ELSC Seminar: Tali Kimchi - Apr. 27th, 2017 at 17:00

April 27, 2017

Sex differences in the brain and behavior

ELSC cordially invites you to the lecture given by:

Tali Kimchi

Weizmann Institute of Science, Department of Neurobiology

On the topic of:

Sex differences in the brain and behavior

The lecture will be held on Thursday April 27th, 2017 at 17:00

at ELSC: Silberman Bldg., 3rd Wing, 6th Floor,

Edmond J. Safra Campus
Abstract:

The behavior of males and females differs in numerous ways, often most strikingly in social behavioral displays. Parental care is an innate complex stereotypic behavior toward offspring that is shared by all mammalian species, and in most species it presents in a sexually dimorphic manner. In laboratory mice, sexually naive females usually manifest parental care toward alien pups at their first encounter, while sexually naive males usually ignore the pups or aggressively attack them. Our understanding of what neural circuits mediating pup-directed behaviors in males and females, and the functional role of distinct sexually dimorphic neuronal sub-populations in regulating parental care is still rudimentary.

We have found that sexually dimorphic dopaminergic neurons (Tyrosine Hydroxylase (TH) expressing neurons) within the hypothalamic anteroventral periventricular nucleus (AVPV) govern the initiation and maintenance of maternal behavior in females and aggression in males. By elevating the TH levels in the TH+ AVPV neurons or increasing their activity using optogenetic stimulation, we were able to promote maternal actions. Further tests revealed that these manipulations enhanced blood levels of oxytocin in females. In males, increasing of TH and optogenetic stimulation of TH+ AVPV neurons induces reduction in inter-male conspecific aggression. Our results suggest that maternal behavior arises from neuronal networks that are largely hard-wired. These are different from those of males, and they are at least partly regulated by the hormone oxytocin.

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