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“Imaging the Mouse Visual System: Parallel Pathways and Visual Cortical Areas”

15:00-16:30 on October 30 (Mon), 2017
Lecture room (205) in Pharm. Sci. Bldg.

To understand the mechanisms by which neural circuits process information, it is necessary to resolve connectivity with high resolution, to correlate connectivity with function, and to manipulate the activity of defined circuit components. Until recently, most efforts to understand the neural mechanisms underlying visual perception have taken advantage of the organization of the primate visual system into functionally specialized areas and modules. This work effectively described neural substrates and their interactions at these levels of resolution. But our in vitro studies of cortical circuits demonstrated that local microcircuits are selective at finer levels of resolution - cell types and single neurons. It is therefore clear that in order to understand how cortical microcircuits compute visual information one must either develop new approaches in primates or study mice, in which recent advances in the development of molecular, genetic and viral based tools allow cell-type specific regulation of gene expression. We have therefore conducted foundational studies to understand the basic functional organization of the mouse visual system.