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Postdoctoral position in the Mechanics of Neuronal Development

- ANNONCES - Offres d'emploi et de financement -

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Deciphering the role of mechanical forces in the construction of a neuronal circuit in vivo

Neuronal circuits are the functional building blocks of the nervous system. In the embryo, their development requires cellular motion : neurons migrate from their birthplace to their final location, and their protrusions, axons and dendrites, emerge and grow before connecting through synapses. So far, most studies have focused on attractive and repulsive chemical cues guiding neuronal migration and axon navigation. Yet the movement of neurons and their protrusions is likely to be influenced by extracellular mechanical forces, whose functions remain largely unexplored in vivo. Thus, dissecting out the role of mechanical cues in complex 3D neural tissues represents a major challenge for modern neurosciences.

We address this question using the zebrafish olfactory circuit as a model system. Its location underneath the skin of the embryo makes it amenable to live imaging and mechanical perturbation. We already obtained imaging and functional data suggesting an important function for mechanical forces in the formation of the olfactory circuit. To further clarify this role, the postdoctoral fellow will employ a multidisciplinary strategy combining multiscale live imaging and genetic tools with physical approaches to measure forces and perturb the mechanical state of the embryo.

We are looking for a highly motivated young researcher, willing to join an interdisciplinary environment involving strong interactions between biologists and physicists (respectively located at the Institut de Biologie Paris Seine/Developmental Biology Department and the Physico-Chimie Department of the Institut Curie in Paris).

Requirements :

- ▶ PhD in cell/developmental biology or in biophysics
- ▶ Strong interest towards interdisciplinary work
- ▶ Good level in image analysis (Image J, Matlab)

Additional beneficial skills :

- ▶ Experience with zebrafish
- ▶ Skills in confocal and/or biphoton microscopy

The position is available **from March 2017** onwards and is funded initially for 12 months. The fellow will receive full support to apply for further independent postdoctoral fellowships (EMBO, Marie Curie and others).

To apply, please send your CV including a full list of your publications, a statement of research interests and two referees or more to both :

- ▶ Marie Breaux, Institut de Biologie Paris Seine marie.breaux@upmc.fr
- ▶ Isabelle Bonnet, Institut Curie isabelle.bonnet@curie.fr

URL link : <http://www.ibps.upmc.fr/en/ibps/opportunities/8007,postdoc-en-mechanics-of-neuronal-development>