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AvrRpt2 Interferes with AvrRpm1/RPM1-mediated Resistance in *Arabidopsis* by eliminating RIN4 prior to phosphorylation of RIN4 by avrRpm1

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Objectives

Using the isogenic *P.syringae* strains and *Arabidopsis* mutants that differ from only specific avirulence genes and resistance genes, respectively, we investigated what will happen in each R gene-mediated resistance when two avirulence signals are delivered simultaneously into the plant cell.

Materials and Methods

1. Materials: *Arabidopsis* Col-0 (wild-type, rpm1, rps2, rps5 mutants), transgenic plants; rpm1 (gRPS2-myc or gRPS5-myc), rps2 (gRPM1-myc or gRPS5-myc), and rps5 (gRPM1-myc or gRPS2-myc), *P. syringae* DC3000 (vector or avrRpm1 or avrRpt2 or avrPphB)

2. Methods: bacterial leaf infiltration, western blot analysis

Results and Discussion

Our results showed that AvrRpt2 not only interfered with AvrRpm1/RPM1-mediated resistance signal but also induced degradation of RPM1 protein. However, disappearance of RPM1 is not a direct cause for interference of AvrRpm1/RPM1-mediated resistance signal by AvrRpt2, because RPM1 protein was not completely degraded at the time point when AvrRpt2 interferes with AvrRpm1/RPM1-mediated resistance signal. It is likely that AvrRpt2 targets and eliminates RIN4 prior to phosphorylation of RIN4 by avrRpm1 that is required for activation of RPM1. As a result, AvrRpt2 preventing from action of AvrRpm1 equally delivered to plant cell.

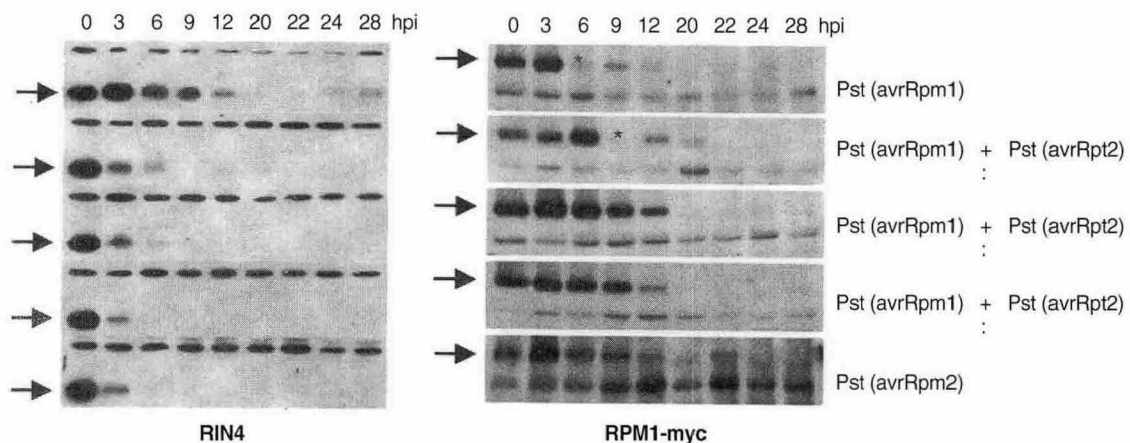


Figure 1. AvrRpt2 eliminates RIN4 prior to phosphorylation by AvrRpm1