

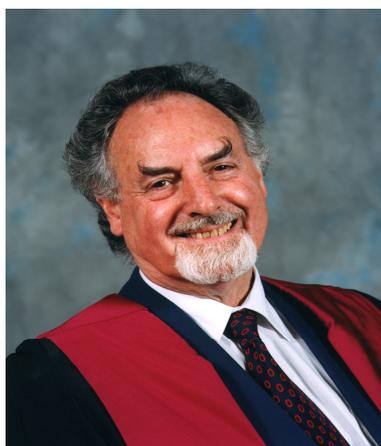
Feature of the Months:



The GP-TCM *Journal of Ethnopharmacology* Special Issue will be published in April 2012. Check some of the reviews on-line.

- **Traditional Chinese medicine research in the post-genomic era: Good practice, priorities, challenges and opportunities.** Uzun H. *et al.* (2012) <http://dx.doi.org/10.1016/j.jep.2012.02.028>
- **Future development of global regulations of Chinese herbal products.** Fan T.P. *et al.* (2012) <http://dx.doi.org/10.1016/j.jep.2012.02.029>
- **Omics and its potential impact on R&D and regulation of complex herbal products.** Pelkonen O. *et al.* (2012) <http://dx.doi.org/10.1016/j.jep.2012.01.035>

Appointment of new consortium members:



Professor Geoffrey Burnstock, PhD, DSc, FAA, FRCS(Hon),
FRCP(Hon), FMedSci, FRS

1. Welcome Prof. Geoffrey Burnstock to join GP-TCM, University College London (UCL), as a member of the Advisory Board (Co-Chaired by Prof. Yung-Chi Cheng and Prof. Brian Clark). Geoffrey is President of the Autonomic Neuroscience Centre, University College Medical School, UK. He became Professor and Chairman of Zoology, Melbourne University (1964), Head of Department of

Anatomy and Developmental Biology at UCL (1975) and Director of the Autonomic Neuroscience Institute (1997). Elected to the Australian Academy of Sciences (1971), Royal Society (1986), Academy of Medical Sciences (1998) and Honorary Fellow of the Royal College of Surgeons (1999) and Physicians (2000) and awarded the Royal Society Gold Medal (2000), the Copernicus Gold Medal (Ferrara) in 2009, the 2010 Gaddum Memorial Award and most recently the Academia Europaea Erasmus Medal 2012 and the IUPS Paton Lecture 2013. He has been given Honorary Degrees in the Universities of Antwerp, Frankfurt and Leipzig. He is Editor-in-Chief of *Autonomic Neuroscience* (Elsevier), *Purinergic Signalling* (Springer) and *Open Neuroscience and Open Pharmacology Journals* (Bentham). His major research interest stems from his seminal discovery of purinergic signalling. He has supervised over 100 PhD and MD students and has published over 1,400 papers, reviews and books. **He was the most cited scientist in Pharmacology and Toxicology 1994-2006.** His papers have been cited over 60,000 times with a Hirsch (h)-index of 112. **The late Nobel Laureate (1988) Professor Sir James Black** who nominated Geoffrey as a Nobel Prize candidate, described Geoffrey in one word - **effervescent**. To know why and to learn the **three claims Sir James made for Geoffrey's achievements as a scientist**, please read:

<http://www.ucl.ac.uk/ani/Prof/Memories%20of%20a%20Senior%20Scientist.pdf>

For more information about Geoffrey's work on art and science, please read: <http://www.ucl.ac.uk/ani/prof-GB.htm>

In particular, **Geoffrey recently published an interesting working hypothesis on how acupuncture could work through purinergic signalling** and is currently supporting scientists based in Germany, USA and China to test the hypothesis.

<http://the-scientist.com/2011/09/01/puncturing-the-myth/>
<http://www.sciencedirect.com/science/article/pii/S0306987709003971>

Warmest welcome and congratulations, Geoffrey!

