

***Arabidopsis thaliana* responds to colonisation of *Piriformospora indica* by secretion of symbiosis-specific proteins.**

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Abstract

Plants interact with a wide variety of fungi in a mutualistic, parasitic or neutral way. The associations formed depend on the exchange of nutrients and signalling molecules between the partners. This includes a diverse set of protein classes involved in defence, nutrient uptake or establishing a symbiotic relationship. Here, we have analysed the secretomes of the mutualistic, root-endophytic fungus *Piriformospora indica* and *Arabidopsis thaliana* when cultivated alone or in a co-culture. More than one hundred proteins were identified as differentially secreted, including proteins associated with growth, development, abiotic and biotic stress response and mucilage. While some of the proteins have been associated before to be involved in plant-microbial interaction, other proteins are newly described in this context. One plant protein found in the co-

culture is PLAT1 (Polycystin, Lipoxygenase, Alpha-toxin and Triacylglycerol lipase). PLAT1 has not been associated with plant-fungal-interaction and is known to play a role in abiotic stress responses. In colonised roots PLAT1 shows an altered gene expression in a stage specific manner and plat1 knock-out plants are colonised stronger. It co-localises with Brassicaceae-specific endoplasmic reticulum bodies (ER-bodies) which are involved in the formation of the defence compound scopolin. We observed degraded ER-bodies in infected Arabidopsis roots and a change in the scopolin level in response to the presence of the fungus.

Beteiligte Forschungseinheiten

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