



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

GP-TCM

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Submission of review papers for publication



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1 SUBMISSION OF REVIEW PAPERS FOR PUBLICATION

1.1 Introduction

Development and dissemination of **state-of-the-art reports and good practice guidelines** focusing on *in-vitro* and *in-silico* studies of Chinese herbal medicine (CHM) are important objectives of WP4.

1.2 Preface

Which journal is to be used for publication of our papers is one of the first central questions we asked. After thorough discussions at the consortium level, it was decided that we will publish all major GP-TCM papers in a **special issue of the Journal of Ethnopharmacology**. The reason is that: (i) having all reviews of the 10 GP-TCM WPs published in a single journal issue will allow us to demonstrate the mission, focus, roadmap and achievements better, **provide a copy of handy references** to a broad readership and thus make a **bigger impact** and (ii) the special issue will serve as an **important support material to the Final Conference and the GP-TCM Congress**.

In order to maximise the dissemination and impact, we have decided to **make the whole special issue open-access**, although the journal itself is not an open-access one.

1.3 What are the papers about?

WP4 has contributed to two papers for the Journal of Ethnopharmacology special issue, one in collaboration with WP5, which specialises in *in-vivo* pharmacology of CHM. These papers focus on *in-silico* studies of CHM and on *in-vitro* and *in-vivo* studies of CHM using an omics approach, respectively.

The first paper offers a state-of-the-art critical review of the available TCM databases, in terms of their contents and utility for *in-silico* research on CHM, and provides recommendations for future *in-silico* studies of CHM (Barlow et al., 2012).

- The graphical abstract of the paper:



- The abstract of the paper:

The available databases that catalogue information on traditional Chinese medicines are reviewed in terms of their content and utility for *in-silico* research on Chinese herbal

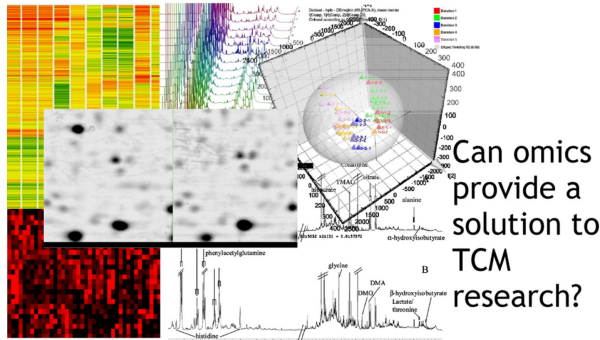
medicines, as too are the various protein database resources, and the software available for use in such studies. The software available for bioinformatics and 'omics studies of Chinese herbal medicines are summarised, and a critical evaluation given of the various in-silico methods applied in screening Chinese herbal medicines, including classification trees, neural networks, support vector machines, docking and inverse docking algorithms. Recommendations are made regarding any future in-silico studies of Chinese herbal medicines.

- The link to the **open-access paper**:

<http://www.sciencedirect.com/science/article/pii/S0378874112000542>

The second paper, as collaboration between WP4 and WP5 members, reviews the published work on omics and systems biology studies of CHM and discusses the pros and cons for using omics and systems biology approaches in CHM research (Buriani et al., 2012).

- The graphical abstract of the paper:



- The abstract of the paper:

Omic techniques have become key tools in the development of systems biology. As the holistic approaches underlying the practice of traditional Chinese medicine (TCM) and new tendencies in Western medicine towards personalised medicine require in-depth knowledge of mechanisms of action and active compounds, the use of omic techniques is crucial for understanding and interpretation of TCM development, especially in view of its expansion in Western countries. In this short review, omic applications in TCM research are reviewed which has allowed some speculation regarding future perspectives for these approaches in TCM modernisation and standardisation. Guidelines for good practice for the application of omics in TCM research are also proposed.

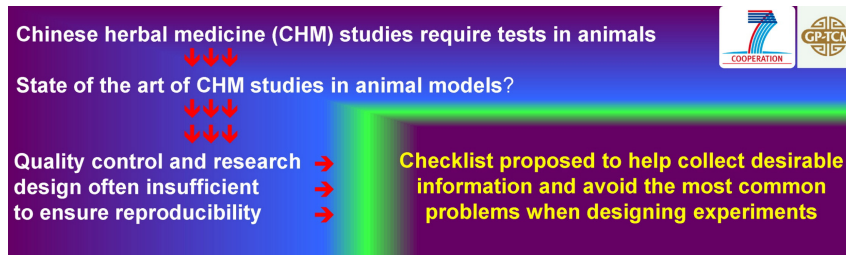
- The link to the open-access paper:

<http://www.sciencedirect.com/science/article/pii/S0378874112000682>

1.4 Other papers with inputs from key WP4 members and work

Based on WP4 discussions on criteria needed for characterising research herbal materials, WP5 has produced a checklist in their studies, which forms an important highlight of the paper (Tejedor Garcia N et al, 2012).

- The graphical abstract of the paper:



Chinese herbal medicine (CHM) studies require tests in animals

State of the art of CHM studies in animal models?

Quality control and research design often insufficient to ensure reproducibility

Checklist proposed to help collect desirable information and avoid the most common problems when designing experiments

- The abstract of the paper:

Aim of the study: To assess the experimental design of animal studies on the activity of CHM by selection and scrutinizing of a series of papers in some major disease areas.

Materials and methods: We have analyzed the English publications reported in MEDLINE (ISI web of knowledge).

Results: Our data showed that (i) research of CHM during the last 10 years had been highly intensified and become more accessible worldwide through increased publications in English, although still most authors had Chinese names; (ii) English journals publishing animal research of CHM were comparable to those publishing animal studies of non-Chinese phytotherapy in terms of impact factor; and (iii) published data on authentication and quality control of CHM, as well as research design of animal studies were far from sufficient to meet the criteria needed to support their reproducibility and reliability.

Conclusions and perspectives: The recent decade witnessed an increase in CHM research activities and CHM English publications. Based on common problems identified in publications on CHM animal studies, we have proposed a checklist that could help in preliminary selection of publications lacking the most common problems and thus would be useful for a quick search of reproducible CHM regimens that are likely to be effective in a given context. The second application of this checklist is to help avoid the most common problems when designing experiments.

- The link to the open-access paper:
<http://www.sciencedirect.com/science/article/pii/S0378874112000682>

1.5 Future submission plans

WP4 has the plan to submit an additional paper to a peer-reviewed journal to report our scoring system as a tool for assessing quality of published work.

1.6 Conclusion and Discussion

By March 2012, WP4 has published two papers and contributed to an additional papers. One more paper is in preparation and will be worked on further and submitted for publication after the GP-TCM Final Conference and Congress.

1.7 References

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2. Buriani A, Garcia-Bermejo ML, Bosisio E, Xu Q, Li H, Dong X, Simmonds MS, Carrara M, Tejedor N, Lucio-Cazana J, Hylands PJ. Omic techniques in systems biology approaches to traditional Chinese medicine research: Present and future. *J Ethnopharmacol.* 2012 Feb 8. [Epub ahead of print]
3. Tejedor Garcia N, Garcia Bermejo L, Fernandez Martinez AB, Olmos Centenera G,



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