

CRISPR-based genome editing technologies poised to revolutionize medicine and industry

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CRISPR/Cas systems for genome editing have revolutionized biological research over the past three years, and their ability to make targeted changes in DNA sequences in living cells with relative ease and affordability is now being applied to clinical medicine and will have a significant impact on advances in drug and other therapies, agriculture, and food products. The power and promise of this innovation are presented in the Review article "The Bacterial Origins of the CRISPR Genome-Editing Revolution," published in a special issue of *Human Gene Therapy*.

Erik Sontheimer, University of Massachusetts Medical School, Worcester, and Rodolphe Barrangou, North Carolina State University, Raleigh, describe the origins of this technology, which were derived from DNA sequences found in many bacteria known as clustered, regularly interspaced, short palindromic repeats (CRISPR) regions. These are part of bacteria's protective immune system. They have been developed into [genome editing](#) tools comprised of a "hardware" component (an RNA-guided DNA-targeting system that breaks a DNA strand at a specific site, with the help of the Cas protein), and a "software" component that can be programmed, and re-programmed, to repair or replace a faulty gene.

More information: [online.liebertpub.com/doi/full ...
10.1089/hum.2015.091](http://online.liebertpub.com/doi/full/10.1089/hum.2015.091)

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