



**Good Practice in Traditional Chinese Medicine Research in
the Post-genomic Era**

GP-TCM

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1 ACUPUNCTURE PAPERS PUBLISHED IN THE SPECIAL ISSUE OF THE JOURNAL OF ETHNOPHARMACOLOGY

All of WP8 members have been working together for the past 3 years and as a result of our joint work, 2 articles have been published in the Special issue of the Journal of Ethnopharmacology and other 2 relevant GP-TCM articles have been produced by WP8 members. All the published abstracts, editorials, prepared publications, conference presentations and oral presentations by WP8 members are listed in this report which demonstrates the output from the GP-TCM collaboration over the time period.

1.1 Following acupuncture articles have been produced as a result of WP8's joint efforts and were published in the Special issue of the Journal of Ethnopharmacology

ARTICLE 1: Jia J, Yu Y, Deng JH, Robinson N, Bovey M, Cui YH, Liu HR, Ding W, Wu HG, Wang XM. A review of Omics research in acupuncture: the relevance and future prospects for understanding the nature of meridians and acupoints. J of Ethno pharmacology, 2012; (140) 594 - 603.

Web Link: <http://www.sciencedirect.com/science/article/pii/S0378874112000475>

Abstract:

RELEVANCE:

Acupuncture is an intrinsic part of traditional Chinese medicine. The current understanding of the acupuncture meridian system, acupoints and the potential utilizing Omics technologies are summarized in this review.

MATERIAL AND METHODS:

A systematic search for acupuncture involving Omics technologies was carried out using multiple online literature databases. The records retrieved were from the full collections of each database dated to September 2011. Data produced from functional genomic technologies were extracted from the collected acupuncture/moxibustion studies and subjected to evaluation. Analyses and comments were summarized on the advances in experimental research in acupuncture/moxibustion-related studies, and the future for strategies and approaches in the era of functional genomics highlighted.

RESULTS:

An overview of articles indicated that several diseases or symptoms with evidence of effectiveness had been piloted for using functional genomic technologies, such as Parkinson's disease, allergic disorders, pain, and spinal cord injury, most of which are chronic "difficult diseases". High-throughput genomic and proteomic profiling of gene expression in tissues has been able to identify potential candidates for the effects of acupuncture and provide valuable information toward understanding the possible mechanisms of the therapy. However, without further holistic and sophisticated analyses in the context of metabolomics and systems biology, the current attempts and the foreseeable developments appear to be insufficient to produce firm conclusions. Noticeably, the recent rapid advances in functional molecular imaging targeting specific metabolites have shown great promise and if combined with other post-genomic technologies, could be extremely helpful for the acupuncture studies in human subjects.

CONCLUSION:

This review suggest that disease-oriented studies using the approach of multi-indexed high-throughput technologies and systems biology analyses will be a preferred strategy for future acupuncture/moxibustion research.



ARTICLE 2: Robinson N, Lorenc A, Ding W, Jia J, Bovey M, Wang XM.. Exploring practice characteristics and research priorities of practitioners of traditional acupuncture in China and the EU - a survey. *J of Ethno pharmacology*. 2012; (140) 604– 613.

Web link: <http://www.sciencedirect.com/science/article/pii/S0378874112000657>

Abstract:

ETHNOPHARMACOLOGICAL RELEVANCE:

Acupuncture practice is based on the theoretical, historical and philosophical principles, which are part of Chinese medicine. Traditional acupuncture practitioners assess their patients' conditions using Chinese medicine diagnostic techniques, which determine clinical care and treatment. Little is known about differences in the perceptions of research evidence among practitioners in the European Union (EU) and China, given the diversity of acupuncture practice.

MATERIAL AND METHODS:

This study explored differences between practitioners of traditional acupuncture regarding perceived need for research evidence and prioritisation for future clinical trials, based on their practice within the EU and China. A convenience sample of acupuncturists in the EU (contacted by their professional organisation) and China (from geographically dispersed hospitals) were invited to participate in a survey, which was conducted during 2010/2011. Data collected included: practitioners' demographic details, country of training, practice setting, acupuncture techniques, perceived adverse event reporting, diagnostic methods, conditions commonly treated, conditions perceived as needing more evidence and practitioner perceptions of conditions which could demonstrate benefit if investigated in clinical trials.

RESULTS:

From 1126 survey responses, 1020 (559 EU, 461 China) could be included in the analysis for direct comparison. A response rate for the EU could not be calculated but for China was 98%. Pain was the most frequently reported commonly treated condition by EU acupuncturists and neurological conditions (mainly stroke) for Chinese practitioners. The top reported priorities for research were obstetrics/gynaecological conditions in the EU and neurological problems in China.

CONCLUSION:

The survey identified differences in practice and training between acupuncturists in China and the EU and between EU member states. These differences may inform prioritisation of health conditions for future trials. Innovative research methods are recommended to incorporate the complexity and plurality of acupuncture practice and theory. Creation of collaborative networks is crucial in overcoming these differences to facilitate international, multi-centre clinical trials.