2. Welcome Prof. Peter Illes (Universität Leipzig, Germany) to join GP-TCM as a non-beneficiary member dedicated to WP8 (Functional Genomics in Studies of Acupuncture-Moxibustion and Meridians, chaired by Prof. Xiaomin Wang and Prof. Nicola Robinson). Prof. Peter Illes has been trained in medicine and worked from the very beginning of his career on neuropharmacological topics. During his stay in Budapest, Hungary, these topics related to the presynaptic modulation of transmitter release in smooth muscle organs innervated by postganglionic sympathetic and parasympathetic nerves. Then, Peter moved from Budapest to Munich, Freiburg i.Br., and

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finally to Leipzig. During these years, initially Peter continued his previous research activities directed to presynaptic modulatory mechanisms, but changed the methods used from biochemistry and contraction measurements to intracellular electrophysiology. He also proceeded from the peripheral nervous system to the CNS, by impaling neurons of the nucleus locus coeruleus in the midbrain. Eventually he concentrated on purinergic mechanisms in glial cells and central neurons, by studying the function of extracellular ATP as a (co)transmitter and signalling molecule with patch-clamp recordings. His methodological repertoire was extended thereafter by RT-PCR, immunohistochemistry, molecular biology, computer simulation/modelling, and behavioural pharmacology. Peter is especially interested in two types of ATP-sensitive receptors, belonging to the P2X3 and P2X7 class. These receptors have a very limited distribution in sensory ganglia (P2X3) and a very broad distribution especially at immunocompetent cells including macrophages, lymphocytes, microglia, and astrocytes (P2X7). P2X3 and P2X7 receptors are involved in pain sensation with special emphasis on neuropathic and inflammatory pain. Antagonists of these receptors are possible therapeutic agents for the treatment of debilitating chronic pain states.

Warmest welcome and congratulations, Peter!

<http://www.uni-leipzig.de/~pharma/main/research/illes/illes.html>



Professor Peter Illes

3. Welcome Dr. Sven Schröder (HanseMerkur Center for TCM at the University Medical Center Hamburg Eppendorf, Germany) to join GP-TCM as a non-beneficiary member dedicated to WP8 (Functional Genomics in Studies of Acupuncture-Moxibustion and Meridians). Dr. Sven Schröder completed his education as a specialised doctor for neurobiology at the Charité in Berlin and in Hamburg at the Altona General Hospital, at the Clinic North and primarily at the University Medical Center Hamburg-Eppendorf (UKE), Germany. Since 2000, he has been in charge of one of the largest TCM practices in Hamburg. He received his TCM training in acupuncture, medicinal herb therapy and tuiná at the German Society for Traditional Chinese Medicine (DGTCM) and Societas Medicinae Sinensis (SMS). During several long-term stays in China, he deepened

his knowledge by shadowing older doctors. Sven is a lecturer at the DGTCM and for the master's degree course of studies in TCM of the University of Porto. He chairs the Quality Circle for Acupuncture and TCM of the Hamburg Medical Chamber and the Hamburg Association of Statutory Health Insurance Physicians. He has an authorisation for postgraduate medical education for acupuncture and neurology from the Hamburg Medical Chamber. Following his university medical specialisation, Sven continued his scientific activities; his research on acupuncture in cases of polyneuropathy has found attention even in international neurological journals.

Warmest welcome and congratulations, Sven!

http://tcm-am-uke.de/index_eng.html



Dr. Sven Schröder

Dr. Roland Salchow

4. Welcome Dr. Roland Salchow (HanseMerkur Center for TCM at the University Medical Center Hamburg Eppendorf, Germany) to join GP-TCM as a non-beneficiary member dedicated to WP8 (Functional Genomics in Studies of Acupuncture-Moxibustion and Meridians). Dr. Roland Salchow studied physics, mathematics and chemistry, received his diploma in relativity theory and was awarded a doctoral degree in Hamburg, Germany in solid-state theory in 1980. From 1980 to 1990, he worked as a mathematician at the University of the Armed Forces in Hamburg. Following this, he was Director and Professor at the Federal Maritime and Hydrographic Agency of Germany (BSH) in Hamburg and in this context also chairman of the international Governmental Committee for Environmental Inspection of the Northeast Atlantic and the North Sea. From 1978 to 2001, Roland was a member of the Hamburg state parliament. Following his position as State Secretary for Science and Research (2001–2008), he was charged with establishing a center for traditional Chinese medicine (TCM) in Hamburg. Since 2008, Roland has also been a visiting lecturer at the Hamburg University of Music and Theater. http://tcm-am-uke.de/index_eng.html

Warmest welcome and congratulations, Roland!

