



Takeshi Sakurai

Faculty of Medicine

E-mail : sakurai.takeshi.gf@u.tsukuba.ac.jp

Lab web page : <http://sakurai-lab.com/index.php>

Forest of Scholars : <https://ura.sec.tsukuba.ac.jp/unit-members?kid=60251055>

Kakenhi : 60251055

Orcid : <https://orcid.org/0000-0003-4474-6253>

Affiliation : Department of Pharmacology, Institute of Basic Medical Sciences

Theme

● Molecular Behavioral Physiology

Keyword Neuropeptide, wakefulness, sleep, orexin, hibernation, emotion, reward system

Highlight

Major Scientific Interests of the Group

We have particular interest in the elucidation of neural circuits and mechanisms that play an essential role in regulating homeostatic processes and various animal behavior patterns, including many of our most basic functions, such as eating, drinking, reacting to fear and pleasure, sleeping and forming memories.

Projects for Regular Students in Doctoral or Master's Programs

- 1)Decipher physiological roles of neuropeptides
- 2)Delineating the neuronal circuits that regulate emotion, arousal, and sleep/wakefulness states.

Study Programs for Short Stay Students (one week – one trimester)

- 1)Learning basic techniques about opto/pharmacogenetics
- 2)Neuronal circuit tracings using viral vectors

Other Faculty Members

Associate Professor Arisa Hirano

Associate Professor Shingo Soya

Associate Professor Emi Hasegawa

Associate Professor Yasutaka Niwa

Applications and Prospects

- We are also seeking a possibility to collaborate with industries in the development of novel therapeutic drugs for sleep disorders, as well as drugs that induce hibernation-like states in non-hibernating animals including humans.

Literature, intellectual property, work

- Takahashi, T.M., Sunagawa, G.A., Soya, S., Abe, M., Sakurai, K., Ishikawa, K., Yanagisawa, M., Hama, H., Hasegawa, E., Miyawaki, A., Sakimura, K., Takahashi, M., Sakurai, T. A discrete neuronal circuit induces a hibernation-like state in rodents, *Nature* 583, 109–114(2020)
- Soya, S., Takahashi, T.M., McHugh, T.J., Maejima, T., Herlitze, S., Abe, M., Sakimura, K., and Sakurai, T. Orexin modulates behavioral fear expression through the locus coeruleus. *Nat Commun.* 2017;8(1):1606.
- Sakurai T, et al. Orexins and orexin receptors: A family of hypothalamic neuropeptides and G protein-coupled receptors that regulate feeding behavior. *Cell* 92:573-585, 1998
- Sakurai T, Yanagisawa M, Takawa Y, Miyazaki H, Kimura S, Goto K, Masaki T. Cloning of a cDNA encoding a non-isopeptide-selective subtype of the endothelin receptor. *Nature* 48:732-735, 1990