2 OTHER GP-TCM ARTICLES PUBLISHED WITH CONTRIBUTIONS FROM WP8 MEMBERS:

2.1 Title of GP-TCM paper in the special issue of the Journal of Ethnopharmacology and its abstract

Uzuner H, Bauer R, Fan TP, Guo DA, Dias A, El-Nezami H, Efferth T, Williamson EM, Heinrich M, Robinson N, Hylands PJ, Hendry BM, Cheng YC, Xu Q. Traditional Chinese Medicine Research in the Post-genomic Era: Good Practice, Priorities, Challenges and Opportunities. J of Ethno pharmacology, 2012; 140: 458-468

Web link: <http://www.sciencedirect.com/science/article/pii/S0378874112001110>

The WP8 co- coordinator also contributed to this paper which summarised the overall work of the consortium and contributed to introducing the WP8 outputs.

Abstract:

Background and aims

GP-TCM is the 1st EU-funded Coordination Action consortium dedicated to traditional Chinese medicine (TCM) research. This paper aims to summarise the objectives, structure and activities of the consortium and introduces the position of the consortium regarding good practice, priorities, challenges and opportunities in TCM research. Serving as the introductory paper for the GP-TCM Journal of Ethnopharmacology special issue, this paper describes the roadmap of this special issue and reports how the main outputs of the ten GP-TCM work packages are integrated, and have led to consortium-wide conclusions.

Materials and methods

Literature studies, opinion polls and discussions among consortium members and stakeholders.

Results

By January 2012, through 3 years of team building, the GP-TCM consortium had grown into a large collaborative network involving □200 scientists from 24 countries and 107 institutions. Consortium members had worked closely to address good practice issues related to various aspects of Chinese herbal medicine (CHM) and acupuncture research, the focus of this Journal of Ethnopharmacology special issue, leading to state-of-the-art reports, guidelines and consensus on the application of omics technologies in TCM research. In addition, through an online survey open to GP-TCM members and non-members, we polled opinions on grand priorities, challenges and opportunities in TCM research. Based on the poll, although consortium members and non-members had diverse opinions on the major challenges in the field, both groups agreed that high-quality efficacy/effectiveness and mechanistic studies are grand priorities and that the TCM legacy in general and its management of chronic diseases in particular represent grand opportunities. Consortium members cast their votes of confidence in omics and systems biology approaches to TCM research and believed that quality and pharmacovigilance of TCM products are not only grand priorities, but also grand challenges. Non-members, however, gave priority to integrative medicine, concerned on the impact of regulation of TCM practitioners and emphasised intersectoral collaborations in funding TCM research, especially clinical trials.

Conclusions

The GP-TCM consortium made great efforts to address some fundamental issues in TCM research, including developing guidelines, as well as identifying priorities, challenges and opportunities. These consortium guidelines and consensus will need dissemination, validation



and further development through continued interregional, interdisciplinary and intersectoral collaborations. To promote this, a new consortium, known as the GP-TCM Research Association, is being established to succeed the 3-year fixed term FP7 GP-TCM consortium and will be officially launched at the Final GP-TCM Congress in Leiden, the Netherlands, in April 2012.

2.2 Published paper in the Evidence Based Complementary and Alternative Medicine

Huo LR, Liang XB, Li B, Liang JT, He Y, Jia YJ, Jia J, Gong XL, Yu F, Wang XM. The cortical and striatal gene expression profile of 100 Hz electro-acupuncture treatment in 6-hydroxydopamine-induced Parkinson's disease model. *Evid Based Complement Alternat Med*. Epub 2012 Jan 26; 2012, Article ID 908439 (doi:10.1155/2012/908439).

Web link: <http://www.ncbi.nlm.nih.gov/pubmed/22319547>

Abstract

Electroacupuncture (EA), especially high-frequency EA, has frequently been used as an alternative therapy for Parkinson disease (PD) and is reportedly effective for alleviating motor symptoms in patients and PD models. However, the molecular mechanism underlying its effectiveness is not completely understood. To implement a full-scale search for the targets of 100 Hz EA, we selected rat models treated with 6-hydroxydopamine into the unilateral MFB, which mimic end-stage PD. High-throughput microarray analysis was then used to uncover the regulated targets in the cortex and striatum after 4-week EA treatment. In the differentially regulated transcripts, the proportion of recovered expression profiles in the genes, the functional categories of targets in different profiles, and the affected pathways were analyzed. Our results suggested that the recovery of homeostasis in the transcript network and many regulated functional clusters in the cortex and striatum after EA treatment may contribute to the behavioral improvement of PD rats.

The dissemination and publications identified below are also included in some of the WP6 (Chinese herbal medicine) outputs which were closely related to WP8 as they were part of TCM in general and involved practitioners.

