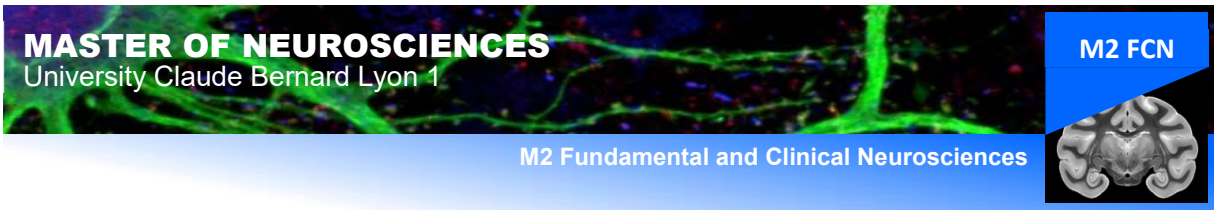

MASTER 2 Fundamental and Clinical Neurosciences

Internship proposal 2022-2023

(internship from January to June 2023)

Host laboratory:

Centre de Recherche en Neurosciences de LYON (CRNL)
Centre Hospitalier Le Vinatier - Bâtiment 462 - Neurocampus
95 boulevard Pinel
69675 Bron Cedex

Host team:

Team *FORGETTING - https://www.crnl.fr/fr/equipe/forgetting*

Internship supervisors:

Gaël Malleret, Chargé de Recherche, gaelmalleret@gmail.com

Project title:

Evolution of the engram after memory consolidation or forgetting

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. We have recently shown in rats that while RM leads to a transient increase in synaptic transmission (Long-term potentiation LTP) between neurons of the Hippocampus, WM training induces synaptic depression (LTD) that is directly correlated to the rat ability to flexibly forget past information. Our goal is now to understand how these synaptic processes affect the nature of the neuronal network representing the memory trace (engram). To do so, in vivo electrophysiological long-term recordings will be performed in rats trained to remember or forget spatial information in a radial maze.

Please send your proposal to marion.richard@univ-lyon1.fr for publication on the Master of Neuroscience website.

3-5 recent publications:

1. 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.
2. 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.
3. 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.
4. 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.
5. Missaire M, Fraize N, Comte JC, Truchet B, Parmentier R, Salin PA, **Malleret G.** Working and Reference Memory Tasks Trigger Opposed Long-Term Synaptic Changes in the Rat Dentate Gyrus. Cereb Cortex. 2021 May 10;31(6):2980-2992.