. Europe in 2015—health in a diverse and changing region: “Targets and beyond”, but this *Lancet* editorial finds it lacking a clear vision for the health of refugees and migrants.

<http://thelancet.com/journals/lancet/article/PIIS0140-6736%2815%2900311-6/fulltext>

5. The Wellcome Trust launches Our Planet, Our Health initiative: Recently, the major medical research funder launched a call for proposals under a new programme to protect the health of the global population and planet. The Wellcome Trust is investing £75 million over the next 5 years into research investigating the complex links between the environment and long-term human health. First proposals should be sent to the Wellcome Trust by January 2016. Sharmila Devi reports in *Lancet*.

<http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2815%2900316-5/abstract>

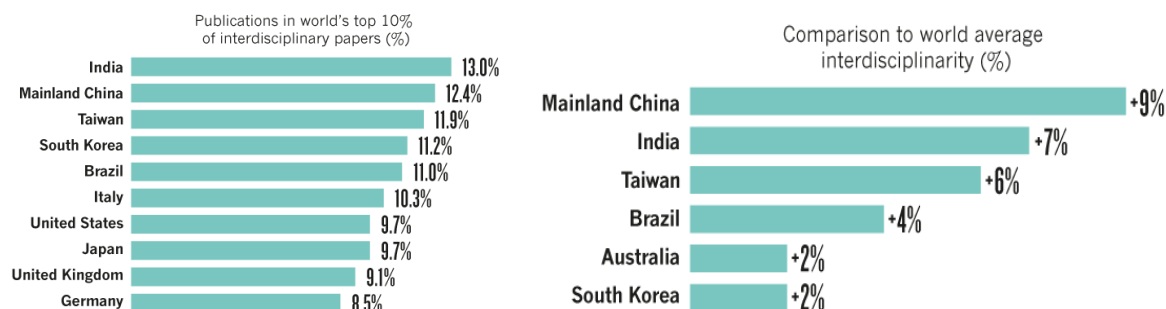
<http://www.wellcome.ac.uk/Funding/Strategic-funding/Our-planet-our-health/index.htm>

6. Bouillon R, et al. Public investment in biomedical research in Europe. Europe spends about 10% of its gross domestic product (GDP) on health care. Public spending on biomedical and health research in Europe is only about €42 per person per year, less than 2% of the health-care costs. The USA spends a much larger absolute and relative (compared with GDP) amount on health care. Several independent reports suggest that the USA also spends substantially more on public investment in biomedical and health research, up to 3 times more per person per year than in the EU.

<http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2815%2900326-8/>

China Observations

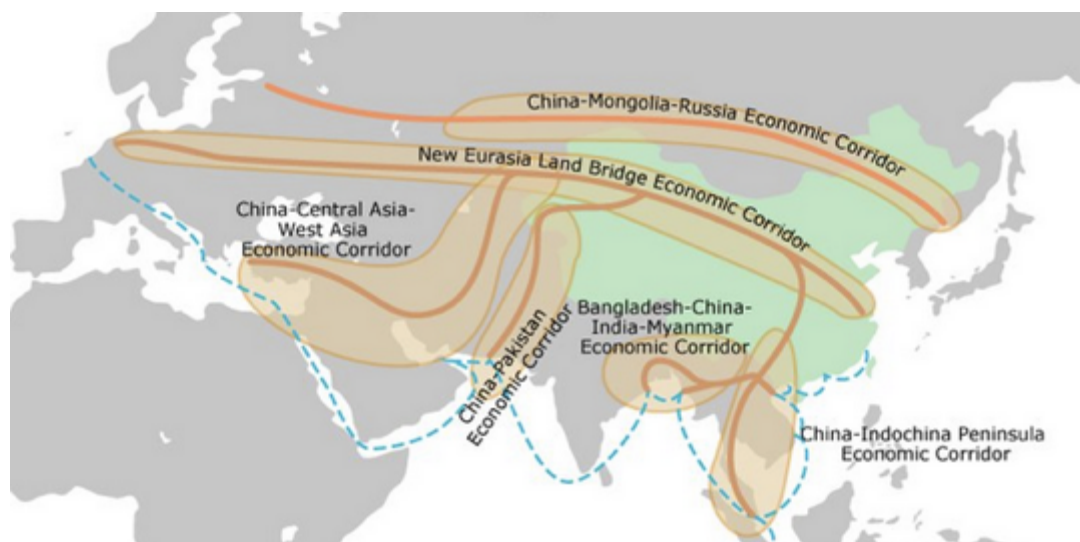
1. Interdisciplinary research by the numbers - an analysis reveals the extent and impact of research that bridges disciplines, by Van Noorden R. *Nature*. 2015; **525**:306–307. ...”A 2015 study by researchers with the publisher Elsevier defined interdisciplinary papers as those that reference journals that are rarely cited together. The report looked only at countries that routinely publish more than 30,000 papers per year to find the ‘most interdisciplinary’ countries for 2013.” “A separate analysis counted the proportion of a paper’s references that are in other disciplines. After totting up all the papers for each country, and normalizing the results (so that average interdisciplinarity = 1), similar nations emerge on top for 2013.” <http://www.nature.com/news/interdisciplinary-research-by-the-numbers-1.18349>





