

Development of memory circuits in the brain

Rosa Cossart

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The hippocampus is a brain region that supports navigation and memory. Our team aims at gaining understanding of hippocampal function at circuit level, in health and disease. We try to outline the general principles by which hippocampal function, in the adult brain, is constrained by early developmental genetic programs and activity-dependent processes (Cossart and Garel, *Nature Rev. Neurosc.* 2023). To this aim we use and develop several approaches, in particular all optical interrogation of cortical circuits combined with electrophysiology, mouse genetics and cutting-edge data analysis, both in vivo and in vitro. We propose that rewinding the process of hippocampal development helps understanding the main organization principles of hippocampal cognitive maps and how they dysfunction in pathology (Cossart and Khazipov, 2021).