

The September-October 2013 Newsletter of The GP-TCM Research Association



Top News

1. GP-TCM RA Honorary Membership: The 5th Awardee Prof. Xinsheng Yao.



Prof. Geoffrey Burnstock, PhD, DSc, FAA, FMedSci, FRS, FRCS & FRCP (Hon), Member, FP7 GP-TCM Advisory Board; University College London, UK



Prof. Yung-Chi Cheng, PhD, Fellow of Academia Sinica; Chairman, CGCM; Co-Chair, FP7 GP-TCM Advisory Board; Yale University, USA



Prof. Brian Clark, BA, MA, PhD, DSc; Chairman, the FP7 GP-TCM Advisory Board; University of Aarhus, Denmark



Prof. Jan van der Greef, PhD, Member of the FP7 GP-TCM Advisory Board; TNO & Leiden University, The Netherlands



Prof. Xinsheng Yao, PhD, Academician of Chinese Academy of Engineering, Member, the FP7 GP-TCM Advisory Board; Jinan University, China

At the 3rd Board of Directors Face-to-face Meeting held on 29th August 2013 in Graz, Austria, it was unanimously approved that, in recognition of his outstanding contribution to TCM research, Professor Xinsheng Yao (China) was awarded the prestigious GP-TCM RA Honorary Membership. Thus, joining Prof. Geoffrey Burnstock (UK), Prof. Yung-Chi Cheng (USA), Prof. Brian Clark (Denmark) and Prof. Jan van der Greef (The Netherlands), Prof. Yao became the 5th Honorary Member of the GP-TCM RA. At the 2nd GP-TCM RA Annual Meeting on the following day, Professors Burnstock, Cheng, van der Greef and Yao received their awards at the Opening Ceremony and delivered inspirational plenary lectures, one of the highlights of the day's programme. Prof. Clark could not attend the meeting in Graz and has received his award certificate by post. The GP-TCM RA Board of Directors warmly congratulate our five outstanding awardees and sincerely thank them for their continued support!

Prof. Yao is an Academician of Chinese Academy of Engineering, Honorary President of College of Pharmacy and Director of the Institute of TCM & Natural Products, Jinan University (Guangzhou, China). Prof. Yao graduated from Northeast College of Pharmacy in 1955, and obtained his PhD from Tokyo University. In 1996, he was elected to the Chinese Academy of Engineering. He has been doing research and teaching in the field of natural products chemistry for over 50 years. More than 350 papers have been published in international and domestic journals and magazines, and 320 of them have been recorded in SCI since 1986. Prof. Yao has received 7 honours and awards from country ministries and provinces and has been invited to give special lectures in international conferences for more than 30 times. He served as the Editor-in-Chief for 3 textbooks viz. *Natural Medicine Chemistry*, *Organic Spectroscopic Analysis* and *Super Conducting NMR Spectroscopic Analysis*. Prof. Yao has applied for 79 patents and 16 patents have been authorized. Four new drugs developed in his laboratory have received official approval from China's State Food and Drug Administration.

The achievements of Prof. Burnstock, Prof. Cheng, Prof. Clark and Prof. van der Greef have been highlighted in the May 2013 issue of the GP-TCM Newsletter:

<http://www.gp-tcm.org/wp-content/uploads/2013/06/GP-TCM-RA-Newsletter-May-2013-v3.pdf>



Be prepared for the kick-start of Horizon 2020: Draft Health Work Programme 2014-2015

The draft Work Programme of HEALTH in Horizon 2020 has most recently been released. These documents are draft and confidential but could already help you to be prepared in time to the calls that will be launched in a few months. Your National Contact Points are there to help you to prepare and understand the Work Programme. If you wish to get these documents through GP-TCM RA members, please contact Dr. Qihe Xu (qihe.xu@kcl.ac.uk) or Prof. Pierre Duez (Pierre.DUEZ@umons.ac.be).

