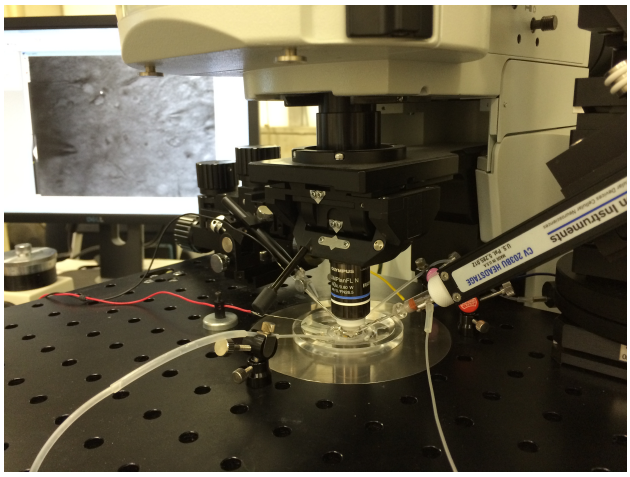
Department of Pharmacology (Clinical pharmacology and toxicology),
Faculty of Pharmaceutical Science

Main research theme

Elucidation of drug effect on the neuron in the central nerve system

The major focus of our research is the relationship between animal behavior and neuronal activity in the central nerve system, aiming to elucidate the functional mechanisms which control abnormal phenotype of psychiatric disorders such as depression and attention deficit hyperactivity disorder. In addition, we also investigate the pathogenesis of psychiatric disorders through the neuroanatomical view. We hope that behavioral and neuroanatomical studies might provide the development of therapeutic drugs and elucidation of psychiatric disorders.



Members

Professor: Takeshi Izumi, M.D., Ph.D
Associate professor: Atsuko Ohashi, Ph.D
Senior assistant professor: Hiroki Shikanai, Ph.D.

Postgraduate students (doctoral course)

Tsugumi Shindo
Kazune Ozaki

Recent presentation in international congress

- ✓ Izumi T, Konno K, Watanabe M, Tanaka K, Yoshida T, Shikanai H, Yoshioka M: SSRI exerts anxiolytic action via 5-HT1A and 5-HT2A receptors in the amygdala, the 49th Annual Meeting of the Society for Neuroscience, Chicago IL USA (19~23 October 2019)
- ✓ Shikanai H, Oshima N, Kawashima H, Kimura S, Hiraide S, Iizuka K, Izumi T. Involvement of glycine binding site of NMDA receptor in the prefrontal cortex of SHRSP/Ezo as an AD/HD animal model. the 18th World Congress of Basic and Clinical Pharmacology, Kyoto, Japan (1~6 July 2018)

Current publications

- ✓ Shikanai H, Ikimura K, Miura M, Shindo T, Watarai A, Izumi T. Separation and detection of D-/L-serine by conventional HPLC. *MethodsX*. (2022) in press
- ✓ 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, Ryoke 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)
- ✓ Otsuka I, Akiyama M, Shirakawa O, Okazaki S, Momozawa Y, Kamatani Y, Izumi T, Numata S, Takahashi M, Boku S, Sora I, Yamamoto K, Ueno Y, Toda T, Kubo M, Hishimoto A. Genome-wide association studies identify polygenic effects for completed suicide in the Japanese population. *Neuropsychopharmacology.* **44**, 2119–2124 (2019)
- ✓ Shikanai H, Oshima N, Kawashima H, Kimura S, Hiraide S, Togashi H, Iizuka K, Ohkura K, Izumi T N-methyl-d-aspartate receptor dysfunction in the prefrontal cortex of stroke-prone spontaneously hypertensive rat/Ezo as a rat model of attention deficit/ hyperactivity disorder. *Neuropsychopharmacology Reports.* **38**(2), 61-66 (2018)