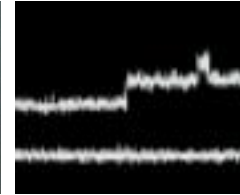
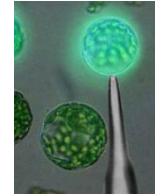
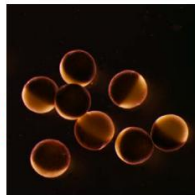
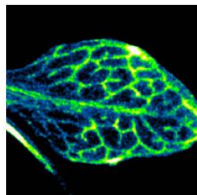
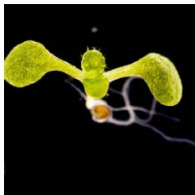
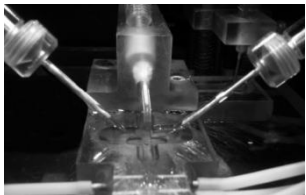




Heterologous Expression and Plant Electrophysiology platform (EHEV)





Heterologous Expression and Plant Electrophysiology platform (EHEV)



1. 2018 short summary

Experiments/Collaborations

Trainings

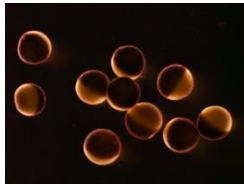
Facilities

2. News for 2019 and development



Main Experiments/Collaborations using *Xenopus* oocyte system

In 2018 : More than 30 xenopus surgeries for Functional studies
within BPMP (7 teams) and also with external collaborations

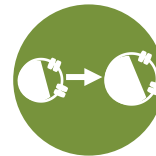


cRNA injection of protein of interest



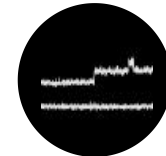
Tracer uptake/efflux

Hormones,
metals,
NO₃⁻, citrate ...



Swelling

Aquaporins



Electrophysiology

Ion channels

A lot of studies/projects (Jeremy, Colette, ...) : 2 examples

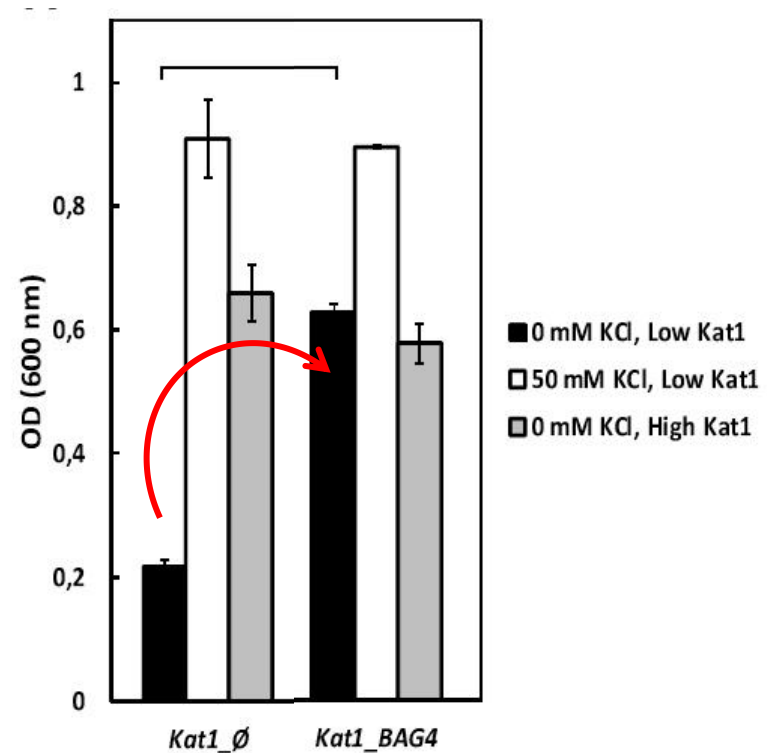
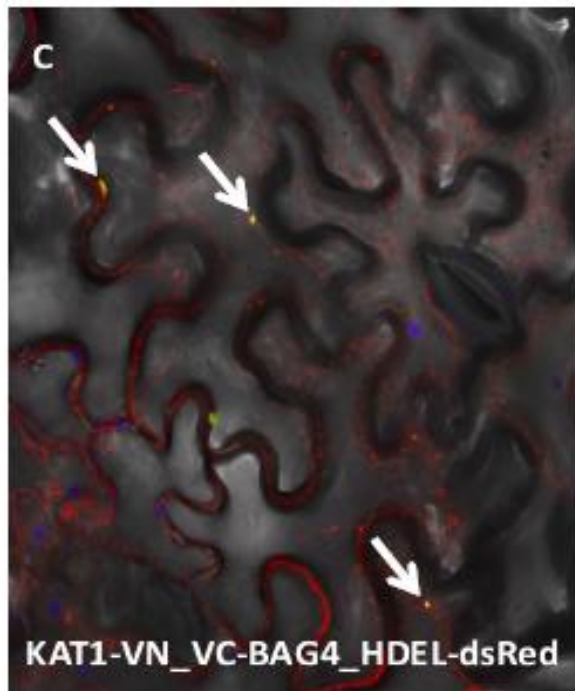


Collaboration with Lynne Yenush (University of Valencia, Spain)

Electrophysiology

Split-Ubiquitin protein-protein interaction screen searching for KAT1 interactors

BAG4 protein was found to physically interact with KAT1 in yeast and also increase K^+ uptake.