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Meeting Reports

Now 1. The 3rd BoD Face-to-Face Meeting was held in LS 15.01, University of Graz, Austria, at 16:30 -19:00, 29th August, 2013. Chaired by Prof. Rudolf Bauer, the meeting was attended by 10 BoD members: Prof. Kelvin Chan, Prof. Pierre Duez, Dr. Tai-Ping Fan, Prof. De-an Guo, Prof. Peter Hylands, Prof. Aiping Lu, Prof. Nicola Robinson, Prof. Vivian Wong and Dr. Qihe Xu, with apologies from Prof. Monique Simmonds and Prof. Rob Verpoorte. The meeting received reports by President, President-elect, Vice President, Secretary-General and the Treasurer, and unanimously approved the Honorary Membership award to Prof. Xinsheng Yao. It was agreed that Prof. De-an Guo will organise the next annual meeting in July 2014 in Nanjing, China. The meeting will be organised in parallel to International Conference on Phytopharmaceutical Analysis. In addition, the meeting served as a preparatory meeting for the next day's Annual Meeting and Members' Assembly.

Now 2. The 2nd GP-TCM RA Members' Assembly was held, as part of the 2nd GP-TCM RA Annual Meeting, at 13:00 -14:00, on 30th August 2013, in HS 15.02, University of Graz, Austria. The General Meeting was chaired by President Rudolf Bauer. Rudi welcomed and thanked all attendees for joining the AGM and introduced the programme. He then presented President's Report, followed by Secretary-General's Report by Dr Tai-Ping Fan and Treasurer's Report by Prof. Peter Hylands. Rudi invited Dr Qihe Xu to introduce the UK input into HORIZON 2020 in the field of SOCIETAL CHALLENGE: Health, demographic change and wellbeing, which was coordinated by Qihe, supported by colleagues in the UK and some FP7 GP-TCM or GP-TCM RA members in more EU member states, including Rudi's institution University of Graz. Qihe briefly introduced Horizon 2020 as EU's future research and innovation funding stream and his proposal that focused *personalised medicine, network pharmacology, safety issues and chronic diseases* as future priorities in EU-China collaborations on TCM research. Rudi invited Prof. De-an Guo to introduce his plans for the 3rd Annual Meeting to be held in Nanjing, in July 2014. De-an invited members to attend this important meeting to be organised jointly with another international society that he chairs. He invited proposals and advice from members regarding the format, invited speakers, etc, and promised to treat and feed everyone well. Before concluding the AGM, Rudi invited comments from members. Prof. Ian Sutherland emphasised that he wished to see the Association to promote good collaborations for grant applications and that lobbying for future funding was very important. He was very happy that these were exactly what the Association was doing. He thanked everyone who had contributed to the GP-TCM RA. After the above programme, members enjoyed 10 minutes of free socialising break before the afternoon session of the 2nd GP-TCM RA Annual Meeting started.

Now 3. The 2nd GP-TCM RA Annual Meeting was held in Graz, Austria on 30th August 2013. The meeting was attended by ~100 delegates from around the world. The opening ceremony was chaired by Prof. Rudolf Bauer, President of the GP-TCM RA and Chairman of the Organising and Scientific Committees. The ceremony was highlighted by the official announcements of the five GP-TCM RA Honorary Membership Awards and was followed by invited speeches by four Honorary Members and other invited speakers, as well as selected short lectures. Between the lunch break and the afternoon session, there were a poster session and a Members' Assembly. The meeting was concluded by the announcements of two best poster awards to Dr Yan Ma (Austria) and Dr Clara Lau (Hong Kong, China) and five travel grants to PhD student attendees Valerian Bunel (Belgium), Fazlin Mohd Fauzi (UK), Amandine Nachtergaele (Belgium), Protus Arrey Tarkang (Kenya), Limei Wang (Austria), Zhixiang Yan (Macau China). The meeting programme can be found at: <http://cgcm2013.cats-host.com/gp-tcm/images/stories/documents/GP-TCM%20Final%20Program.pdf>

