

CRISPR Biology and Biotechnology: the Future of Genome Editing



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Abstract:

Programmable proteins that detect and cut specific DNA sequences were uncovered by research to understand how bacteria fight viral infections. In collaboration with Emmanuelle Charpentier's laboratory, we determined how the enzyme Cas9, which is part of CRISPR-Cas adaptive bacterial immunity, can be harnessed as a powerful technology to alter genomic sequences in cells. This created a simple, precise and widely adaptable technology for genome editing – changing or regulating the genetic material – in any cell or organism. Current research is exploring the diversity of CRISPR-Cas systems in microbes and developing genome editing for biomedical and agricultural applications. I will also discuss the ethical and societal implications of genome editing.

