Tomoyuki Murano, MD, PhD

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EDUCATION

2019	PhD (Medicine), The Graduate University for Advanced Studies (SOKENDAI), Department of Physiological Sciences; research at the National Institute for Physiological Sciences, Okazaki, Japan (2015–2019)
2012	MD, Faculty of Medicine, The University of Tokyo, Japan (2006–2012)

ACADEMIC APPOINTMENTS

2026–present	Lecturer, Division of Systems Medical Science, Center for Medical Science, Fujita Health University
2022–2026	Assistant Professor, Division of Systems Medical Science, Center for Medical Science, Fujita Health University
2019–2022	Postdoctoral Fellow, Division of Systems Medical Science, Center for Medical Science, Fujita Health University

PUBLICATIONS

Peer-reviewed articles

1. **Murano T**, Hagihara H, Tajinda K, Takao K, Takamiya Y, Katoh K, Robison AJ, Matsumoto M, Namihira M, Miyakawa T. Repetitive neuronal activation regulates cellular maturation state via nuclear reprogramming. *Nature Communications 17, 5881 (2026)*. doi:10.1038/s41467-026-74202-w
2. Hagihara H, **Murano T**, Miyakawa T. The gene expression patterns as surrogate indices of pH in the brain. *Frontiers in Psychiatry 14, 1151480 (2023)*. doi:10.3389/fpsyt.2023.1151480
3. **Murano T**, Nakajima R, Nakao A, Hirata N, Amemori S, Murakami A, Kamitani Y, Yamamoto J, Miyakawa T. Multiple types of navigational information are independently encoded in the population activities of the dentate gyrus neurons. *PNAS 119(32), e2106830119 (2022)*. doi:10.1073/pnas.2106830119
4. Hagihara H, **Murano T**, Ohira K, Miwa M, Nakamura K, Miyakawa T. Expression of progenitor cell/immature neuron markers does not present definitive evidence for adult neurogenesis. *Molecular Brain 12, 108 (2019)*. doi:10.1186/s13041-019-0522-8
5. **Murano T**, Hagihara H, Tajinda K, Matsumoto M, Miyakawa T. Transcriptomic immaturity inducible by neural hyperexcitation is shared by multiple neuropsychiatric disorders. *Communications Biology 2, 32 (2019)*. doi:10.1038/s42003-018-0277-2
6. **Murano T**, Koshimizu H, Hagihara H, Miyakawa T. Transcriptomic immaturity of the hippocampus and prefrontal cortex in patients with alcoholism. *Scientific Reports 7, 44531 (2017)*. doi:10.1038/srep44531

Preprints

1. **Murano T**, Miyakawa T. RFind-sc maps single cells onto biological axes defined by external gene signatures. *bioRxiv (2026)*. doi:10.64898/2026.10.21.759514
2. **Murano T**, Hagihara H, Tajinda K, Takao K, Takamiya Y, Katoh K, Robison AJ, Matsumoto M, Namihira M, Miyakawa T. Repetitive Neuronal Activation Regulates Cellular Maturation State via Nuclear Reprogramming. *bioRxiv (2025)*. doi:10.1101/2025.05.02.651848
3. **Murano T**, Nakajima R, Nakao A, Hirata N, Amemori S, Murakami A, Kamitani Y, Yamamoto J, Miyakawa T. Multiple types of navigational information are independently encoded in the population activities of the dentate gyrus neurons. *bioRxiv (2020)*. doi:10.1101/2020.06.09.141572
4. **Murano T**, Hagihara H, Tajinda K, Matsumoto M, Miyakawa T. Transdiagnostic characterization of neuropsychiatric disorders by hyperexcitation-induced immaturity. *bioRxiv (2018)*. doi:10.1101/376962

GRANTS (PRINCIPAL INVESTIGATOR)

Awarded	Daiko Foundation, Research Grant: “Biological basis of the antidepressant effects of neuronal hyperactivity” (start date to be determined)
FY2026–2033	JST FOREST (Fusion Oriented REsearch for disruptive Science and Technology): “Biological basis of the antidepressant effects of neuronal hyperactivity”
FY2026–2028	JSPS KAKENHI Grant-in-Aid for Scientific Research (C), 26K09521: “Molecular and cellular basis of the antidepressant effects of repeated neuronal hyperactivity”
FY2026–2027	Hori Sciences and Arts Foundation, Research Grant: “Biological basis of the antidepressant effects of neuronal hyperactivity”
FY2024–2025	JSPS KAKENHI Grant-in-Aid for Early-Career Scientists, 24K18222: “Structural plasticity of the cell nucleus induced by neuronal hyperactivity and its functional significance”
FY2022–2024	JSPS KAKENHI Grant-in-Aid for Early-Career Scientists, 22K15204: “Molecular mechanisms of the pseudo-immaturation of the hippocampal dentate gyrus induced by neuronal hyperactivity”

HONORS AND AWARDS

2026	15th Young Investigator Development Program Encouragement Award, Japanese Society of Biological Psychiatry
2019	Encouragement Award for General Presentation, 49th Annual Meeting of the Japanese Society of Neuropsychopharmacology
2017	Poster Winner (First Place), American College of Neuropsychopharmacology 2017
2016	JSNP Excellent Presentation Award for CINP 2016, Japanese Society of Neuropsychopharmacology
2015	Best Poster Award, Comprehensive Brain Science Network

CONFERENCE PRESENTATIONS

2026	Murano T. Elucidating the pathophysiological mechanisms of psychiatric disorders with a focus on neuronal hyperactivity (in Japanese). Award lecture (15th Young Investigator Development Program Encouragement Award), BCNP2026 Joint Annual Meeting, Utsunomiya, Japan (October 2026).
2026	Murano T. Development and application of RFind, a new analysis method that extends the interpretability of single-cell RNA-seq (in Japanese). Poster, BCNP2026 Joint Annual Meeting, Utsunomiya, Japan (October 2026).
2024	Murano T. Repetitive Neuronal Activations Regulate Cellular Maturation State via Nuclear Reprogramming. Poster, 63rd Annual Meeting of the American College of Neuropsychopharmacology (ACNP), Phoenix, AZ, USA (December 2024).
2024	Murano T. Novel gene expression profiling method for postmortem brains of schizophrenia patients. Poster, 47th Annual Meeting of the Japan Neuroscience Society (NEURO2024), Fukuoka, Japan (July 2024).
2023	Murano T. Repeated neural activations induce long-term structural plasticity of the nucleus. Poster, Society for Neuroscience Annual Meeting (Neuroscience 2023), Washington, DC, USA (November 2023).
2023	Murano T. A novel evaluation method for biological heterogeneity among patients with schizophrenia. Poster, 53rd Annual Meeting of the Japanese Society of Neuropsychopharmacology, Tokyo, Japan (September 2023).

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience; Japan Neuroscience Society; Japanese Society of Neuropsychopharmacology; Japanese Society of Biological Psychiatry

Last updated: October 2026