2. Belt and Road 一带一路 Explained. China's Belt and Road initiative is the country's first major attempt to help change the world trade order, says Nicholas Kwan, HKTDC Director of Research.

http://hkmb.hktdc.com/en/1X0A3PHG/first-person/Belt-and-Road-Explained?utm_source=enews&utm_medium=email&utm_campaign=hkmb-edm
<https://zh.wikipedia.org/wiki/丝绸之路经济带和21世纪海上丝绸之路>
<http://baike.baidu.com/view/10896802.htm>



3. China: Outdated listing puts species at risk by Zhou Z-M. *Nature* 2015; **525**:187. Loopholes could allow illegal wildlife traders and hunters in China to evade prosecution or to receive reduced sentencing. The problem stems from China's Protected Species List: this has not been updated since it was implemented in 1989, resulting in incongruity with newer taxonomy...

<http://www.nature.com/nature/journal/v525/n7568/full/525187a.html>

Meeting Reports

1. The 14th Meeting of the Consortium for Globalization of Chinese Medicine (2nd report) was held successfully on 18-20 August, 2015 in London ON, Canada with 169 attendees and 202 abstracts. At this meeting, the following 3 institutes and 1 industrial affiliate were admitted as new members, including three institutes (Naresuan University, Thailand; Hubei University of Chinese Medicine, Wuhan; and South-Central University for Nationalities, Wuhan) and one company (Jilin ZiXin Pharmaceutical Co. Ltd, Jilin). Established by 16 founding institutes in December 2003, up till now CGCM has got a total of 147 member institutes and 19 industrial affiliates, distributed at different parts of the world in Australia, Austria, Canada, Denmark, Germany, Hong Kong, Italy, Japan, Korea, Macau, Mainland China, Malaysia, the Netherlands, Singapore, Taiwan, Thailand, UK and USA. For reviewing the 14th CGCM Meeting, you may visit the CGCM website (www.tcmedicine.org) for the regional reports, summary reports of discussion sessions and photos, information will be posted onto CGCM website in different phrases. Highlights of opening ceremony could be viewed from the local media website: <http://www.redmaplenews.com/tv/bencandy.php?fid=22&id=771Red>.

2. International Conference & Exhibition of the Modernization of Chinese Medicine & Health Products was held in Hong Kong Convention and Exhibition Centre, Hong Kong, China. 11-13 August 2015. 121 exhibitors (52 from Hong Kong; 47 from Mainland China; 10 from Japan; 7 from Taiwan and 5 from other countries). There were 10729 trade visitors (5759 from Hong Kong; 4721 from other Asian countries and regions; 91 from Middle East; 56 from North America; 50 from Europe; 45 from Australia & Pacific Islands; 5 from Latin America and 2 from Africa).

<http://www.hktdc.com/fair/icmcm-en/s/2123-General-Information/International-Conference-and-Exhibition-of-the-Modernization-of-Chinese-Medicine-and-Health-Products/Fair-Statistics.html>



3. 63rd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research. 23-27 August, 2015. Budapest, Hungary

A Workshop on regulatory affairs of HMP, “*Traditional Herbal Medicinal Products from Non-European Countries in Europe and vice versa - Experiences and Future Perspectives*”, was organized on August 23rd and chaired by Prof. Dr. Susanne Alban, University of Kiel. A high level international speakers and panelists presented and discussed topics very much related to Chinese medicine.

- Werner Knöss, Chair of the HMPC, EMA: *Contributions and visions of the Committee on Herbal Medicinal Products (HMPC)*
- Gerhard Franz, Chair of the TCM Working Party of the Eur.Ph.: *Pharmacopoeia monographs for Chinese herbal drugs for quality assurance*
- Emiel van Galen, CBG/MEB, The Netherlands: *THMP from non-European countries – View of regulatory authorities*
- Mei Wang, TNO Quality of Life, The Netherlands: *THMP from non-European countries – View of industry*
- Bernd Roether, Bionorica SE, Germany: *THMP from Europe in non-European countries - View of industry*
- Panelist: Rudolf Bauer (University of Graz, Austria)



4. 8th Shanghai International Conference on Traditional Chinese Medicine and Natural Medicine (21-23 Oct., 2015)



