Location: Institut Jacques Monod, Paris

Working language: English

Contact: luyan.cao@ijm.fr

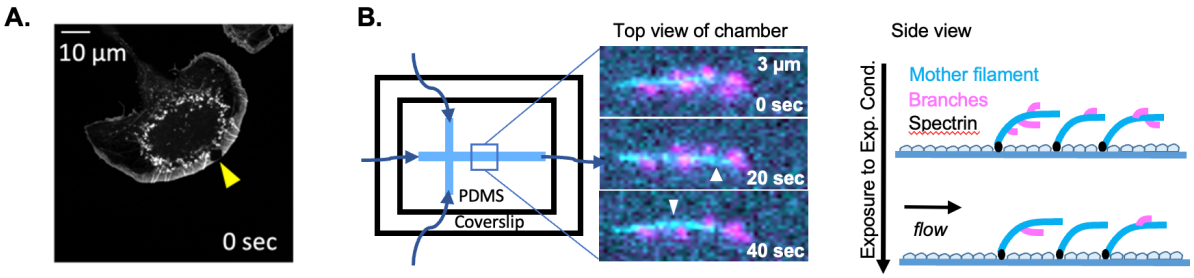
Website: https://www.actindynamics.net

Postdoc position in the Regulation of Cytoskeleton Dynamics Lab

The project: The Arp2/3 complex, consisting of seven protein subunits, is essential for generating branched actin networks crucial to multiple cellular processes, including cell motility, cell division, phagocytosis and DNA repair etc. For more than 30 years, Arp2/3 complex has always been regarded as a single entity. However, in mammals, three of its subunits exist as two isoforms, allowing for the formation of eight different Arp2/3 iso-complexes. The regulation of Arp2/3 iso-complex-generated actin networks in cells remains largely unclear. In this project, we will decipher the molecular and cellular functions of these complexes.

Where and when: The position will be based at the Institut Jacques Monod, Université Paris Cité, in Paris. Our team is dynamic, international, and multidisciplinary, working at the intersection of biochemistry, biophysics, and cell biology.

The position is funded by the ANR, with support secured for multiple years. It will initially be offered as a one-year contract, with the possibility of renewal by mutual agreement.



Who shall apply: We are looking for an enthusiastic postdoctoral researcher to study the regulation of actin networks nucleated by Arp2/3 iso-complexes during cell migration. They will use both cell biology approaches (Fig. A) and in vitro reconstitution (e.g. microfluidics setup, Fig.B) to dissect the molecular details. The candidate must have a PhD degree, preferentially in biochemistry, molecular biology, cell biology, biophysics or engineering.

How to apply: Please send a motivation letter, CV, and the names and email addresses of 2-3 referees to luyan.cao@ijm.fr

References:

1. Cao, L., et al., SPIN90 modulates the architecture of lamellipodial actin in an ARPC5L dependent fashion. BioRxiv, 2026
2. Cao, L. and M. Way, The stabilization of Arp2/3 complex generated actin filaments. Biochem Soc Trans, 2024.
3. Cao, L., et al., Regulation of branched versus linear Arp2/3-generated actin filaments. EMBO J, 2023. 42(9): p. e113008.
4. Cao, L., et al., SPIN90 associates with mDia1 and the Arp2/3 complex to regulate cortical actin organization. Nat Cell Biol, 2020. 22(7): p. 803-814
5. Abella, J.V., et al., Isoform diversity in the Arp2/3 complex determines actin filament dynamics. Nat Cell Biol, 2016. 18(1): p. 76-86.