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Metabolomics assisted with stable-isotope labeling: exploring neuronal metabolism related to Parkinson's disease

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Curriculum vitae

Luojiao Huang was born on January 28th, 1993, in Yueqing, Zhejiang Province, China. In 2011, she obtained her high school diploma at Nanjing No. 1 Middle School. After her graduation, she was admitted to China Pharmaceutical University and studied traditional Chinese pharmacy. In her last year of bachelor study, she moved to the Institute of Materia Medica, Peking Union Medical College in Beijing, and started her bachelor's internship. She worked on the project of developing an LC-MS/MS method for the quantitative determination of 5-HMF (2-furfural) in traditional Chinese medicine injections. During her bachelor's study, she was awarded the China National Scholarship and university scholarships.

In September 2015, she started her master's study at Peking Union Medical College. She joined the group of Prof. Dr. Zeper Abliz and worked under the supervision of Dr. Jiuming He. Her master's project focused on using ambient mass spectrometry imaging techniques to perform molecular pathological diagnosis for thyroid tumors. Relevant research results were published in the journals *Analytica Chimica Acta* and *Molecules*. In 2016, she began her industrial internship at Beijing Ninesky Biomedical Technology and performed a preclinical pharmacokinetic study of dezocine. In June 2018, Luojiao obtained her master's degree, and her thesis was awarded the National Excellent Dissertation in Pharmacy.

In September 2018, she started her PhD work in the group of Prof. Dr. Thomas Hankemeier at Leiden University. Under the supervision of Dr. Amy Harms and Dr. Ronan Fleming, she focused on developing a tracer-based metabolomics methodology applied to investigating metabolic dysfunction in Parkinson's disease. Relevant research results were published in the journals *Analytical Chemistry* and *Metabolites*. In 2022, she gave a poster presentation at the Metabolomics Conference 2022 in Valencia, Spain. In 2023, she was invited to present her work at a webinar with SCIEX and Separation Science.

After her PhD, Luojiao is now working with Dr. Berta Cillero Pastor and Prof. Dr. Martijn van Griensven at Maastricht University. As a postdoctoral researcher, she is working on the development and application of mass spectrometry-based methods to characterize human infrapatellar fat pads for regenerative medicine using proteomics and mass spectrometry imaging.

List of publications

1. **L. Huang**, N. Drouin, J. Causon, A. Wegrzyn, J. Castro-Perez, R. Fleming, A. Harms, T. Hankemeier, Reconstruction of Glutathione Metabolism in the Neuronal Model of Rotenone-Induced Neurodegeneration Using Mass Isotopologue Analysis with Hydrophilic Interaction Liquid Chromatography-Zeno High-Resolution Multiple Reaction Monitoring, *Anal. Chem.* (2023).
2. F. Hosseinkhani*, **L. Huang***, A.-C. Dubbelman, F. Guled, A.C. Harms, T. Hankemeier, Systematic Evaluation of HILIC Stationary Phases for Global Metabolomics of Human Plasma, *Metabolites*. 12 (2022) 165.
3. **L. Huang**, A. Wegrzyn, V. Verschoor, F. R. Rosmasari, W. Yang, A. Kindt-Dunjko, J. C. Schwamborn, C. Klein, A. Harms, R. Fleming, T. Hankemeier, Unraveling the Metabolic Dysfunction Processes Fueling Parkinsonism Pathogenesis in Human iPSC-derived Mid-brain Neurons with PINK1 Mutation and Rotenone Exposure, In submission.
4. **L. Huang***, G. Preciat*, J. Alarcon-Gil*, E. L. Moreno, A. Wegrzyn, I. Thiele, E. Schymanski, A. Harms, R. Fleming, T. Hankemeier, fluxTrAM: Integration of tracer-based metabolomics data into atomically resolved genome-scale metabolic networks for metabolic flux analysis, In preparation.

Not part of this thesis

5. **L. Huang***, X. Mao*, C. Sun, T. Li, X. Song, J. Li, S. Gao, R. Zhang, J. Chen, J. He, Z. Abliz, Molecular Pathological Diagnosis of Thyroid Tumors Using Spatially Resolved Metabolomics, *Molecules*. 27 (2022) 1390.
6. X. Mao*, **L. Huang***, T. Li, Z. Abliz, J. He, J. Chen. Identification of Diagnostic Metabolic Signatures in Thyroid Tumors Using Mass Spectrometry Imaging. *Molecules*. 28 (2023) 5791.
7. Y. He, M. van Mever, W. Yang, **L. Huang**, R. Ramautar, Y. Rijksen, W.P. Vermeij, J.H.J. Hoeijmakers, A.C. Harms, P.W. Lindenburg, T. Hankemeier, A Sample Preparation Method for the Simultaneous Profiling of Signaling Lipids and Polar Metabolites in Small Quantities of Muscle Tissues from a Mouse Model for Sarcopenia, *Metabolites*. 12 (2022) 742.
8. **L. Huang***, X. Mao*, C. Sun, Z. Luo, X. Song, X. Li, R. Zhang, Y. Lv, J. Chen, J. He, Z. Abliz, A graphical data processing pipeline for mass spectrometry imaging-based spatially resolved metabolomics on tumor heterogeneity, *Analytica Chimica Acta*. 1077 (2019) 183–190.
9. J. He*, **L. Huang***, R. Tian, T. Li, C. Sun, X. Song, Y. Lv, Z. Luo, X. Li, Z. Abliz, MassImager: A software for interactive and in-depth analysis of mass spectrometry imaging data, *Analytica Chimica Acta*. 1015 (2018) 50–57.

10. C. Sun, T. Li, X. Song, **L. Huang**, Q. Zang, J. Xu, N. Bi, G. Jiao, Y. Hao, Y. Chen, R. Zhang, Z. Luo, X. Li, L. Wang, Z. Wang, Y. Song, J. He, Z. Abliz, Spatially resolved metabolomics to discover tumor-associated metabolic alterations, *Proc Natl Acad Sci U S A*. 116 (2019) 52–57.
11. J. He, C. Sun, T. Li, Z. Luo, **L. Huang**, X. Song, X. Li, Z. Abliz, A Sensitive and Wide Coverage Ambient Mass Spectrometry Imaging Method for Functional Metabolites Based Molecular Histology, *Advanced Science*. 6 (2019) 1802201.

** Authors contributed equally*

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