

A molecular roadmap to the plant immune system

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The latest advances in our understanding of the plant immune system are mapped out in a new review by John Innes Center researchers.

A molecular roadmap to the plant immune system is a detailed look at immune receptor function at the [molecular level](#)—with a focus on [cell surface](#) and intracellular immune receptors.

The review sets out how these receptors perceive signatures of pathogens and pests and initiate immune pathways.

It outlines a key shift in thinking in this field which increasingly looks at the interplay between cell-surface and intracellular immunity—two research areas which have previously been studied independently.

Finally, it looks ahead to how we might apply current understanding of plant immunity to discuss the potential to engineer the plant immune system.

The review is part of a thematic series called Plants in the Real World—and brings together content designed to appeal to readers of different research backgrounds.

Professor Mark Banfield, leader of the BBSRC-funded Plant Health Institute Strategic Program (ISP) at the John Innes Center and corresponding author of the review, said:

"This overview allowed us to explain concepts of the plant immune system to readers from diverse research backgrounds that perhaps haven't appreciated it before, including biological chemists, structural biologists and biophysicists."

"This is one example of a multi-disciplinary approach that we need to emphasize more broadly in the International Year of Plant Health. We need to encourage ways of bringing scientists from different disciplines together to build [sustainable solutions](#); scientists who work on predicting [climate change](#), plant pathologists studying the molecular mechanisms of

disease and others who are tracking pathogens as they move around the world. In this way we can consider what the threats of the future might be and prepare."

"A molecular roadmap to the plant [immune system](#)" appears in the *Journal of Biological Chemistry*.

More information: Adam R. Bentham et al. A molecular roadmap to the plant immune system, *Journal of Biological Chemistry* (2020). [DOI: 10.1074/jbc.REV120.010852](#)

Provided by John Innes Centre

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