



T3SS-dependent differential modulations of the jasmonic acid pathway in susceptible and resistant genotypes of *Malus* spp. challenged with *Erwinia amylovora*

Submitted by Emmanuel Lemoine on Thu, 02/12/2015 - 13:07

Titre	T3SS-dependent differential modulations of the jasmonic acid pathway in susceptible and resistant genotypes of <i>Malus</i> spp. challenged with <i>Erwinia amylovora</i>
Type de publication	Article de revue
Auteur	Dugé de Bernonville, Thomas [1], Gaucher, Matthieu [2], Flors, Victor [3], Gaillard, Sylvain [4], Paulin, Jean-Pierre [5], Dat, James F. [6], Brisset, Marie-Noëlle [7]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2012
Langue	Anglais
Date	2012/06
Pagination	1 - 9
Volume	188-189
Titre de la revue	Plant Science
ISSN	0168-9452
Mots-clés	Apple [8], DspA/E [9], Fire blight [10], Gene Expression [11], Methyl-jasmonate [12], Salicylic acid [13]
Résumé en anglais	<p>Fire blight is a bacterial disease of Maloideae caused by <i>Erwinia amylovora</i> (Ea). This necrogenic enterobacterium uses a type III secretion system (T3SS) to inject type III effectors into the plant cells to cause disease on its susceptible hosts, including economically important crops like apple and pear. The expressions of marker genes of the salicylic acid (SA) and jasmonic acid (JA) defense regulation pathways were monitored by RT-qPCR in leaves of two apple genotypes, one susceptible and one resistant, challenged with a wild type strain, a T3SS-deficient strain or water. The transcriptional data taken together with hormone level measurements indicated that the SA pathway was similarly induced in both apple genotypes during infection by Ea. On the contrary, the data clearly showed a strong T3SS-dependent down-regulation of the JA pathway in leaves of the susceptible genotype but not in those of the resistant one. Accordingly, methyl-jasmonate treated susceptible plants displayed an increased resistance to Ea. Bacterial mutant analysis indicated that JA manipulation by Ea mainly relies on the type III effector DspA/E. Taken together, our data suggest that the T3SS-dependent down-regulation of the JA pathway is a critical step in the infection process of <i>Malus</i> spp. by Ea.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua7809 [14]
DOI	10.1016/j.plantsci.2012.02.009 [15]
Lien vers le document	http://dx.doi.org/10.1016/j.plantsci.2012.02.009 [15]

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- [15] <http://dx.doi.org/10.1016/j.plantsci.2012.02.009>

Publié sur *Okina* (<http://okina.univ-angers.fr>)