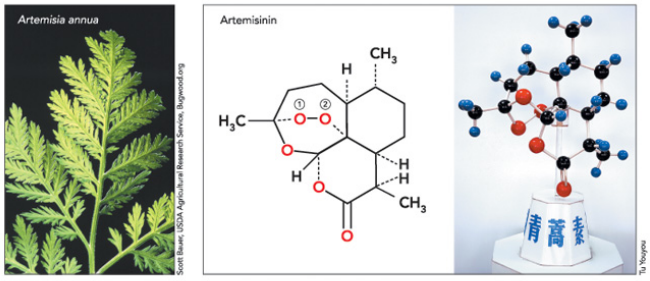
GP-TCM Newsletter September-October 2011 Issue

Breaking News:

Lasker~DeBakey Clinical Medical Research Award to Prof. Youyou Tu (屠呦呦) for her key role in the discovery of artemisinin: The Albert and Mary Lasker Foundation ihas honoured Tu Youyou of the China Academy of Chinese Medical Sciences with its Lasker~DeBakey Clinical Medical Research Award for her discovery of artemisinin, an anti-malarial drug that has "saved millions of lives across the globe, especially in the developing world," according to the Lasker announcement. Testing some 380 extracts from 200 herbs used as traditional Chinese medicines, Tu discovered that a plant called sweet wormwood contained a substance that could kill the malaria-causing parasite in mice. Today that substance, artemisinin, is commonly used in combination with other malaria treatments as a first-line treatment. The journal *Cell* published a ground-breaking news in Chinese on this news, as follows: http://www.cell.com/LaskerAward-Chinese

Read "The discovery of artemisinin (qinghaosu) and gifts from Chinese medicine" in *Nature Medicine*: http://www.laskerfoundation.org/awards/pdf/2011_c_youyou.pdf



Artful herb, model drug

Artemisia annua (*left*), or sweet wormwood, contains the powerful antimalarial drug artemisinin, originally known as Qinghaosu. The three-dimensional diagram of artemisinin (*middle*) shows the endoperoxide bond, which is crucial for the compound's antimalarial effects, between the numbered oxygens. The ball model of artemisinin (*right*) shows that bond on the left-hand side (two red oxygen atoms linked to each other). The Chinese characters on the stand mean "Qing Hao Su."

For details of the award, please visit the official Lasker award web pages:
http://www.laskerfoundation.org/awards/2011_c_description.htm
http://www.laskerfoundation.org/awards/pdf/2011_c_youyou.pdf
http://www.laskerfoundation.org/awards/2011_c_interview_youyou.htm
http://www.laskerfoundation.org/awards/2011_c_keypub_youyou.htm
http://www.laskerfoundation.org/awards/2011_c_accept_youyou.htm

***Nature* publishes an article introducing one of China's leading medical research centres.** http://www.nature.com/nature/supplements/collections/npgpublications/amms/amms.pdf

Established in 1951 as China's second academy of sciences, the Academy of Military Medical Sciences (AMMS) has developed beyond its military heritage to become one of the country's leading centres for medical science. With research spanning a range of medical fields from basic and clinical medicine to chemistry and medical technology, for both military and civilian applications, and a string of achievements that have resonated around the globe, the AMMS' star is still very much on the rise.

Important meeting reports:

