Broad Institute researchers use novel field-ready CRISPR platform to detect plant genes

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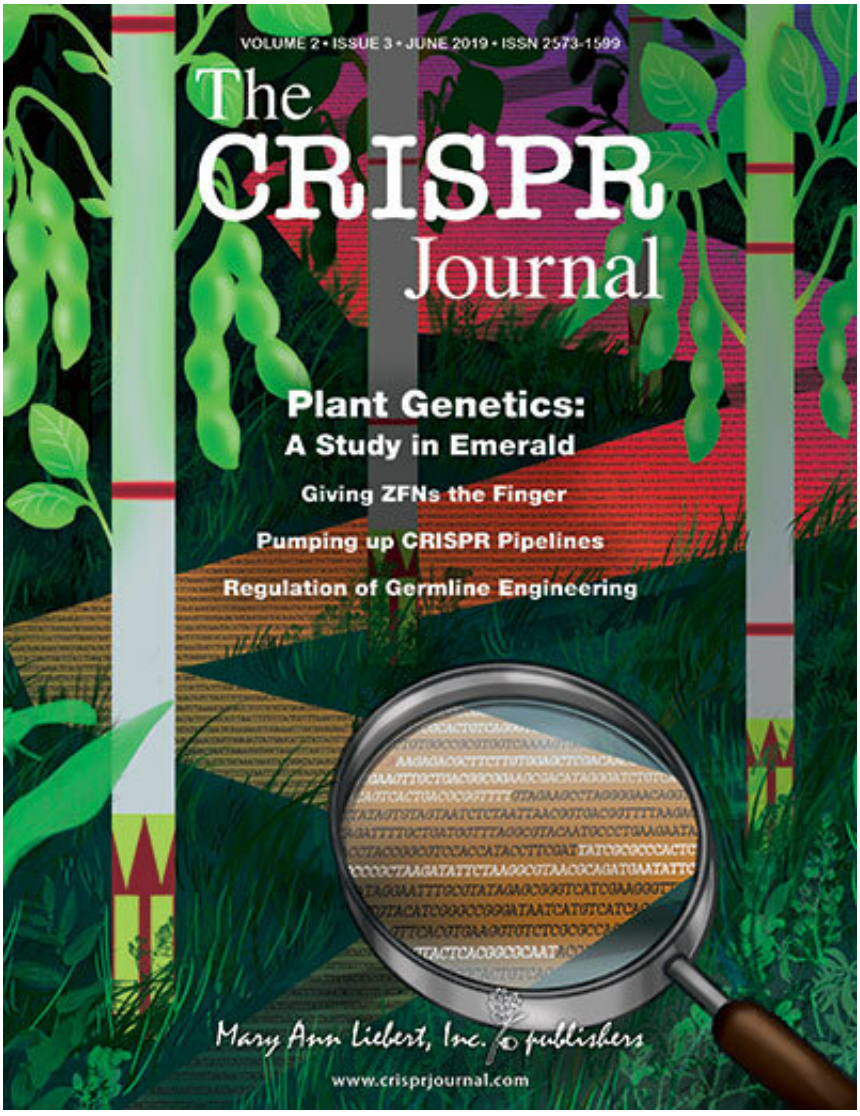

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SHERLOCK technology is a new CRISPR-based platform that is rapid and portable and enables detection and quantitation of plant genes to support a variety of agricultural applications. Additional advantages, including the ability to process crude plant extracts with minimal nucleic acid sample preparation required are described in a research article published in *The CRISPR Journal*.

Feng Zhang, from the Broad Institute of MIT and Harvard (Cambridge, MA) and Massachusetts Institute of Technology (Cambridge), and coauthors Omar Abudayyeh, Jonathan Gootenberg, and Max Kellner, from the Broad Institute, MIT, and Harvard Medical School (Boston, MA) present the recently developed nucleic acid detection system called SHERLOCK in the article entitled "Nucleic Acid Detection of Plant Genes Using CRISPR-Cas13." The platform overcomes many of the limitations of current nucleic acid detection systems and provides single-molecule sensitivity and single-nucleotide specificity with high multiplexing capability.

The paper describes how the refined CRISPR-based tool SHERLOCK was applied for the first time in plants. SHERLOCK has the potential to be an important tool in agriculture for the rapid detection of pathogens or pests and in plant breeding. SHERLOCK is easy to use, portable and field-ready, and low cost. It can generate a fluorescent or colorimetric readout when Cas13 recognizes the target nucleic acid sequence.

Rodolphe Barrangou, Ph.D., Editor-in-Chief of *The CRISPR Journal* states: "This is a great example of the expansion of CRISPR-based technologies beyond genome editing per se, with the use of novel Cas molecular machines for the flexible detection of DNA sequences of interest. The applications extend beyond diagnostics and the authors show here how this can be broadly applied in agriculture."

More information: Omar O. Abudayyeh et al, Nucleic Acid Detection

of Plant Genes Using CRISPR-Cas13, *The CRISPR Journal* (2019). DOI: 10.1089/crispr.2019.0011