

THE PAMP-TRIGGERED IMMUNITY RESPONSE IS INVOLVED IN PLANT DEFENSE RESPONSE TO APHID ATTACK AND IS SUPPRESSED BY AN APHID EFFECTOR

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Aphids are insects which feed on phloem sap using their stylets. As in plant-pathogen interactions, successful colonization of a host by an aphid is thought to involve effectors, which manipulate plant processes to enhance susceptibility to the aphid. These effectors are most likely salivary gland proteins that are secreted into the saliva and then introduced into the plant during aphid feeding. Many pathogen effectors target the plant Pathogen-Associated Molecular Pattern (PAMP) Triggered Immunity (PTI) pathway. We previously identified a salivary gland protein from the aphid *Myzus persicae*, Mp10, which suppresses the Reactive Oxygen Species (ROS) burst elicited by the PAMP flg22 (Bos, Prince *et al.*, 2010. PLoS Genetics 6(11): e1001216). Further investigation of Mp10 function revealed that this effector also suppresses the calcium burst that precedes the flg22 ROS burst, as well as the ROS burst elicited by crude aphid extract. Furthermore, crude aphid extract ROS burst was decreased on some but not all Arabidopsis mutants impaired in the PTI signaling pathway. Non-host (*Acyrtosiphon pisum*) aphids also performed better on these mutants, suggesting that specific PTI signaling components are involved in the perception of aphid elicitors. Further studies to investigate how Mp10 aids aphid performance are under way. In conclusion, our results so far indicate that PTI plays a role in plant defense response to aphid attack and is suppressed by an aphid effector.

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