



## Seminar/Talk

# Sensory and cellular determinants of hippocampal place cells' activation in mice navigating familiar virtual environments

**Jerome Epsztein**

Institut de Neurobiologie de la Méditerranée

Host: Peter Jonas

In any given environment, a specific ensemble of cells in the hippocampus, called place cells, will be active (each one coding a specific location, their place field) among a larger population of silent neurons. This ensemble participates in the formation of a cognitive map, a mental representation of that environment which will be stored in long-term memory, allowing flexible spatial navigation. The mechanisms behind place cells activation are still poorly understood. At the network level, place cells integrate information from external sensory cues as well as self-motion cues. In the first part of the talk I will describe the use of virtual reality in combination with large-scale extracellular recordings to assess the role of local visual cues in place cells activation. At the cellular level, the mechanisms behind place cell activation are difficult to study with extracellular recordings, which only capture the spiking output of neurons and not their synaptic inputs or intrinsic cellular properties. In the second part of talk I will describe recently developed techniques to perform intracellular recording of hippocampal pyramidal cells in navigating animals. I will illustrate how these techniques can be used to gain insights into the cellular mechanisms of place cell activation in new and familiar environments.

**Monday, January 27, 2020 12:00pm - 01:00pm**

Mondi Seminar Room 2, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: <https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.