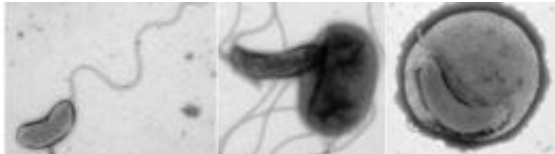


Living antibiotic effective against Salmonella

June 27 2011



Scientists have tested a predatory bacterium – *Bdellovibrio* – against *Salmonella* in the guts of live chickens. They found that it significantly reduced the numbers of *Salmonella* bacteria and, importantly, showed that *Bdellovibrio* are safe when ingested.

The research was funded by the Biotechnology and Biological Sciences Research Council, carried out by Professor Liz Sockett's team at The University of Nottingham, with Dr Robert Atterbury and Professor Paul Barrow at the University of Nottingham Vet School; and published in the journal *Applied and Environmental Microbiology*.

Researcher Dr Laura Hobley said "*Bdellovibrio* has the potential to be used as a living antibiotic against some major human and animal pathogens, such as *E. coli* and other so-called Gram-negative bacteria."

Previous studies have shown that *Bdellovibrio* is very effective at invading and killing other bacterial cells in a test tube. It looks likely to provide an alternative to antibiotic medicines at a time when bacterial

resistance is a significant problem to human and animal health.

Dr Hobley continued "We think that *Bdellovibrio* could be particularly useful as a topical treatment for wounds or foot rots but we wanted to know what might happen if it is ingested – either deliberately as a treatment, or by accident."

[Salmonella](#) likes to grow in the guts of poultry and other animals and can cause food poisoning in humans. In lab experiments *Bdellovibrio* can kill *Salmonella* by breaking into the cells and destroying them from the inside. This research shows that it also works inside the gut of a bird and is safe, not harming them or changing their behaviour.

Bdellovibrio reduced the numbers of *Salmonella* by 90% and the birds remained healthy, grew well, and were generally in good condition.

"We concluded that *Bdellovibrio* aren't long lived in the bird guts – they had a strong effect for about 48 hours, which dropped off after this time. If we were to use this method to completely rid the birds of *Salmonella*, we might have to test a program of multiple dosing. But the point of this study was really to ensure that *Bdellovibrio* is safe and effective when ingested," said Dr Hobley.

Professor Douglas Kell, Chief Executive, BBSRC said "Once we have understood the fundamental nature of an extraordinary organism such as *Bdellovibrio*, it makes sense that we should look at potential uses for it. The impact of bacterial infections on human and animal health is significant and since antibiotic resistance is a major issue, alternatives from nature may become increasingly important."

Provided by Biotechnology and Biological Sciences Research Council

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