

Jiyoun Lee

PERSONAL INFORMATION

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eRA COMMONS USER NAME (credential, e.g., agency login): LEE2357

POSITION TITLE: Ph.D. candidate

EDUCATION

- | | |
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| Sep.2023~
Present | University of Wisconsin- Madison – Madison, WI
Pre-doctoral Neuroscience Training program |
| Mar. 2020 ~
Feb. 2022 | Korea University, Seoul, Republic of Korea
Master of Science in integrated Biomedical and Life Sciences <ul style="list-style-type: none">• Master's Thesis: A Study on the Role of AMIGO2 in Neuronal Morphogenesis |
| Mar. 2016 ~
Feb. 2020 | Korea University, Seoul, Republic of Korea
Bachelor of Science in Biosystems and biomedical sciences Bachelor of Science in Medical Convergence Engineering <ul style="list-style-type: none">• Bachelor's Thesis: Identification of binding protein of TWIK1 ion channel using Bi-FC |

WORK EXPERIENCE

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| Feb. 2020~
Aug. 2018 | Korea University, Seoul, Republic of Korea
<i>Student Researcher, Functional Interactomics Laboratory</i> (Prof. Jae-Yong Park) <ul style="list-style-type: none">• Confirmed endogenous or overexpressed expression patterns of various proteins using Western blotting, Immunocytochemistry (ICC)/ Primary astrocyte culture• Mouse perfusion and cryosection, Immunohistochemistry (IHC), and confocal imaging• Mutagenesis: Mutation forms cloning of TRESK protein/ Plasmid DNA transfection/ Mouse genotyping• Bi-FC assay: Search for the binding proteins (BioID2 proteins) with TWIK1 ion channel protein/ Gateway Cloning/ Mouse genotyping |
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RESEARCH EXPERIENCE

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| Mar. 2021 ~
Feb. 2022 | BK21 Korea Pilot Grant for master's degree researcher, Korea University <ul style="list-style-type: none">• Project Title: <i>Learning-Healthcare Of the Public for Equity ("L-HOPE")</i>• Party of support: BK21 R&E center for learning health systems (Ministry of Education)• The purpose of this project is leading the data-driven healthcare innovation focusing on health equity and healthcare for all.• Translated (joint translation project) the "Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programs (ISBN 978-92-4-001056-7)" for the "BK21 FOUR R&E center for learning health systems."• Presented a poster at the Korean Society for Molecular and Cellular Biology and wrote a thesis upon completing my studies for the Learning Health System Convergence major between March 2021 and February 2022. My research focused on the functions of the AMIGO2 protein - a type of LRR protein - in neurons. Observations newly confirmed that AMIGO2 is involved in the morphogenesis of neurons and that it promotes the maturation of neurons.• Results also revealed that AMIGO2 plays a crucial role in the morphogenesis and maturation of neurons, suggesting that the C-terminal component is particularly essential for AMIGO2 expression and function at its normal position.• Moreover, during the above period, I enrolled myself in the requisite foundational courses for the Learning Health System Convergence major: Introduction to Community-Based Learning Health Systems (LHS501), Basics of Research Ethics (LHS503), and Academic Writing for Natural Science (LHS507). |
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Mar. 2021 ~
Feb. 2022

Master's Degree Researcher, Korea University

- Project Title: ***"Study on the Brain Cell-Specific Functions of TWIK1 Ion Channel based on the Interactome"***
- Upon identifying the proteins interacting with the TWIK1 ion channel protein, I obtained the brains of TWIK-1 BAC-GFP transgenic mice through perfusion, then acquired immunofluorescence images using cryosection and IHC.
- Party of support: National Research Foundation of Korea (NRF)
- The purpose of this project is to find the novel proteins that have roles in brain inflammation and study about their mechanism.
- I found the proteins which interact with TWIK 1 ion channel protein and gained the brain of TWIK-1 BAC-GFP transgenic mice through perfusion. I acquired immunofluorescence images through IHC.
- TWIK-1 BAC-GFP transgenic mice helped present its utility value as an animal model used in experiments designed to uncover the functions of TWIK1.

