

'Resuscitating' antibiotics to overcome drug resistance

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Combining common antibiotics with additional compounds could make previously resistant bacteria more susceptible to the same antibiotics. 'Resuscitation' of existing antibiotics has the potential to make infections caused by multidrug-resistant bacteria easier to control, reducing antibiotic usage and levels of antimicrobial resistance, say scientists presenting their work at the Society for General Microbiology's Spring Conference in Dublin this week.

Researchers from University College Dublin (UCD) studied a variety of bacteria that are frequently associated with hospital-acquired infections, including [Pseudomonas](#), Klebsiella, Enterobacter and [Staphylococcus](#). Bacterial samples were collected from [hospital patients](#) and from these, [strains](#) that showed resistance to a commonly prescribed antibiotic – ciprofloxacin - were selected for study.

The team tested ciprofloxacin in combination with one of five different 'adjuvant' compounds against these bacteria, to determine which combinations, if any, were more effective than treatment with ciprofloxacin alone. Results showed that all five adjuvant compounds increased the efficacy of ciprofloxacin; making it more active against the bacteria by up to six-fold. .

Dr Marta Martins, from the UCD School of Public Health, Physiotherapy and Population Science, who is leading the study explained why this adjuvant therapy approach is so important. "Antimicrobial resistance is a growing problem that is threatening to

make many infections impossible to treat. There are very few new antibacterial drugs coming onto the market so it is vital that we find ways to extend the use of existing [antibiotics](#) as much as possible," she said. "Adjuvant therapy essentially means that antibiotics that are currently ineffective can be 'resuscitated' to treat infections that previously would have been considered resistant."

The team believes that adjuvant therapy could revolutionize the way that antibiotics are used nowadays. "Hopefully this work will allow antibiotics to be incorporated into treatment regimes and administered in more effective ways," said Dr Martins. "As well as extending the lifespan of current antibiotics, this approach could ultimately reduce levels of antimicrobial resistance in hospitals as well as in the community, allowing hard-to-treat bacterial infections to be successfully controlled," she said.

Provided by Society for General Microbiology

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