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GP-TCM events and activities:

1. The 15th e-MSM Teleconference: The management team has organised two e-MSM teleconferences in February to bring together all WP leads and all other e-MSM members. The 14th e-MSM teleconference details were provided in our previous issue. The 15th e-MSM teleconference was held on 10th February 2012 and brought together 13 e-MSM members. The following topics were addressed during the meeting: (i) Consortium deliverables, (ii) the GP-TCM Special Issue update, (iii) possible extension of GP-TCM's lifetime, (iv) quarterly progress summaries from WPs 1, 6, 8, and 10, (v) GP-TMR election outcomes and next steps forward, and (vi) TraInPlant submission (Marie Curie Initial Training Networks Proposal).

2. The 1st GP-TCM Research Association BoD Teleconference: The newly elected 11 BoD members gathered on 7th February 2012 via a teleconference organised by the Management Team to discuss a number of key issues including (i) nomination of Prof. Aiping Lu (Hong Kong Baptist University and China Academy of Chinese Medical Sciences) as a BoD member was unanimously approved, (ii) overall structure of management and strategy for labour division, (iii) registration, bank account, and fundraising, (iv) member rights, benefits and membership fee, (v) promotion and membership recruitment drive, (vi) name of the organisation, (vii) establishment of the association at the Leiden Meeting, (viii) establishment of website, (ix) the first conference, (x) the strategy for the Association to survive and activities other than meetings, and (xi) links with other societies, consortiums and groups. Dr. Tai-Ping Fan and Prof. Peter Hyalnds were unanimously agreed by the BoD to serve as the General-Secretary and the Treasurer, respectively. The 2012 Shanghai International TCM Conference will be co-organised by the GP-TCM Research Association held on 20th - 21st October 2012 in Shanghai, China. It will serve as the First Annual Meeting of the New Association: Please pen in the dates in your diary and more information about this meeting will follow in future newsletters.

3. The 2nd GP-TCM Research Association Board of Directors (BoD) Teleconference: Nine BoD members gathered on 6th March 2012 via a teleconference. Prof. Rudi Bauer (President) introduced his interactions with BoD members since the 1st BoD teleconferences and made arrangements on the forthcoming meetings. Dr. Tai-Ping Fan (Secretary-General) updated his excellent fundraising progresses. His nomination for Dr. Qihe Xu to serve as a Vice General-Secretary was unanimously agreed by the BoD. Prof. Peter Hylands (Treasurer) updated progresses made on bank account and membership dues, which will be further discussed at the next meeting. "The GP-TCM Research Association"

was decided as the official name of the successor of the FP7 GP-TCM Consortium, previously known as the GP-TCM Association or GP-TMR, and details of some core contents of the bylaw were discussed and revisions were agreed.

4. The GP-TCM Final Conference will be held in Kerkrade, the Netherlands, on 12th – 13th April 2012.



Conference Centre Rolduc, Kerkrade, the Netherlands

The final conference of the consortium, which aims to disseminate the work and findings of the project, will take place in Kerkrade, the Netherlands on 12th – 13th April 2012. Kerkrade is located close to Belgium and Germany and can be easily reached by public transport or by car. From Schiphol airport (Amsterdam), it is possible to reach Kerkrade by train. Near Kerkrade are Maastricht–Aachen, Liège, and Düsseldorf airports. The venue for the final conference is "[Conference Centre Rolduc](#)". Please visit the conference centre website (<http://www.rolduc.com/index.php?lang=en>) as well as the WP9 homepage (<http://www.gp-tcm.org/2011/04/final-conference/>) for further details.

