

New version of CRISPR touted as ‘word processor’ with search and replace function

For all the excitement the gene-editing tool CRISPR-Cas9 has kicked up, there has been just as much concern about unwanted side effects. That’s because even though the technology offers the promise of cutting out disease-causing genes, it can also make unintentional edits to healthy DNA. In an attempt to solve this problem, researchers at Stanford University and the National Institute of Standards and Technology (NIST) have developed a more precise gene-editing system that they liken to a word processor.

It’s called “multiplexed accurate genome editing with short, trackable, integrated cellular barcodes” (MAGESTIC), and its inventors liken it to the search-and-replace function in word processing. The system is [designed](#) to find faulty genetic material, cut it out, then replace it with matching “donor” DNA. They described the technology in the journal Nature Biotechnology.

The problem with CRISPR is not so much in the cutting, but in the process by which the DNA repairs itself after the editing process. Cells have to search among millions of base pairs of DNA to find a match—a process that often fails, causing unwanted off-target effects. MAGESTIC helps the cell recruit the most appropriate donor DNA.

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“With MAGESTIC it’s like being able to make small edits to individual letters in a book, and being able to see what effect it has on the meaning of the text,” said senior author Lars Steinmetz.

Read full, original post: Turning CRISPR from a gene-editing hatchet to a ‘word processor’