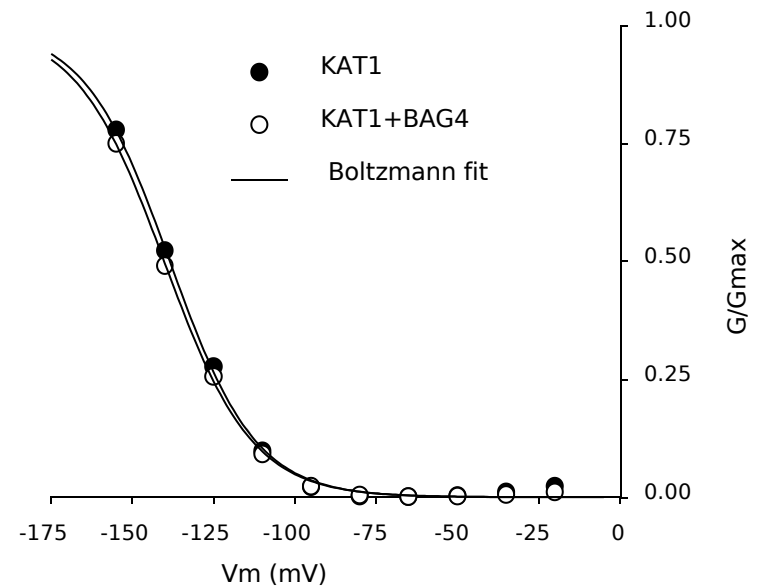
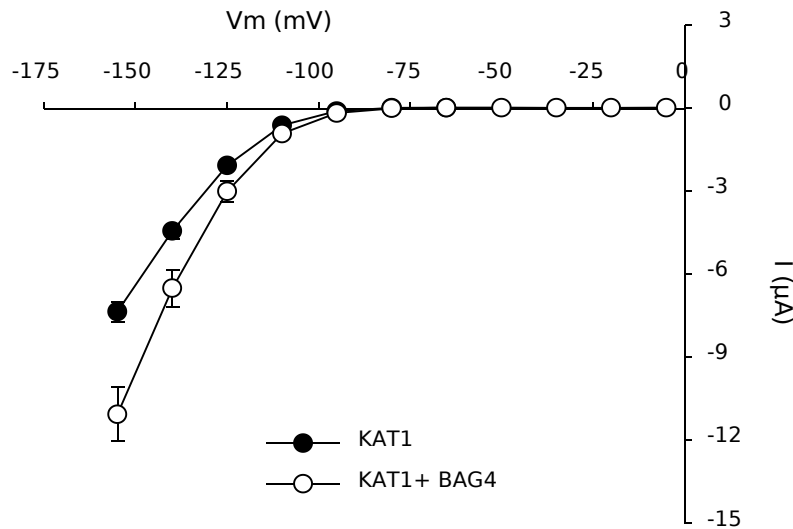


Looking for confirmation of BAG4 effect on KAT1 activity in oocyte ?



Collaboration with Lynne Yenush (University of Valencia, Spain)

Electrophysiology



BAG4 co-expression increases KAT1 current in *Xenopus* oocyte

- No shift in KAT1 voltage-dependence was observed under co-expression
- Consistent with higher accumulation of active KAT1 channels at the oocyte cell surface upon co-expression with BAG4

