

GONGYU LI

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HIGHLIGHTS:

- **USMS: Ultrafast Structural Mass Spectrometry** for Human Disease-linked Proteins/Neuropeptides/Metabolites
- Skilled in Ion Mobility-MS Techniques for Disease-modifying Molecular Basis
- **18** Scientific Papers as (co-)1st Author, including:
2 *Nat Commun*, **4** *Anal Chem*, **1** *Trends Anal Chem*, **1** *Chem Sci*
- **2019 ASMS Postdoctoral Career Development Award**

Professional Preparation



University of Wisconsin-Madison (**UW-Madison**)

Aug 2017-Present Postdoctoral Research Associate, School of Pharmacy



University of Science and Technology of China (**USTC**)

Sep 2012-Jun 2017 Ph.D. in Analytical Chemistry, Department of Chemistry



University of Michigan, Ann Arbor (**UM**)

Apr 2016-Aug 2016 Visiting Graduate Student, Department of Chemistry

July 2019-Aug 2019 Visiting Scholar, Department of Chemistry



Jiangxi Normal University (**JXNU**)

Sep 2008-Jun 2012 B.S. in Chemistry, College of Chemistry and Chemical Engineering

Research Experience



Aug 2017 ~ Present: Postdoctoral Research (**UW-Madison**)

Advisor: Prof. Lingjun Li

Project: *Structural Probing of Glycoproteins and Chiral Aβ Self-Assembly by Ultrafast Structural Mass Spectrometry.*



Sep 2012 ~ Jun 2017: Ph.D. Research (**USTC**)

Advisor: Prof. Guangming Huang

Projects: *Development and Application of Ultrafast Electrophoresis-based In-cell Mass Spectrometry.*



Apr ~ Aug 2016: Visiting Graduate Research (**UM**)/ July ~ Aug 2019: Visiting Scholar Research (**UM**)

Advisor: Prof. Brandon T. Ruotolo

Project: *New Disassembly Pathway of a Multiprotein Complex in the Gas Phase Monitored by IM-MS.*



Dec 2011 ~ Jun 2012: Undergraduate Research (**JXNU**)

Advisor: Prof. Li Wang

Project: *Fabrication, Characterization and Application of a Versatile Electrochemical H₂O₂ Biosensor.*

Highlighted Honors, Awards, Grants, Teaching Experiences & Academic Services

- 2020** Up to date (> **10 review invitations**): Invited Reviewer for *Science Advances/JASMS/ABC/Scientific Reports/ACS Omega/JMS/J Proteomics/BMC...*
- 2019** Finalist for *2019 FACSS Innovation Award* (FACSS: Federation of Analytical Chemistry and Spectroscopy Societies)
- 2019** Travel Award for *Chicago Mass Spec Day 2019*
- 2019** **ASMS Post-Doctoral Career Development Award** (**Highest Honor** of ASMS for Postdocs in MS)
- 2017** Best Poster Award of *2017 IUPAC International Congress on Analytical Sciences*
- 2016** **Fundamental Research Funds** for the Central Universities of USTC (¥ 100k, ~\$16.0k)
- 2016** Fellowship of International Exchange (USTC/UM)
- 2015** *Guanghua* Scholarship of USTC
- 2014** The First Prize Scholarship of USTC
- 2013** **Excellent Teaching Assistant Award** of USTC (Analytical Chemistry – 20-Student Class)
- 2012** **Outstanding Undergraduate Award** of JXNU (**Highest Honor** of JXNU Undergraduate Students)
- 2011** National Endeavor Fellowship of China
- 2010** The First Prize Scholarship of JXNU

