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

Huang, L.

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).
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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.
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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.

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Acknowledgements

The thesis marks the end of a long and wonderful journey full of challenges and surprises, pleasures and anxieties, changes and growths. I would like to express my deepest appreciation to all those who have accompanied me on this journey.

First and foremost, Thomas, I would like to look back with great enthusiasm on having worked with this diverse and dynamic team, always being encouraged by you to explore my own directions, and being provided freedom and unwavering support. Your enthusiasm and dedication to science have greatly inspired me to develop as a scientist. I appreciate every moment of our scientific discussion and the special moment you celebrated our progress with German sparkling wine.

Amy, your constructive criticism, insightful feedback, affirmation, and encouragement have been invaluable to my academic growth. I deeply appreciate the guidance and assistance you have provided. Ronan, your expertise and unique insights into the research fields have greatly broadened my scientific perspective and highly motivated me to work across fields. Aga, you have always been supportive, giving me solid advice and guidance during challenging times. I appreciate it very much.

My best students, Rosma and Jesus, I am fortunate to have you join my projects. Your curiosity, enthusiasm, and hard work have continuously fueled my passion for research. During this journey, it has also been a privilege for me to work with many fantastic scientists. Jason and Jose, our collaboration brought many inspirations to my method development. I am grateful for the precious feedback you provided on our work. Nicolas, You have always been generous in sharing your knowledge, experiences, and ideas with me. I enjoyed our scientific discussions, particularly those crazy drawings on our office door. Anne-Charlotte, It has been a pleasure to collaborate with you on our first HILIC paper; your constructive criticism has significantly enriched the quality of our work.

Many thanks go to all my past and present lovely colleagues. Farideh, German, Wei Yang, and Vincent, this thesis would not have been possible without your incredible collaborations. I appreciate all the sparkling moments during our discussion and our endeavors to improve our research. My dear officemates, Wei Zhang, Cornelius, Yupeng, Kanchana, and Congrou, thanks for bringing me so much daily laughter and positive vibes. I often miss it now. Loes, Ina, Cathy, and Ariadne, thank you for all the administrative work that makes our research more efficient. Gerwin, Tim, and Faisa, thank you for your dedication to maintaining our laboratory's infrastructure and equipment, always ensuring our lab work runs smoothly. Sabine, Daisy, and Nanda, thank you for sharing knowledge and offering help at the beginning of my PhD. Michael, thank you for your constant assistance in resolving many headache hardware and software issues. Alida, thank you for helping me navigate the

complexities of metabolomic data collection, interpretation, and statistical analysis. Hyung and Ida, thank you for your tremendous assistance with the Dutch summary of my thesis. Ahemd, thanks for arranging the focus group for writing and all the delicious meals afterward. Edinson, thank you for giving me the training and assistance in neuronal culture. I have learned a lot from your patience and self-discipline. Special thanks to my Chinese colleagues, Wei Zhang, Wei Yang, Zhengzheng, Xinyu, Yupeng, Bingshu, Pingping, Congrou, Mengle, Chunyuan, Yu, Lu, and Xiaoyue. Whether work-related or personal, you share with me much invaluable experience and lessons. Your companionship, encouragement, and incredible meals gave me home feelings, enabling me to endure pandemic periods. Babara, Madhu, Simon, Mariana, Manchu, Marlien, Marielle, Isabelle, Ischa, Laura, Paul, Maik, and Sam, you have made MAC a very inclusive and comfortable workplace. Thank you for all the enjoyable lunch talks, dancing clubs, borrels and parties, barbecues, pingpong competitions, etc. I truly enjoyed those beautiful moments with you.

Yuqing, Yu Fu, Lu Chen, Liyan, Feiyan, Deyi, Chenguang, Zirui, Diyu, and Maria, my best buddies in Leiden since the beginning of my journey, have together experienced the beautiful Dutch landscape, cultural shocks, and multiple firsts. We have made unforgettable memories, and I wish you all the best in your future. Jiangshuo, Xiaoyu, Muyin, Jie, Hong, and Xinyue, although we live in different time zones, you can warm me up and give me the best support whenever I need it. Our friendship will last forever.

Binhao, Thank you for everything you have done for me, my best love!

Last but not least, my loved mom and dad, your open-mindedness and optimism give me the most confidence and perseverance to pursue my academic dream. Luoyi, Luojie, my dearest sister and brother, I am fortunate to have you in my life. Thank you for taking care of the family throughout this journey. I know that no matter what, you will unconditionally support me and remind me of the importance of health and laughter.