

Seung Hyun Ryu, M.S.

Graduate Student, Interdisciplinary Program in Neuroscience
Seoul National University

CONTACT INFORMATION

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EDUCATION

- 2021 - 2023 M.S. in Interdisciplinary Program in Neuroscience,
Seoul National University, KR (Advisor: Dr. Sunghoe Chang)
Thesis: SCAMP5/AP-4 dependent trafficking mediates presynaptic
localization of the core autophagy protein ATG9A
- 2016 - 2020 B.E. in Control and Instrumentation Engineering, Korea University, KR
B.E. in Biomedical Engineering, Korea University, KR
- (2023 - 2025) Military service in Republic of Korea Air Force

PROFESSIONAL EXPERIENCE

- 2021 - 2023 **Graduate student**, Interdisciplinary Program in Neuroscience M.S. Program,
Seoul National University
- 2020 - 2021 **Researcher**, Department of Physiology and Biomedical Sciences,
Seoul National University College of Medicine

HONORS & AWARDS

- 2023 IBRO World Congress Travel Grant Award, 11th IBRO World Congress of
Neuroscience IBRO 2023
- 2022 - 2023 Fellowship for Fundamental Academic Fields, Seoul National University
- 2021 Merit-based Scholarship, Seoul National University
- 2018 Poster Award, Annual Capstone Design Conference, Korea University
(Poster: Image-Based Doorlock System)
- 2017 Poster Award, Annual Academic Conference on Electro-Mechanical
Systems Engineering, Korea University
(Poster: Self Healthcare Device Using EOG Measurement)
- 2016 Poster Award, Annual Academic Conference on Control and Instrumentation
Engineering, Korea University
(Poster: Sound Activated Multi Color LED Cube)
- 2016 Academic Excellence Award, Korea University

PUBLICATIONS

1. Eom M, Han S, Park P, Kim G, Cho E-S, Sim J, Lee K-H, Kim S, Tian H, Böhm UL, Lowet E, Tseng H-a, Choi J, Lucia SE, Ryu SH, Rózsa M, Chang S, Kim P, Han X, Piatkevich KD, Choi M, Kim C-H, Cohen AE, Chang J-B, Yoon Y-G. Statistically unbiased prediction enables accurate denoising of voltage imaging data. *Nat Methods*. 20:1581-1592. (2023).

2. Lee BJ, Lee U, Ryu SH, Han S, Lee SY, Lee JS, Ju A, Chang S, Lee S-H, Kim SH, Ho W-K. L-type Ca²⁺ channels mediate regulation of glutamate release by subthreshold potential changes. *Proc Natl Acad Sci U S A*. 120(12):e2220649120. (2023).
3. Lee YH, Suh BK, Lee U, Ryu SH, Shin SR, Chang S, Park SK, Chung KC. DYRK3 phosphorylates SNAPIN to regulate axonal retrograde transport and neurotransmitter release. *Cell Death Discov*. 8(1):503. (2022).
4. Lee U, Ryu SH, Chang S. SCAMP5 mediates activity-dependent enhancement of NHE6 recruitment to synaptic vesicles during synaptic plasticity. *Mol Brain*. 14(1):47. (2021).
5. Lee U, Choi C, Ryu SH, Park D, Lee S-E, Kim K, Kim Y, Chang S. SCAMP5 plays a critical role in axonal trafficking and synaptic localization of NHE6 to adjust quantal size at glutamatergic synapses. *Proc Natl Acad Sci U S A*. 118(82):e2011371118. (2021).

ORAL PRESENTATIONS

- 2023 SCAMP5/AP-4 dependent trafficking mediates presynaptic localization of the core autophagy protein ATG9A
Invited talk, Seoul National University College of Medicine, Seoul. March 20th

POSTER PRESENTATIONS (INTERNATIONAL)

1. Ryu SH, Lee J, Lee U, Kim K, Chang S. SCAMP5/AP-4 dependent trafficking mediates presynaptic localization of the core autophagy protein ATG9A.
11th IBRO World Congress of Neuroscience IBRO 2023. September 12th, 2023
2. Lee U, Ryu SH, Lee J, Chang S. Presynaptic localization of ATG-9 is regulated by SCAMP5 associated with AP-4 complex.
The Federation of European Neuroscience Societies Forum 2022. July 9th, 2022
3. Ryu SH, Lee U, Lee J, Kim K, Chang S. TurboID-based proximity labelling reveals different interaction proteomes between SCAMP5 WT and G180W mutant
The 25th Annual Meeting of the Korean Society for Brain and Neural Sciences. May 19th, 2022
4. Lee U, Ryu SH, Lee J, Chang S. Presynaptic localization of ATG-9 for presynaptic autophagy is regulated by the interaction between SCAMP5 and AP-4 complex.
The 25th Annual Meeting of the Korean Society for Brain and Neural Sciences. May 19th, 2022
5. Lee U, Ryu SH, Chang S. SCAMP5 mediates activity-dependent enhancement of NHE6 recruitment to synaptic vesicles during synaptic plasticity.
The 24th Annual Meeting of the Korean Society for Brain and Neural Sciences. May 20th, 2021

POSTER PRESENTATIONS (DOMESTIC)

1. Ryu SH, Lee U, Lee J, Kim K, Chang S. TurboID-based proximity labelling reveals different interaction proteomes between SCAMP5 WT and G180W mutant
The 2022 Fall Conference of SNU Neuroscience Research Institute and Memory Network Medical Research Center. Nov 25th, 2022

TEACHING

- 2023 *Teaching Assistant*. Seminars in Neuroscience 1, Seoul National University
 2022 *Teaching Assistant*. Principles of Neuroscience 2, Seoul National University
 2022 *Teaching Assistant*. Seminars in Neuroscience 2, Seoul National University
 2022 *Teaching Assistant*. Selective Course 1 - Tissue Clearing & Expansion microscopy (ExM) Methods, Seoul National University College of Medicine.
 2022 *Instructor*. Experiment Protocol Workshop - Expansion microscopy (ExM) Methods,

Seoul National University College of Medicine.

- 2022 *Teaching Assistant.* Principles of Neuroscience 1, Seoul National University
- 2022 *Teaching Assistant.* Seminars in Neuroscience 1, Seoul National University
- 2017 *Teaching Assistant.* General Physics, Korea University