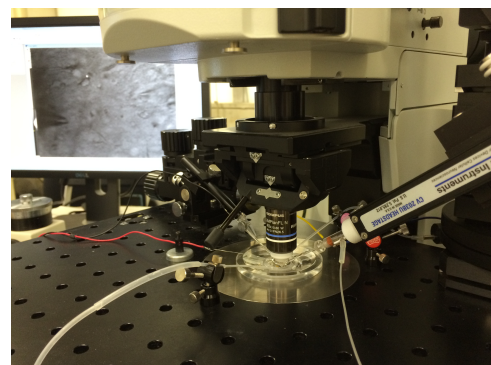


Department of Pharmacology (Clinical Pharmacology and Toxicology)
Faculty of Pharmaceutical Science

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, *Associate Professor*

Hiroki Shikanai, Ph.D., *Senior Assistant Professor*

Postgraduate Students (Ph.D. Course)

Kazune Ozaki

Satoshi Shinozuka

Recent presentations at international congresses

- ✓ 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)
- ✓ 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)

Recent publications

- ✓ 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)
- ✓ Shikanai H, Ikimura K, Miura M, Shindo T, Watarai A, Izumi T. Separation and detection of D-/L-serine by conventional HPLC. *MethodsX*. 9, 101752 (2022)
- ✓ 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)