Key Presentations & Conferences

11. FACSS SciX 2019, Palm Springs Convention Center, Palm Springs, CA, October 13-18, 2019. (**Invited Talk:** *Molecular Basis for Chirality-regulated A β Self-Assembly and Receptor Recognition Revealed by Ion Mobility-Mass Spectrometry*)
10. ACS Fall 2019 National Meeting, San Diego Convention Center, San Diego, CA, August 25-29, 2019. (**Oral:** *Ion Mobility-Mass Spectrometry Reveals the Effect of Sialylation on Glycoprotein Structures*)
9. Chicago Mass Spec Day 2019, College of Pharmacy, University of Illinois at Chicago, Chicago, IL, July 19, 2019. (**Oral:** *Ion mobility MS investigation of naturally occurring chirality-driven oligomerization and recognition of A β*)
8. The 67th **ASMS** Conference on Mass Spectrometry and Allied Topics, Georgia World Congress Center, Atlanta, GA, June 2-6, 2019. (**Poster:** *"Zero Charge Selection" Ion Mobility-Mass Spectrometry Reveals the Effect of Sialylation on Glycoprotein Structures*)
7. The 66th **ASMS** Conference on Mass Spectrometry and Allied Topics, San Diego Convention Center, San Diego, CA, June 3-7, 2018. (**Oral:** *An Integrative Chiral Anatomy Platform (iCAP) for A β Oligomerization and Recognition*)
6. 2018 Gordon Research Conference-Molecular Structure Elucidation, Jordan Hotel at Sunday River, Newry, ME, August 12-17, 2018. (**Poster:** *An IM-MS Platform for Chiral Effects in Alzheimer's disease*)
5. 2018 Wisconsin Human Proteomics Symposium, Promega Corporation Campus in Madison, Wisconsin, August 10, 2018. (**Poster:** *An IM-MS Platform for Chiral Effects in Alzheimer's disease*)
4. 2017 International Congress on Analytical Sciences, Hainan International Convention & Exhibition Center, Hainan, May 5-8, 2017. (**Poster:** *In-cell MS: Towards Intracellular Protein Interactions via In-situ MS Analysis from Living Cells*)
3. The 2nd Graduate Student Symposium (2016) on Chemistry and Materials Science at USTC, Nov 26-27, 2016. (**Oral:** *Binding States of Protein-Metal Complexes in Cells*)
2. The 2nd National Mass Spectrometry Analytical Symposium of Chinese Chemical Society at Zhejiang University, October 16-19, 2015. (**Poster:** *Direct MS Identification of Spiked Proteins from Complex Biological Mixtures*)
1. The 29th Chinese Chemical Society (CCS) Congress in Peking University, "Beautiful Chemistry", Beijing, China, August 4-7, 2014.

Selected Publications (5 out of 29, Full Publication List: [Attached/GoogleScholar/ResearchGate](#))

1. Gongyu Li and Lingjun Li* et al. [Nanosecond Photochemically Promoted Click Chemistry for Enhanced Neuropeptide Visualization and Rapid Protein Labeling](#). *Nat. Commun.* 2019, 10, 4697.
[**FEATURED** in *Nature Communications* Editors' **HIGHLIGHTS**.]
[**F1000Prime Recommendation**: being of **SPECIAL SIGNIFICANCE** in its field.]
2. Gongyu Li and Lingjun Li* et al. [Molecular Basis for Chirality-regulated A \$\beta\$ Self-Assembly and Receptor Recognition Revealed by Ion Mobility-Mass Spectrometry](#). *Nat. Commun.* 2019, 10, 5038.
3. Gongyu Li and Guangming Huang* et al. [In Situ Living Cell Protein Analysis by Single-Step Mass Spectrometry](#). *Anal. Chem.* 2018, 90, 3409-3415.
4. Gongyu Li and Guangming Huang* et al. [Reliable Tracking In-solution Protein Unfolding via Ultrafast Thermal Unfolding/Ion Mobility-Mass Spectrometry](#). *Anal. Chem.* 2018, 90, 7997-8001.
5. Gongyu Li and Guangming Huang* et al. [Binding States of Protein-Metal Complexes in Cells](#). *Anal. Chem.* 2016, 88, 10860-10866.

References

Available upon request.

Dr. Gongyu Li's Full Publication List (by February 15, 2020):**Postdoc, Pharmaceutical Sciences, Prof. Lingjun Li's Lab, UW-Madison, 2017-Present****To be Published (6):**

29. **Gongyu Li**, Zhen Zheng, Yuan Liu and Lingjun Li*. Mechanistic Insights into Nanosecond Photochemical Reaction (nsPCR) and its Application in Ultrafast Disruption of A β Self-assembly. (**To be submitted**)
28. **Gongyu Li**, Min Ma, Chae Kyung Jeon, Zhen Zheng, Brandon Ruotolo* and Lingjun Li*. Epitope Domain-constrained Structural Flips Differentially Rescue Amyloid Cytotoxicity. (**To be submitted**)
27. **Gongyu Li**, Ashley Phetsanthad, Min Ma, Qinying Yu, Ashita Nair, Zhen Zheng, Kellen DeLaney, Seungpyo Hong and Lingjun Li*. Expedited Structural Mapping of Glycoprotein Sialylations Associated with Alzheimer's Disease. (**To be submitted**)
26. **Gongyu Li**, Zhen Zheng, Junfeng Huang, Qinjingwen Cao, Lingjun Li*, Guangming Huang* and Brandon Ruotolo*. Green Chemistry with Ammonium Bicarbonate: Chemically Crosslinking Subunits Confers Interface-Reflective Disassembly Pathway of Multiprotein Complexes. (**To be submitted**)
25. Yang Liu, **Gongyu Li**, and Lingjun Li*. Targeted Top-down Mass Spectrometry for the Characterization and Tissue-specific Functional Discovery Crustacean Hyperglycemic Hormones (CHH) and CHH Precursor-Related Peptides. (**To be submitted**)
24. Kellen DeLaney,[†] **Gongyu Li**,[†] and Lingjun Li*. Improvements in the Separation and Detection of Neuropeptides with Liquid Chromatography, Capillary Electrophoresis, and Ion Mobility-Mass Spectrometry. *J. Am. Soc. Mass Spectrom.* 2020, *Invited Review.* (**To be submitted**)