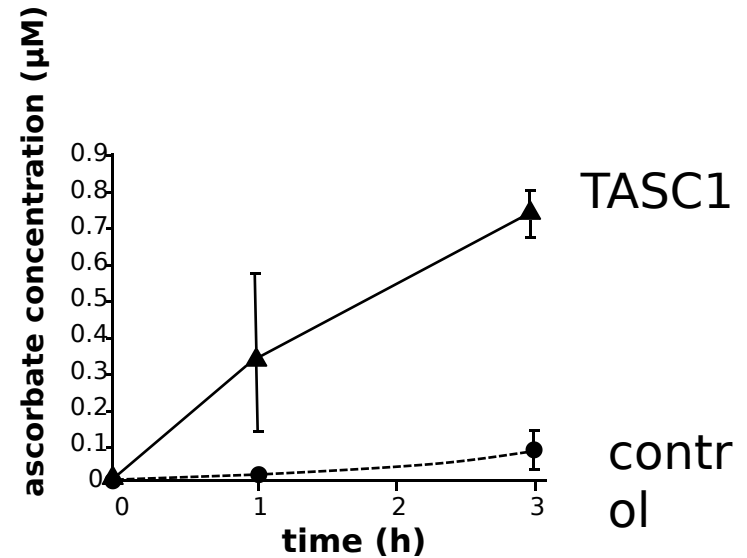
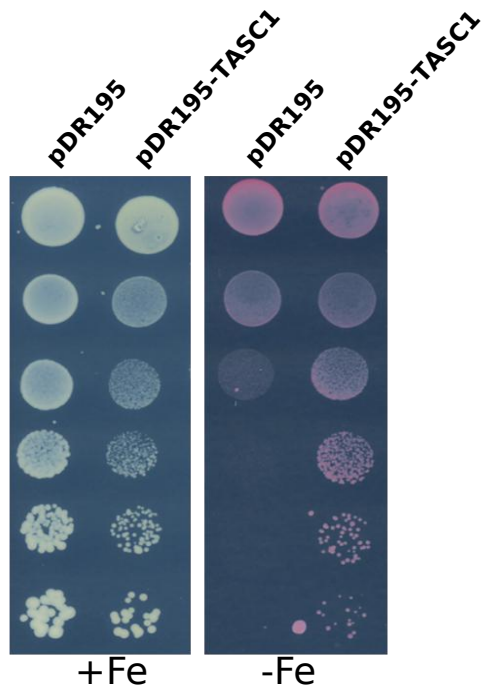


Collaboration with Diego Almeida and Stéphane Mari (TSF)

Tracer uptake/efflux

Yeast screen to identify a transporter for Ascorbate efflux : **TASC1**

TASC1 increases Ascorbate efflux in yeast

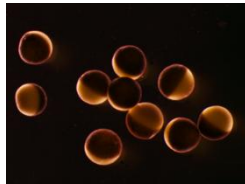


Looking for confirmation of Ascorbate efflux in oocyte ?

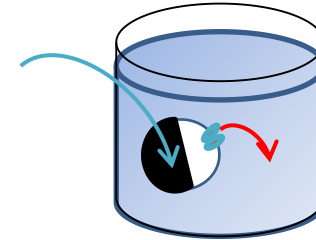


Collaboration with Diego Almeida and Stéphane Mari (TSF)

Tracer uptake/efflux

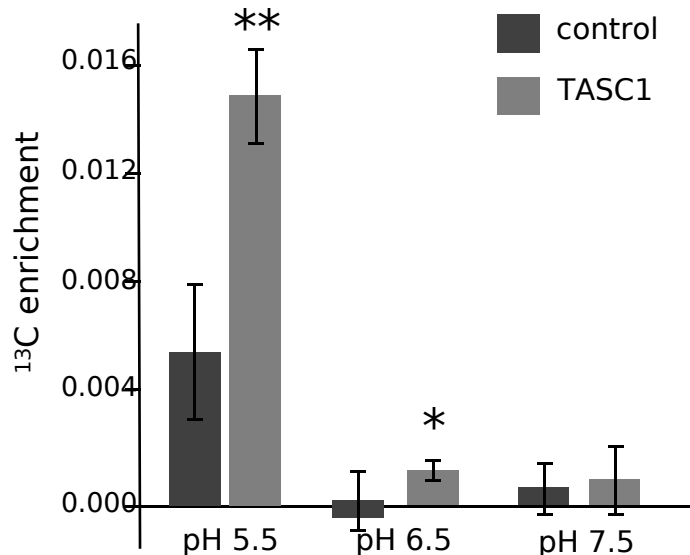


^{13}C
Ascorbate⁻



J0 : Injection of TASC1
cRNA

J2-J3 : Injection of ^{13}C Ascorbate and Efflux assay



^{13}C Mass spectrometry (P. Tillard)

**TASC1 expression in oocyte
increases Ascorbate efflux at
acidic pH**



Heterologous Expression and Plant Electrophysiology platform (EHEV)



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Facilities

2. News for 2019 and development



E2M : Ecole d'Electrophysiologie de Montpellier

Theoretical training in March

Practical training in May : Antony Chung-You-Chong (IGF)



Ecole thématique Transport

26-29 Novembre : 6 Master students

Also for PhD student



MISTRAL international school on ion and water transport in plants

W4: Voltage-clamp analyses of transporters and voltage-gated channels ("whole-cell" current recordings), as examples of non-rectifying and rectifying conductances
(Martin, Claire, Nonor) : 6 attendees

