Seminar/Talk

[Online] Local and global organization of synaptic inputs on cortical dendrites

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Synaptic inputs on cortical dendrites are organized with remarkable subcellular precision at the micron level. This organization emerges during early postnatal development through patterned spontaneous activity and manifests both locally where synapses with similar functional properties are clustered, and globally along the axis from dendrite to soma. Recent experiments reveal species-specific differences in the local and global synaptic organization in mouse, ferret and macaque visual cortex. I will present a computational framework that implements functional and structural plasticity from spontaneous activity patterns to generate these different types of organization across species and scales. Within this framework, a single anatomical factor - the size of the visual cortex and the resulting magnification of visual space - can explain the observed differences. This allows us to make predictions about the organization of synapses also in other species and indicates that the proximal-distal axis of a dendrite might be central in endowing a neuron with powerful computational capabilities.

Friday, September 18, 2020 03:00pm - 04:00pm
online - link tba

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