

Séminaire de Biologie des Plantes

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

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Jeudi 1^{er} octobre 2009

Amphi 206 (Cœur d'Ecole) à 14h

Camille Foucart

(University of Oxford, UK)

“Localisation and function of the RabA GTPases in *Arabidopsis thaliana*”

Rab GTPases are key regulators of vesicle trafficking and are essential to the growth and development of all eukaryotic cells. During evolution, Rab GTPase families have diversified independently in the animal and plant lineages. Thus, higher plants have evolved a unique set of Rab GTPases that presumably reflects the specific demands of plant cell trafficking. One of the most striking example is the Rab-A clade that comprises 26 Rab-A proteins in *Arabidopsis* against 1 to 3 proteins in yeasts and animal species. In a previous work, we showed that the Rab-A2 and Rab-A3 subclasses define a novel post-Golgi membrane domain in *Arabidopsis* root tips that communicates with the plasma membrane and early endosomal system and contributes substantially to the cell plate during cytokinesis. In contrast to the Rab-A2 and –A3 subclasses, Rab-A5 proteins, another member of the Rab-A subclass, defines a distinct compartment wich doesn't colocalise with any of the known Golgi, endosomal or prevacuolar markers, suggesting that it is a new compartment. Its distribution is unique as it localises at the geometric edges of cells in young organ primordia. We also showed that this particular localisation depends on normal GTP-binding and hydrolysis, and that treatments with oryzalin or latrunculin-B implicate both the actin and microtubule systems in the maintenance of YFP:RAB-A5^c at the edges. In dividing cells YFP:RAB-A5^c relocates to the growing margins of the cell plate, suggesting that AtRAB-A5c may act during cytokinesis. Inducible expression of dominant inhibitory RAB-A5c-NI mutants results in multinucleate cells with incomplete cell walls, supporting this hypothesis. Its expression also inhibits the growth of leaf primordia, prevents the emergence of lateral roots, and inhibits root hair elongation, suggesting that RAB-A5^c or one of its interactors also performs an essential function in cell growth.

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Équipe *Aquaporines*

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<http://www1.montpellier.inra.fr/ibip/bpmp/equipes/aquaporines.htm>