

Internship position available for project "Effects of the stress hormone noradrenaline on the neural circuitry underlying memory quality"

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From Sept 2020 onwards (3-6 months)

Stressful or emotional experiences are extremely well remembered and with a great feeling of vividness and detail. You just have to think back at an event in your own past and chances are high you will recall a stressful or emotional event such as your first date or your graduation from high school. However, these memories are not always very accurate, and their generalized storage and recall might actually cause problems as observed in patients suffering from post-traumatic stress disorder. In our lab, we use mouse models to investigate how stress hormones affect the accuracy of different types of memory. Specifically, in this internship, you will help investigating the effects of the stress hormone noradrenaline on the brain mechanisms supporting object recognition memory. In this task, we can test if mice have an accurate and detailed memory for a particular object they have seen before. Previous studies in our lab have shown that the administration of the noradrenergic stimulant yohimbine after training in this task enhances memory detailedness for this object. In this internship, you will study the underlying neural mechanisms of this behavioral effect. To investigate how noradrenaline affects neural activity during the formation of this memory, a transgenic mouse line will be used. This mouse line makes it possible, in living animals, to induce a permanent fluorescent labeling of all neurons that are active during and shortly after the animals learn the task. To investigate how noradrenaline influences the recall of the memory, mice will subsequently be exposed to either the object they had seen during the training, a highly similar object or an entirely different object. After this test, their brain response in terms of neuronal activity is analyzed by immunohistochemistry.

Main tasks: - Animal behavioral work (optional, plus possibility to obtain article 9 laboratory animal science certificate)

- Molecular work: brain extraction, brain slicing, immunohistochemistry, image acquisition(microscopy), image processing

Experience with these techniques is not necessary.

