

## Curriculum Vitae

**Ruibing Chen, Ph.D.**

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### **Ruibing Chen, PhD**

#### **Professor**

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#### Education

B.S. Peking University, China, 2005

Ph.D. University of Wisconsin-Madison, USA, 2009

#### Professional Experience

2016.12- Professor, Tianjin Medical University, Tianjin, China  
2010.03-2016.11 Associate Professor, Tianjin Medical University, Tianjin, China  
2007.01-2009.12 Research Assistant, University of Wisconsin-Madison, USA  
2005.08-2006.12 Teaching Assistant, University of Wisconsin-Madison, USA

#### Expertise and Research Interests

Proteomics, bioanalytical chemistry, mass spectrometry, cancer biology

Research in my laboratory is focused on developing and implementing proteomics strategies to gain new insights into the molecular mechanisms regulating tumor development and progression. The topics we are interested about are listed below.

- 1) To decipher the interactions between biological macromolecules, such as protein-protein interactions and long non-coding RNA (lncRNA)-protein interactions, by combing affinity purification and biological mass spectrometry, and also to understand their implications in cancer.
- 2) Systematic and comprehensive molecular profiling of tumor by multi-omics, integrating data from genetics, transcriptomics, proteomics, metabolomics, etc.
- 3) Single cell protein analysis. We employ a state-of-the-art technology called mass cytometry to analyze protein expressions in single cells. Multiplex analytical panels are designed to achieve precise sub-clustering of immune cells in the tumor microenvironment and to understand tumor heterogenesis.

#### Honors

1. Tianjin Youth Talents for Science and Technology in 2016.
2. Tianjin "131" Innovative Talents in 2013.
3. Society for Neuroscience Graduate Student Travel Award, American Society for Neuroscience, 2009
4. Parr Award for Outstanding Graduate Research, University of Wisconsin at Madison, 2009
5. Vilas Fellowship, University of Wisconsin at Madison, 2008

#### Professional Service

##### **Academic Committee Member**

The Chinese Mass Spectrometry Society

##### **Peer-review for:**

Analytical Chemistry  
Bioanalysis

Journal of Proteome Research  
 ACS Chemical Neuroscience  
 Journal of the American Society for Mass Spectrometry  
 BBA - Proteins and Proteomics  
 Rapid Communications in Mass Spectrometry  
 Analytical Methods  
 Oncotarget

