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## Science in the news

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Biochemistry 1

Science in the News

Smuggling a CRISPR gene editor into staph bacteria can kill the pathogen

Lots of bacteria have some antibiotic resistance which gave the difficulty in treating patients when they have a disease. CRISPR original was discovered in the bacteria, but now this protein might hold the key to fighting antibiotic resistant bacteria. CRISPR has become popular in the science field as a new tool for genetic engineering. Excitingly CRISPR has been applied some cancer gene and also to decrease the ability of drug-resistant Staphylococcus strains. CRISPR treated cells could change back to the normal gene or a lose-of-function bacteria. CRISPR was the technology that corrected the mutated sequence by Cas9 protein. Therefore, there were two different methods to lessen the infection from staph bacteria. First, the Cas9 protein could cut the staph DNA, and kill the bacteria. Second, Cas9 targets genes and controlled that lower the danger staph bacteria to infect human cells.

Moreover, researchers tested the DNA-loaded parcels which injected in the mice called drones. These parcels would stop the animals from developing an infection because the mice received the bacteria-killing version survived the injection of S aureus in their body. This kind of treatment was like phage therapy where depending on which the kind of infecting bacteria, different mixture of bacteriophages could be used to, target the bacteria. However, this approach has not been approved for use in the USA. The

drone approach technology was simple, the only thing needed is to express the gene which killed the bacteria. Even this method effectively targeted Staphylococcus bacteria, but there were some issues also. There were bacteria strains that did not react to either method of the treatment in the mouse experiments. For use in the clinical field the research, still has a long way to go. Therefore, for the next step, the research test other kind of staph bacteria, like as pneumonia. Moreover, the researchers still need to ensure that the treatment only works in specific bacteria and there are no off target effects. All-in all though the research looks like promising approach to treat antibiotic resistance.

Citation:

Hamers, Laurel. "Smuggling a CRISPR Gene Editor into Staph Bacteria Can Kill the Pathogen." *Science News*, 4 Oct. 2018, [www.sciencenews.org/article/smuggling-crispr-gene-editor-staph-bacteria-can-kill-pathogen](http://www.sciencenews.org/article/smuggling-crispr-gene-editor-staph-bacteria-can-kill-pathogen).

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G. Ram et al. [Conversion of staphylococcal pathogenicity islands to CRISPR-carrying antibacterial agents that cure infections in mice](#). *Nature Biotechnology*. Published online September 24, 2018. doi:10.1038/nbt.4203.