



## Post-doctoral position – Epigenomic mechanisms of drug addiction

### Candidate profile & project description

A post-doctoral position is open at the Institute of Cellular and Integrative Neuroscience in Strasbourg, France (INCI - CNRS UPR 3212). We seek to hire a molecular biologist with:

- Experience in the use of next-generation sequencing for epigenomic analysis,
- Strong interest in neuroscience and mental health.

The recruited fellow will join our project dedicated to the understanding of epigenetic plasticity in substance use disorders, or addiction. Our work mostly focuses on DNA methylation (WGBS, EM-seq) and histone modifications (Cut&Tag), with an emphasis on sex-differences. The originality of the project resides in complementary studies conducted in humans and mice. In Human, we will investigate post-mortem brain tissue from addicted individuals carefully characterized through psychological autopsy (collaboration with the Montréal Brain Bank). In the mouse, we will model volitional reward-seeking and compulsive behaviors in operant paradigms, and manipulate the epigenetic enzymatic machinery (conditional knockout of DNA methyltransferases). The recruited fellow will be mainly responsible for molecular biology work, processing of biological samples, and preparation of NGS libraries. A dedicated staff and collaborations are already in place for behavioral modelling (Dr Emmanuel Darcq, CRBS, Strasbourg) and bioinformatic data processing (Dr Anais Bardet, IGBMC, Strasbourg).

**Salary and benefits:** depending on experience; full health and social coverage included

**Expected start / duration:** flexible, ideally October - November 2023 / 2 years already funded

**To apply:** Please contact Pierre-Eric Lutz by email: [pierreeric.lutz@gmail.com](mailto:pierreeric.lutz@gmail.com)

When applying, please include a CV, a letter of interest (either in English or French), your publication record, and the names and contact of at least two references. There is no strict deadline, but priority will be given to applications sent by September 15<sup>th</sup>.

### Relevant publications

Falconnier C, Caparros-Roissard A, Decraene C, Lutz PE. Functional genomic mechanisms of opioid action and opioid use disorder: a systematic review of animal models and human studies. ***Molecular Psychiatry*** (Accepted) – Preprint: <https://www.biorxiv.org/content/10.1101/2022.12.22.521548v3>

Welsch L, Colantonio E, Falconnier C, Guimaraes-Olmo I, Allain F, Ben Hamida S, Darcq E, Lutz PE, Kieffer BL. Morphine-responsive neurons in the dorsal raphe nucleus are impaired by morphine abstinence. ***Biological Psychiatry*** (2023) S0006-3223(23)01397-5

Lutz PE, Chay MA, Pacis A, Chen G, Aouabed Z, Maffioletti E, Theroux JF, Grenier JG, Yang J, Aguirre M, Ernst C, Redensek R, van Kempen L, Yalcin I, Kwan T, Mechawar N, Pastinen T, Turecki G. Non-CG methylation and multiple histone profiles associate child abuse with immune and small GTPase dysregulation. ***Nature Communications*** (2021) 12(1):1132

Belzeaux R, Lalanne T, Kieffer BL, Lutz PE. Focusing on the opioid system for addiction biomarker discovery. ***Trends Molecular Medicine*** (2018) 24(2):206-220

Lutz PE, Tanti A, Gasecka A, Barnett-Burns S, Kim JJ, Zhou Y, Chen GG, Wakid M, Shaw M, Almeida D, Chay M-A, Yang J, Larivière V, M'Boutchou M-N, van Kempen L, Yerko V, Prud'homme J, Davoli MA, Vaillancourt K, Théroux J-F, Bramoullé A, Zhang TY, Meaney MJ, Ernst C, Côté D, Mechawar N, Turecki G. Association of a History of Child Abuse With Impaired Myelination in the Anterior Cingulate Cortex: Convergent Epigenetic, Transcriptional, and Morphological Evidence. ***American Journal of Psychiatry*** (2017) 174(12):1185-1194

Team website: [https://inci-en.u-strasbg.fr/?page\\_id=1969](https://inci-en.u-strasbg.fr/?page_id=1969) - Twitter: @PE\_Lutz