

**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:**

Centre de recherche en neurosciences de Lyon  
CH Le Vinatier - Bâtiment 462 - Neurocampus, 95 Boulevard Pinel, 69500 Bron

**Host team :**

TIGER - Recherche translationnelle et Intégrative en Epilepsie  
<https://crnl.univ-lyon1.fr/index.php/fr/Recherche/Equipes/28>

**Internship supervisor :**

Baptiste Balança : Post-doc; Chef de Clinique assistant hospitalo-universitaire (CCA-INSERM-Bettencourt) ; [baptiste.balanca@gmail.com](mailto:baptiste.balanca@gmail.com)  
Stéphane Marinesco : researcher ; [stephane.marinesco@univ-lyon1.fr](mailto:stephane.marinesco@univ-lyon1.fr)

**Project title :** S100B and glia changes during cortical spreading depolarization after subarachnoid hemorrhage

**Project summary :**

Subarachnoid hemorrhage (SAH) related to rupture of an intracranial aneurysm has a high mortality rate, nearly half of the survivors retain irreversible neurological lesions. The outcome is the resultant of early lesions, and the occurrence of delayed cerebral infarction (DCI). The constitution of DCI involves the occurrence of cortical spreading depolarizations (SD) which are massive waves of potassium and glutamate that propagates across the surface of the brain thereby damaging neurons and glial cells.

At the bedside, several biomarkers are under evaluation to early detect the onset of a DCI and trigger therapeutic actions. Among them S100B is a calcium binding protein express in astrocytes cytoplasm that is found in the systemic blood when a new cerebral infarct occurs. S100B changes during SD is unknown as well as its kinetics during the constitution of DCI.

The aim of this project will be to investigate S100B release kinetic and brain location in a rat model of SD after SAH, as well as the resulting histological changes. This internship will involve immuno-histological staining and imaging of brain slices, in vivo experiments and electrophysiological recordings.

**3-5 recent publications:**

- Significance and diagnostic accuracy of early S100B serum concentration after aneurysm

Please send your proposal to [emiliano.macaluso@univ-lyon1.fr](mailto:emiliano.macaluso@univ-lyon1.fr) and [marion.richard@univ-lyon1.fr](mailto:marion.richard@univ-lyon1.fr) for publication on the website.

subarachnoid hemorrhage. **Balança B**, Ritzenthaler T, Gobert F, Richet C, Bodonian C, Carrillon R, Terrier A, Desmurs L, Perret-Liaudet A and Dailler F, Journal of clinical medicine 2020 [IF=5.6]

- Diagnostic accuracy of quantitative EEG to detect delayed cerebral ischemia after subarachnoid hemorrhage : A preliminary study. **Balança B**, Dailler F, Boulogne S, Ritzenthaler T, Gobert F, Rheims S, Andre-Obadia Clin Neurophysiol. 2018 [IF=3.614]
- Recording, analysis and interpretation of spreading depolarizations in neurointensive care : review and recommendations of the COSBID research group. Journal of Cerebral Blood Flow and Metabolism, 2016. [IF=5.479]
- Altered hypermetabolic response to cortical spreading depolarizations after traumatic brain injury in rats. **Balança B**, Meiller A, Bezin L, Dreier JP, Marinesco S, Lieutaud T. Journal of Cerebral Blood Flow and Metabolism, 2016. [IF=5.479]