Systems biology for evaluating system-based medicine
Hu, C.

Citation

Version: Corrected Publisher’s Version
License: Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden
Downloaded from: https://hdl.handle.net/1887/19086

Note: To cite this publication please use the final published version (if applicable).
The handle http://hdl.handle.net/1887/19086 holds various files of this Leiden University dissertation.

**Author:** Hu, Chiuxiu  
**Title:** Systems biology for evaluating system-based medicine  
**Issue Date:** 2012-06-14
Systems Biology for Evaluating System-based Medicine

Chunxiu Hu
胡春秀
Chunxiu Hu

Systems biology for evaluating system-based medicine

Thesis, Leiden University, 2012

ISBN: 978-90-74538-77-0

Cover: Lotus leaves in Daming Lake, a picture taken by Dr. Shiyu Zhou. Lotus leaf belongs to Chinese herbal medicine. It is the beautiful Chinese element and also the nice symbol of human life. It grows from the mud (sub-conscious) to become an open flower (conscious life). This picture contains information of a small ecosystem — lotus leaf, ladybugs on lotus leaf, sticks, unknown microorganisms under the bubbles, water and so on.

Printed by Wöhrmann Print Service, Zutphen, The Netherlands
Systems Biology for Evaluating System-based Medicine

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof. mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen op donderdag 14 juni 2012
klokke 11:15 uur

door

Chunxiu Hu

胡春秀

geboren te Tongcheng, P. R. China
in 1976
The studies presented in this thesis were performed at the Division of Analytical Biosciences of the Leiden/Amsterdam Center for Drug Research (LACDR), Leiden University, Leiden, The Netherlands.

The research described in this thesis was financially supported by a Joint Ph.D. Training grant (Number 05-PhD-07) within the China Exchange Programme between the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Chinese Academy of Sciences (CAS).
# Contents

**Chapter 1**  
General introduction and scope  

**Chapter 2**  
Analytical strategies in lipidomics and applications in diseases biomarker discovery  

**Chapter 3**  
RPLC-ion-trap-FTMS method for lipid profiling of plasma: method validation and application to p53 mutant mouse model  

**Chapter 4**  
Linking biological activity with herbal constituents by systems biology-based approaches: effects of *Panax ginseng* in type 2 diabetic Goto-Kakizaki rats  

**Chapter 5**  
Plasma and liver lipidomics response to an intervention of rimonabant in ApoE3*Leiden.CETP transgenic mice  

**Chapter 6**  
Lipidomics reveals multiple pathway effects of a multi-component preparation on lipid biochemistry in ApoE3*Leiden.CETP mice  

**Chapter 7**  
Conclusion remarks and perspectives  

**Summary**  

**Samenvatting**  

**List of publications**  

**Curriculum vitae**  

**Acknowledgements**