Multiple strategies for pathogen perception by plant immune receptors

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Tansley Medal winner talk

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Plants have evolved a complex immune system to protect themselves against phytopathogens. A major class of plant immune receptors called nucleotide-binding domain and leucine-rich repeat-containing proteins (NLRs) is ubiquitous in plants and is widely used for crop disease protection, making these proteins critical contributors to global food security. Until recently, NLRs were thought to be conserved in their modular architecture and functional features. Investigation of their biochemical, functional and structural properties has revealed fascinating mechanisms that enable these proteins to perceive a wide range of pathogens. Here, I review recent insights demonstrating that NLRs are more mechanistically and structurally diverse than previously thought. I also discuss how these findings provide exciting future prospects to improve plant disease resistance.