Now 4. The 12th Consortium for Globalization of Chinese Medicine (CGCM) Annual Meeting was held in Graz, Austria on 26th-29th August 2013. The meeting was kick-started by a "Zotter Chocolate Factory and Riegersburg Castle" excursion and a get-together reception on 26th August. The programme included Opening Ceremony, Regional Reports, New Technologies in TCM Research, parallel sessions on Education and Interregional Collaborations in Academia and Industry, National

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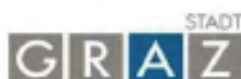


Products and Herbal Resources, Clinical Investigations, Polychemical Activities and Mechanism Studies, Bioinformatics and the Application of Omics Technology, as well as Acupuncture, and was highlighted by an official reception at the Old University on 27th August, a gala dinner on 28th August, a Summary Reports of Discussion Sessions, as well as a post-meeting City Walk (Discover Graz/Over the Roof of Graz) on 29th August. Details of the meeting programme can be found at: <http://cgcm2013.cats-host.com/cms/images/stories/documents/CGCM%20Final%20Program.pdf>

The 2nd GP-TCM RA Annual Meeting and the 12th CGCM Annual Meeting were both organised by the GP-TCM RA President Professor Rudolf Bauer, who was elected a Vice Chairman of the CGCM on 29th August 2013. The organisers of these two important meetings sincerely thank the sponsorship by the following institutions and companies:



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5. Dragon-STAR consulted Coordinator of the FP7 GP-TCM Project for his perspectives on future EU-China collaboration. In the frame of the EU project Dragon-STAR, FP7 projects involving Chinese partners were surveyed in order to monitor and analyse the evolution of the collaboration activities in FP7 and to support Chinese participation in Horizon 2020. Dr. Qihe Xu, Coordinator of the FP7 GP-TCM Project, answered an online questionnaire designed by Dragon-STAR, through which perspectives for future EU-China collaboration under Horizon-2020 were summarised. For more information about Dragon-STAR, please visit: <http://www.dragon-star.eu>

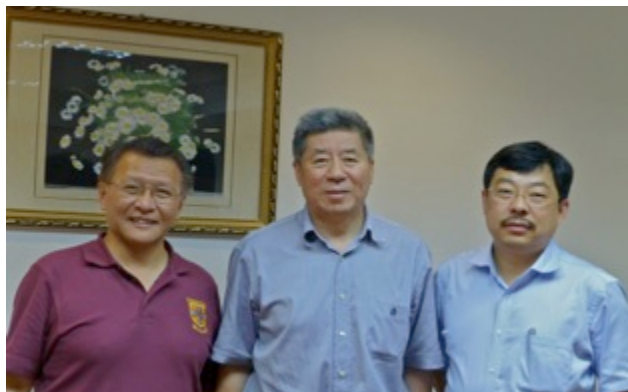
6. Secretary-General's visit to China

To further promote the GP-TCM RA in China, Dr. Tai-Ping Fan undertook an extensive academic visit (7-24 September 2013) to Beijing, Jinan, Xi'an, Guangzhou, Shenzhen and Hong Kong. Accompanied by Prof. Xiaohui Zheng (郑晓晖 Northwest University, Xi'an), he had productive meetings with Dr. Daning Li, Vice-Commissioner of the State Administration of TCM 国家中医药管理局李大宁副局长, and Dr. Zhongzhi Qian of the Chinese Pharmacopoeia Commission 国家药典委员会中药标准处钱忠直处长.

