

Unit Name

Synapse Biology Unit

Collaborations

Term 2 2024 - Term 2 2024

Sam Reiter, OIST, Japan, Synaptic and network characterization of cephalopod brain

Research Personnel

May 2024 - Present

- Rudi Tong, Postdoctoral Scholar
- Sharon Babar, PhD student
- Zachary Taoufiq, Senior Staff Scientist
- Tetsuya Hori, Senior Staff Scientist
- Wen-Hsin Lu, Postdoctoral Scholar
- Dimitar Dimitrov, Research Unit Technician
- Paulette Garcia Andaluz, PhD student
- Vasileios Glykos, Postdoctoral Scholar
- Maria Vasquez Pavon, Postdoctoral Scholar
- Alisha Khojanazarov, Research Unit Technician
- Mamoru Tanaka, Postdoctoral Scholar

Mentorship / Supervision

Sep 2024 - Present

- Host (RI, SRS, VRS, VS), Siaw Yuet Lim, Research Intern
- Co-Supervisor, Lada Dolezalova, OIST Student
- Thesis Supervisor, Sharon Babar, OIST Student
- Mentor, Yuxiang Gao, OIST Student
- Mentor, Aurellia Ramara Winaya, OIST Student

May 2024 - Dec 2024

- Host (RI, SRS, VRS, VS), Kanta Kumaki, Research Intern
- Host (RI, SRS, VRS, VS), Yuta Uto, Research Intern

Jan 2024 - Present

- Mentor, Dmitrii Shipkov, OIST Student
- Mentor, Tomoka Yoseyama, OIST Student
- Third Committee Member, Amy Xia Yi Yong, OIST Student

Sep 2023 - Apr 2024

- Host (RI, SRS, VRS, VS), Tetiana Salamovska, Research Intern

May 2023 - Present

- Third Committee Member, Saffira Yan Tjon, OIST Student
- Thesis Supervisor, Paulette Garcia, OIST Student

May 2023 - Aug 2024

- Mentor, Thato Mary Mokhothu, OIST Student

Jan 2023 - Present

- Third Committee Member, Tara Helmi Turkki, OIST Student

Sep 2022 - Present

- Co-Supervisor, Taisuke Higuchi, OIST Student
- Third Committee Member, Esteban Gabriel Fregoso, OIST Student

May 2022 - Present

- Third Committee Member, Khelil Ameyes Bensalah, OIST Student

Scholarly Contributions and Creative Productions

Journal Article

Completed/Published

Chater, T. E.; Eggl, M. F.; Goda, Y.; Tchumatchenko, T. Competitive Processes Shape Multi-Synapse Plasticity along Dendritic Segments. *Nature communications* **2024**, *15*, 7572.

Presentation at Conference

Completed/Published

Goda, Y. Synapse-Astrocyte Interactions in Fine Tuning of Synaptic Strengths *Synapse Biology in Health & Disease Core2Core Symposium* **2025**.

Goda, Y. Exploring Local Synaptic Interactions Guided by Global Experiences. *Society for Neuroscience* **2025**.

Goda, Y. Molecular Basis of Astrocyte-Neuron Interactions in Synapse Regulation *EMBO-JST Meeting "Global insights in life sciences: bridging European and Japanese research"* **2025**.

Goda, Y. Probing Synapse-Astrocyte Interactions: New Roles for Familiar Molecules *APPW2025* **2025**.

Goda, Y. Astrocyte-Dependent Synaptic Strength Regulation in Hippocampal CA1 Pyramidal Neurons *GRC Dendrites: Molecules, Structure and Function* **2025**.

Goda, Y. Probing Synapse-Astrocyte Interactions: New Roles for Familiar Molecules *17th Annual Meeting of the Chinese Neuroscience Society* **2024**.

Goda, Y. Exploring Local Synaptic Interactions Guided by Global Experiences. *Annual Meeting of the Society for Neuroscience* **2024**.

Goda, Y. A Role for Synapse-Astrocyte Connection in Shaping the Morphological Complexity of Astrocytes *8th NanoLSIxOIST Symposium* **2024**.

Goda, Y. Versatile Synapses and Flexible Brain. *JST FOREST 3rd Molecular Life Reaction Emergence Symposium* **2024**.

Goda, Y. Probing Synapse-Astrocyte Interactions: New Roles for Familiar Molecules *TSVP Symposium "Neuromodulation of Adaptive Learning"* **2024**.

Goda, Y. (Adenosine) Signaling in Astrocyte-Mediated Synaptic Strength Regulation. *NEURO2024 Symposium* **2024**.

