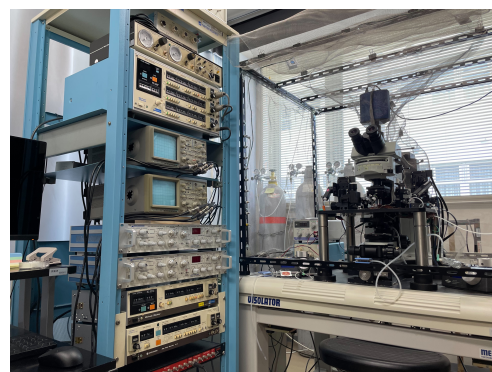


Department of Pharmacology (Clinical Pharmacology and Toxicology)
Faculty of Pharmaceutical Science

Main Research Topic

Elucidating the effects of drugs on neurons in the central nervous system

The major focus of our research is the relationship between animal behavior and neuronal activity in the central nervous system, aiming to elucidate the functional mechanisms which cause abnormal phenotypes in psychiatric disorders such as depression and attention deficit hyperactivity disorder. In addition, we investigate the pathogenesis of psychiatric disorders from a neuroanatomical perspective. We hope that our behavioral and neuroanatomical studies might contribute to the development of therapeutic drugs and further understanding of psychiatric disorders.



Faculty Members

Takeshi IZUMI, M.D., Ph.D., *Professor*

Atsuko OHASHI, Ph.D., *Professor*

Hiroki SHIKANAI, Ph.D., *Associate Professor*

Postgraduate Students (Ph.D. Course)

Kazune OZAKI

Satoshi SHINOZUKA

Recent presentations at international congresses

- ✓ Shikanai H, Suzuki N, Shinozuka S, Isshiki T, Hiraide S, Iizuka K, Izumi T, Yamaguchi T: Effects of atomoxetine on the mPFC of SHRSP/Ezo as an ADHD animal model. 35th WORLD CONGRESS World Congress Collegium Internationale Neuro-Psychopharmacologicum, Tokyo, Japan (23–26 May 2024)
- ✓ Izumi T, Konno K, Watanabe M, Tanaka K, Yoshida T, Shikanai H, Yoshioka M: SSRI exerts anxiolytic action via 5-HT_{1A} and 5-HT_{2A} receptors in the amygdala, the 49th Annual Meeting of the Society for Neuroscience, Chicago IL USA (19–23 October 2019)

Recent publications

- ✓ Matsushima K, Toji N, Wada K, Shikanai H, Izumi T. Embryonic exposure to valproic acid and neonicotinoid deteriorates the developmental GABA switch and impairs long-term potentiation in the local circuit of intermediate medial mesopallium of chick telencephalon. *Cerebral cortex*. **35**, bhaf044 (2025)
- ✓ Suzuki N, Hiraide S, Shikanai H, Isshiki T, Yamaguchi T, Izumi T, Iizuka K. Impaired monoamine neural system in the mPFC of SHRSP/Ezo as an animal model of attention-deficit/hyperactivity disorder. *Journal of Pharmacological Sciences*. **154**, 61-71 (2024)
- ✓ Matsushima K, Izumi T, Vallortigara G. The domestic chick as an animal model of autism spectrum disorder: building adaptive social perceptions through prenatally formed predispositions. *Frontiers in Neuroscience* (Sections Neurodevelopment). **18**, 1279947 (2024)
- ✓ Shikanai H, Matsuzaki H, Kasai R, Kusaka S, Shindo T, Izumi T. 5-HT Neural System Abnormalities in PTSD Model Rats. In: Pinna, G. (eds) Translational Methods for PTSD Research. *Neuromethods*, vol 198, Humana, New York, NY (2023)
- ✓ Shindo T, Shikanai H, Watarai A, Hiraide S, Iizuka K, Izumi T. D-serine metabolism in the medial prefrontal cortex, but not the hippocampus, is involved in AD/HD-like behaviors in SHRSP/Ezo. *European Journal of Pharmacology*. **923**, 174930 (2022)
- ✓ Hiramoto T, Sumiyoshi A, Yamauchi T, Tanigaki K, Shi Q, Kang G, Ryoike R, Nonaka H, Enomoto S, Izumi T, Bhat MA, Kawashima R, Hiroi N. Tbx1, a gene encoded in 22q11.2 copy number variant, is a link between alterations in fimbria myelination and cognitive speed in mice. *Molecular psychiatry*. **27**, 929–938 (2021)