On 24th – 26th August 2011, the 10th Meeting of the Consortium for Globalization of Chinese Medicine (CGCM) was held in Shanghai, China, with 518 attendees and 379 abstracts. The meeting was hosted by Shanghai University of Traditional Chinese Medicine (SUTCM), a GP-TCM beneficiary institution, and was jointly organised by SUTCM and Tongji University. As a member of CGCM, GP-TCM was represented at the meeting by our project manager Halil Uzuner, who presented a poster on GP-TCM, and our project coordinator Qihe Xu, who introduced the work of GP-TCM at the Interregional Collaboration Session. GP-TCM members who played Chair and Panellist roles at the meeting included Gang Pei (Co-Chairman of the meeting), Rudolf Bauer, Alan Bensoussan, Kelvin Chan, Shi-Lin Chen, Xiao-Dong Cheng, Yi-Tsau Huang, Ge Lin, Chenghai Liu, Ping Liu, Ai-Ping Lu, Wolfgang Schwarz, Enzo Tramontano, Vivian Chi-Woon Wong, Qihe Xu and Zhongzhen Zhao (Chairman and Panellists of meeting sessions). They, along with many other GP-TCM members helped the consortium to disseminate our work, which was widely praised by international colleagues, including Prof. Yung-Chi Cheng (Chairman of CGCM and Chairman of the GP-TCM Advisory Board). Established by 16 founding institutes in December 2003, CGCM has now 128 member institutions and 10 industrial affiliates, distributed at different parts of the world. For more info about CGCM, please visit: http://www.tcmedicine.org/en/

The 10th CGCM Meeting: Mr. Wang Guoqiang 王国强, Vice Minister of Department of Health, addressed the meeting (top); the opening ceremony (bottom).

On 2nd-3rd September 2011, the 8th World Congress of Chinese Medicine (WCCM) was held in Westminster Central Hall, London, UK. The Congress was organised by the World Federation of Chinese Medicine Societies (WFCMS) and hosted by the Association of Traditional Chinese Medicine UK (ATCM). There were 860 delegates from 35 countries who attended the WCCM. The congress received 369 papers with 274 being selected and edited in the WCCM Proceeding, plus 33 papers from Paediatric Special Committee sessions. 112 papers were presented at the WCCM, including 5 Keynote Lectures, 26 at plenary sessions and 81 at syndicate sessions. In addition, there were 31 presentations in paediatric sessions and 4 workshops. GP-TCM non-beneficiary member Dr. Huijun Shen, who is President of ATCM, chaired the organising committee of the WCCM. He wrote to acknowledge the huge support by GP-TCM members, especially those who chaired meeting sessions and/or spoke at the keynote, plenary and syndicate sessions of the meeting, including Dr. Tai-Ping Fan, Prof. Gerhard Franz, Prof. Jing-Yan Han, Dr. Svetlana Ignatova, Dr. Dan Jiang, Prof. Yan Lei, Dr. Christine Leon, Prof. Jeremy Nicholson, Prof. Nicola Robinson, Dr. Debbie Shaw, Prof. Monique Simmonds, Dr. Halil Uzuner and Dr. Qihe Xu.

On 4th-9th September 2011, the 59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (the 59th GA Congress) was held in Antalya, Turkey. This congress series has been organised annually in Europe since 1953 to stimulate cooperation among scientists of the world for the advancement of research and development into the science of phytomedicine, medicinal and aromatic plants and their products. The importance of the 59th GA Congress is that it is organised for the first time in Turkey where one of the first herbals, "De Materia Medica" was written in the 1st century AD by an Anatolian doctor Pedanius Dioscorides of Anavarza who had served in the Roman Army as a physician. Anavarza, the birthplace of Dioscorides is not far from Antalya. The meeting was organised and attended by key GP-TCM members such as Prof. Rudolf Bauer, Prof. Venena Dirsch, Prof. Gerhard Franz, Prof. De-an Guo, Prof. Michael Heinrich, as well as Prof. Brigitte Kopp (GA President). Daily reports of the congress can be accessed through the GA website:

http://www.ga2011.org/gazete5sept_renkli.pdf
http://www.ga2011.org/gazete6sept_renkli.pdf
http://www.ga2011.org/gazete7sept_renkli.pdf
http://www.ga2011.org/gazete8sept_renkli.pdf
http://www.ga2011.org/gazete9sept_renkli.pdf

Appointment of new consortium members:

