**MASTER 2 Neurosciences Fondamentales et Cliniques****Internship proposal 2021-2022**

(internship from January to end of May 2022)

Host laboratory:

Lyon Neuroscience Research Center_Inserm U1028 CNRS UMR5292
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Host team : Team “PAM” <https://pamlyon.wordpress.com>

Internship supervisors :

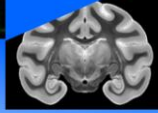
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Project title : From sleep to wakefulness: electrophysiological signatures of idiopathic hypersomnia across vigilance states.

Project summary :

Idiopathic hypersomnia (IH) is a chronic neurological sleep disorder associated with excessive daytime sleepiness (EDS) assessed by the multiple sleep latency test and/or increased total sleep duration quantified by 24h bedrest recordings. Other highly disabling components of the disease are usually not investigated. Indeed, sleep-to-wake transitions seem to be also impaired in IH patients, leading to sleep inertia on awakening and to parasomnia such as sleep-related hallucinations. Moreover, many patients complain from chronic “brain fog” leading to impaired cognitive performances and imaging studies argue for the presence of functional disturbances even during wakefulness. Very few works have investigated electrophysiological markers of these phenomena. Our study aims at exploring EEG signal in IH and narcolepsy patients as well as controls who underwent 24h continuous recording at the center for Sleep Medicine and Respiratory Disease, HCL. More specifically, we will assess the temporo-spatial pattern of fluctuation of slow wave activity across vigilance states and investigate sleep stage transitions by quantifying their duration and the stage shift trajectories at sleep onset and sleep offset.

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

**3-5 recent publications :**

- Valomon A, Riedner BA, Jones SG, Nakamura KP, Tononi G, Plante DT, Benca RM, Boly M. A high-density electroencephalography study reveals abnormal sleep homeostasis in patients with rapid eye movement sleep behavior disorder. *Sci Rep*, 2021;11:4758.
- Frauscher B, von Ellenrieder N, Dolezalova I, Bouhadoun S, Gotman J, Peter-Derex L. REM sleep sawtooth waves are associated with widespread cortical activations. *J of Neuroscience*, 2020; 40: 8900-8912
- Latreille V, von Ellenrieder N, Peter-Derex L, Dubeau F, Gotman J, Frauscher B . The human K-complex: Insights from combined scalp-intracerebral EEG recordings, *Neuroimage*, 2020; 213:116748
- Flamand M, Boudet S, Lopes R, Vignal JP, Reyns N, Charley-Monaca C, Peter-Derex L, Szuthaj W. Confusional arousals ; evidence from intracerebral recordings. *Sleep*, 2018; 41(10)
- Peter-Derex L., Magnin M. Bastuji, H. Heterogeneity of arousals in human sleep: a stereo-electroencephalographic study. *Neuroimage*, 2015; 123: 229-44.
- Peter-Derex L, Perrin F, Petitjean T, Garcia-Larrea L, Bastuji H. Discriminating neurological from psychiatric hypersomnia using forced awakening test. *Clinical Neurophysiology*, 2013; 43: 171-9.