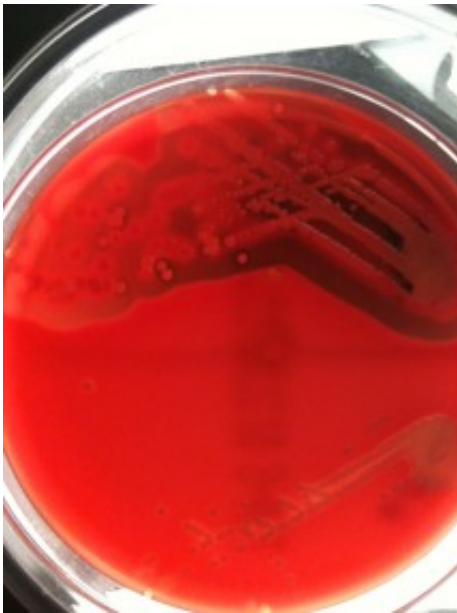


# New approach could 'trick' MRSA into being less deadly, say scientists

December 19 2013, by Andy Dunne

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Scientists hope by treating MRSA in a more intelligent manner we can improve the chances for those who have contracted the infection. (Image shows - blood plate with a high and low toxic MRSA strains growing on it).

With community-associated MRSA (CA-MRSA) posing significant health risks and currently causing huge problems in particular in the USA, a paper out this month presents new findings into how the infection responds to antibiotic treatment.

From previous research, scientists know that MRSA acquired while in

hospital is less dangerous than MRSA acquired outside (CA-MRSA). This is because hospital-acquired MRSA shows very high levels of antibiotic resistant genes. CA-MRSA expresses lower levels, which in turn enables it to be both toxic and antibiotic resistant.

The recent study, published online in *Antimicrobial Agents and Chemotherapy*, suggests that by treating these infections with an antibiotic to which they already have resistance, you can make CA-MRSA less toxic and therefore less likely to cause severe disease. By using defunct [antibiotics](#) alongside drugs that kill the bacteria, this approach works by tricking CA-MRSA into expressing high levels of resistant genes, at the same time lowering the severity of an infection.

Dr Ruth Massey explains: "What we do in the lab is grow clinically important bacterial strains of MRSA and then expose them to antibiotics. We then measure their ability to destroy [human tissue](#) and cells, which they do through their secretion of toxins. We see that important toxins, which cause damage and disease, are secreted at a much lower level and so cause less human tissue destruction when exposed to the antibiotic, even though the antibiotic doesn't actually kill them".

Dr Massey is currently involved in a project to crowd-fund for improved MRSA diagnosis and treatment. The project, '[Fighting Superbugs with Big Data](#)', hopes to use data collected about the make-up of MRSA infections to better chart their antibiotic resistance and toxicity which could one day enable clinicians to make quicker and better decisions about treatment.

The crowd-funding approach is being trialed due to a present lack of funding for MRSA research, which is currently holding back further advances in this field. The researchers are hoping to raise £10,000 to support work to input genomic data about MRSA onto an online site,

enabling free world-wide access to this information.

Talking about the project, Dr Massey said: "The time has come for us to stop treating bacteria as simple organism that are easy to kill, and to start attacking them in a more intelligent manner. We have the skills and the knowledge to do this, but we need further investment to develop and test our new approaches."

**More information:** "Oxacillin alters the toxin expression profile of Community Associated-MRSA." Rudkin JK, Laabei M, Edwards AM, Joo HS, Otto M, Lennon KL, O'Gara JP, Waterfield NR, Massey RC. *Antimicrob Agents Chemother.* 2013 Dec 2.  
[www.ncbi.nlm.nih.gov/pubmed/24295979](http://www.ncbi.nlm.nih.gov/pubmed/24295979)

Provided by University of Bath

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