1. Appointment of Prof. Lumbu Simbi Jean-Baptiste (University of Lubumbashi, Democratic Republic Of Congo) to GP-TCM as a non-beneficiary member devoted to WP2 (Extraction and component

analysis). Jean-Baptiste, Professor at the University of Lubumbashi, Doctor in Organic Chemist of Faculty of Sciences at ULB/Brussels, in the field of polyamine alkaloids: two new alkaloids isolated from *Clerodendrum buchneri* and total synthesis. He completed his postdoctoral studies (1993 -1995) at the Chemistry and Biochemistry Department of Rand Afrikaans University, which then become University of Johannesburg in South Africa. During those three years, he carried out a synthesis of cardioactive steroid precursors. Back to D. R. Congo, he continued his studies to become pharmacist since 2004. He has extensive experience in studying natural products and their synthesis, alkaloids and triterpnes. He has participated with UNIBIOSCREEN in investigating and collecting phytodrugs extracts from two hundred medicinal plants used against wounds and cancer. He led two thesis and eight masters' studies about phytodrugs from medicinal plants used in Lubumbashi and surrounding area and about water quality and pollution by heavy metals. He is currently involved in number of biological studies on antisickling, antibacterial, anti-diarrheic, anti-malarial and anti-amoebic activities of extracts from medicinal plants. His current research work involves cooperation projects with the Institute of Pharmacy of ULB/Brussels. **Warmest welcome and congratulations, Jean-Baptiste!**

2. Appointment of Dr. Moustapha Ouedraogo (University of Ouagadougou, Burkina Faso) to GP-TCM as a non-beneficiary member devoted to WP3 (Toxicology studies). Dr. Moustapha Ouedraogo is an Assistant Professor of Toxicology in the Faculty of Health Sciences, University of Ouagadougou, Burkina Faso. He has been appointed to GP-TCM consortium as a non-beneficiary member focusing on WP3 since April 2011. Dr. Ouedraogo (born in 1975) received his pharmacist diploma from University of Ouagadougou in 2001 and Ph.D. degree in Biological and Pharmaceutical Sciences in 2008 from Free University of Brussels (co-supervised by University of Ouagadougou). His research has been focused on Research & Development of drugs, pharmacological studies of natural substances from traditional medicinal plants and their toxicological assessment. He has published about 20 original research papers in journals such as *Drug Chem Toxicol, J Pharmacol Toxicol, Drug Dev Ind Pharm, Trends Med Res, Environ Risque Sante, Trop J Pharm Res, J sci pharm biol, Sci Sport*. Moustapha is member of Belgian Society of Pharmaceutical Sciences, African Society of Toxicological Sciences, Société Française de Toxicologie (French Society of Toxicology), and Société Française de santé et Environnement (French Society of Environmental Health). **Warmest welcome and congratulations, Moustapha!**

3. Appointment of Prof. Jing-Yan Han (韩晶岩 Peking University, China) to GP-TCM as a non-beneficiary member devoted to WP5 (*In vivo* studies). Jing-Yan is a professor and Chairman of Department of Integration of Chinese and Western Medicine, School of Basic Medical Science, Peking University. Also, he has directed the Tasly Microcirculation Research Center, Peking University Health Science Center for 7 years. He is a chairman of the Professional Committee of Microcirculation, Chinese Association of Integrative Medicine and the executive member of the World Federation of Chinese Medicine Societies. He is a Guest Professor of Department of Internal Medicine, Keio University School of Medicine and the associate editor of *Microcirculation*. He has published over 40 original articles and reviews in the last 10 years. These studied explored the process of blood stasis and the ameliorating effects of traditional Chinese medicine (TCM) products, especially traditional complex preparations. He has evaluated important concepts in blood stasis including characterisation of different blood stasis, differentiation strategy for treatment of blood stasis, the therapeutic effects of TCM and underlying mechanisms. In particular, he has demonstrated the pivotal role of microcirculatory disturbances rather than macrovascular deficits in the whole pathological course of blood stasis related diseases. In addition to these studies on blood stasis, Jing-Yan has applied for about 30 patents and 6 of them have been authorised. Moreover, he has organised more than 20 congresses as chairman or general secretary in the blood stasis related field. **Warmest welcome and congratulations, Jing-Yan!**
http://jichu.bjmu.edu.cn/teacher/ShowArticle.asp?ArticleID=141

