

Molecular Behavioral Physiology

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Other Faculty Members

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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

Selected Publications

1. 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.
2. Mieda, M., Ono, D., Hasegawa, E., Okamoto, H., Honma, K., Honma, S., Sakurai, T. Cellular Clocks in AVP Neurons of the SCN Are Critical for Interneuronal Coupling Regulating Circadian Behavior Rhythm. *Neuron*, 2015, 85(5): 1103–1116.
3. Sakurai T., et al. Input of Orexin/Hypocretin Neurons Revealed by a Genetically Encoded Tracer in Mice. *Neuron* 46(2):297-308,2005
4. Hara J, Beuckmann CT, Nambu T, Willie JT, Chemelli RM, Sinton CM, Sugiyama F, Yanagi K, Goto K, Yanagisawa M, Sakurai T. Genetic Ablation of Orexin Neurons in Mice Results in Narcolepsy, Hypophagia and Obesity. *Neuron* 30:345-354, 2001
5. 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