CRISPR immunizes rice, staple crop consumed by billions, against devastating bacterial infection

Genome editing has made one of the world's most important crops resistant to a devastating bacterial infection.

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The researchers used CRISPR–Cas9 gene editing to modify three SWEET genes found in rice varieties that are grown across Asia and Africa. Bacterial TALE proteins could no longer activate the edited genes, and the team found that rice plants with these engineered genes were resistant to at least 95 Xoo strains.

[Editor's note: Read the full study, in which the researchers concluded:

> Bacterial blight of rice is an important disease in Asia and Africa. The pathogen, Xanthomonas oryzae pv. oryzae (Xoo), secretes one or more of six known transcription-activator-like effectors (TALes) that bind specific promoter sequences and induce, at minimum, one of the three host sucrose transporter genes SWEET11, SWEET13 and SWEET14, the expression of which is required for disease susceptibility. We used CRISPR–Cas9-mediated genome editing to introduce mutations in all three SWEET gene promoters …. Paddy trials showed that genome-edited SWEET promoters endow rice lines with robust, broad-spectrum resistance.

Read full, original article: A crop that feeds billions freed from blight by CRISPR