

CRISPR chocolate? Gene editing boosts cacao trees' disease resistance

Use of the powerful gene-editing tool CRISPR-Cas9 could help to breed cacao trees that exhibit desirable traits such as enhanced resistance to diseases, according to Penn State plant scientists.

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The researchers reported recently, in *Frontiers in Plant Science*, the study results, which were thought to be the first to demonstrate the feasibility of using cutting-edge CRISPR technology to improve *Theobroma cacao*.

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Previous work in cacao identified a gene, known as TcNPR3, that suppresses the plant's disease response. The researchers hypothesized that using CRISPR-Cas9 to knock out this gene would result in enhanced disease resistance.

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When infected with *Phytophthora tropicalis*, a naturally occurring pathogen of cacao and other plants, the treated leaves showed greater resistance to the disease. The results suggested that the mutation of only a fraction of the copies of the targeted gene may be sufficient to trigger downstream processes, resulting in systemic disease resistance in the plant.

The researchers also created CRISPR gene-edited cacao embryos, which they will grow into mature trees to test the effectiveness of this approach at a whole-plant level.

Editor's note: Read the [full study](#)

Read full, original post: [Cocoa CRISPR: Gene editing shows promise for improving the 'chocolate tree'](#)