2.3 Published abstracts

- Liao X, Lui J, Lorenc A, **Robinson N**. How do Chinese Medicine (CM) doctors communicate with their patients? A qualitative analysis. *European Journal of Integrative Medicine* 2010; 2: 199-200.
- Liao X, Liu J, **Robinson N**. Using qualitative research to investigate Chinese medicine doctors' practice. *Journal of Traditional Chinese Medicine* 2011; 31(Supplement): 33.
- **Robinson N**, Lorenc A, Ding W, Jia J, Mark Bovey, Wang X. Identifying the evidence gaps in acupuncture – experiences of an international project: Good Practice in Traditional Chinese Medicine (GP-TCM). Integrative Medicine Consortium Congress. *Integrative Medicine and Health* 2012 15-18 May 2012 Portland, Oregon, USA To be published in BMC-CAM

2.4 Other scientific articles where the GPTCM project was mentioned

- **Robinson N**. 'Globalising' – 'Integrating' Traditional Chinese Medicine. *The Acupuncturist*. British Acupuncture Council, 2010/ November p19-20.
- **Robinson N**. Integrative medicine- Traditional Chinese Medicine, a model? *Chin J Integrative Medicine* 2011; 17: 1-5.
- Bovey M, **Robinson N**. Researching China. *The Acupuncturist*. British Acupuncture Council, 2011/ Autumn p20-21.



2.5 Editorials

- **Robinson N.** European Journal of Integrative Medicine 2012; (2) e. (in press)
- **Robinson N.** European Journal of Integrative Medicine 2011; (3) e47-48. doi:10.1016/j.eujim.2011.04.023
- **Robinson N.** European Journal of Integrative Medicine 3 2011; (4) e247 doi:10.1016/j.eujim.2011.04.023

2.6 Papers in preparation for publication from GPTCM collaboration

- Robinson N, Lorenc A, Lophatananon A, Muir K. Traditional Chinese Herbal medicine practice- a comparison between EU and Chinese traditional practitioners (in preparation) - a WP6 Output from the survey
- Qu, F, Zhou J, Bovey M, Chan K, Jiang D, Robinson N. Does acupuncture improve the outcomes of in vitro fertilization: Guidance for future trials. (Human reproduction)
- Qu, F, Robinson N. Traditional Medicine- challenges for research (book chapter in Complementary and Alternative Medicine: Evaluating Methods and Assessing Effectiveness Eds McCarthy, Peter W and Mark Langweiler. Jones and Bartlett learning (In preparation)

In addition, papers are being prepared by the group for an invited issue of Science in December 2012 in which GP-TCM work will be show cased. Potential contributions are being discussed and WP8 will contribute a paper to this special collection.

2.7 Published Conference presentations

- **Robinson N**, Bovey M, Lorenc A. What do acupuncturists do – fertility related practice in the UK. 9th Meeting of Consortium for Globalization of Chinese Medicine (CGCM) Hong Kong, 23 – 25 August 2010.
- Bovey M, **Robinson N**. How is acupuncture used to support fertility issues? A survey of practitioners' experiences and perceptions. Society for Acupuncture Research March 2010. Chapel Hill North Carolina, 19-21 March 2010.
- Liao X, Liu J, **Robinson N**. A qualitative exploration of CM practitioners' treatment of chronic diseases in Beijing and London. International Congress on Complementary Medicine Research (ICCMR) Tromso 19-21 May 2010.
- **Robinson N**, Lorenc A, Ding W, Jia J, Bovey, M, Wang X. The evidence challenge for TCM. Good practice in Traditional Chinese Medicine. Leiden, Holland. 15-18 April 2012

2.8 Oral presentations

- Developing the future for research activities through GP-TCM through collaboration and partnership working, 10 May, 2011. Capital Medical University, Beijing.
- Does TCM have a role in public health? All parliamentary group on China, 6 June, 2011. Houses of Parliament.
- "Can practitioner and patient centred research support the evidence base for TCM?" The 8th World Congress of Chinese medicine. Traditional Chinese Medicine benefits human health, 2 Sept., 2011. Westminster Central Hall, London.
- Integrating traditional Chinese medicine – opportunities and challenges? 17 Sept., 2011. British Acupuncture Council Conference.
- Acupuncture – Finding the evidence – the experience of GP-TCM. International Symposium on acupuncture. 22-24 Sept., 2011. Beijing. China.
- TCM – An integrative approach to disease prevention and health promotion. Beijing Forum on Traditional Chinese Medicine- sub forum on TCM Cultural inheritance and scientific development. 30-31 Nov., 2011. Beijing, China
- What do we mean by integrated health in TCM? A comparison of UK and Chinese systems. Parliamentary Group on Integrative health, 23 January, 2012. London, UK
- WP8 - Good Practice in Traditional Chinese Medicine Research in the Post-genomic Era, 13 April, 2012. Rolduc, Kerkrade, Holland
- Capital Medical University and TCM research, 16 April, 2012. Leiden, Holland
- The evidence challenge for GP-TCM, 17 April, 2012. Leiden, Holland



- The sketch of clinical oriented acupuncture basic research in China based on literature analyses, 18 April, 2012. Leiden, Holland.