NYU-ECNU
Institute of Brain and Cognitive Science
at NYU Shanghai

BI-WEEKLY SEMINAR SERIES

TOPIC: Neural Information Coding in the Amygdala and Hippocampus

SPEAKER: Longnian Lin (East China Normal University)

TIME: 12:00-13:30, 8 December 2014

VENUE: Room 152, Geography Building, 3663 Zhongshan Road North, Shanghai (华东师范大学中山北路校区，地理楼 152 室)

ABSTRACT OF THE TALK

There are different types of memory, each of which is involved with different regions of the brain. For example, working memory is involved with the prefrontal cortex; emotional memory is processed in the amygdala; and the formation of declarative memory depends on the hippocampus. In our lab, we mainly focus on neural information coding in mouse amygdala and hippocampus by using multi-channel in vivo recording techniques.

We found that a group of BLA neurons could respond to diverse menaces such as heights and moving objects. We also found another group of BLA neurons displayed a characteristic firing pattern, which was directly correlated to a gradual development of anxiety-like behaviors in multiple tests of anxiety such as open-field and elevated plus-maze tests. Our results suggest that two distinct populations of BLA neurons could be involved in encoding instinctive fear and anxiety, respectively.

We design a circular track to study how long it takes a place cell to occur in a new environment. And our data showed that place fields can appear very suddenly. We also have discovered “nest cells” in the mouse hippocampus. They can be classified into “transient-on”, “persistent-on” and “persistent-off ” types based on their firing patterns. These “nest cells” appear to encode the abstract concept of “nest” regardless of its shape, color, odor, texture, construction material, spatial position, environmental context etc.

BIOGRAPHY

Longnian Lin is Professor from the Institute of Brain Functional Genomics at East China Normal University.