The olfactory cocktail party problem: Extraction of odor information from complex environments

ELSC cordially invites you to the lecture given by:

Dan Rokni

Department for Medical Neurobiology, Hadassah Medical School, Jerusalem

On the topic of:
"The olfactory cocktail party problem: Extraction of odor information from complex environments"

The lecture will be held on Thursday March 02nd, 2017 at 17:00

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

Edmond J. Safra Campus

Light refreshments served at 16:45

Abstract:

Sensory systems are constantly confronted with the need to detect and identify behaviorally relevant stimuli in the presence of distracting backgrounds. I will describe our studies aiming to provide an understanding of how rodents detect odors of interest that are embedded in background mixtures. We developed a behavioral paradigm in which mice are required to detect target odors against varying backgrounds. We found that mice are highly capable of performing this task and that the behavioral accuracy can be explained by the amount of overlap in sensory representations of target and background odors. It is often hypothesized that top down modulation of sensory representations is involved in assuring proper processing of target stimuli in the presence of backgrounds. Towards testing this hypothesis we characterized the circuitry receiving cortical inputs in the olfactory bulb. We found that cortical inputs can strongly affect olfactory bulb output via multiple inhibitory pathways,
suggesting that it may play an important role in shaping sensory representations. These studies combine to provide a basis for our future investigation of how the olfactory system extracts behaviorally relevant information from complex environments.

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