Dr. Fan was very much impressed by the excellent facilities in, and output from the Institute of Chinese Materia Medica (Director: Shilin Chen 陈士林), China Academy of Chinese Medical Science 中国中医科学院中药研究所; Institute of Vascular Medicine (Director: Qide Han 韩启德院士), Peking University Third Hospital 北京大学第三医院血管医学研究所; and College of Life Sciences (Dean: Yonggong Zhai 翟永功) of Beijing Normal University College of Life Sciences 北京师范大学生命科学学院



An auspicious painting in the State Administration of TCM



Vice-Commissioner Daning Li of the SATCM



Dr Zhongzhi Qian (2nd from Right) of the Chinese Pharmacopoeia Commission

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Tai-Ping also visited Prof. Kechun Liu 刘可春 of Biology Institute of Shandong Academy of Sciences 山东省科学院生物研究所 in Jinan 济南, where he saw a wide range of zebrafish models for drug screening and mechanistic studies. At Northwest University (NWU 西北大学) in Xi'an, he was warmly received by President Guanghua Fang 方光华 and took part in extensive academic exchanges with senior members, clinicians, post-doctoral fellows and research students at its College of Life Sciences.

As an overseas partner of Academician Xinsheng Yao's "111 Project", Tai-Ping gave a lecture and two classes at College of Pharmacy Institute of TCM & Natural Products of Jinan University 暨南大学药学院中药及天然药物研究所 as well as promoting the GP-TCM RA to staff and students. At the invitation of Academician Huanming Yang 杨焕明院士, he toured the world-class facilities of Beijing Genomics Institute 华大基因 in Shenzhen and explored collaborative projects on medicinal plants in Asia, Europe and Latin America. He also visited Drs Xudong Tang 唐旭东 and Weijing Pei 裴渭静 of Key Laboratory of Innovation in TCM & Natural Medicine at Research Institute of Tsinghua University in Shenzhen (RITS) 深圳清华大学研究院创新中药及天然药物研究重点实验室. Finally, he visited a founding member of the GP-TCM Consortium – Prof. Hani El-Nezami (Food Safety and Toxicology) and Prof. Alice Wong 黄思齐 (Receptor tyrosine kinases & signal transduction) at the University of Hong Kong.

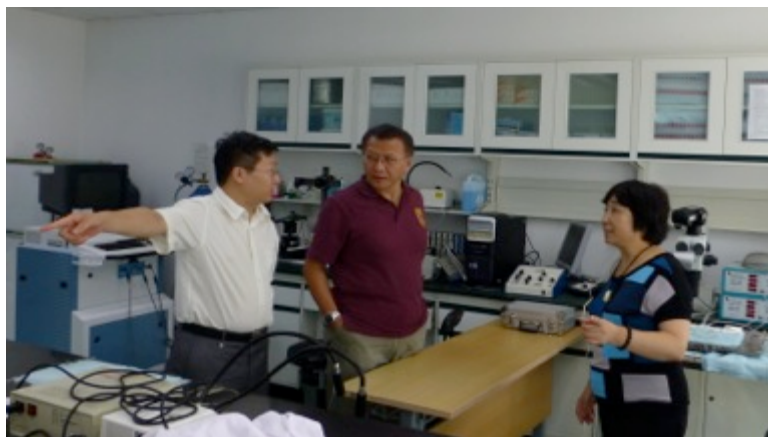


Institute of Chinese Materia Medica (Director Shilin Chen 陈士林, 3rd from Right), China Academy of Chinese Medical Sciences



Research update by Dr Jing Wang 王静 in the lab of Prof. Yonggong Zhai 翟永功, Beijing Normal University

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With Professors Zijian Li 李子健 and Youyi Zhang 张幼怡 of Institute of Vascular Medicine, Peking University Third Hospital



Zebrafish drug-screening platform of Prof. Kechun Liu 刘可春 (2nd from Left), Director Hetong Yang 杨合同 (3rd from Right) and colleagues at Biology Institute of Shandong Academy of Sciences



Comemorating the Great Teacher of China – Confucius



Interesting script bearing the Chinese names of Dr Youyou Tu (屠呦呦, who led the discovery of artemisinin) and Artemisia (蒿)

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President of Northwest University, Guanghua Fang (方光华; Centre) hosting a working dinner



Discussing plant diversity, receptor chromatography and novel R&D strategies in drug discovery with Prof. Xiaohui Zheng 郑晓晖 and colleagues at Northwest University, Xi'an (Left), as well as Dr. Weijing Pei 裴渭静 at Key Laboratory of Innovation in TCM & Natural Medicine, Research Institute of Tsinghua University in Shenzhen (Right)



