



POSTDOCTORAL FELLOW POSITION IN

“Modelling neurodevelopmental disorders using *Drosophila melanogaster*”

The Bagni laboratory in the Department of Fundamental Neurosciences at the University of Lausanne (Switzerland) is seeking to hire a curious, talented and highly motivated postdoctoral fellow in the field of molecular and behavioral neuroscience. The candidate would contribute to understand the mechanisms underlying neurodevelopmental deficits taking advantage of the powerful animal model *Drosophila melanogaster*.

The Bagni lab (<https://www.fbm.unil.ch/dnf/group/cellular-and-molecular-studies-of-synaptic-plasticity-and-cancer-in-intellectual-disabilities>), performs cutting edge research in the field of neurodevelopmental disorders focusing on the molecular and cellular mechanisms of brain (dys)function in the context of autism spectrum disorders (ASD) and fragile X syndrome (FXS). Our goal is to understand how synaptic plasticity and brain connectivity is affected in neurodevelopmental disorders giving rise to behavioral deficits.

We employ a multidisciplinary state-of-the-art approach that includes molecular biology, electrophysiological, imaging, and behavioral assay of animal models for diseases, cell culture of mouse neurons, human neurons derived from iPSCs and in vivo drug testing in both *Drosophila melanogaster* and mouse models.

Project: The successful candidate will use *Drosophila* to characterize new ASD candidate genes, investigating their molecular, electrophysiological, and behavioral contribution to ASD-related behaviors and identifying the molecular signature of genetic variants that are likely to cause ASD. The laboratory would provide an extensive collection of *Drosophila* transgenic tools and genetic mutants that would allow the candidate to perform molecular biology and imaging techniques to probe neuronal functionality. In addition, the candidate will take advantage of a state-of-the-art fly facility with a wide variety of behavioral assays for different area of behavioral domains (i.e., social interaction, motor, repetitive behavior, sleep and circadian rhythm), that have been set up in the Bagni Lab in the last 5 years. The specific project opportunities will be discussed in detail at the interview stage. Ideas and project conceptualization are expected. Because the Bagni Lab works also on rodents and patients' cells, the project offers the possibility to be translated to mammals.

Location: The Department of Fundamental Neurosciences (DNF) at the University of Lausanne is one of the Swiss Institutes leading for its impact on innovation and expanding knowledge in fundamental and translational neuroscience. Located at the core of Lausanne city, in proximity with the University Hospital, the DNF offers a dynamic, inclusive, and collaborative scientific environment with access to the most recent cutting-edge technologies in neuroscience (<https://www.unil.ch/dnf/en/home.html>).

Profile and application: The applicant must have a Ph.D. in Neuroscience, Cellular and Molecular Biology or in Computational Neuroscience and interests in studying neurodevelopmental disorders. Candidates with experience in fly genetics and behavior, electrophysiology, neurodevelopment and/or molecular mechanisms of gene regulation and expression are strongly encouraged to apply.

We are looking for highly motivated and enthusiastic scientists to make an impact in the field of neurodevelopmental disorders. Excellent writing, organizational and communication skills are essential, as well as the ability to be a team player, to conceive troubleshoot experiments and to meet deadlines.

Expected starting date: to be agreed, preferably on July 1st, 2022
Contract length: 1 year, renewable

To apply, send to annick.crevoisier@unil.ch before May 1st, 2022

- A Cover letter describing your relevant work experience and research interests
- Curriculum Vitae and publication list
- Contact information for three references

3 Key References for this work

1. Kanellopoulos A.K., Mariano V, Spinazzi M, Jae Woo Y, McLean C, Pech U, Li KW, Armstrong J.D., A, Callaerts P, Smit A.B., Abrahams B.S., Fiala A, Achsel T and Bagni C (2020). Aralar sequesters GABA into hyperactive mitochondria causing social behavior deficits. *Cell*, 180(6): 1178-1197.e20.

2. Woo YJ, Kanellopoulos A.K., Hemati P., Kirschen J, Nebel R.A., Wang T, Bagni C, Abrahams B.S. (2019). Domain-specific cognitive impairments in humans and flies with reduced CYFIP1 dosage. *Biological Psychiatry*, S0006-3223(19)31273-9.

Domínguez-Iturza N, Lo A.C., Shah D, Armendáriz M, Vannelli A1, Mercaldo V, Trusel M, Li K.W., Gastaldo D., Santos AR, Callaerts-Vegh Z, D'Hooge R, Mameli M, Van der Linden A, Smit A.B, Achsel T and Bagni C (2019). The autism and schizophrenia-associated protein CYFIP1 regulates bilateral brain connectivity and behaviour. *Nat. Commun.*, 1(10): 3454.