If you travel from one of the above airports to Kerkrade by train, the website of the [Nederlandse Spoorwegen](#) or [OV9292](#) can be useful. If you prefer to drive, the website of the [ANWB](#) can be of help (in Dutch).

5. The GP-TCM Congress will be held in 15th – 18th April 2012 in Leiden, the Netherlands: Following the Final Conference, which is by invitation only, a public international event "GP-TCM Congress" will be held in Leiden to disseminate the work and findings of GP-TCM to a wider audience. The Congress will be held from 15th – 18th April 2012 at "Gorlaeus Laboratories" in Leiden University, Leiden (<http://visitors.leiden.edu/buildings/gorlaeus.html>). Please visit the Congress website and the GP-TCM website (<http://www.gp-tcm.org/2011/08/gp-tcm-congress/>) for agenda and other details (<http://www.gp-tcm-congress.nl>).



Gorlaeus Laboratories, Leiden, the Netherlands

Other Events:

1. The 2nd Forum on Sino-European Cooperation and Development of Traditional Chinese Medicine (TCM) - Munich Forum on Cooperation in Research, Practice and Education of TCM will be held in Munich, Germany, 20th– 21st July 2012:

<http://www.mucforumtcm.com/en>

2. 13th International Congress of the Society for Ethnopharmacology to be held in Graz, Austria, 2nd – 6th September 2012:

<http://ise13.uni-graz.at/cms/>

3. The 11th Meeting of Consortium for Globalization of Chinese Medicine (CGCM) will be held in Macau on 21st – 23rd August 2012 (starting with a pre-meeting 20th August): The Meeting is organised by Macau University of Science and Technology. It provides a platform for regulatory-industrial-academic exchanges and potential research collaborations, on various frontiers of Traditional Chinese Medicine among our worldwide CGCM members and guests. You are cordially invited to join the meeting. The details and preliminary programme of the meeting will be announced soon.

Further reading on R&D of medicinal plants:

1. GSK Studies Traditional Chinese Medicine: Scientists from GlaxoSmithKline are to study how traditional Chinese medicine can be applied to modern drugs as part of a revamp of the company's research and development. Britain's biggest drug maker last week unveiled the outcome of a review of its 38 groups of scientists, known as Discovery Performance Units (DPU), saying it would close three units and open four. The Sunday Telegraph can reveal the new units will look at traditional Chinese medicines, investigating how their principles can be applied to making new, synthetic, molecules. "Within our discovery organisation in China we have created a DPU that will

marry traditional Chinese medicine with modern drug discovery and clinical efficacy," said Moncef Slaoui, Glaxo's Chairman of Research and Development. "With modern technology we have the potential to yield new molecular entities with significant efficacy." The new unit will be based in China - Glaxo launched an R&D centre in Shanghai almost five years ago. With its pharmaceutical market forecast to mushroom to more than \$100bn (£63.5bn) by 2015, China is one of the most important battlegrounds for drug companies facing pricing pressure and more competition from generics. Glaxo's move reflects a wish by drug companies to adapt their research to particular regions. Six years ago, AstraZeneca established a centre in China to study diseases prevalent in Asia, such as liver and stomach cancer, and lung conditions. Last October, Astra also said it planned to invest \$200m in a new Chinese factory making intravenous and oral solid medicines. Astra's sales in emerging markets, including China, grew 10pc to \$5.8bn last year, while Glaxo's Asia Pacific revenues grew 7pc to £1.8bn.

<http://www.telegraph.co.uk/finance/newsbysector/pharmaceuticalsandchemicals/9076393/Glaxo-studies-traditional-Chinese-medicine.html>

2. In the spotlight: Halofuginone, a compound extracted from a Chinese herb (中国草药的分子机制—常山酮):

<http://www.ebiotrade.com/newsf/2012-2/2012213170719907.htm>

Halofuginone and other febrifugine derivatives inhibit prolyl-tRNA synthetase. Keller T.L. *et al.* *Nat Chem Biol.* 2012 Feb 12;8(3):311-7.

