

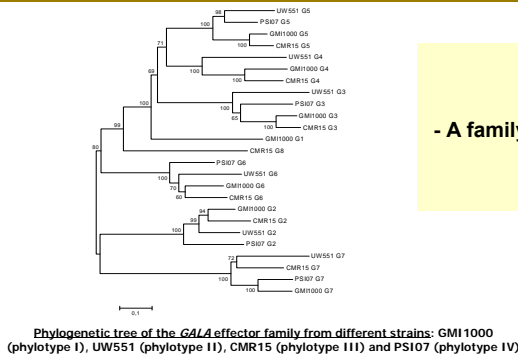
GALA effector family in *Ralstonia solanacearum*: contribution to pathogenicity and plant targets

PHILIPPE REMIGI, ILONA KARS, AURELIE ANGOT, STÉPHANE GENIN, CHRISTIAN BOUCHER & NEMO PEETERS

Laboratoire des Interactions Plantes Micro-organismes, INRA-CNRS UMR 441/2594, Chemin de Borde Rouge, BP 52627, 31326 Castanet-Tolosan Cedex, France

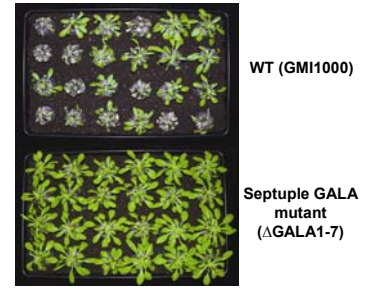
E-mail : philippe.remigi@toulouse.inra.fr
nemo.peeters@toulouse.inra.fr

Introduction



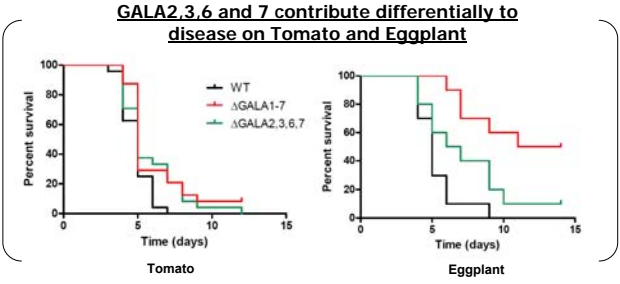
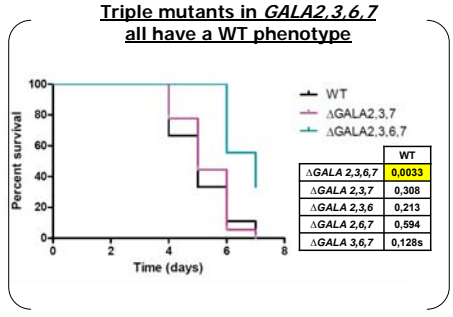
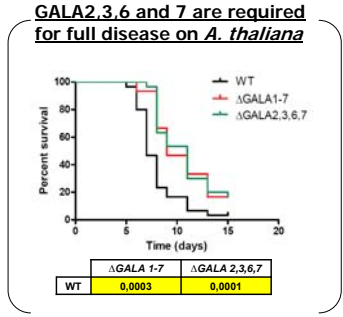
GALAs :

- A family of seven effectors conserved in *R. solanacearum* strains
- collectively required for pathogenicity
- homologous to eukaryotic F-box proteins



A. thaliana inoculated at 10^7 cfu.ml⁻¹ : 6 days post-inoculation

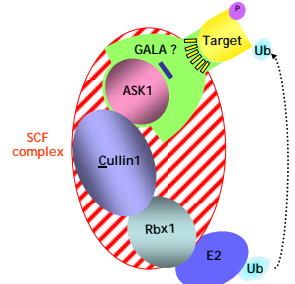
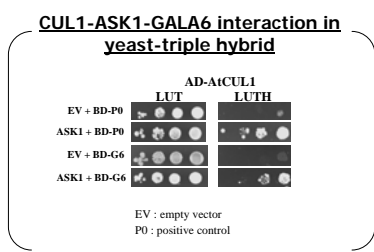
1. Sub-groups of GALAs contribute differentially to disease on different hosts



Inoculation test results are represented by Kaplan-Meier survival analysis of plants root-inoculated with *R. solanacearum* strains (10^7 or 10^8 cfu.ml⁻¹). Numbers in tables are p-values from Log-Rank test. p-value ≤ 0,05 (highlighted in yellow) indicates that the H₀ hypothesis of curve similarity can be rejected

- GALA2,3,6 and 7 are functional and redundant on *A. thaliana*
- Different sets of GALAs are required on different hosts (GALA7 is a host-specificity factor on *Medicago truncatula* : see poster Ilona KARS)

2. Is Arabidopsis PRA8 a target of SCF^{GALA} ?

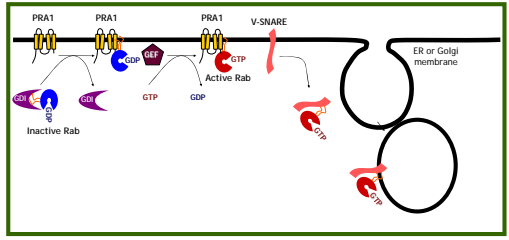


Hypothetical composite SCF complex : GALAs might interact with plant SCF subunits (ASK, CUL1, Rbx1) and target proteins for ubiquitination

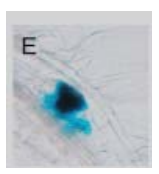
GALAs interact with PRA8 in yeast-two hybrid assay:

	ASK1	PRA8
GALA6	++	+
GALA3	-	ND
GALA4	-	-
GALA5	+	+
GALA7	++	+
PRA8	-	+

++ : strong interaction (LTHA)
+ : interaction (on LTH)
- : no interaction
ND : Not determined

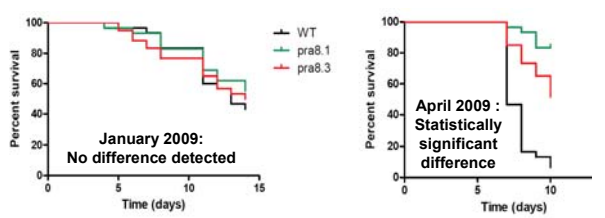


In animals, PRA1 (Prenylated-Rab Acceptor 1) regulates Rab GTPases activity (Seabra and Wasmeier, Curr. Op. Cell Biol. 2004)



In Arabidopsis, PRA8 is expressed in roots (meristem and lateral root) (Kamei *et al.*, Plant Physiol. 2008)

Is PRA8 involved in *R. solanacearum* pathogenicity?



Inoculation test of 2 independent *A. thaliana* pra8 insertion lines

Conclusions - Perspectives

1. Different requirement of GALA sets on different hosts might explain broad GALA family conservation in the *Ralstonia solanacearum* strains
2. GALAs might enable *R. solanacearum* to subvert host ubiquitin-proteasome system by degrading or modulating the activity of PRA8, but we are still lacking evidence of activity of GALAs on PRA8.
3. What could be the function of PRA8 during infection ?