Jan. 2021 ~
Dec. 2021

Master's Degree Researcher, Korea University

- Project Title: ***"Electrophysiological Study of the Habenular-Monoamine Central Nervous System"***
- Party of support: National Research Foundation of Korea (NRF)
- The purpose of this project is studying proteins that express abundantly in brain habenula and researching for the roles of that proteins in synaptic function or neuronal morphology.
- I conducted studies of a novel protein function in habenula and performed scanning novel binding proteins based on protein-protein interaction.
- In doing so, I was able to propose new binding partner proteins for the protein found in the habenula.

Jan. 2021 ~
Dec. 2021

Master's Degree Researcher, Korea University

- Project Title: ***"Membrane Protein-based Study of Controlling Brain Inflammation"***
- Party of support: National Research Foundation of Korea (NRF)
- The purpose of this project is to find the novel proteins that have roles in brain inflammation and study about their mechanism.
- I observed and analyzed changes of protein expression level in the brain tissues of a protein KO mouse model with symptoms of inflammation.
- The study revealed cre-dependent protein expression levels in primary hippocampal astrocytes of LCN2-cTg mice using ICC, western blotting, and ELISA testing methods.
- Results suggested that LCN2 expression levels in the hippocampus of LCN2-cTg mice exhibited a pattern similar to the LPS-induced neuroinflammatory model.

TEACHING EXPERIENCE

Fall 2025-
Present

UW-Madison, Wisconsin, USA
Mentor

- SURFiN (Shenoy Undergraduate Research Fellowship in Neuroscience)

Spring 2020

Korea University, Seoul, Republic of Korea
Teaching Assistant

- Neuroscience, Prof. Jae-Yong Park

Introduction to Biomedical science, Prof. Jae-Yong Park

Spring 2019

Center for teaching and learning, Korea University, Seoul, Republic of Korea
Tutor

- Peer tutoring program (Neuroscience), Prof. Jae-Yong Park

PUBLICATIONS

- [1] Carissa L. Sirois, **Jiyoun Lee**, Audrey L. Chambers, Xinyu Zhao (2026) "Mitochondrial dynamics in neurodevelopment and neurodevelopmental disorders" *Nature Reviews Neuroscience*. DOI: 10.1038/s41583-026-01031-7
- [2] Carissa Sirois, Yu Guo, Meng Li, Natalie Wolkoff, Tomer Korabelnikov, Soraya Sandoval, **Jiyoun Lee**, Minjie Shen, Amaya Contractor, Andre Sousa, Anita Bhattacharyya, Xinyu Zhao (2024) "CGG repeats in the human FMR1 gene regulate mRNA localization and cellular stress in developing neurons" *Cell Reports*. DOI: 10.1016/j.celrep.2024.114330
- [3] Jae-Hong Kim, Osung Kwon, Anup Bhusal, **Jiyoun Lee**, Eun Mi Hwang, Hoon Ryu, Jae-Yong Park, Kyoungsoo Suk (2022) "Neuroinflammation Induced by Transgenic Expression of Lipocalin-2 in Astrocytes." *Frontiers in Cellular Neuroscience*. DOI: 10.3389/fncel.2022.839118
- [4] Sri Murugan Poongkavithai Vadevoo, Gowri Rangaswamy Gunassekaran, ChaeEun Lee, NaHye Lee, **Jiyoun Lee**, Sehyun Chae, Jae-Yong Park, JaeHyung Koo, and Byunghoon Lee (2021). "The macrophage odorant receptor Olfr78 mediates

- the lactate-induced M2 phenotype of tumor-associated macrophages." *PNAS*. DOI: 10.1073/pnas.2102434118
- [5] Osung Kwon, Hayoung Yang, Seung-Chan Kim, Juhyun Kim, Jaewon Sim, **Jiyoun Lee**, Eun-Mi Hwang, Sungbo Shim and Jae-Yong Park (2021). "TWIK-1 BAC-GFP Transgenic Mice, an Animal Model for TWIK-1 Expression." *Cells*, DOI: 10.3390/cells1010275

