



Département de psychiatrie  
Centre de neurosciences psychiatriques  
Site de Cery  
CH-1008 Prilly - Lausanne

# Centre de Neurosciences Psychiatriques

## CNP SEMINAR

### ANNOUNCEMENT

Tuesday, June 18, 2019, 11:00

### “Mechanisms of Prefrontal Cortex-Dependent Cognitive Development: Relevance to Psychiatric Disorders”

**Hirofumi Morishita, MD, PhD**

Associate Professor  
Icahn School of Medicine at Mount Sinai, New York

Invited by Kim Do  
([Kim.Do@chuv.ch](mailto:Kim.Do@chuv.ch))

**Salle de séminaires 1<sup>er</sup> étage CNP  
Hôpital Psychiatrique de Cery  
Site de Cery, CH-1008 Prilly-Lausanne**

Mechanisms driving critical period circuit development are well described in sensory cortex—but poorly characterized for prefrontal cortex dependent cognitive behaviors. Prefrontal cortical maturation extends from childhood through adolescence and establishes connectivity within local circuits and between distal cortical areas that execute cognitive processes. Impaired cortical connectivity is increasingly identified in a host of several neuropsychiatric disorders that coincides with this protracted developmental period. The goal of our research is to examine to what extent a mechanism regulating the critical period for visual cortex development also modulates maturation of prefrontal cortex-dependent cognitive functions such as attentional behavior, and social cognition. We aim to identify the developmental regulatory mechanism of cognitive function from the molecular, circuit to the behavioral level. Identified circuit-associated mechanisms would promote translation of our basic research findings to clinical research to improve diagnosis, prevention and treatment of psychiatric disorders.

#### **Selected publications:**

Sadahiro, M., Demars, M.P., Burman, P., Yevoo, P., Smith, M.R., Zimmer, A., Morishita, H. Activation of Somatostatin Inhibitory Neurons by Lypd6-nAChR $\alpha$ 2 System Restores Juvenile-like Plasticity in Adult Visual Cortex. *BioRxiv* 2017 (preprint); doi: <https://doi.org/10.1101/155465>

Koike, H., Demars, M.P., Short, J., Nabel, E.M., Akbarian, S., Baxter, M.G., Morishita, H. Chemogenetic inactivation of dorsal anterior cingulate cortex neurons disrupts attentional behavior in mouse. *Neuropsychopharmacology* 2016 Mar;41(4):1014-23

Bicks, LK, Koike H, Akbarian S, Morishita H Prefrontal cortex and social cognition in mouse and man *Front Psychology*. 2015, doi: 10.3389/fpsyg.2015.01805. Review.

