



MASTER 2 Fundamental and Clinical Neurosciences

Internship proposal 2022-2023

(internship from January to June 2023)

Host laboratory: CRNL – Bâtiment Neurocampus – Bron

Host team: CMO, <https://www.crnl.fr/fr/equipe/cmo>

Internship supervisors: Nathalie BUONVISO, CR CNRS, nathalie.buonviso@cnrs.fr

Project title: Effects of essential oils on cerebral activity and physiological signals

Project summary:

The olfactory system represents a particularly efficient gateway to well-being and relaxation, either by the emotional valence taken by certain smells (olfactotherapy) or by the potentially pharmacological effects of some essential oils (aromatherapy). Our project aims at deciphering the neural and physiological mechanisms accompanying the appeasing effect of particular smells. For this purpose, we will record EEG activity along with physiological parameters (respiration, cardiac activity and electrodermal resistance) of participants placed in an environment odorized by different classes of smells.

We are searching for an applicant with high commitment, interested by questions concerning the relation between central and autonomic nervous systems, and not put off by data analysis.

3-5 recent publications:

- Girin B, Juventin M, Garcia S, Lefèvre L, Amat C, Fourcaud-Trocmé N, Buonviso N (2021) The deep and slow breathing characterizing rest favors brain respiratory-drive. *Sci Rep.* Mar 29;11(1):7044. doi: 10.1038/s41598-021-86525-3. PMID: 33782487.
- Fourcaud-Trocmé N, Lefèvre L, Garcia S, Messaoudi B, Buonviso N (2019) High beta rhythm amplitude in olfactory learning signs a well-consolidated and non-flexible behavioral state. *Sci. Rep.* Dec 30;9(1):20259. doi: 10.1038/s41598-019-56340-y
- Plailly J, Villalba M, Vallat R, Nicolas A, Ruby P. Incorporation of fragmented visuo-olfactory episodic memory into dreams and its association with memory performance. *Sci Rep.* 2019 Oct 30;9(1):15687. doi: 10.1038/s41598-019-51497-y. PMID: 31666536; PMCID: PMC6821835.
- Plailly J, Delon-Martin C, Royet JP. Experience induces functional reorganization in brain regions involved in odor imagery in perfumers. *Hum Brain Mapp.* 2012, 33:224-34. doi: 10.1002/hbm.21207.

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