Bacterial defense systems have numerous clinical and research applications

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A new review highlights the diverse ways in which genetic-based defense systems found in bacteria can be harnessed to manipulate the microbes for various clinical and research applications. The systems, called CRISPR-Cas systems, naturally protect bacteria by recognizing and cutting genetic elements from potential invaders.

CRISPR-Cas systems have formed the basis of an ever-expanding genetic toolbox and hold tremendous potential for our future understanding and engineering of the bacterial world. Using these tools could lead to considerable improvements in treating bacterial infections, developing the next generation of probiotics, and designing microbial chemical factories.

"CRISPR-Cas systems have proven to be amazing tools, yet we have barely scratched the surface of how these systems can be harnessed and applied," said Dr. Chase Beisel, senior author of the *Biotechnology and Bioengineering* study.

More information: Michelle L. Luo et al. Current and future prospects for CRISPR-based tools in bacteria, *Biotechnology and Bioengineering* (2015). DOI: 10.1002/bit.25851

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