

## **MASTER 2 Fundamental and Clinical Neurosciences**

### **Internship proposal 2022-2023**

*(internship from January to June 2023)*

**Host laboratory:** Lyon Neurosciences Research Center, INSERM U 1028, CNRS UMR5292, UCBL-1. Centre Hospitalier Le Vinatier - Bâtiment 462 – Neurocampus, 95 boulevard Pinel, 69675 Bron Cedex, France

**Host team :** FLUID Team, [FLUID | Lyon Neuroscience Research Centre \(cnrl.fr\)](http://fluid.cnrl.fr)

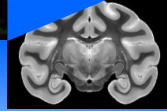
**Internship supervisors :** Jean-François Gherzi-Egea, Team leader, e-mail: [jean-francois.ghersi-egaa@inserm.fr](mailto:jean-francois.ghersi-egaa@inserm.fr)

**Project title :** Influence of dioxin exposure on the transport of folates across blood-brain interfaces.

**Project summary :** *approx 10 lines*

Folate deficiency induces neuro-developmental impairments leading to neuropsychiatric diseases. Cerebral folate homeostasis is controlled by specific influx transporters localized at blood-brain interfaces. The expression of these transporter genes involved in folate supply to the brain is reduced by chronic exposure to environmental toxicants that are ligands of the transcription factor Ahr, including dioxin and selected PCBs. The aim of the internship is to assess the extent and mechanism of folate transport alteration induced by exposure to environmental Ahr ligands at the blood-brain and blood-CSF barriers, using in vitro and ex vivo approaches. This study should clarify a link between environmental toxicants and cerebral folate deficiency in the context of neurodevelopmental diseases.

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



### 3-5 recent publications:

Blondel S, Strazielle N, Amara A, Guy R, Bain C, Rose A, Guibaud L, Tiribelli C, Gazzin S and Gherzi-Egea JF. Vascular network expansion, integrity of blood–brain interfaces, and cerebrospinal fluid cytokine concentration during postnatal development in the normal and jaundiced rat. *Fluids Barriers CNS*, 2022, in press

Denuzière A, Gherzi-Egea JF. Cerebral concentration and toxicity of endocrine disrupting chemicals: The implication of blood-brain interfaces. *Neurotoxicology*. 2022 Apr 15:S0161-813X(22)00052-3.

Zheng W, Gherzi-Egea JF. Brain Barrier Systems Play No Small Roles in Toxicant-induced Brain Disorders. *Toxicol Sci*. 2020 Jun 1;175(2):147-148.

Kratzer I, Strazielle N, Saudrais E, Mönkkönen K, Malleval C, Blondel S, Gherzi-Egea JF. Glutathione Conjugation at the Blood-CSF Barrier Efficiently Prevents Exposure of the Developing Brain Fluid Environment to Blood-Borne Reactive Electrophilic Substances. *J Neurosci*. 2018 Apr 4;38(14):3466-3479.