<http://www.nature.com/nchembio/journal/vaop/ncurrent/abs/nchembio.790.html>

Febrifugine, the bioactive constituent of one of the 50 fundamental herbs of traditional Chinese medicine, has been characterized for its therapeutic activity, though its molecular target has remained unknown. Febrifugine derivatives have been used to treat malaria, cancer, fibrosis and inflammatory disease. We recently demonstrated that halofuginone (HF), a widely studied derivative of febrifugine, inhibits the development of T(H)17-driven autoimmunity in a mouse model of multiple sclerosis by activating the amino acid response (AAR) pathway. Here we show that HF binds glutamyl-prolyl-tRNA synthetase (EPRS), inhibiting prolyl-tRNA synthetase activity; this inhibition is reversed by the addition of exogenous proline or EPRS. We further show that inhibition of EPRS underlies the broad bioactivities of this family of natural product derivatives. This work both explains the molecular mechanism of a promising family of therapeutics and highlights the AAR pathway as an important drug target for promoting inflammatory resolution.

3. Rainforest remedy could spell the end of dental pain. An ancient Incan toothache remedy – for centuries handed down among an indigenous people in the rainforest of Peru – could be on the cusp of

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revolutionising worldwide dental practice.

<http://www.cam.ac.uk/research/news/rainforest-remedy-could-spell-end-of-dental-pain/>

The remedy, made from an Amazonian plant species from varieties of *Acmella Oleracea* and turned into a gel for medical use, has proved hugely successful during the first two phases of clinical trials and may hasten the end of current reliance on local anaesthetics in dental use and non-steroid anti-inflammatory drugs (NSAIDs) in specific applications.

Cambridge University anthropologist Dr Françoise Barbira Freedman, the first westerner to be invited to live with the Keshwa Lamas in Amazonian Peru, is leading efforts to bring this wholly natural painkiller to the global marketplace as an organic alternative to synthetic painkillers.

In doing so, the company she founded, Ampika Ltd (a spin-out from Cambridge Enterprise, the University's commercialisation arm) will be run according to strict ethical guidelines, and will be able to channel a percentage of any future profits back to the Keshwa Lamas community who agreed to share their expertise with her.



With no known side-effects during the past five years of Phase I and II trials, Dr Freedman, who has continued to visit and live among the Keshwa Lamas over the past 30 years, is confident the stringent Phase III trials (multi-location trials across a diverse population mix) will be the final hurdle to clear. If successful, Ampika's plan is to bring the product to market in 2014/15.

She said: "The story began in 1975 when I first went to live among the indigenous people of Peru. We were trekking through the rainforest and I was having terrible trouble with my wisdom teeth. One of the men with me noticed and prepared a little wad of plants to bite onto. The pain went away. When it came back a few hours later, he had foreseen the need and kept plant material in his hunters' bag for me.

"I forgot all about the wisdom teeth problem for many years until Cambridge-based neuroscientist Dr Mark Treherne asked me to bring some medicinal plant samples back in order to test them for neurological research. Almost as an afterthought I remembered to include the one I'd used on my teeth. It was added to

the bottom of the list, but somehow the list got reversed and it was the first one tested back in the UK. It was immediately successful and we've never looked back.

"During the time I have spent with the Keshwa Lamas I've learnt all about the different plants and leaves they use for everyday illnesses and ailments. I first went to Peru as a young researcher hoping to learn more about what was a secretive community who were experts in shamanism. Along the way I've learnt a great deal about natural medicines and remedies; everything from toothache to childbirth."

"This treatment for toothache means we could be looking at the end of some injections in the dentist's surgery. We've had really clear result from the tests so far, particularly for periodontological procedures such as root scaling and planing, and there are many other potential applications. The native forest people described to me exactly how the medicine could and should work and they were absolutely right. There are a range of mucous tissue applications it could benefit, and may even help bowel complaints such as IBS (irritable bowel syndrome)."

