

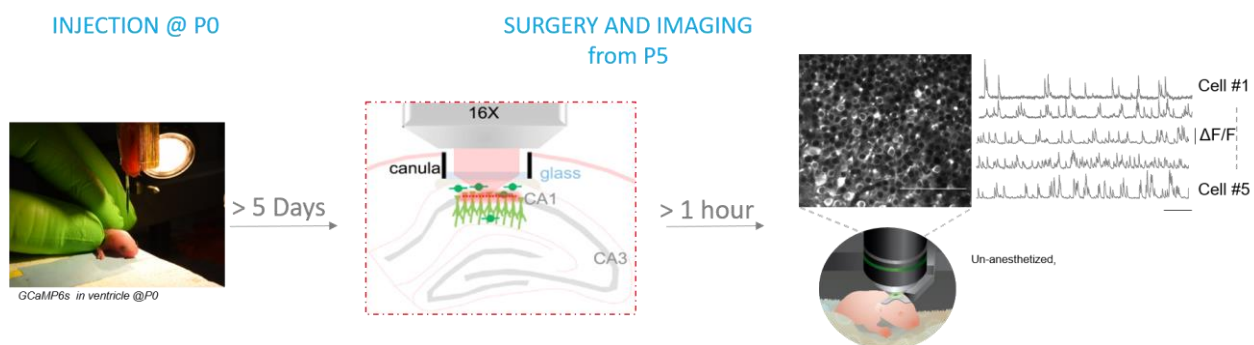
### 3 Years Postdoctoral Position

#### Background:

The team is investigating the role of early neuronal activity on the organization of mature neuronal networks with a specific focus on the hippocampus. Briefly, the function of the mature hippocampus is to create a mental representation (cognitive map) of locations and experiences in the context in which they occur. In this framework, a mismatch between external information and the dynamic of the local hippocampal network could create an incorrect mental representation and be at the origin of a broad continuum of disorders, including autism spectrum disorders (ASD). It has been suggested that, in addition to being a cognitive area, the hippocampus should also be considered as a sensory area, especially during development where its activity is closely linked to sensorimotor inputs. We thus hypothesize that an early disruption of the integration of external inputs would lead to deficits in the formation of cognitive maps that, in turn, would contribute to ASD. Based on recent findings from our lab (Dard et al., 2022), our experimental expertise, and preliminary results, we propose to study the evolution of CA1 dynamics in ASD models during the first two weeks of life.

#### The project:

One first challenge resides in the characterization of neuronal activity at population level in the hippocampus during early development. Our goal is to probe the functional and anatomical organization and maturation of hippocampal CA1 networks during early postnatal development in physiological and pathological condition (ASD).



In collaboration with other team members, the candidate will use several approaches including the use of transgenic mice, virus injections, electrophysiological recordings and state of the art *in vivo* two-photon imaging... He/She will benefit from a deep-learning based algorithm (developed in the team, see Denis et al., 2020, <https://gitlab.com/cossartlab>) to analyze these recordings and characterize neuronal activity.

### Trainee:

We are looking for a creative, motivated candidate with strong interest in Neuroscience at circuit level. We are especially interested in applicants with i) previous experience in electrophysiological recordings and/or *in-vivo* 2-photon imaging and ii) with good programming skills (no experience required for PhD candidate).

The candidate will be co-supervised by **Michel Picardo** (Principal Investigator) and **Rosa Cossart** and collaborate with the rest of the team.

### The institute and the city:

Located in the National Park of the Calanques (see below, picture of the Calanque de Sugiton and INMED), INMED is an excellent academic environment with many opportunities for collaboration with a large and outstanding neuroscience faculty. Marseille offers all the advantages of any large city, together with the amazing sea and sun of south of France (Provence).



### Application:

Applicants should send their CV and a brief cover letter (describing previous work and motivation) to both **Michel Picardo (Principal investigator)** and **Rosa Cossart (Director)**

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<http://www.inmed.fr/en/developpement-des-microcircuits-gabaergiques-corticaux-en>