DukeNUS Medical School

Signature Seminar Series

Circadian clock controls local and global physiologies and behaviors in mice

ABOUT THE LECTURE

The circadian clocks regulate a variety of neural functions in mammals. Daily modulation of learning performance is established in light-dark cycle, but an important question remains to be addressed as to whether and how the hippocampus-mediated recognition memory is controlled by the central clock in hypothalamus SCN. We found the long-term memory varied in a circadian manner. SCN lesion disrupted circadian rhythms of the long-term memory. Bmal1-cKO in the hippocampus disrupted the long-term memory rhythm, leaving the locomotor rhythm intact, indicating the importance of hippocampal clock in long-term memory. Molecularly, SCOP/PHLPP1β-ERK pathway in the hippocampus is essential for the circadian control of long-term memory (1). Similarly, circadian expression of SCOP in basolateral amygdala plays a key role in generating circadian rhythmicity in anxiety-like behaviors of mice (2). I would also introduce a more recent study on post-transcriptional RNA-editing that is important for generating RNA rhythms (3).

1. Shimizu et al., (2016) Nat. Commun. 7, 12926 (2016)
2. Nakano et al., (2016) Sci. Rep., 6, 33500 (2016)
3. Terajima et al., (2016) Nat. Genet. 10. DOI:1038/ng.3731 (2016)

Speaker: **Prof Yoshitaka Fukada**
Chair, Department of Biophysics and Biochemistry
Graduate School of Science
The University of Tokyo

Host: **Prof David Virshup**
Professor and Director
Cancer & Stem Cell Biology Programme
Duke-NUS Medical School

Date: **Tuesday, 13 December 2016**

Time: **12:00 PM— 1:00 PM**
(Light refreshments will be served at 11:30 AM)

Venue: **Duke-NUS Medical School**
Amphitheatre, Level 2

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ABOUT THE SPEAKER

1983 Ph.D., Kyoto Univ., Grad. School of Sci.
1983-1986 Assist. Prof,, Dept. Biochem., Sapporo Med. College
1986-1993 Assist. Prof., Fac. Sci., Kyoto Univ.
1993-1995 Assoc. Prof., Grad. School of Arts & Sci., Univ. Tokyo
1995- Professor, School of Sci., Univ. Tokyo
2002- Vice President, Japanese Society for Comp. Physiol. Biochem.
2009- Vice President, International Union of Photobiology
2015- President, Photobiology Association of Japan
2017- President, Japanese Society of Chronobiology

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