

大学院学生各位
To All Graduate Students

令和元年度
基盤医学特論 開講通知

Information on Special Lecture Tokuron AY2019

Title: : Developmental aspects of Sleep and Wakefulness

Teaching Staff: Luis de Lecea, Ph.D.

**Professor, Dept. of Psychiatry and Behavioral
Sciences**

Stanford University School of Medicine

日時：令和元年 8 月 1 日（木） 17:00 ~ 18:30

Time and Date: 1st August, 2019 17:00~18:30

場所：名古屋大学 環境医学研究所 北館セミナー室（東山）

Room: Research Institute of Environmental Medicine, North Building, N201 (Higashiyama Campus)

*** 関係講座部門等の連絡担当者：環境医学研究所・神経性調節学 山中章弘（3864）**

Contact: Akihiro Yamanaka (3864)

使用言語： 英語 * 事前連絡は不要です。Lecture in English. No registration required.

Sleep architecture undergoes profound changes during development, yet the mechanisms underlying such changes and their consequences are poorly understood. These aspects are particularly important to understand neurodevelopmental disorders with associated sleep disorders such as autism. I will talk about how sleep disruption in mice during adolescence results in deficits in social memory, but not hippocampal-dependent cognitive function. Unbiased mapping of neuronal activity elicited by this developmental sleep disruption identified multiple brain structures, including dopaminergic neurons in substantia nigra and ventral tegmental area. GCamp recordings of these regions during social interaction tasks revealed that developmental sleep disruption affected the ability of dopaminergic neurons to respond to novelty. These data highlights dopaminergic activity as a main modulator of sleep/wake activity with significant consequences in the development of social skills. I will also talk about how specific arousal circuits show hyperexcitability in aged mice, and explain fragmentation and disruption of sleep/wake architecture associated with aging and Alzheimer's disease.

>23,000 citations; h-index:65(Google Scholar)

de Lecea, L, Kilduff T, Peyron C, Gao XB, Fukuhara C, Danielson PE, Foye PE, Bartlett II FS, Gautvik VT, van den Pol AN, Frankel WN, Bloom FE, Sutcliffe JG (1998) "The hypocretins: two hypothalamic peptides with neuroexcitatory activity". **Proc. Natl. Acad. Sci. USA** 95:322-327. **Top 100 most cited PNAS papers**

Adamantidis A, Zhang, F., Aravanis AM, Deisseroth K, de Lecea L. (2007) Neural substrates of awakening probed by optogenetic control of hypocretin neurons. **Nature** 15;450(7168):420-424.

Carter ME, Yizhar O, Chikahisa S, Nguyen H, Adamantidis A, Nishino S, Deisseroth K, de Lecea L (2010) "Tuning arousal with optogenetic modulation of locus coeruleus neurons" **Nature Neurosci** 13:1526-33

Eban- Rothschild A, Rothschild G, Giardino WJ, Jones JR, de Lecea L VTA Dopaminergic neurons bidirectionally regulate ethologically relevant sleep/wake behaviors. **Nature Neurosci** 19:1356-66 (2016).

Giardino WJ, Eban-Rothschild A, Christoffel DJ, Li SB, Malenka RC, de Lecea L. Parallel circuits from the bed nuclei of stria terminalis to the lateral hypothalamus drive opposing emotional states. **Nature Neurosci** (8):1084-1095 (2018).