The Keshwa Lamas remedy represents the first clinical trial of a natural product in Peru using the International Convention of Clinical Trials, of which Peru is a signatory, the gold-standard for clinical trials that is recognised across the Pacific and Atlantic regions.

Dr Freedman, who will visit the Peruvian community again in the coming weeks, has already been able to channel some early funding to the Keshwa Lama to help in the creation of a medicinal plant garden to conserve plants and plant knowledge related to women's health and maternity care – with the express aim of preserving wisdom for future generations.

She added: "We think the remedy is better than current treatments because NSAID drugs are systemic and have long-term effects; the plant product is not systemic and does not have any known side-effects. We think people prefer to use natural products and this is particularly the case for baby teething – for which, to my knowledge, there is no clinically tested natural alternative."

The dentists who carried out the Phase 2 trial reported a high level of satisfaction among their patients who disliked injections and did not need to use painkillers after the periodontological procedures.

There was also a higher rate of patient return for further appointments than average for the group with which the plant gel was used. The gel works by blocking nerve endings (sodium channel pathways).

Ampika has a portfolio of plant-based drug development, particularly related to women's health conditions and Type 2 diabetes, which it hopes to develop in the coming years.

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4. The next decade of mental health drugs?

<http://www.cam.ac.uk/research/news/the-next-decade-of-mental-health-drugs/>

Although this article is not strictly on TCM, the Editor of GP-TCM Newsletter would like to highlight the potential of TCM in this important field.

Leading international academics are advocating for new approaches to drug development for mental health diseases. Their comment article, published today (15 March) in the journal *Nature*, highlights the critical lack of new treatments for mental health disorders, to include Alzheimer's, depression, and schizophrenia.

Professor Barbara Sahakian, of the Department of Psychiatry and MRC/Wellcome Trust Behavioural and Clinical Neuroscience Institute at the University of Cambridge, and Dr Thomas Insel, Director of the National Institute of Mental Health in the United States, were leaders on the comment piece after a Royal Society meeting held to address the 'pharmacological impasse' concluded that the lack of viable new treatments 'calls for a fundamental change in nearly every aspect of translational research in mental health'.

Despite nearly 40% of the population being affected by mental health issues, which includes everything from depression and dementia to anxiety and schizophrenia, the researchers say there is a crisis in the development of new treatments for these disorders.

Professor Sahakian explains part of the problem, "The pharmaceutical industry has in part withdrawn, either because they struggled to translate research into a viable drug or because of financial pressures. Although some have remained, there are still insufficient resources being focused on diseases which affect a disproportionate percentage of the population."



In the comment article, they cite genetics as providing fertile ground for drug exploration, highlighting the impact it has had on other medical treatments. Additionally, they propose having academics investigate compounds industry has abandoned.

Professor Sahakian added, "We need to reassess how we identify and validate new drugs, and should consider open access drug development which involves both industry and academia."

Previous research has shown that mental disorders disproportionately affect the young, with 75% of illnesses having onset before the age of 24. As a result, the academics also advocate for earlier intervention and preventative therapies.

But not all of the new treatments they advocate are pharmacological. They highlight the effectiveness of treatments which integrate medications and psychosocial approaches. Novel approaches could include the use of emerging technology such as the use of video games to help children with autism interact socially by increasing eye contact.



Artwork of Geoffrey Burnstock

Acknowledgments: Many thanks for the contributions by Prof. **Rudi Bauer** (Austria), Prof. **Geoffrey Burnstock** (UK), Prof. **Peter Illes** (Germany), Dr. **Roland Salchow** (Germany). Dr. **Sven Schröder** (Germany), Dr. **Halil Uzun** (UK), Dr. **Marianne Verberne** (the Netherlands), Dr. **Wolfgang Weidenhammer** (Germany), Prof. **Vivian Wong** (China) and Dr. **Qihe Xu** (UK).