With Academician Xinsheng Yao 姚新生 and Vice-President Xian Zhong Song 宋献中 of Jinan University, Guangzhou

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With Academicians Xinsheng Yao 姚新生院士 and Huanming Yang 杨焕明院士 President of Beijing Genomics Institute, Shenzhen



Visit to BGI hosted by Ms Shirley Guo 郭晓曦




Professors Alice Wong and Hani El-Nezami at School of Biological Sciences, University of Hong Kong

Opportunities from the EU

1. EU-China Joint Research Structures and EU-China Joint Laboratory Feedback Form:

As part of the initiatives of the EU-China Joint Research Structures, the next Joint Lab Event will likely take place in November 2013. In order for the Delegation of the European Union to China to prepare for it as efficiently as possible and to update the current list of EU Member States' Joint Laboratories with China, it is advised that all GP-TCM RA members in EU member and associated countries to fill in a form for each of your new joint research institution (**Appendix I**) and email to agathe.schibler@eeas.europa.eu, so that all Joint Labs can be invited to the next event. For more information about the EU-China Joint Research Structures, please visit:

http://ec.europa.eu/euraxess/index.cfm/links/joint_research_structures/china
<http://www.dragon-star.eu/about/the-project/>

 2. **Horizon 2020 input proposal:** On behalf of the FP7 GP-TCM coordinating institution King's College London (UK) and commissioned by the GP-TCM RA, Dr. Qihe Xu has submitted to the UK Medical Research Council a proposal, which suggests that priority in future EU-China collaborations in the Health Theme under Horizon 2020 should be given to *TCM-related personalised medicine, TCM-based multi-target drugs, especially the treatment of chronic diseases as well as safety issues* (**Appendix II**). This proposal was also submitted to national authorities in charge of the Health Scheme of FP7 in Austria (by Prof. Rudolf Bauer), the Netherlands (by Prof. Rob Verpoorte) and other EU member states (in progress, to be updated in future newsletters). If you wish to support this proposal in one way or another, please e-mail Dr Qihe Xu for further advice: qihe.xu@kcl.ac.uk.

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3. The FEBS | EMBO Women in Science Award - Deadline for nomination is 15th October:

The award highlights major contributions by female scientists to life sciences research. Winners of the award are inspiring role models for future generations of women in science. The award is a joint initiative of EMBO and the Federation of European Biochemical Societies (FEBS). Each year the exceptional achievements of one woman working in the life sciences in Europe will be rewarded. The winner will receive 10,000 euro, a bronze statue and the opportunity to give a plenary lecture at the FEBS Congress: <http://www.embo.org/funding-awards/women-in-science-award#febs-embo-women-in-science-awards-since-2008>

Recommended Readings

1. Google Doodle to commemorate the 495th birthday of LI Shizhen: <http://www.google.com/doodles/li-shizhens-495th-birthday>

2. Homoharringtonine: A Chinese drug forms the basis of cheaper and better anti-leukemia therapy [Jin J, et al. Homoharringtonine-based induction regimens for patients with de-novo acute myeloid leukaemia: a multicentre, open-label, randomised, controlled phase 3 trial. *Lancet Oncol.* 2013;14(7):599-608]. A regimen of homoharringtonine (an anticancer compound extracted from a tree by Chinese scientists), cytarabine and aclarubicin is found to be a successful treatment option for young, newly diagnosed patients with acute myeloid leukaemia
[http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(13\)70152-9/abstract](http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(13)70152-9/abstract)
<http://scitech.people.com.cn/n/2013/0515/c1007-21485952.html> (中文报道):