Organized by Prof. De-an Guo, this conference featured presentations and a panel discussion by more than three dozen experts in TCM, and was attended by ca. 300 participants. Moreover, there was a ceremony announcing that De-an’s Research Center for Traditional Chinese Medicine Modernization



was included into the Waters Centers of Innovation Program. They are the first COI Program partner focused upon the challenges of characterizing TCM related raw materials and manufactured products. <http://phx.corporate-ir.net/phoenix.zhtml?c=77764&p=irol-newsArticle&ID=2099061>



5. Success of traditional Chinese medicine environmental governance project celebrated in China. <http://www.traffic.org/home/2015/7/17/success-of-traditional-chinese-medicine-environmental-govern.html>

Future Meetings

1. **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>

Omics and Personalized Medicine in Progress

1. Marx V. The DNA of a nation. *Nature* 2015; **524**:503-5. The United Kingdom aims to sequence 100,000 human genomes by 2017. But screening them for disease-causing variants will require innovative software... <http://www.nature.com/nature/journal/v524/n7566/full/524503a.html>

2. Kim T-K, Shiekhhattar R. Architectural and functional commonalities between enhancers and promoters. *Cell* 2015; **162**:948-959. With the explosion of genome-wide studies of regulated transcription, it has become clear that traditional definitions of enhancers and promoters need to be revisited. These control elements can now be characterized in terms of their local and regional architecture, their regulatory components, including histone modifications and associated binding factors, and their functional contribution to transcription. This Review discusses unifying themes between promoters and enhancers in transcriptional regulatory mechanisms. <http://www.sciencedirect.com/science/article/pii/S0092867415010211>

3. Eric D. Green, James D. Watson and Francis S. Collins. Twenty-five years of big biology. *Nature* 2015; **526**:29-31. "In fact, we think that the success of today's consortium-based science depends on six key lessons from the **Human Genome Project (HGP)**," says the three leaders of the project. **The six key lessons are:** "Embrace partnerships", "maximize data sharing", "plan for data analysis", "prioritize technology development", "address the societal implications of advances", and "be audacious yet flexible". "In the early 1990s — whether it was while leading the NIH's effort in the HGP (J.D.W. and F.S.C.) or working on the front line of the project (E.D.G.) — none of us foresaw that a major legacy of the HGP would be a new way of doing science," say the authors.

4. The 1000 Genomes Project Consortium. A global reference for human genetic variation. *Nature* 2015; **526**:68-74. Results for the final phase of the 1000 Genomes Project are presented including whole-genome sequencing, targeted exome sequencing, and genotyping on high-density SNP arrays for



2,504 individuals across 26 populations, providing a global reference data set to support biomedical genetics. <http://www.nature.com/nature/journal/v526/n7571/full/nature15393.html>

5. Peter H. Sudmant, Tobias Rausch et al. An integrated map of structural variation in 2,504 human genomes. *Nature* 2015; **526**:75-81. The Structural Variation Analysis Group of The 1000 Genomes Project reports an integrated structural variation map based on discovery and genotyping of eight major structural variation classes in 2,504 unrelated individuals from across 26 populations; structural variation is compared within and between populations and its functional impact is quantified. <http://www.nature.com/nature/journal/v526/n7571/full/nature15394.html>

6. The UK10K Consortium. The UK10K project identifies rare variants in health and disease. *Nature* 2015; **526**:82. Low read depth sequencing of whole genomes and high read depth exomes of nearly 10,000 extensively phenotyped individuals are combined to help characterize novel sequence variants, generate a highly accurate imputation reference panel and identify novel alleles associated with lipid-related traits; in addition to describing population structure and providing functional annotation of rare and low-frequency variants the authors use the data to estimate the benefits of sequencing for association studies. www.nature.com/nature/journal/v526/n7571/full/nature14962.html

7. Ledford H. Alternative CRISPR system could improve genome editing: Smaller enzyme may make process simpler and more exact... *Nature* 2015; **526**:17. <http://www.nature.com/news/alternative-crispr-system-could-improve-genome-editing-1.18432>

Other Recommended Readings

1. Zhong, Yifei et al. Recent Advances in Traditional Chinese Medicine for Kidney Disease *Am J Kidney Dis.* 2015; **66**:513-22. Because current treatment options for chronic kidney disease (CKD) are limited, many patients seek out alternative therapies such as traditional Chinese medicine. However, there is a lack of evidence from large clinical trials to support the use of traditional medicines in patients with CKD. Many active components of traditional medicine formulas are undetermined and their toxicities are unknown. Therefore, there is a need for research to identify active compounds from traditional medicines and understand the mechanisms of action of these compounds, as well as their potential toxicity, and subsequently perform well-designed, randomized, controlled, clinical trials to study the efficacy and safety of their use in patients with CKD. Significant progress has been made in this field within the last several years. Many active compounds have been identified by applying sophisticated techniques such as mass spectrometry, and more mechanistic studies of these compounds have been performed using both in vitro and in vivo models. In addition, several well-designed, large, randomized, clinical trials have recently been published. We summarize these recent advances in the field of traditional medicines as they apply to CKD. In addition, current barriers for further research are also discussed. Due to the ongoing research in this field, we believe that stronger evidence to support the use of traditional medicines for CKD will emerge in the near future. <http://www.ajkd.org/article/S0272-6386%2815%2900644-7/pdf>

