

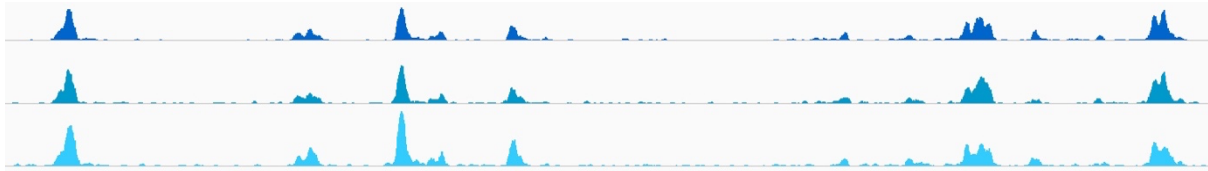


UNIVERSITÉ
DE GENÈVE

FACULTÉ DE MÉDECINE

Department of Genetic
Medicine and Development

Master's thesis position



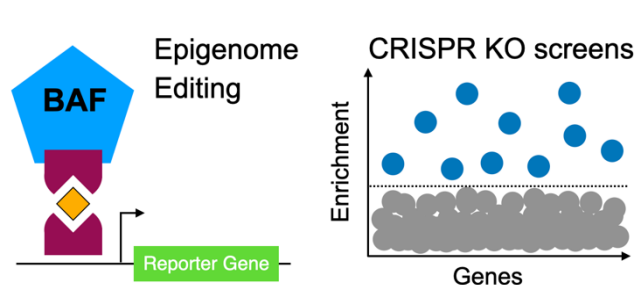
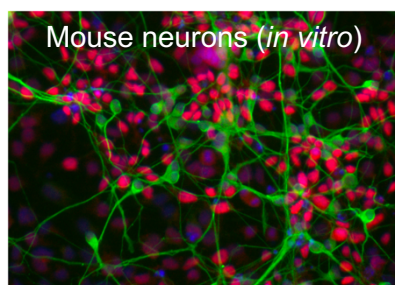
Host lab: Prof. Simon Braun – Chromatin regulation in brain development and disease

Research interests:

Our goal is to understand what drives brain cell diversity during development. We focus on the role of epigenetic regulators that control **chromatin accessibility** and gene expression. The lab uses epigenome editing technologies, *in vitro* mouse stem cell cultures, brain organoids, *in vivo* mouse models and state-of-the-art genomics techniques to study mechanisms of chromatin regulation in the brain. Our aim is to gain novel insights into **neurodevelopmental disorders** like autism, which are frequently associated with mutations in epigenetic regulators.

Project description:

Chromatin regulators control the active and repressive chromatin states that regulate gene expression during brain development. A key driver of neural cell fate is the **BAF (or mSWI/SNF) chromatin remodeling complex**, as highlighted by the hundreds of mutations in BAF complex subunits that have been linked to human neurodevelopmental disorders. In this project we will search for neuron-specific regulators of BAF complex activity. We plan to combine genome-wide CRISPR screening technologies with our lab's epigenome editing tools to study BAF activity in cultured neurons. Using this approach, we will identify the unique set of genes that regulate BAF activity in the brain, which will represent promising new drug targets for treating brain disorders caused by impaired chromatin remodeler activity.



Relevant publication:

- Schwaemmle *et al.* CRISPR screen decodes SWI/SNF chromatin remodeling complex assembly. *bioRxiv* (2024).

To apply, please send your CV and motivation letter to: simon.braun@unige.ch

More information at <https://www.unige.ch/medecine/gede/en/research-groups/1031braun/>