

HAORONG LI

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SUMMARY

- Ph.D. in Chemistry with extensive expertise in liquid chromatography and mass spectrometry.
- Seven years of hands-on experiments with LC-MS instrumentation, LC-MS sample preparation for proteomics/metabolomics on cells (HEK, HeLa, iPSC) and tissue (mouse, human) samples, automation, proximity labeling techniques, and MS data analysis.
- Proven record of consistent publications, conference presentations, and award-winning research.
- Highly collaborative and self-motivated scientist eager to drive biotech/pharma research initiatives.

TECHNICAL SKILLS

- **Instrumentations:** Expert in Thermo Orbitrap QE-HFX and QQQ mass spectrometers, HPLC, and nano-LC.
- **Wet Lab Techniques:** Proximity labeling cell culture and treatment, Protein/metabolite extraction, Bottom-up proteomics sample preparation, Immunopurification, Magnetic beads-based protein enrichment, SP3-based protein purification and digestion, Multi-enzyme digestion, SPE peptide and metabolite clean-up, Liquid-liquid extraction, Fluorescence-based dot blot assays.
- **Data Analysis:** Proficient in Xcalibur, Proteome Discoverer, Spectronaut, MaxQuant, Compound Discoverer, and R.
- **Soft Skills:** Strong writing and oral communication skills, collaborative team player, excellent multi-tasking abilities.

EDUCATION

- Ph.D. in Chemistry, George Washington University, Washington, D.C. (2020–Present, expect to graduate in May 2025)
- M.S. in Chemistry, Miami University, Oxford, OH (2016–2018)
- B.S. in Chemistry, China Agricultural University, Beijing, China (2012–2016)

RESEARCH EXPERIENCE

George Washington University

Washington, DC

Ph.D. in Chemistry

2020–2025

- Dissertation: Developing Mass Spectrometry-based Omics and Proximity Labeling Methods to Unravel Mitochondrial Biology.
- Automated sample preparation workflow for high-throughput proteomics analysis.
- Developed novel proximity labeling techniques to study mitochondrial protein dynamics.
- Collaborated with interdisciplinary teams to investigate neurodegenerative diseases (MELAS, Parkinson's, and Alzheimer's).
- Supervisor: Dr. Ling Hao.

Miami University

Oxford, OH

M.S. in Chemistry

2016–2018

- Dissertation: Development of Secondary Electrospray Ionization Tandem Mass Spectrometry & its Application in Bacterial Headspace Volatile Organic Compounds Detection.
- Developed and applied mass spectrometry instrumentation (SESI-MS) for rapid bacteria identification.
- Supervisor: Dr. Jiangjiang Zhu.

PUBLICATIONS

- 2025: Li. H., Smeriglio, N., Ni, J., Wang, Y., Sekine, S. & Hao, L. Benchmarking and Automating the Biotinylation Proteomics Workflow. (*Manuscript in revision*).
- 2025: Li. H., Mazli, W.A. & Hao, L. Overcoming Analytical Challenges in Proximity Labeling Proteomics. (*Manuscript in submission*).
- 2024: Smeriglio, N., Li. H., Mazli, W., Bendel, K., & Hao, L. Contaminant Spot Check and Removal Assay (ContamSPOT) for Mass Spectrometry Analysis. (2024). *Analytical Chemistry*.
- 2023: Hasan, S., Fernandopulle, M., Humble, S., Frankenfield, A., Li. H., Prestil, R., Johnson, K., Ryan, B., Wade-Martins, R., Ward, M., & Hao, L. Multi-modal proteomic characterization of lysosomal function and proteostasis in progranulin-deficient neurons. (2023). *Molecular Neurodegeneration*.
- 2022: Li. H., Uittenbogaard, M., Navarro, R., Ahmed, M., Gropman, A., Chiamarello, A., & Hao, L. Integrated proteomic and metabolomic analyses of the mitochondrial neurodegenerative disease MELAS. (2022). *Molecular Omics*.
- 2021: Li. H., Frankenfield, A. M., Houston, R., Sekine, S., & Hao, L. Thiol-cleavable biotin for chemical and enzymatic biotinylation and its application to mitochondrial TurboID proteomics. (2021). *Journal of the American Society for Mass Spectrometry*.
- 2021: Li. H., Uittenbogaard, M., Hao, L., & Chiamarello, A. Clinical insights into mitochondrial neurodevelopmental and neurodegenerative disorders: Their biosignatures from mass spectrometry-based metabolomics. (2021). *Metabolites*.
- 2018: Li. H., Xu. M. & Zhu, J. Headspace gas monitoring of gut microbiota using targeted and globally optimized targeted secondary electrospray ionization mass spectrometry. (2018). *Analytical chemistry*.
- 2018: Li. H., & Zhu, J. Differentiating antibiotic-resistant staphylococcus aureus using secondary electrospray ionization tandem mass spectrometry. (2018). *Analytical chemistry*.
- 2018: Li. H., Zhu, J. & Hill, J. E. Secondary electrospray ionization mass spectrometry for breath studies. (2018). *Book Chapter: Encyclopedia of Analytical Chemistry: Applications, Theory and Instrumentation*.
- 2017: Li. H. & Zhu, J. Targeted metabolic profiling rapidly differentiates Escherichia coli and Staphylococcus aureus at species and strain level. (2017). *Rapid Communications in Mass Spectrometry*.

