

# Séminaire de Biologie des Plantes

Les séminaires ont lieu sur le Campus Agro-M/INRA de La Gaillarde (2, place P. Viala Montpellier)

Contact UMR B&PMP :

Sabine Zimmermann (zimmerma@supagro.inra.fr)

Marc Lepetit (lepetit@supagro.inra.fr.inra.fr)

Corinne Dasen (dasen@supagro.inra.fr)

Chantal Baracco (baracco@supagro.inra.fr)

Jeudi 24 janvier 2008  
Amphi 206 (Cœur d'Ecole) à 14h00

Patrick Armengaud  
(Glasgow)

## An integrative approach to understanding potassium nutrition in plants

Nutrient homeostasis implies the existence of highly regulated sensing and signalling mechanisms to adjust absorption, assimilation and allocation by coordinated metabolism and transport. Unlike nitrate and phosphorus, potassium (K) is not metabolized and its cellular functions are mainly associated with its physicochemical properties (charge, mobility) and its role as major cell osmoticum.

In a previous transcriptomic study we identified genes responding to long-term K deficiency and short term resupply. The main outcome of this study was that K deficiency induced the production of jasmonic acid and other oxylipins, known to play a central role in signaling responses to biotic stress. The first part of this talk will focus on the K-induced hormonal response in shoots and its interaction with simultaneously occurring biotic stress. In the second part I will discuss how K deficiency interacts with nitrate assimilation in the roots. It is well established that deficiency in one nutrient can have serious effects on the uptake and usage of other nutrients, especially in the case of K and N. In response to K deficiency, our transcriptomic study revealed important changes in nitrate transport and nitrogen metabolism which were quickly reversed after K re-supply. This K/N molecular crosstalk was further investigated at the biochemical level by measuring changes in primary metabolites and maximal enzyme activities in response to K stress. Integrating these levels of regulation allowed us to better understand the strong effect of K on primary metabolism and hypothesize about signals and effectors in K homeostasis.

**Contact :**

Sabine ZIMMERMANN

Équipe Canaux Ioniques

Institut de Biologie Intégrative des Plantes

Laboratoire de Biochimie et Physiologie Moléculaire des Plantes

Agro-M/INRA/CNRS/UM2 UMR 5004

2, Place Viala

F-34 060 Montpellier Cedex 1

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<http://www.montpellier.inra.fr/ibip/bpmp/equipes/canaux.htm>

**SEMINAIRES A VENIR :**

2008

Jeudi 31 janvier : Mike Blatt

Jeudi 7 et 14 février : Marinus Pilon et Elizabeth Pilon Smits