UNIVERSITÄT BONN

Die Pflanzenwissenschaftlichen Institute

Einladung zum Pflanzenwissenschaftlichen Kolloquium

Freitag, den 12. Januar 2024, 12 c.t.

Nussallee 4, Hörsaal Botanik

Referent: Prof. Dr. Kee Hoon Sohn

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Thema: ***„Overlapping and distinct pathogen effector recognition specificities conferred by independently evolved NLR proteins in plants“***

Plant pathogenic bacteria deliver effectors into plant cells to suppress immunity and promote pathogen survival; however, Nucleotide-binding and leucine-rich repeat receptors (NLRs) detect effectors inside the plant cell to activate innate immunity. To identify Nicotiana benthamiana NLRs (NbNLRs) with novel effector recognition specificity, we designed an NbNLR VIGS library and conducted a rapid reverse genetic screen. During the NbNLR VIGS library screening, we identified that N. benthamiana homolog of Ptr1 (PSEUDOMONAS SYRINGAE PV. TOMATO RACE 1 RESISTANCE) recognizes the Pseudomonas effectors AvrRpt2, AvrRpm1, and AvrB that are previously known to trigger immune responses in Arabidopsis. We demonstrated that recognition of the Xanthomonas effector AvrBsT and the Pseudomonas effector HopZ5 in N. benthamiana is conferred independently by N. benthamiana homolog of Ptr1 and ZAR1 (HOPZ-ACTIVATED RESISTANCE 1). In addition, we showed that the RLCK XII family protein JIM2 (XOPJ4 IMMUNITY 2) physically interacts with AvrBsT and HopZ5 and is required for the NbZAR1-dependent recognition of AvrBsT and HopZ5. The recognition of multiple bacterial effectors by independently evolved NLRs in Arabidopsis and N. benthamiana demonstrates a convergent evolution of effector recognition across plant species.

Diskussionsleitung: Prof. Dr. Armin Djamei, INRES-Pflanzenpathologie, Universität Bonn

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