CONFERENCE PRESENTATIONS

Orals

- **2025:** ASMS Annual Conference (Accepted, Baltimore) — Unraveling the Dynamics of Mitochondrion-Lysosome Crosstalk Using an Automated Proximity Labeling Proteomics Workflow.
- **2025:** US HUPO Annual Conference (Philadelphia) — Lightning talk: Unraveling the Dynamics of Mitochondrion-Lysosome Crosstalk Using an Automated Proximity Labeling Proteomics Workflow.
- **2024:** CNPN Annual Conference (Whistler, Canada) — Benchmarking and Automating the Biotinylation Proteomics Workflow.
- **2024:** US HUPO Annual Conference (Portland) — Lightning talk on Benchmarking and Automating Biotinylation Proteomics.
- **2022:** CASMS Conference — Integrated Proteomics and Metabolomics of MELAS.
- **2021:** North American Mass Spectrometry Summer School — Flash talk: Thiol-Cleavable Biotin for Mitochondrial TurboID Proteomics.

Posters

- **2025:** US HUPO Annual Conference (Philadelphia) — Unraveling the Dynamics of Mitochondrion-Lysosome Crosstalk Using an Automated Proximity Labeling Proteomics Workflow.
- **2024:** US HUPO Annual Conference (Portland) — Benchmarking and Automating the Biotinylation Proteomics.
- **2023:** ASMS Annual Conference (Houston) — Developing Peptide-centric Cleavable Proximity Labeling Proteomics to Study Mitochondrial Membrane Protein Topology.
- **2023:** US HUPO Annual Conference (Chicago) — Benchmarking Enrichment Methods for Biotinylation Proteomics.
- **2022:** ASMS Annual Conference (Minneapolis) — Integrated Proteomics and Metabolomics of Mitochondrial Neurodegenerative Disease MELAS.
- **2021:** SCBA DC-Baltimore Chapter 2021 Annual Symposium (Society of Chinese Bioscientists in America.) — Thiol-Cleavable Biotin for Chemical Biotinylation and Its Application to Mitochondrial TurboID Proteomics.
- **2021:** ASMS Annual Conference (Philadelphia) — Thiol-Cleavable Biotin for Chemical Biotinylation and Its Application to Mitochondrial TurboID Proteomics.
- **2021:** US HUPO Annual Conference (Virtual) — MS-based Proteomics and Metabolomics of MELAS Syndrome.
- **2018:** Ohio Mass Spectrometry and Metabolomics Symposium (Columbus) — Differentiating Methicillin Susceptible and Resistant *Staphylococcus aureus* Using Secondary Electrospray Ionization Tandem Mass Spectrometry.

COLLABORATIVE PROJECTS

- **2025:** Dr.Xuan Li, University of Maryland College Park, Proteomic analysis of isolated mitochondria from rat tissue.
- **2025:** Dr.Maria Chiara Manzini, Rutgers University, DIA data analysis of AP-MS of mouse tissues. Manuscript in preparation.
- **2024:** Dr.Jobert Vargas, University College London, Investigating LIC1 phosphorylation sites using multi-enzyme digestion. Manuscript in preparation.
- **2023:** Dr.Gary Pickrell, Virginia Tech, TBK1 immunoprecipitation and SILAC sample processing and LC-MS analysis.
- **2023:** Dr.Amanda Myers, University of Miami, Immunoprecipitation of HSPA2 from human brain tissues to study Alzheimer's disease. Manuscript in preparation.
- **2022:** Dr.Yong Wan, University of Pittsburgh, ER-Proximity labeling of mouse osteoblast to study bone remodeling and osteoporosis. Manuscript in revision.

AWARDS

- **2024:** Rising Stars in Proteomics Award, Canadian National Proteomics Network, 2024, Whistler, Canada.
- **2024:** Mary Hopkins Shepard Doctoral Fellowship Award, GWU.
- **2024:** Best Poster Award, US HUPO, 2024, Portland, Oregon.
- **2022:** Washington-Baltimore MS Discussion Group Young Investigator Travel Award (1st Place).
- **2021:** Best Poster Award, SCBA DC-Baltimore Chapter Annual Symposium.
- **2021:** Bourdon F. Scribner Fellowship Award, GWU.
- **2020:** Bourdon F. Scribner Fellowship Award, GWU.