CRISPR upgrade may make gene editing even simpler

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The CRISPR/Cas9 technique is revolutionizing genetic research: scientists have already used it to engineer crops, livestock and even human embryos, and it may one day yield new ways to treat disease.

But now one of the technique's pioneers thinks that he has found a way to make CRISPR even simpler and more precise. In a paper published in *Cell* on 25 September, a team led by synthetic biologist Feng Zhang of the Broad Institute in Cambridge, Massachusetts, reports the discovery of a protein called Cpf1 that may overcome one of CRISPR/Cas9's few limitations; although the system works well for disabling genes, it is often difficult to truly edit them by replacing one DNA sequence with another.

Zhang and his colleagues searched the bacterial kingdom to find an alternative to the Cas9 enzyme commonly used in laboratories. In April, they reported that they had discovered a smaller version of Cas9 in the bacterium *Staphylococcus aureus*. The small size makes the enzyme easier to shuttle into mature cells — a crucial destination for some potential therapies.

The team was also intrigued by Cpf1, a protein that looks very different from Cas9, but is present in some bacteria with CRISPR. The scientists evaluated Cpf1 enzymes from 16 different bacteria, eventually finding two that could cut human DNA.

Read full, original post: Alternative CRISPR system could improve genome editing