2. Bunel V, et al. Herbal Medicines for Acute Kidney Injury: Evidence, Gaps and Frontiers. *World J Tradit Chin Med* 2015; **1**(3):1–21. Acute kidney injury (AKI) is a major health threat worldwide. The literature on herbal intervention in AKI was searched from English and Chinese databases and reports were critically analyzed in terms of preventing AKI, promoting repair and regeneration, enhancing extrarenal clearance of uremic toxins, and preventing progression to chronic kidney disease (CKD). Altogether, 16 herbal formulae and a few extracts derived from individual herbs were reported to prevent or mitigate AKI in animal models induced by renal ischemia/reperfusion, cisplatin, gentamicin, glycerol, adenine, sepsis or physical exhaustion. Four formulae and six individual herbs were reported to accelerate recovery and/or to prevent CKD in established AKI animal models. Intrarectal herbal medicines, with or without simultaneous oral administration, were reported in six clinical trials and in an animal model to increase extrarenal clearance of uremic toxins. Additional 13 clinical trials reported oral or intravenous herbal interventions in AKI of different etiologies. Despite recurring problems, notably poor compliance with good practice guidelines for clinical trials and for authentication, naming and quality control of herbal materials, accumulating experimental data on the preventive effects of herbal



medicines in AKI look encouraging and urge for better, definitive trials to guide clinical practice. Herbal enemas promoting extrarenal clearance of uremic toxins seem cost-effective, but better clinical evidence is certainly needed before any affirmative recommendation be made for AKI patients without access to dialysis. New frontiers, however, lie in those herbal remedies that promote repair/regeneration and prevent chronicity after AKI. Recent experimental data suggest that this may be possible.

[http:// DOI: 10.15806/j.issn.2311-8571.2015.0019](http://DOI: 10.15806/j.issn.2311-8571.2015.0019)

3. “Ancient Chinese medicine offers a new cure,” said Dr. Daniel Neides, medical director and chief operating officer of the Cleveland Clinic Wellness Institute. **“Chinese herbs can be incredibly useful when a patient has multiple symptoms that are hard to pinpoint.”**

http://www.cleveland.com/lyndhurst-south-euclid/index.ssf/2015/09/modern_healthcare_is_where_eas.html

4. Finding a Cure in Traditional Chinese Medicine. Traditional Chinese medicine has been around for thousands of years, and now it's winning a wider audience. Patients around the world are turning to its treatments, in the hope of mitigating the side effects of Western drugs. And that means it is becoming big business, and a windfall for practitioners. Bloomberg's Juliette Saly reports. (Source: Bloomberg) Watch the video on

<http://www.bloomberg.com/news/videos/2015-09-02/finding-a-cure-in-traditional-chinese-medicine>

5. Healthy eating in traditional Chinese medicine:

<http://www.dw.com/en/healthy-eating-in-traditional-chinese-medicine/a-18619239>

6. Taking a global look at traditional Chinese medicine:

<http://english.cntv.cn/2015/08/26/ARTI1440576939371708.shtml>

Invitation from a Journal Special Issue:

New Exploration of Chinese Herbal Medicines in Hepatology: This *Evidence-Based Complementary and Alternative Medicine* special issue aims to provide a platform for researchers to present recent findings and developments on herbal medicine in basic and clinical research of hepatology. As complementary and alternative treatment of liver diseases (acute and chronic hepatitis, alcoholic steatosis, fibrosis, cirrhosis and hepatocellular carcinoma, etc.), Chinese herbal medicines have been extensively studied worldwide. You are cordially invited to submit your original research or review articles for possible inclusion in this journal's special issue.

- Lead Guest Editor: Dr Yibin Feng, University of Hong Kong, Hong Kong.
- Guest Editors:
 - Dr Man-Fung Yuen, University of Hong Kong, Hong Kong;
 - Dr Qihe Xu, King's College London (KCL), London;
 - Dr Xiao-Yan Wen, University of Toronto, Toronto;
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Manuscript submission deadline: Friday, 23 October 2015. <http://www.hindawi.com/journals/ecam/si/502402/cfp/>

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Please contact Dr Yibin Feng yfeng@hku.hk for more details.]

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