3. Obesity via Microbe Transplants [V.K. Ridaura et al., Gut microbiota from twins discordant for obesity modulate metabolism in mice. *Science* 2013;341(6150):1241214]. The role of specific gut microbes in shaping body composition remains unclear. The authors transplanted fecal microbiota from adult female twin pairs discordant for obesity into germ-free mice fed low-fat mouse chow, as well as diets representing different levels of saturated fat and fruit and vegetable consumption typical of the U.S. diet. Increased total body and fat mass, as well as obesity-associated metabolic phenotypes, were transmissible with uncultured fecal communities and with their corresponding fecal bacterial culture collections. Cohousing mice harboring an obese twin's microbiota (Ob) with mice containing the lean co-twin's microbiota (Ln) prevented the development of increased body mass and obesity-associated metabolic phenotypes in Ob cage mates. Rescue correlated with invasion of specific members of Bacteroidetes from the Ln microbiota into Ob microbiota and was diet-dependent. These findings reveal transmissible, rapid, and modifiable effects of diet-by-microbiota interactions germ-free mice gain weight when transplanted with gut microbes from obese humans, in a diet-dependent manner.

<http://www.sciencemag.org/content/341/6150/1241214>

<http://www.the-scientist.com/?articles.view/articleNo/37367/title/Obesity-via-Microbe-Transplants/>

4. Heart regeneration? [Ellison GM, et al. Adult c-kit(pos) Cardiac Stem Cells Are Necessary and Sufficient for Functional Cardiac Regeneration and Repair. *Cell.* 2013;154(4):827-42]. The epidemic of heart failure has stimulated interest in understanding cardiac regeneration. Evidence has been reported supporting regeneration via transplantation of multiple cell types, as well as replication of postmitotic cardiomyocytes. In addition, the adult myocardium harbors endogenous c-kit(pos) cardiac stem cells (eCSCs), whose relevance for regeneration is controversial. Here, using different rodent models of diffuse myocardial damage causing acute heart failure, we show that eCSCs restore cardiac function by regenerating lost cardiomyocytes. Ablation of the eCSC abolishes regeneration and functional recovery. The regenerative process is completely restored by replacing the ablated eCSCs with the progeny of one eCSC. eCSCs recovered from the host and recloned retain their regenerative potential in vivo and in vitro. After regeneration, selective suicide of these exogenous CSCs and their progeny abolishes regeneration, severely impairing ventricular performance. These data show that c-kit(pos) eCSCs are necessary and sufficient for the regeneration and repair of myocardial damage.

<http://www.sciencedirect.com/science/article/pii/S0092867413009483>

<http://www.kcl.ac.uk/newsevents/news/newsrecords/2013/08-August/Hearts-own-stem-cells-offer-hope-for-new-treatment-of-heart-failure.aspx>

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5. Why TCM products are seen as poison pills abroad? ...Reportedly, the inability of Chinese products to meet the norms of modern medicine and provide safety assurances had, ironically, left China behind in the international TCM market, a US\$30 billion annual business. Japanese and South Korean companies own 70 percent of the market. China accounts for a mere 5 percent, mostly represented by the export of raw materials to Japan and South Korea. It was reported that China launched over 1,000 TCM products every year. Meanwhile, Japan had almost no new TCM product in the last 30 years and companies in that country concentrated their efforts on clinical studies and meeting international standards. <http://www.cnn.com/id/100992436>

6. UK Committee on Herbal Medicinal Products Overview of Assessment Work - Priority List: http://www.ema.europa.eu/docs/en_GB/document_library/Other/2009/12/WC500017724.pdf

7. Why eating at the wrong times is tied to such profound and negative effects on our bodies: <http://www.the-scientist.com/?articles.view/articleNo/37269/title/Out-of-Sync/>

8. A rising star: pharmacological development in China
<http://www.sciencedirect.com/science/article/pii/S0165614713001624>

9. Computational methods for drug design and discovery: focus on China
<http://www.sciencedirect.com/science/article/pii/S0165614713001533>

10. Chem-TCM, PhytoChemical Database - Traditional Chinese Medicine

Chem-TCM is the database of individual molecular records, constituents of plants used in the traditional Chinese medicine. SDF supplement is now available for the first time. The database consists of four parts:

1. Chemical Identification

2. Botanical Information

3. Activity against therapeutic targets

4. Activity according to traditional Chinese herbal medicine categories

There are 12070 chemical records, constituents of approximately 350 herbs. Predicted activities for each molecular record cover 41 therapeutically significant targets in Western medicine and 26 traditional Chinese medicine categories. There are evident relationship patterns between plant chemistry, traditional use, and compound activity. Such correlation opens a doorway to discovering the links between ethnopharmacological and molecular data building on ancient holistic healing tradition in the context of modern medicine and research capabilities.

