Two postdoctoral positions in Neurodevelopment and Epilepsy – Paris, France

Two fully funded 36-month postdoc positions are open immediately in the Poncer lab at the Institut du Fer à Moulin and the Baulac lab at the Paris Brain Institute, to study the molecular and cellular determinants of epileptic networks associated with focal cortical dysplasia. This ANR-funded collaborative project brings together 3 leading European groups in the fields of neurodevelopment and epilepsy (Stéphanie Baulac and Jean Christophe Poncer in Paris, and Denis Jabaudon at Univ. Geneva).

Cortical malformations are a major cause of childhood epilepsy and are often caused by germline mutations but also by somatic mutations affecting only a subset of neurons. Such *brain mosaicism* is implicated in several neurodevelopmental disorders and cortical malformations, including focal cortical dysplasia (FCD), which is the most common developmental malformation causing refractory epilepsy. Our project aims **to understand how FCD promotes epilepsy**. Specifically, we will explore the molecular and circuit basis of cortical malformation and epileptogenesis in FCD. By combining single-cell transcriptomics and electrophysiological studies on postoperative tissue from human FCD patients and a clinically relevant mouse model, we will functionally interrogate specific molecular pathways and cell subtypes and their contribution to circuit hyperexcitability.

The successful candidates will join dynamic, multidisciplinary research teams with a converging interest in the molecular and cellular determinants of epileptic networks. They will also participate in consortium activities including annual scientific meetings, progress reports, and interaction with patient organizations for outreach activities.

Position 1 (Poncer lab): the successful candidate will join a research team focused on the molecular and cellular determinants of epileptic networks, with expertise ranging from single molecule tracking approaches to *in vitro* and *in vivo* electrophysiology. He/she will perform *in vitro* electrophysiological recordings (patch-seq combined with LFP) from postoperative human brain tissue and brain slices from animal FCD models to correlate pathological network activity with single-molecule electrophysiological and transcriptomic signatures.

Candidates should have a PhD in neuroscience and a strong background in *in vitro* slice electrophysiology (patch clamp). Excellent teamwork and communication skills in English are required.

To apply, please send a CV, a brief description of experience and research interests, and the names and email addresses of two references to *j-c.poncer@icm-institute.org*

Position 2 (Baulac lab): The successful candidate will join a team focused on the molecular and cellular determinants of cortical malformations. He/she will perform genetics studies and single-cell OMICS from surgical human brain tissue and from FCD mice models to correlate mTOR-related somatic mutations with single-cell transcriptomic signatures.

Candidates should have a PhD in genetics or neuroscience. A background in single-cell analysis would be a valuable asset. Excellent teamwork and communication skills in English are required.

To apply, kindly provide your CV, a concise description of your experience and research interests, and contact information of two references to *stephanie.baulac@icm-institute.org*

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