SFB 1315
Mechanisms and Disturbances in Memory Consolidation:
From Synapses to Systems

Tuesday

JAN 11, 2022
4:00 pm CET

ZOOM ID: 7754910236
Register at:
SFB1315.ifb@hu-berlin.de

SFB 1315 LECTURE SERIES 2019-2022

MAPPING INPUTS TO INDIVIDUAL L2/3 PYRAMIDAL NEURONS, WITH IMPLICATIONS FOR CORTICAL 'READOUT' OF VISUAL INPUT

ELLY NEDIVI

Nedivi Lab

The Picower Institute for Learning and Memory
MIT Department of Brain and Cognitive Sciences
MIT Department of Biology
Massachusetts Institute of Technology

Funded by
DFG Deutsche Forschungsgemeinschaft
German Research Foundation

SFB 1315
Mechanisms and Disturbances in Memory Consolidation:
From Synapses to Systems

Tuesday

JAN 11, 2022
4:00 pm CET

ZOOM ID: 7754910236
Register at:
SFB1315.ifb@hu-berlin.de

MAPPING INPUTS TO INDIVIDUAL L2/3 PYRAMIDAL NEURONS, WITH IMPLICATIONS FOR CORTICAL 'READ OUT' OF VISUAL INPUT

The introduction of two-photon microscopy for in vivo imaging has opened the door to chronic monitoring of individual neurons in the adult brain, and the study of synaptic distribution and structural plasticity mechanisms at a very fine scale.

We have developed methods for labeling and chronic tracking of excitatory and inhibitory synapses across the dendritic arbors of L2/3 cortical pyramidal neurons in vivo. These methods, combined with posthoc tissue expansion microscopy, have allowed us to experimentally generate synaptic maps of individual Layer 2/3 pyramidal cells of primary visual cortex, revealing the number, density, and size of thalamic versus cortical excitatory synapses.

Our findings provide a basis for anatomically-faithful modeling that uncovers how individual L2/3 neurons with sparse and weak thalamocortical synapses, embedded in small heterogenous neuronal ensembles, may reliably "read-out" visually driven thalamic input.

Elly Nedivi's lecture is hosted by SFB1315 Speaker Matthew Larkum.

Funded by
DFG Deutsche Forschungsgemeinschaft
German Research Foundation