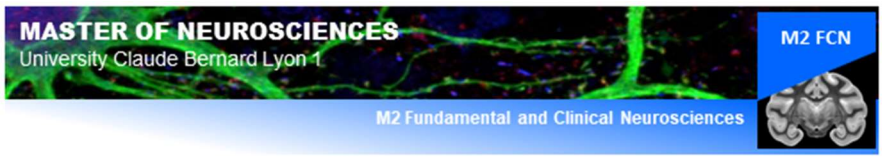

Université Claude Bernard Lyon 1

MASTER 2 Fundamental and Clinical Neurosciences

Internship proposal 2025-2026

(internship from January to June 2026)

Host laboratory:
Centre de Recherche en Neurosciences de Lyon
Inserm U1028 - CNRS UMR5292 - UCBL
Centre Hospitalier Le Vinatier - Bâtiment 462 - Neurocampus Michel Jouvet
95 boulevard Pinel
69500 Bron

Host team
Neuropop team (Neurobiology and Neuroplasticity of Olfactory Perception)
https://www.crnl.fr/fr/equipe/neuropop

Internship supervisors:
Marion RICHARD, Associate Professor – HDR – marion.richard@univ-lyon1.fr
Inês VIEIRA, Post-doc

Project title:
Brain aging through the prism of olfaction: sex effect and involvement of the noradrenergic system.

Project summary: *approx 10 lines*

This project aims at investigating the age-induced alterations and sex-related specificities of olfactory memory in mice and the involvement of the noradrenergic system. By combining anatomical, functional and behavioral approaches, we will compare the kinetic of olfactory memory alteration in males and females, assess the capacity of odorants to induce noradrenaline release (through *in vivo* fiber photometry) and highlight synaptic contacts established by noradrenergic fibers (mammalian GFP-Reconstitution Across Synaptic Partners methodology). The intern will be assisting the work of Inês Vieira, post-doctoral associate in the team.

3-5 recent publications:

*Terrier C., *Greco-Vuilloud J., Cavelius M., Thévenet M., Mandairon N., #Didier A. and #**Richard M**. (2024) Long-term olfactory enrichment promotes non-olfactory cognition, noradrenergic plasticity and remodeling of brain functional connectivity in older mice. *Neurobiology of Aging,* 114:73-83. DOI: 10.1101/2023.04.28.53843. PMID : 38364691

*Chalençon L., *Midroit M., Athanassi A., Thevenet M., Breton M., Forest J., **Richard M.**, Didier A., Mandairon N. (2024) The perception and coding of attractive odorants are altered during aging but self-stimulation of the olfactory bulb is maintained in mice. *Neurobiology of Aging*. 137:8-18. DOI: 10.1016/j.neurobiolaging.2024.02.003. PMID 38394723.

Moussy E., Fournel A., Bellil D., Degraix JL., Faure F., Idriss S., Fieux M., Denoix L., Daudé C., ***Richard M.,** *Bensafi M., *Ferdenzi C. (2024) Losing olfaction in COVID-19: screening, training and effects on quality of life. *Clinical Nutrition Open Science* 56 :49-64. DOI: 10.1016/j.nutos.2024.05.007

*Greco-Vuilloud J., *Midroit M., Terrier C., Forest J., Sacquet J., Mandairon N., Didier A., and **Richard M**. (2022) 12 months is a pivotal age for olfactory perceptual learning and its underlying neuronal plasticity in aging mice. *Neurobiology of Aging*. 114:73-83. DOI: 10.1016/j.neurobiolaging.2022.03.003. PMID: 35413485.

*Midroit M., *Chalençon L., Renier N., Milton A., Thevenet M., Sacquet J., Breton M., Forest J., Noury N., **Richard M.**, Raineteau O., Ferdenzi C., Fournel A., Wesson D.W., Bensafi M., Didier A. and Mandairon N. (2021) Neural processing of the reward value of pleasant odorants. *Current Biology*. 31(8):1592-1605.e9. DOI: 10.1016/j.cub.2021.01.066. PMID: 33607032.