Scholarly Contributions (Unit Members)

Term 1 2024

Rudi Tong, Presentation at Conference, How do astrocytes integrate synaptic activity?, Emergence of Brain Functions from the Dynamic Connectome (Dynamic Brain) Research Group Meeting 2024, 2024, Completed/Published

Wen-Hsin Lu, Presentation at Conference, Investigating the molecular basis that underlie astrocyte diversity across hippocampal CA1 layers, Emergence of Brain Functions from the Dynamic Connectome (Dynamic Brain) Research Group Meeting 2024, 2024, Completed/Published

Zacharie Taoufiq, Poster Presentation at Conference, Prevalence of Dysregulated Synaptic Functions in a Cohort of Living Schizophrenia Patients, Principles of Synapse Organization and Neural Network Regulation Gained Through Evolution, 2024, Completed/Published

Paulette Garcia Andaluz, Poster Presentation at Conference, How do hippocampal synapses normalize after stress?, Principles of Synapse Organization and Neural Network Regulation Gained Through Evolution, 2024, Completed/Published

Tetsuya Hori, Zacharie Taoufiq, Journal Article, The microtubule-dynamin binding inhibitor peptide PHDP5 rescues spatial learning and memory deficits in Alzheimer's disease model mice, Brain Research, ELSEVIER, 2024, Completed/Published

Wen-Hsin Lu, Journal Article, CPEB2-activated Prdm16 translation promotes brown adipocyte function and prevents obesity, Molecular Metabolism, ELSEVIER, 2024, Completed/Published

Term 2 2025

Paulette Garcia Andaluz, Poster Presentation at Conference, How do hippocampal synapses normalize after stress?, Core2Core "Synapse Biology in Health and Disease", 2025, Completed/Published

Term 3 2024

Dimitar Dimitrov, Poster Presentation at Conference, Human iPSC-derived 3D Neurodome Culture to Model Neuron-Astrocyte Interactions, NEURO2024, 2024, Completed/Published

Wen-Hsin Lu, Journal Article, CPEB2-activated axonal translation of VGLUT2 mRNA promotes glutamatergic transmission and presynaptic plasticity, Journal of Biomedical Science, BMC, 2024, Completed/Published

Maria Vazquez Pavon, Journal Article, Nogo-A-mediated constraints on activity-dependent synaptic plasticity and associativity in rat hippocampal CA2 synapses, Hippocampus, Wiley, 2024, Completed/Published

Term 2 2024

Rudi Tong, Journal Article, GluN2A- and GluN2B-containing pre-synaptic N-methyl-d-aspartate receptors differentially regulate action potential-evoked Ca²⁺ influx via modulation of SK channels, Philos Trans R Soc Lond B Biol Sci., The Royal Society Publishing, 2024, Completed/Published

Honors, Awards & Fellowships

May 2023 - Present EMBO Associate Member, 欧州分子生物学機構 Associate Member, 2023, European Molecular Biology Organization (EMBO)

Honors, Awards & Fellowships (only by unit members)

Sep 2024 - Present Wen-Hsin Lu, Postdoctoral Fellowships for Research in Japan, 外国人特別研究員, 2024, JSPS, CA1 層におけるアストロサイト多様性を創出する分子基盤の探索

External Service

Sep 2024 - Aug 2026 Asia-Pacific Regional Committee Chair, IBRO

May 2023 - Aug 2027 Councilor, Society for Neuroscience

Sep 2023 - Dec 2025 Vice President, Japan Neuroscience Society

Sep 1999 - Present Advisory Board, Neuron

Sep 2009 - Present Advisory Board, Cell

Sep 2003 - Present Advisory Board, Trends in Neurosciences

Sep 2020 - Dec 2025 International Collaboration Affairs Committee, Chair, Japan Neuroscience Society

Sep 2021 - Dec 2027 Scientific Advisory Board, Max Planck Institute for Multidisciplinary Sciences

Sep 2023 - Dec 2024 Program Committee Chair, Japan Neuroscience Society Annual Meeting

Sep 2024 - Aug 2025 Selection Committee, Brain Science Foundation

May 2022 - Aug 2024 External Evaluation Committee, Tokyo Metropolitan Institute of Medical Science

Jan 2022 - Dec 2024 Julius Axelrod Prize Selection Committee, Society for Neuroscience

May 2024 - Aug 2026 Science and Technology Academic Council, MEXT

Jan 2020 - Present Fusion Oriented Research for Disruptive Science and Technology, JST

Jan 2021 - Dec 2025 Science and Technology Academic Council, MEXT

Outreach Activities (For Unit Members Only)

Sep 2024

Wen-Hsin Lu, Researcher Appreciation Month, OIST

Sharon Babar , Outreach Activities for High School Students , OIST

Workshops and Seminars (Organized and Hosted by Faculty/Units)

Jan 2024

Principles of Synapse Organization and Neural Network Regulation Gained Through Evolution,
B250, Hiroshi Watanabe, Bernd Kuhn