FY 2025 Annual Report

Unit Name

Synapse Biology Unit
Professor Yukiko Goda

Research Personnel

Tetsuya Hori, Senior Staff Scientist

Zacharie Taoufiq, Staff Scientist

Mamoru Tanaka, Postdoctoral Scholar

Maria Vazquez Pavon, Postdoctoral Scholar

Vasileios Glykos, Postdoctoral Scholar

Wen-Hsin Lu, JSPS Postdoctoral Scholar

Rudi Tong, Postdoctoral Scholar

Maximilian Ken Kracht, Postdoctoral Scholar

Dimitar Dimitrov, Research Unit Technician

Alisha Khojanazar, Research Unit Technician

Paulette Garcia Andaluz, PhD Student

Sharon Babar, PhD Student

Tomoka Yoseyama, PhD Student

Chloe Hamelin, PhD Student

Hannah Pullen, PhD Student

Marcelo Steven Guzman Vallejos, PhD Student

Richa Agarwal, Rotation Student

Yuta Sudo, Rotation Student

Sophia Dubois, Rotation Student

Scholarly Contributions and Creative Productions (by Faculty)

Journal Article

1. Dimitrov, D.; Lien, Y.; Hori, T.; Goda, Y.; Rosenmund, C.; Taoufiq, Z.
   Proteomics-Based Receptor-Ligand Matching Enhances Differentiation Maturity of Human-Stem-Cell-Derived Neurons. Stem Cell Reports 2025, 20.
2. Eggl, M. F.; Wagle, S.; Filling, J. P.; Chater, T. E.; Goda, Y.; Tchumatchenko, T.
   SpyDen: Simplifying Molecular and Structural Analysis across Spines and Dendrites. Bioinformatics 2025, 41.
3. Glykos, V.; Pavon, M. V. V.; Goda, Y.
   Cell Biology of Astrocytic Adhesive Interactions and Signaling Pathways in Regulating Neuronal Circuits. Current opinion in neurobiology 2025, 93, 103037.

Presentation at Conference

1. Goda, Y.

   Gaining insight into synapse function through the synapse-astrocyte connection. 48th Annual Meeting of the Japan Neuroscience Society, 2025.
2. Goda, Y.

   Probing synapse-astrocyte interactions: new roles for familiar molecules. ISN-ASN 2025 Meeting.
3. Goda, Y.

   Synapse-astrocyte interactions in fine-tuning of synaptic strengths. K-Brain 2025 and the 3rd CJK Neuroscience Meeting.
4. Goda, Y.

   Insights into synapse function through astrocyte links. CSHA Francis Crick Symposium in Neuroscience 2025.
5. Goda, Y.

   Synapse-astrocyte interactions in fine-tuning of synaptic strengths in hippocampal pyramidal neurons. Dendritic Integration 2025.
6. Goda, Y.

   Synaptic circuit design and roles of astrocytic proteins implicated in neurological diseases. Exploring the frontiers of brain science and brain-inspired intelligence, CIBR Beijing & Nature Portfolio 2025.
7. Goda, Y.; Reiter, S.

   Dissecting squid optic lobe microarchitecture through multimodal profiling. 2025 NIPS Research Workshop: Understanding Neural Circuit Mechanisms through Multiple Approaches.
8. Goda, Y.

   APP uncovers a coupling between synaptic function and astrocyte morphological complexity. SMART Symposium on Cutting-Edge Research of Neuroscience in China, Japan and South Korea, 2025.

Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Dimitar Dimitrov	Journal Article	Common Mechanism Underlying Synaptic Dysfunction Caused by Preformed Fibril-Induced Accumulation of α-Synuclein or Tau in a Culture Propagation Model	The Journal of Neuroscience	Society for Neuroscience	2025
Rudi Tong	Poster Presentation at Conference	Investigating the cellular microarchitecture of squid optic lobe	Francis Crick Symposium in Neuroscience: Development, Plasticity and Function of Neural Circuits		2025
Rudi Tong	Poster Presentation at Conference	The microarchitecture of squid optic lobe	OIST Neuroscience Symposium		2025
Paulette Garcia Andaluz	Poster Presentation at Conference	How do hippocampal synapses normalize after stress?	Core2Core symposium "Synapse Biology in Health and Disease"		2026
Sharon Babar	Poster Presentation at Conference	Unveiling the roles of astrocytic NMDA receptors through their Interactome Analyses	Core2Core symposium "Synapse Biology in Health and Disease"		2026

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Paulette García Andaluz	Poster Presentation at Conference	How do hippocampal synapses normalize after stress?	Core2Core symposium "Synapse Biology in Health and Disease"		2026

Honors, Awards & Fellowships [By Unit Members Only]

2024 - 2027	Wen-Hsin Lu, JSPS Postdoctoral Fellowships for Research in Japan, Investigating the molecular basis that underlie astrocyte diversity across hippocampal CA1 layers

External Service

2024 - 2026	IBRO Asia-Pacific Regional Committee Chair
2024 - 2028	Awards Selection Committee, Brain Science Foundation
2024 - 2026	Selection Committee, Marie Sklodowska Curie Award, JST
2025 - 2027	MEXT Science and Technology Academic Council
2023 - 2025	Vice President, Japan Neuroscience Society
2023 - 2027	Councilor, Society for Neuroscience
2022 - 2027	Scientific Advisory Board, Max Planck Institute for Multidisciplinary Sciences
2020 - 2025	International Collaboration Affairs Committee, Chair, Japan Neuroscience Society
2020 - present	Panel Officer, Fusion Oriented Research for Disruptive Science and Technology, JST
2009 - present	Advisory Board, Cell
2003 - present	Advisory Board, Trends in Neurosciences
1999 - present	Advisory Board, Neuron

Other Institutional Service

2025	EVSP Selection Committee

Outreach Activities [For Unit Members Only]

2026	Marcelo Steven Guzman Vallejos, Wet Team Leader 2026 in iGEM Okinawa, iGEM
2025	Sharon Babar , Bending your Brain Activity , SEO Team

Workshops and Seminars [Organized and Hosted by Faculty/Units]

Speaker Name(s)	Title	Location	Date
Nael Nadif Kasri	Looking at neurodevelopmental disorders through the lens of evolution: a role for the autolysosomal pathway	L5D23	2026-02-02
Shen-Ju Chou	Patterning the cerebral cortex by transcription factor gradients	L5D23	2025-12-03
Inna Slutsky	Plasticity-Stability Balance in Neural Circuits: From basic principles to malfunctions	L5D23	2025-07-22
Chao Sun	Synaptic Machinery for Protein Turnover	C700	2025-04-18