AWARDS, SCHOLARSHIPS, AND HONORS

Summer 2026- Summer 2028	FRAXA fellowship (\$50,000 per year for 2 years), Fragile X research foundation
Spring 2022	Won the Outstanding Award at the "Learning Hope with the L-HOPE Community" Academic Conference hosted by the BK21 FOUR R&E center for learning health systems
Fall 2021	Research scholarship, National Research Foundation of Korea (NRF)
Spring 2021	Research Associate Scholarship (100% tuition fee), Korea University
Fall 2019	[1] VERITAS PROGRAM SCHOLASHIP, Korea University [2] Semester High Honors, Korea University
Spring 2019	[1] Semester High Honors, Korea University [2] Dean's List, Korea University
Spring 2018	Dean's List, Korea University
Spring 2016	[1] Semester High Honors, Korea University [2] Dean's List, Korea University

CONFERENCE PRESENTATION

- [1] Nasteha Sahal, **Jiyoun Lee**, Xinyu Zhao (2026) "Investigating the Mechanisms Underlying RACK1 Regulation of Neuronal Development and Mitochondrial Function in Human Neurons". SURFiN conference, New York, NY.
- [2] **Jiyoun Lee**, Yu Guo, Eric Chiang, Jensen Weik, Drew Trygstad, Paofue Yang, Carissa L. Sirois, Yu Gao, Xinyu Zhao (2025) "Investigating the Mechanisms Underlying RACK1 Regulation of Neuronal Development and Maturation". UW-Madison SCRCM conference, Madison, WI.
- [3] Carissa Sirois, Yu Guo, Meng Li, Natalie Wolkoff, Tomer Korabelnikov, Soraya Sandoval, **Jiyoun Lee**, Minjie Shen, Amaya Contractor, Andre Sousa, Anita Bhattacharyya, Xinyu Zhao (2024) "CGG repeats in the human FMR1 gene regulate mRNA localization and cellular stress in developing neurons". Society for Neuroscience, Chicago, IL.
- [4] Eunsil Cho, **Jiyoun Lee**, EunMi Hwang, Seung-HaeKwon, and Jae-Yong Park. (2024) "14-3-3 γ affects neuronal development, morphogenesis and synapse formation in cerebral cortex". Society for Neuroscience, Chicago, IL.
- [5] Eunsil Cho, **Jiyoun Lee**, EunMi Hwang, Seung-HaeKwon, and Jae-Yong Park (2022). "14-3-3 γ protein affects cortical layer development, neuronal morphogenesis and synapse formation in cerebral cortex". 2022 BK21 FOUR R&E center for learning health systems conference, Seoul. Republic of Korea. February 16, 2022.
- [6] **Jiyoun Lee**, Eunsil Cho, Yeonju Bae, EunMi Hwang, and Jae-Yong Park (2021). "The Role of AMIGO2 in the Morphogenesis and Maturation of Neurons" (Korean Society for Molecular and Cellular Biology), Jeju. Republic of Korea. November 3-5, 2021.

VOLUNTEER/ EXTRACURRICULAR ACTIVITIES

Spring 2019	Center for Teaching and Learning, Korea University, Seoul, Republic of Korea <i>Tutor</i> • Taught "Neuroscience" as part of the Korea University peer tutoring program. • Total teaching hours: 16 hours • Received the Certificate of Achievement (Neuroscience)
Spring 2017	Korea University Buddy Assistants (KUBA), Seoul, Republic of Korea • I supported international students traveling from various countries to the Korea University as exchange students adjust to day-to-day life at the University by helping them register for courses, issue their student IDs, open bank accounts, and take classes. • Aside from academics, I also met with international students three times a week to eat together, introduce/share Korean culture, and participate in various school events to help them become a part of the school's community. • I earned a certificate after volunteering for a total of 77 hours as a "Buddy Assistant."
Spring 2016 ~ Spring 2017	Student Council, School of Biosystems and Biomedical Sciences at the Korea University College of Health Science, Seoul, Republic of Korea <i>Student Council Records Manager</i> • Organized and participated in various school events. • Performed due diligence duties for various school events (school festivals, regular meetings, retreats, lab touring). • Participated in regular meetings once a week as the secretary, and shared announcements pertaining to school activities.

ADDITIONAL REMARKS

I hereby certify that above detailed statements are all true and correct.



Signed by, **Jiyoung Lee**