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(Windows only compatible. Please have computer administrator rights enabled or ask for our help)

Database format allows across-all-the-fields searches, sorting, records selections, and creation of database subsets. Structure and substructure search is available and information on individual records can be printed.

Chem-TCM Database price is \$475.00 plus shipping. It is a perpetual license with no subsequent fees. **SDF supplement is \$1,800.00.** SDF file includes ID numbers and structures and is issued for internal use only and cannot be distributed outside of an organization.

Acknowledgements

Contributions from Prof. **Rudolf Bauer** (Austria), Prof. **Pierre Duez** (Belgium), Dr. **Tai-Ping Fan** (UK), Dr. **Rui Fang** (UK), Dr. **Alan Koo** (Hong Kong), Prof. **Olavi Pelkonen** (Finland), Dr. **Qihe Xu** (UK) and Prof. **Xiaohui Zheng** (China) are gratefully acknowledged.

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APPENDIX I. EU-CHINA JOINT LABORATORY FEEDBACK FORM

1. NAME OF JOINT LABORATORY:	
WEBSITE:	
2. DATE ESTABLISHED:	
3. MAIN RESEARCH AREAS	
3. LOCATION OF OPERATIONS	
4. NAME AND CONTACT OF DIRECTORS	
EUROPEAN: E-MAIL: TEL:	CHINESE: E-MAIL: TEL:
5. NUMBER OF RESEARCHERS INVOLVED	
EUROPEAN TOTAL: EUROPEANS IN CHINA:	CHINESE TOTAL:
5. NUMBER OF LABORATORIES INVOLVED	
EUROPE:	CHINA:
6. PROJECT FINANCING: NATIONAL FUNDING PROGRAMMES; EU FP7; MOST; OTHERS (SPECIFY)	
7. ADDITIONAL INFORMATION	

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Any feedback please e-mail to agathe.schibler@eeas.europa.eu

APPENDIX II.

HORIZON 2020 INPUT PROPOSAL

The FP7 GP-TCM consortium and its succeeding organisation, the GP-TCM Research Association, propose that priority in future EU-China collaborations in the Health Theme under Horizon 2020 should be given to *TCM-related personalised medicine, TCM-based multi-target drugs, especially the treatment of chronic diseases as well as safety issues.*

The UK Medical Research Council (MRC) currently leads the UK delegation on the FP7 Health Programme Management Committee (PMC). The PMC consists of a delegation from each European Member State and one of the Committee's roles is to input into and approve the final content of the calls published under the FP7 Health Theme. The committee/advisory structure for Horizon 2020 has yet to be confirmed; however, the MRC is currently welcoming suggestions for call topics from UK organisations and researchers with an interest in the Horizon 2020, *Societal Challenge: Health, demographic change and wellbeing*. **In response to the call from MRC, GP-TCM RA members in the UK has put forward the following proposal:**

Proposed Thematic/Disease/Research Area: EU-China collaboration in Health Theme /Chronic Disease / Traditional Chinese Medicine, Personalised Medicine, Systems-based Approach to Pharmacology, Toxicology, Efficacy and Safety

Proposed Call Topic Title: Traditional Chinese Medicine: *Personalised medicine, network pharmacology, safety and chronic diseases*

Proposed Call Description: The last decade witnessed increased interests from mainline pharmaceutical companies in traditional Chinese medicine (TCM) as sources for mainline and new types of drugs. Hundreds of herbal medicinal products (HMPs), including TCM-based products, are being registered as herbal drugs by HMPC/EMA. TCM products are thus entering the EU as sources of legal HMPs and functional foodstuff as well as via online shopping.