4. Appointment of Prof. Hong-Xi Xu (徐宏喜 Shanghai University of TCM, China) to GP-TCM as a non-beneficiary member devoted to WP10 (Management). Hong-Xi obtained his PhD degree in Pharmaceutical Sciences from Toyama University in Japan in 1994. Following postdoctoral research at the National University of Singapore and Dalhousie University, Canada, he served as the Deputy General Manager of Hong Kong Hutchison Whampoa (China) Ltd. Before joining Shanghai University of TCM, he was the Deputy Director of Hong Kong Jockey Club Institute of Chinese Medicine (2001-2010). Hong-Xi is an expert in Chinese medicines, with recent research focuses on antiviral and anti-cancer herbal medicines. He has published more than 200 peer-reviewed papers and reviews, delivered over 50 invited lectures in local, regional and international conferences and has been granted patents in the USA and China. Hong-Xi's international leadership positions include: Founder and Board of Director of Modernised Chinese Medicine International Association (MCMIA; http://www.mcmia.org/index.asp?Lang=EN), Co-Chairman of

International Conference & Exhibition of the Modernisation of Chinese Medicine and Health Products (ICMCM), Panel Review Expert of The National Natural Science Foundation of China, Panel Member of Chinese Medicine Experts for registration of proprietary Chinese Medicine, Chinese Medicine Council of Hong Kong, Consultant of TCM Research and Development Fund (Taiwan), Associate Editor of *Chinese Medicine*, as well as Editor of several professional journals. **Warmest welcome and congratulations, Hong-Xi!**

5. Mr. Alan Koo (River Cam International, Hong Kong), has been appointed Assistant Coordinator of WP7 to support Co-Coordinators Dr. Tai-Ping Fan and Prof. Kelvin Chan. Alan is an existing WP7 non-beneficiary member. Until July 2011, he was an Associate Consultant at Pfizer Corporation Hong Kong where he was responsible for business operations and new business planning. Prior to this, he took charge of medical affairs and government lobbying of a paediatric pneumococcal conjugate vaccine in Hong Kong and Macau. Alan graduated from Hong Kong Baptist University with double first-class honours in Chinese Medicine and Biomedical Science. In 2008, he was enlisted by Hong Kong Science and Technology Parks as a young scholar to visit the Øresund Science Region in Scandinavia and to analyse the feasibility of applying the Øresund Innovation Model to Hong Kong. Following an internship at the Hong Kong Jockey Club Institute of Chinese Medicine, he studied at St. John's College, the University of Cambridge, where he was a Cambridge Overseas Trust Chevening Scholar fully funded by the Foreign and Commonwealth Office and obtained a Master's in Bioscience Enterprise degree in 2009. Having received clinical training at a number of teaching hospitals and outpatient clinics in Beijing, Guangzhou and Hong Kong, he also had internship experience at Hong Kong Hospital Authority and 2 biotech start-ups based in London. **Warmest congratulations, Alan!**