### **Publications**

1. Li Y, Zhuang H, Zhang X, Li Y, Liu Y, Yi X, Qin G, Wei W\*, **Chen R\***. Multi-omics integration reveals the landscape of pro-metastasis metabolism in hepatocellular carcinoma. *Mol Cell Proteomics*. 2018, in press.
2. **Chen R**, Liu Y, Zhuang H, Yang B, Hei K, Xiao M, Hou C, Gao H, Zhang X, Jia C, Li L, Li Y\*, Zhang N\*. Quantitative proteomics reveals that long non-coding RNA MALAT1 interacts with DBC1 to regulate p53 acetylation. *Nucleic Acids Res*. 2017; 45(17):9947-9959.
3. Qin G, Dang M, Gao H, Wang H, Luo F, **Chen R\***. Deciphering the protein-protein interaction network regulating hepatocellular carcinoma metastasis. *Biochim Biophys Acta*. 2017; 1865(9):1114-1122.
4. **Chen R\***, Xiao M, Gao H, Chen Y, Li Y, Liu Y, Zhang N\*. Identification of a novel mitochondrial interacting protein of C1QBP using subcellular fractionation coupled with CoIP-MS. *Anal Bioanal Chem*. 2016; 408(6):1557-64.
5. Wang Y, Yue D, Xiao M, Qi C, Chen Y, Sun D, Zhang N\*, **Chen R\***. C1QBP negatively regulates the activation of oncoprotein YBX1 in the renal cell carcinoma as revealed by interactomics analysis. *J Proteome Res*. 2015; 14(2): 804-13.
6. Gao H, Chen Y, Zuo D, Xiao M, Li Y, Guo H, Zhang N, **Chen R\***. Quantitative proteomic analysis for high-throughput screening of differential glycoproteins in hepatocellular carcinoma serum. *Cancer Biol Med*. 2015; 12(3):246-54.
7. **Chen R**, Xiao M, Buchberger A, Li L\*. Quantitative neuropeptidomics study of the effects of temperature change in the crab *Cancer borealis*. *J Proteome Res*. 2014; 13(12):5767-76.
8. **Chen R**, Ouyang C, Xiao M, Li L\*. In situ identification and mapping of neuropeptides from the stomatogastric nervous system of *Cancer borealis*. *Rapid Commun Mass Spectrom*. 2014; 28(22): 2437-44.
9. Xiao M, Chen Y, Yu H, Wei S, Yu K, Zhao H, **Chen R\***. Analysis of the whole serum proteome using an integrated 2D LC-MS/MS system. *Anal Methods*. 2014; 6(18):7157-7160.
10. Zhang X, Zhang F, Guo L, Wang Y, Zhang P, Wang R, Zhang N\*, **Chen R\***. Interactome analysis reveals that C1QBP (complement component 1, q subcomponent binding protein) is associated with cancer cell chemotaxis and metastasis. *Mol Cell Proteomics*. 2013; 12(11):3199-209.
11. **Chen R\***, Wang Y, Liu Y, Zhang Q, Zhang X, Zhang F, Shieh CH, Yang D, Zhang N\*. Quantitative study of the interactome of PKC $\zeta$  involved in the EGF-induced tumor cell chemotaxis. *J Proteome Res*. 2013; 12(3):1478-86.
12. **Chen R**, Li L\*. Mass spectral imaging and profiling of neuropeptides at the organ and cellular domains. *Anal Bioanal Chem*. 2010; 397(8):3185-93.
13. **Chen R**, Hui L, Cape SS, Wang J, Li L\*. Comparative Neuropeptidomic Analysis of Food Intake via a Multi-faceted Mass Spectrometric Approach. *ACS Chem Neurosci*. 2010; 1(3):204-214.
14. **Chen R**, Jiang X, Conaway MC, Mohtashemi I, Hui L, Viner R, Li L\*. Mass spectral analysis of neuropeptide expression and distribution in the nervous system of the lobster *Homarus americanus*. *J Proteome Res*. 2010; 9(2):818-32.
15. **Chen R**, Cape SS, Sturm RM, Li L. Mass spectrometric imaging of neuropeptides in decapod crustacean neuronal tissues. *Methods Mol Biol*. 2010; 656: 451-63.
16. **Chen R**, Hui L, Sturm RM, Li L\*. Three dimensional mapping of neuropeptides and lipids in crustacean brain by mass spectral imaging. *J Am Soc Mass Spectrom*. 2009; 20(6):1068-77.
17. **Chen R**, Ma M, Hui L, Zhang J, Li L\*. Measurement of neuropeptides in crustacean hemolymph via MALDI mass spectrometry. *J Am Soc Mass Spectrom*. 2009; 20(4):708-18.
18. Wang Y, Wang Y, Xu L, Lu X, Fu D, Su J, Geng H, Qin G, **Chen R**, Quan C, Niu Y, Yue D\*. CD4 + T

cells promote renal cell carcinoma proliferation via modulating YBX1. *Exp Cell Res.* 2017; pii: S0014-4827(17)30681-X.

