

# Scientists uncover mechanism for natural plant immunity

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Scientists in Norwich and China have, for the first time, uncovered exactly how an immune receptor mediating plants' natural immunity to bacteria works.

The research has important implications for developing broad-spectrum disease resistance in [crops](#).

UK researchers at The Sainsbury Laboratory in Norwich, in a close collaboration with Chinese scientists at Tsinghua University and the Chinese Academy of Sciences in Beijing have shared their findings in a paper published this week in *Science*.

TSL senior scientist Prof. Cyril Zipfel said: "Plants, like humans, have an innate ability to recognise potentially-harmful bacteria and launch an immune response. What we have found is how that complex chemical relationship works."

"This information opens up avenues which will have benefits for [crop production](#) worldwide, as it gives us the knowledge to engineer precise resistance in crops."

The researchers uncovered the molecular mechanisms by which a key plant receptor, known as FLS2, recognises the bacterial protein flagellin that is required for bacterial motility. Flagellin binds directly to the FLS2 receptor, leading to the recruitment of a plant co-receptor required for [immune response](#) activation.

Prof. Zipfel added: "With rising populations, changing land use and climate change it is increasingly important that our crop production is as efficient as it can be. This research will mean we can develop crops with an enhanced immunity to harmful bacteria which at the moment reduce yield and food quality."

**More information:** "Structural Basis for flg22-Induced Activation of the Arabidopsis FLS2-BAK1 Immune Complex" *Science*, 2013.

Provided by Norwich BioScience Institutes

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