6. Prof. Alexander Shikov (St. Petersburg State Medical Academy, Russia) has been appointed as a non-beneficiary member devoted to WP7 (Commercial R&D). Alex Shikov is Professor of the Department of Pharmacology in the St. Petersburg State Medical Academy named after I. I. Mechnikov and Deputy Director of St-Petersburg Institute of Pharmacy. He received PhD degree in Pharmacy in St-Petersburg, Russia and in 2006 has received Dr. of Pharmaceutical Science degree in St-Petersburg State Chemical Pharmaceutical Academy. In 2002-2003, he was invited as independent expert of Institute of Standardization of Scientific Center of Expertise and Governmental Control of Medicinal Preparation (Pharmacopoeial Committee of Ministry of Public Health of Russian Federation). Since students years he specialized in theoretical and practical optimization in extraction of medicinal herbs with the focus in oil intensive extraction. Numbers of studies were done in isolation of individual compounds from plants, HPLC, HPTLC, antioxidants chemistry and pharmacology. Additional experience is in the creation of new biologically active carriers for drug delivery, development on nanosystems with natural substances on the form of solid and liquid self-microemulsifying drug delivery system (SMEDS), development of formulation in tablets, softgel and agar capsules. Working closely with universities, research institutes, pharmaceutical companies, he and his collaborators have completed a number of International research projects in herbal medicinal preparations. He is author/coauthor of 6 monographs and chapters in monographs, and has more than 60 publications in Russian and international journals, co-inventor of 20 patents and patents pending. Member of Editorial board of Phytomedicine Journal and reviewer of 18 international journals. **Warmest welcome and congratulations, Alex!**

7. Dr. Christiane Staiger (Merck Selbstmedikation GmbH, Germany) has been appointed as a non-beneficiary member devoted to WP7 (Commercial R&D). Christiane studied pharmacy at the University of Mainz and obtained postgraduate education at the Universities of Belfast, Greifswald and Marburg. She is a specialised pharmacist in Drug Information, and obtained a PhD at the University of Marburg. She held positions in a community pharmacy and a long-term situation with the Federal Union of German Associations of Pharmacists (ABDA), where she developed strategies on continuing education and specialisation for pharmacists. She has been involved in undergraduate and postgraduate training of pharmacists for 20 years, lecturing regularly at universities in Mainz, Marburg, Berlin, and Tübingen. Since 1996, she has been a member of the Royal Pharmaceutical Society. In 2002, she has joined the Pharmaceutical Industry at Merck Selbstmedikation in Darmstadt, Germany. Her current position is Senior Medical Manager at the Global Medical Affairs Department. She has managed several randomised clinical trials of herbal products, which supported the rational use of phytotherapy. As a herbal specialist, she has served for many years as co-chair of the committee "Phytotherapy" of the German Medicines Manufacturers Association (BAH), and a member of the committee "Efficacy" of the Cooperation Herbal Medicines. She has more than 270 publications, 20 book chapters, and 60 invited talks on her record. Merck KGaA is a global pharmaceutical and chemical group with approximately 40,000 employees in 64 countries. It is the world's oldest pharmaceutical and chemical company, with roots dating back to 1668. Merck Consumer Health Care is a specialised supplier of over-the-counter drugs with a focus on four health

themes: Cough and Cold, Mobility, Everyday Health Protection and Women's & Children's Health. Merck Consumer Health holds a leading position with herbal products in countries like Germany (Kytta®), France (Mediflor®), and the UK (Lamberts® Health Care). Warmest welcome and congratulations, Christiane!

8. Appointment of Dr. Fan Qu (凡曲, Women's Hospital, School of Medicine, Zhejiang University, China) to GP-TCM as a non-beneficiary member devoted to WP10 (Management). Fan focuses on complementary and alternative medicine as well as reproductive endocrinology. As a principal investigator, Fan has been funded 7 grants in the past 3 years, including grants from National Natural Science Foundation of China, China Postdoctoral Science Foundation, and Outstanding Young Medical Scientist Foundation of Zhejiang Province. As the first or corresponding author, he has published more than 40 papers in peer-reviewed journals. He has been awarded the second rank of National Scientific and Technological Prize of China (by the People's Republic of China), Outstanding Young Investigator of Western Medicine and TCM (by the governments of Zhejiang Province, Jiangsu Province and Shanghai City), Outstanding Young Investigator (by University of Maryland, Baltimore, U.S.A) and The second rank of the Scientific and Technological Prize (by China Association of Chinese Medicine). He is the Council Member of Specialty Committee of Translation of World Federation of Chinese Medicine Societies, member of Specialty Committee of Reproductive Medicine, as well as Specialty Committee of Obstetrics and Gynaecology, Traditional Chinese and Western Medicine Academy, Zhejiang Province and member of Specialty Committee of Experimental Acupuncture, Acupuncture and Moxibustion Academy, Zhejiang Province, China. **Warmest welcome and congratulations, Fan!**