In view of this, EU supported the FP7 GP-TCM Coordination Action (<http://project.gp-tcm.org>; 2009-2012). It was concluded that TCM in the globalised market represents both opportunities (its *personalised and function-oriented features, pre-emptive approaches and its values as sources for cost-effective multi-target remedies and modern pharmaceutical discoveries against chronic diseases*) and challenges (*acute and chronic adverse reactions*).

The FP7 GP-TCM project proposes that priority in future EU-China collaborations in the Health Theme under Horizon 2020 should be given to *TCM-related personalised medicine, TCM-based multi-target drugs, especially the treatment of chronic diseases as well as safety issues.*

Proposed Call Objectives:

1. Catalyse innovation in *personalised medicine, systems-based pharmaceutical discovery and healthcare* by integrating knowledge from Western and Eastern approaches to healthcare;
2. Enable *cost-effective therapies* to benefit EU citizens through clinical trials of selected TCM products;
3. Prevent the *risks associated with some TCM products* through promoting appropriate use of materia medica, and evidence-based regulation;
4. Apply *omics and systems biology* methodology to *personalised TCM diagnosis and a network pharmacology approach* to HMP research;
5. Promote *strategic partnership between EU and China, as well as among EU member states*, in health related research and innovation.

Justification:

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1. EU is the second largest market of TCM products after Asia;
2. Characterised by the use of multi-target HMPs guided by personalised diagnosis, TCM is arguably the most complementary health-related area China has to offer to the EU;
3. Chronic diseases are major challenges facing Europe and personalised medicine and innovative pharmaceuticals are priorities in Horizon 2020;
4. Through the EMA, medicinal regulation is at the EU level. Thus, an EU-China collaboration will achieve sustainable effects;
5. This call is a logical evolution of GP-TCM, EU's first FP7 EU-China collaboration on TCM research. The project developed good practice guidelines, state-of-the-art reports and consensus on priorities, challenges and opportunities for TCM;
6. WHO promotes the use of traditional medicine for healthcare. In the US and Australia, NCCAM and NICM provide leadership and support for strategically directed research of complementary medicine, including TCM, and translation of evidence into clinical practice and health policy.

Potential Project Partners

1. TCM is an integral part of mainstream medicine in China; in China there are 47 well-funded TCM universities and colleges, which are truly interested in continuing collaborations with the EU, already kick-started by the FP7 GP-TCM project;
2. To sustainably develop, refine and disseminate good practices and promote EU-China collaboration in TCM research, the GP-TCM Research Association (<http://www.gp-tcm.org>) has succeeded the FP7 GP-TCM consortium since November 2012 and will guide future developments through promoting integrity, integration and innovation;
3. 15 EU member states have been involved in the FP7 GP-TCM project. The following PIs in 10 EU member states and associated countries support our proposal for giving TCM research priority in EU-China collaboration in the Health Theme of Horizon 2020. These countries will submit their similar proposals to their FP7 Health PMC contacts, respectively.

- **Austria:** Rudolf Bauer, University of Graz
- **Belgium:** Pierre Duez, Université libre de Bruxelles
- **Estonia:** Anu Aaspõllu, Asper Biotech
- **Germany:** Jandirk Sendker, Institute of Pharmaceutical Biology and Phytochemistry, Münster
- **Ireland:** Helen Sheridan, Trinity College Dublin
- **Italy:** Enrica Bosisio, University of Milan; Maria Carrara, University of Padova
- **Luxembourg:** Ning Wang, Centre de Recherche Public- Sante
- **Norway:** Odd Georg Nilsen, Norwegian University of Science & Technology
- **Romania:** Joseph Mezei, Transylvanian Association of Integrated Quantum Medicine
- **The Netherlands:** Rob Verpoorte, Leiden University

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