MASTER 2 Neurosciences Fondamentales et Cliniques
UCB Lyon 1, Lyon, France

Internship proposal 2020-2021
(internship from January to end of May 2021)

Host laboratory:

Lyon Neuroscience Research Center CRNL
Inserm U1028 - CNRS UMR5292 - UCBL
Centre Hospitalier Le Vinatier - Bâtiment 462 - Neurocampus
95 boulevard Pinel
69675 Bron Cedex

Host team :
team FORGETTING "Forgetting processes and Cortical Dynamics"
https://crnl.univ-lyon1.fr/index.php/en/Research/CRNL-teams-2016-2020/23

Internship supervisors :
Gaël MALLERET, Team leader, Chargé de Recherche CNRS, HDR
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Project title :
Sleep, synaptic plasticity, memory and forgetting – an integrative approach

Project summary :
Long-term (or Reference) memory (RM) allows us to store information durably, for several hours to a lifetime. On the contrary, working memory (WM) allows the storage of information for a short period of time. Once used however, this information needs to be forgotten in order not to interfere with the storage and recall of newer information. While RM would require an sustainable increase in synaptic transmission between neurons (Long-term potentiation LTP), forgetting would require synaptic depression (LTD). Both memory and forgetting are known to be modulated by sleep. However, evidence for synaptic reorganization and involvement of specific sleep phases in memory and forgetting are still lacking. Our team is thus particularly interested in studying this sleep-dependent modulation of synaptic plasticity, memory and forgetting using behavioral, electrophysiological and molecular approaches in the rat.

3-5 recent publications :

1. Ravassard P, Hamieh AM, Joseph MA, Fraize N, Libourel PA, Lebarillier L, Arthaud S, Meissirel C, Touret M, Malleret* G, Salin PA. (2015) REM Sleep-Dependent Bidirectional Regulation of Hippocampal-Based Emotional Memory and

Please send your proposal to emiliano.macaluso@univ-lyon1.fr and marion.richard@univ-lyon1.fr for publication on the website.

LTP. Cereb Cortex. [Epub ahead of print]

2. Joseph MA, Fraize N, Ansoud-Lerouge J, Sapin E, Peyron C, Arthaud S, Libourel PA, Parmentier R, Salin PA, **Malleret G.** (2015) Differential Involvement of the Dentate Gyrus in Adaptive Forgetting in the Rat. PLoS One. 10 (11): e0142065.
3. Fraize N, Carponcy J, Joseph MA, Comte JC, Luppi PH, Libourel PA, Salin PA, **Malleret G*,** Parmentier R. (2016) Levels of Interference in Long and Short-Term Memory Differentially Modulate Non-REM and REM Sleep. Sleep. 39(12):2173-2188.
4. Fraize N, Hamieh AM, Joseph MA, Touret M, Parmentier R, Salin PA, **Malleret G.** (2017) Differential changes in hippocampal CaMKII and GluA1 activity after memory training involving different levels of adaptive forgetting. Learn Mem. 24(2):86-94.
5. Missaire M, Fraize N, Joseph MA, Hamieh AM, Parmentier R, Marighetto A, Salin PA, **Malleret G.** (2017) Long-term Effects of Interference on Short-term Memory Performance in the Rat. PLOS One, 12:e0173834.