8. New address of WP4 member Dr. Jue Zhou: Having worked as a local WP4 Assistant Coordinator for two years, helping Prof. Peter Hylands to manage the work package, Jue has now returned to China. Her current employer is College of Food and Biotechnology, Zhejiang Gongshang University. She will continue to work in WP4 as a non-beneficiary member and her updated contact details are available from the latest version of the GP-TCM Essential Manual, available to members only at the GP-TCM website.

Editor's choice

1. Exogenous plant MIR168a specifically targets mammalian LDLRAP1: evidence of cross-kingdom regulation by microRNA. L. Zhang *et al.* (2011) *Cell Research*, doi:10.1038/cr.2011.158.

MicroRNAs from plants accumulate in mammalian blood and tissues, where they can regulate gene expression.

http://the-scientist.com/2011/09/20/plant-rnas-found-in-mammals/

"The microRNA MIR168a binds and inhibits the low-density lipoprotein receptor adapter protein 1 gene (LDLRAP1) and increased the plasma LDL levels," Zhang said. With higher levels of circulating cholesterol, "it can possibly increase the risk of metabolic syndrome," he added. But more importantly, this research points to a "new therapeutic strategy for the treatment of diseases," based on the enhancement or inhibition of exogenous microRNAs.

2. Kinetic Cellular Phenotypic Profiling: Prediction, Identification, and Analysis of Bioactive Natural Products. Huiying Fu *et al.* (2011). *Anal. Chem*., 83, 6518–6526. dx.doi.org/10.1021/ac201670e.

ABSTRACT: Natural products have always been a major source of therapeutic agents; however, the development of traditional herbal products has been currently hampered by the lack of analytic methods suitable for both high-throughput screening and evaluating the mechanism of action. Cellular processes such as proliferation, apoptosis, and toxicity are wellorchestrated in real time. Monitoring these events and their perturbation by natural products can provide high-rich information about cell physiological relevancies being involved. Here, we report a novel cell-based phenotypic profiling strategy that uses electronic impedance readouts for real-time monitoring of cellular responses to traditional Chinese medicines (TCMs). The utility of this approach was used to screen natural herbs that have been historically documented to cure human diseases and that have been classified into seven clusters based on their mechanisms of action. The results suggest that herbal medicines with similar cellular mechanisms produce similar time/dosedependent cell response profiles (TCRPs). By comparing the TCRPs produced by the Chinese medicinal *Cordyceps sinensis* with similar TCRPs of chemical compounds, we explored the potential use of herbal TCRPs for predicting cellular mechanisms of action, herbal authentications, and bioactive identification. Additionally, we further compared this novel TCRP technology with high performance liquid chromatography (HPLC)-based methods for herbal origin-tracing authentication and identification of bioactive ingredients. Together, our findings suggest that using TCRP as an alternative to existing spectroscopic techniques can allow us to analyze natural products in a more convenient and physiologically relevant manner.

Acknowledgment: Many thanks for the contributions by Prof. **Pierre Duez** (Belgium), Prof. **Jing-Yan Han** (China), Prof. **Lumbu Simbi Jean-Baptiste** (Democratic Republic of Congo), Mr. **Alan Koo** (Hong Kong), Prof. **Brigitte Kopp** (Austria), Dr. **Moustapha Ouedraogo** (Burkina Faso), Dr. **Fan Qu** (China), Dr. **Huijun Shen** (UK), Prof. **Alexander Shikov** (Russia), Dr. **Christiane Staiger** (Germany), Dr. **Halil Uzuner** (UK), Prof. **Hong-Xi Xu** (China), Dr. **Qihe Xu** (UK), Ms. **Joanna Yan** (China) and Dr. **Jue Zhou** (China).