W5 : Patch-clamp analysis of a voltage-gated channel: single channel recording **(Martin, Claire, Nonor) : 3 attendees**





Welcoming and training of young foreign researchers for short courses :

- * Limin Wang (Cambridge, UK) : Membrane potential recordings on roots

And as usual for expression and characterization of ion channels in *Xenopus* oocytes :

- * Kumkum Kumari (India)



Heterologous Expression and Plant Electrophysiology platform (EHEV)



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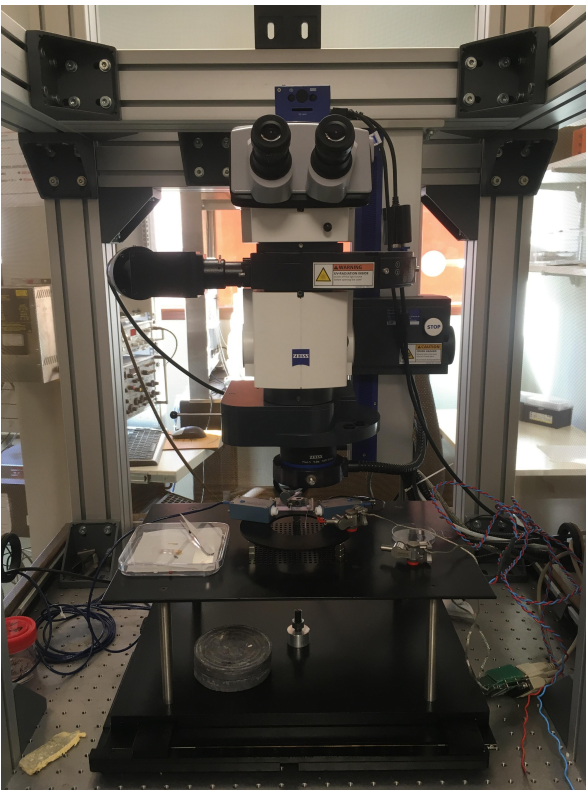
Trainings

Facilities : Certification from veterinary services, laser setup improvement,

2. News for 2019 and development



Development of *in planta* voltage-clamp setup (new digidata/software)



JB Thibaud

Motorized stereo (x320) and mono (x1000) microscope

For recordings of intracellular membrane potential and ionic concentrations

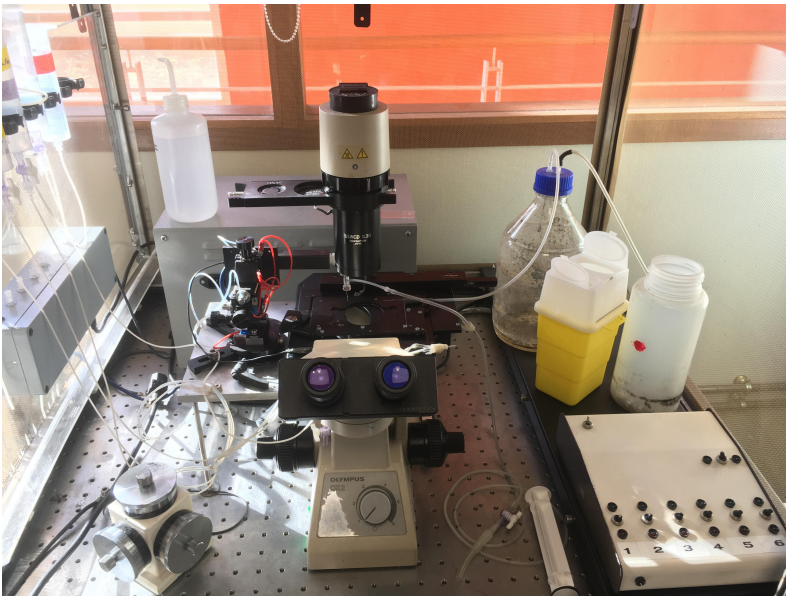
Purchase of digidata and acquisition software in December 2018

Switch from Axon/pClamp to ADInstrument
Under discussion



Coming of the new team of Alexis de Angeli «Coordination des flux ioniques et signalisation dans les cellules végétales»

Improvement of our Patch-clamp setups



Poste Single
channel



Poste
Imagerie



Electrophysiology and heterologous expression

New rules for xenopus users because of the certification of the lab



For Xenopus surgery : training qualification needed (niveau 2)

≠ Will be collectively discussed among users



So far, wideopen service delivery in heterologous expression and electrophysiological experiments :

<https://www1.montpellier.inra.fr/ibip/bpmp/Intranet/reservations.htm>

Will also be discussed with Christophe and Alain

My wish :

To help users, to train new beginners, to develop a better tool, to increase our access and collaborations : JUST COME AND DISCUSS !