

## The multifaceted role of cortical endocannabinoid system in memory

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*Amphithéâtre du Neurocampus Michel Jouvet*



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Cannabinoid-type 1 receptors (CB1R) and their endogenous ligands form the endocannabinoid system in the brain, which is an important modulator of many functions including learning and memory. However little is known about its specific role in chemosensory learning based on simple or higher-order conditioning and how it could contribute to some memory dysfunction. With the lab of Giovanni Marsicano (NeuroCentre Magendie, Bordeaux), we showed that CB1R in the olfactory cortex control memory retrieval of odor preference, but not odor aversion, through the modulation of local inhibitory transmission. In addition, we demonstrated that hippocampal CB1R are not involved in such simple chemosensory conditioning, but are required for higher-order learning based on odor-taste preconditioning. In particular, CB1R-dependent modulation of discrete population of hippocampal GABAergic neurons is necessary and sufficient for odor-taste associations eventually leading to inferred memory. Finally, we recently discovered that dysfunction of the hippocampal endocannabinoid system leading to CB1R over-activation triggers memory impairment after obesogenic diet consumption. Altogether these results help to decipher the complex but crucial role of cortical CB1R in memory function and dysfunction.