Published Online (23):

23. Gaoyuan Lu, Xiaowei Xu, **Gongyu Li**, Nian Wang, Yinxue Zhu, Ning Wan, Yatao Shi, Lingjun Li, Haiping Hao*, and Hui Ye*. Sub-residue Resolution Footprinting of Ligand-Protein Interactions by Carbene Chemistry and Ion Mobility-Mass Spectrometry. *Anal. Chem.* 2020, 92, 947-956. [[Link](#)]
22. **Gongyu Li**, Fengfei Ma, Qinjingwen Cao, Zhen Zheng, Kellen DeLaney, Rui Liu and Lingjun Li*. Nanosecond Photochemically Promoted Click Chemistry for Enhanced Neuropeptide Visualization and Rapid Protein Labeling. *Nat. Commun.* 2019, 10, 4697. [[Link](#)]
[FEATURED in [Nature Communications](#) Editors' HIGHLIGHTS.]
[F1000Prime Recommendation: being of SPECIAL SIGNIFICANCE in its field.]
[Behind the Paper: [Mass Spectrometry Fuels Nanosecond Photochemistry](#)]
21. **Gongyu Li**, Kellen DeLaney, and Lingjun Li*. Molecular Basis for Chirality-regulated A β Self-Assembly and Receptor Recognition. *Nat. Commun.* 2019, 10, 5038. [[Link](#)]
20. **Gongyu Li**, Daniel Delafield, and Lingjun Li*. Improved Structural Elucidation of Peptide Isomers and Their Receptors Using Advanced Ion Mobility-Mass Spectrometry. *Trends Anal. Chem.* 2019, in press. [[Link](#)]
[Invited Review]
19. Qinjingwen Cao, Yijia Wang, Bingming Chen, Fengfei Ma, Ling Hao, **Gongyu Li**, Chuanzi Ouyang, and Lingjun Li*. Visualization and Identification of Neurotransmitters in Crustacean Brain via Multifaceted Mass Spectrometric Approaches. *ACS Chem. Neurosci.* 2019, 10, 1222-1229. [[Link](#)]
18. **Gongyu Li**, Qinjingwen Cao, Yang Liu, Kellen DeLaney, Zichuan Tian, Eugene Moskovets and Lingjun Li*. Characterizing and Alleviating Ion Suppression Effects in Atmospheric Pressure Matrix-Assisted Laser Desorption/Ionization (AP-MALDI). *Rapid Commun. Mass Spectrom.* 2019, 33, 327-335. [[Link](#)]

Ph.D., Analytical Chemistry, Prof. Guangming Huang's Lab, USTC, 2012-2017

17. Yuting Chen,[†] **Gongyu Li**,[†] Siming Yuan, Yang Pan, Yangzhong Liu and Guangming Huang*. Ultrafast Micro-Electrophoresis: Behind Direct Mass Spectrometry Measurement for Proteins and Metabolites in Living Cell/Cells. *Anal. Chem.* 2019, 91, 10441-10447. ([†], co-first author) [[Link](#)]
[Supplementary Cover]
16. Shihui Zheng, Siming Yuan, Zhuanghao Hou, Gongyu Li, Yuting Chen, Yang Pan, Yangzhong Liu and Guangming Huang*.

