

Developing the tools to find new generation antibiotics

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Scientists at the University of York have taken an important step in the search to find new antibiotics that are effective against resistant bacteria.

Research led by Professor Maggie Smith in the Department of Biology at York will provide new tools for creating stable genetically engineered strains which could lead to improvements to existing antibiotics and the development of new ones.

The study, published in *Applied and Environmental Microbiology*, used novel genetic engineering tools to manipulate the genes required for antibiotic biosynthesis. The [new tools](#) will enable scientists to create [new antibiotics](#).

In a proof of principle experiment, the researchers effectively mixed and matched the genes from different antibiotic biosynthesis pathways to make new antibiotics. They took genes from the biosynthesis pathways for the antibiotics erythromycin and angolomycin to create new molecules that appeared to have [antibiotic activity](#).

The technique could 'unlock' the antibiotic potential of a significantly larger number of biosynthetic pathways than traditional methods of producing antibiotics. Professor Smith said: "We are running out of antibiotics and we need to find ways to improve the ones that we have to make them effective against [resistant bacteria](#) or we have to find new ones. It is important to provide the tools to facilitate more innovative experiments for the growing number of researchers who are interested in

manipulating antibiotic pathways."

More information: Bahgat Fayed et al. Multiplexed integrating plasmids for engineering the erythromycin gene cluster for expression in and combinatorial biosynthesis , *Applied and Environmental Microbiology* (2015). [DOI: 10.1128/AEM.02403-15](https://doi.org/10.1128/AEM.02403-15)

Provided by University of York

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