Membrane dynamics of sugar transports in plant-microbe interactions

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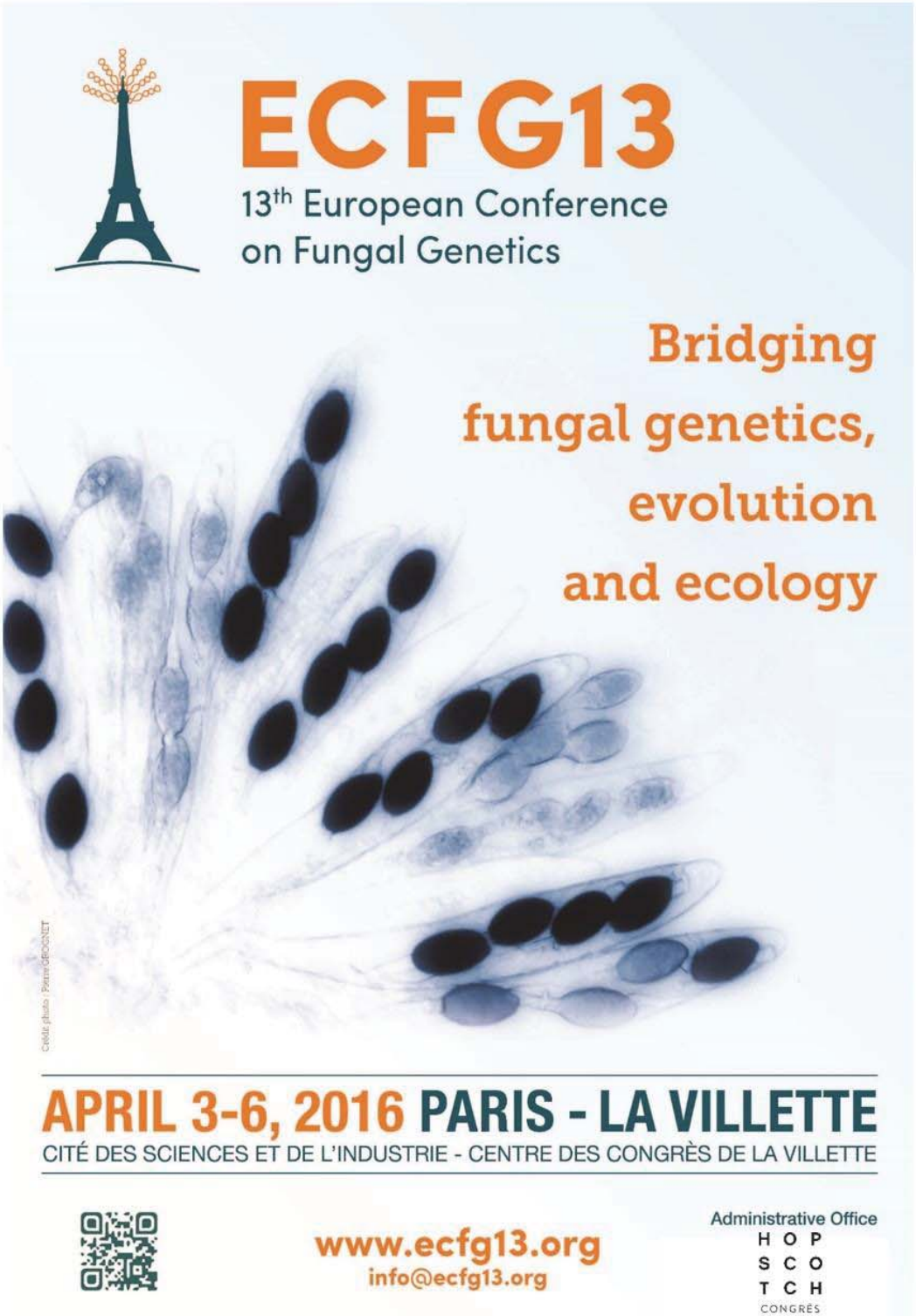
ABTRACT BOOK



POSTER SESSION ABSTRACTS
Session CS1 Cell biology and traffic
CS1M03

Monday 4th April
14:00 - 16:00

PFISTER Carole *(1), FORGES Marine (1), COURTY Pierre Emmanuel (2), LEBORGNE CASTEL Nathalie (1), WIPF Daniel (1)*
(1) Agroécologie, INRA, Agrosup, CNRS, Université de Bourgogne, , Dijon, France
(2) University of Fribourg, Department of Biology, Fribourg, Switzerland

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Plants can influence populations of mutualistic and pathogenic microorganisms present in their rhizosphere through exudation of sugars, a carbon source crucial for their growth and development. Beside their nutritional role, sugars could act as signaling molecules in plant-microorganism interactions. Mycorrhizal symbiosis is a mutualistic association in which the plant receives mineral nutrients (phosphate, nitrogen...) by the fungal partner, which in return receives sugars. In a pathogenic association, the microorganism diverts sugars provided by the plant without any compensation. Microorganisms are thus able to manipulate the host to modify fluxes of sugar(s). Despite the identification of sugar transport proteins at biotrophic interfaces, molecular and cellular mechanisms by which microorganisms operate the distribution of sugars produced by plants are still poorly understood. In this context, we aim to characterize plant membrane dynamics related to the transport of sugars in mutualistic and pathogenic interactions. The project is first conducted on *Nicotiana tabacum* cell suspension to analyze sugar flows (sucrose and glucose) through the plasma membrane of WT and endocytosis affected mutant cells subjected to various microbial molecules (e.g. defense elicitors, mycorrhizal factors). Secondly, tobacco sugar transporters are identified by screening gene and protein databases, and characterized by expression analysis to select leading candidates. Finally, selected carriers will be localized at the cellular level and their dynamic into the membrane system will be followed in response to mutualistic and pathogenic microorganisms or microbial molecules.