19. Yang B, Liu Y, Zhao J, Hei K, Zhuang H, Li Q, Wei W, **Chen R**, Zhang N\*, Li Y\*. Ectopic overexpression of filamin C scaffolds MEK1/2 and ERK1/2 to promote the progression of human hepatocellular carcinoma. *Cancer Lett.* 2017; 388:167-176.
20. Sturm RM, Greer T, **Chen R**, Hensen B, Li L\*. Comparison of NIMS and MALDI platforms for neuropeptide and lipid mass spectrometric imaging in *C. borealis* brain tissue. *Anal Methods.* 2013; 5(6):1623-1628.
21. Ye H, Gemperline E, Venkateshwaran M, **Chen R**, Delaux PM, Howes-Podoll M, Ané JM, Li L\*. MALDI mass spectrometry-assisted molecular imaging of metabolites during nitrogen fixation in the *Medicago truncatula*-*Sinorhizobium meliloti* symbiosis. *Plant J.* 2013; 75(1):130-45.
22. Jia C, Hui L, Cao W, Lietz CB, Jiang X, **Chen R**, Catherman AD, Thomas PM, Ge Y, Kelleher NL, Li L\*. High-definition de novo sequencing of crustacean hyperglycemic hormone (CHH)-family neuropeptides. *Mol Cell Proteomics.* 2012; 11(12):1951-64.
23. Jiang X, **Chen R**, Wang J, Metzler A, Tlusty M, Li L\*. Mass spectral charting of neuropeptidomic expression in the stomatogastric ganglion at multiple developmental stages of the lobster *Homarus americanus*. *ACS Chem Neurosci.* 2012; 3(6):439-50.
24. Szabo TM, **Chen R**, Goeritz ML, Maloney RT, Tang LS, Li L, Marder E\*. Distribution and physiological effects of B-type allatostatins (myoinhibitory peptides, MIPs) in the stomatogastric nervous system of the crab *Cancer borealis*. *J Comp Neurol.* 2011; 519(13):2658-76.
25. Xiang F, Ye H, **Chen R**, Fu Q, Li L\*. N,N-dimethyl leucines as novel isobaric tandem mass tags for quantitative proteomics and peptidomics. *Anal Chem.* 2010; 82(7):2817-25.
26. Ma M, Wang J, **Chen R**, Li L\*. Expanding the Crustacean neuropeptidome using a multifaceted mass spectrometric approach. *J Proteome Res.* 2009; 8(5):2426-37.
27. Thomas-Virinig CL, Centanni JM, Johnston CE, He LK, Schlosser SJ, Van Winkle KF, **Chen R**, Gibson AL, Szilagyi A, Li L, Shankar R, Allen-Hoffmann BL\*. Inhibition of multidrug-resistant *Acinetobacter baumannii* by nonviral expression of hCAP-18 in a bioengineered human skin tissue. *Mol Ther.* 2009; 17(3):562-9.
28. Ma M, **Chen R**, Ge Y, He H, Marshall AG, Li L\*. Combining bottom-up and top-down mass spectrometric strategies for de novo sequencing of the crustacean hyperglycemic hormone from *Cancer borealis*. *Anal Chem.* 2009; 81(1):240-7.
29. Behrens HL, **Chen R**, Li L\*. Combining microdialysis, NanoLC-MS, and MALDI-TOF/TOF to detect neuropeptides secreted in the crab, *Cancer borealis*. *Anal Chem.* 2008;80(18):6949-58.
30. Ma M, **Chen R**, Sousa GL, Bors EK, Kwiatkowski MA, Goiney CC, Goy MF, Christie AE, Li L\*. Mass spectral characterization of peptide transmitters/hormones in the nervous system and neuroendocrine organs of the American lobster *Homarus americanus*. *Gen Comp Endocrinol.* 2008; 156(2):395-409.
31. Wang J, **Chen R**, Ma M, Li L\*. MALDI MS sample preparation by using paraffin wax film: systematic study and application for peptide analysis. *Anal Chem.* 2008; 80(2):491-500.
32. Wang J, Ma M, **Chen R**, Li L\*. Enhanced neuropeptide profiling via capillary electrophoresis off-line coupled with MALDI FTMS. *Anal Chem.* 2008; 80(16):6168-77.

## **Grants**

### **Current funding:**

1. National Key Research and Development Program 2016YFC0900100(2016.07-2019.07), principal investigator of sub-project, total cost (TC): 1,750,000 RMB
2. National Natural Science Foundation of China Project 21575103 (2016.1-2019.12), principal investigator, TC: 780,000 RMB

### **Past funding:**

1. National Natural Science Foundation of China Youth Project 21205088 (2013.1-2015.12), principal investigator, TC: 230,000 RMB
2. Doctoral Research Fund from the Ministry of Education of China 20121202120001, (2013.1-2015.12),

principal investigator, TC: 40,000 RMB

3. Scientific Research Funds for the Returned Overseas Chinese Scholars (2012.9-2015.9), principal investigator, TC: 50,000 RMB
4. Tianjin Higher Education Science and Technology Development Project 201100112(2011.11-2013.11), principal investigator, TC: 40,000 RMB