- Charge-dependent modulation of specific and nonspecific protein-metal ion interactions in nanoelectrospray ionization mass spectrometry. **Rapid Commun. Mass Spectrom.** 2019, 33, 1502. [\[Link\]](#)
15. Tiantian Fang, Wanbiao Chen, Yaping Sheng, Siming Yuan, Qiaowei Tang, **Gongyu Li**, Guangming Huang, Jihu Su, Xuan Zhang,* Jianye Zang,* and Yangzhong Liu*. Tetrathiomolybdate Induces Dimerization of the Metal-binding Domain of ATPase and Inhibits Platination of the Protein. **Nat. Commun.** 2019, 10, 186. [\[Link\]](#)
14. **Gongyu Li**,[†] Shihui Zheng,[†] Yuting Chen, Zhuanghao Hou and Guangming Huang*. Reliable Tracking In-solution Protein Unfolding via Ultrafast Thermal Unfolding/Ion Mobility-Mass Spectrometry. **Anal. Chem.** 2018, 90, 7997-8001. [\[Link\]](#)
13. **Gongyu Li**,[†] Siming Yuan,[†] Shihui Zheng, Yangzhong Liu* and Guangming Huang*. In-situ Living Cell Protein Analysis by Single-step Mass Spectrometry. **Anal. Chem.** 2018, 90, 3409-3415. [\[Link\]](#)
12. **Gongyu Li**,[†] Siming Yuan,[†] Shihui Zheng, Yuting Chen, Zhen Zheng, Yangzhong Liu* and Guangming Huang*. The effect of salts in promoting specific and competitive interactions between zinc finger proteins and metals. **J. Am. Soc. Mass Spectrom.** 2017, 28, 2658-2664. ([†], co-first author) [\[Link\]](#)
11. Zhen Zheng,[†] Peiyao Chen,[†] **Gongyu Li**,[†] Yunxia Zhu,[†] Zhonghua Shi, Yufeng Luo, Chun Zhao, Ziyi Fu, Xianwei Cui, Chenbo Ji, Fuqiang Wang,* Guangming Huang* and Gaolin Liang*. Mechanistic study of CBT-Cys click reaction and its application for identifying bioactive N-terminal cysteine peptides in amniotic fluid. **Chem. Sci.** 2017, 8, 214-222. ([†], co-first author) [\[Link\]](#)
10. Zhen Zheng, **Gongyu Li**, Chengfan Wu, Miaomiao Zhang, Yue Zhao, and Gaolin Liang*. Intracellular synthesis of D-aminoluciferin for bioluminescence generation. **Chem. Commun.** 2017, 53, 3567-3570. [\[Link\]](#)
9. **Gongyu Li**, Siming Yuan, Yang Pan, Yangzhong Liu and Guangming Huang*. Binding states of protein-metal complexes in cells. **Anal. Chem.** 2016, 88, 10860-10866. [\[Link\]](#)
8. Yue Yin, **Gongyu Li**, Yafeng Guan and Guangming Huang*. Sheathless interface to match flow rate of capillary electrophoresis with electrospray mass spectrometry using regular-sized capillary. **Rapid Commun. Mass Spectrom.** 2016, 30 Suppl 1, 68-72. [\[Link\]](#)
7. Zhen Zheng, Hongbin Sun, Chen Hu, **Gongyu Li**, Xiaomei Liu, Peiyao Chen, Yusi Cui, Jing Liu, Junfeng Wang, and Gaolin Liang*. Using "On/Off" FNMR/MRI signals to sense tyrosine kinase/phosphatase activity *in vitro* and in cell lysates. **Anal. Chem.** 2016, 88, 3363-3368. [\[Link\]](#)
6. Zhen Zheng, Lin Wang, Wei Tang, Peiyao Chen, Hui Zhu, Yue Yuan, **Gongyu Li**, Huafeng Zhang, Gaolin Liang*. Hydrazide D-luciferin for *in vitro* selective detection and intratumoral imaging of Cu²⁺. **Biosens. Bioelectron.** 2016, 83, 200-204. [\[Link\]](#)
5. **Gongyu Li**, Jiying Pei, Yue Yin and Guangming Huang*. Direct sequencing of a disulfide-linked peptide with electrospray ionization tandem mass spectrometry. **Analyst** 2015, 140, 2623-2627. [\[Link\]](#)
4. **Gongyu Li** and Guangming Huang*. Alleviation of ion suppression effect in sonic spray ionization with induced alternating current voltage. **J. Mass Spectrom.** 2014, 49, 639-645. [\[Link\]](#)
3. **Gongyu Li**, Yue Yin, Guangming Huang*. Increased disulfide peptide sequence coverage via "cleavage ON/OFF" switch during nanoelectrospray. **RSC Adv.** 2014, 4, 59650-59654. [\[Link\]](#)
2. Hongying Zhu, **Gongyu Li**, Guangming Huang*. Screening of complicated matrixes with paper assisted ultrasonic spray ionization mass spectrometry. **J. Am. Soc. Mass Spectrom.** 2014, 25, 935-942. [\[Link\]](#)

B.S., Chemistry, Prof. Li Wang's Lab, Jiangxi Normal University, 2008-2012

1. Fugang Xu*, Miao Deng, **Gongyu Li**, Shouhui Chen, Li Wang*. Electrochemical behavior of cuprous oxide-reduced graphene oxide nanocomposites and their application in nonenzymatic hydrogen peroxide sensing. **Electrochim. Acta** 2013, 88, 59-65. [\[Link\]](#)

[Google Scholar Citations: 169]