

Could this bacterial predator be harnessed to mop up biofilms?

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Some new research on a bacterial predator that feeds on other bacteria may lead to new ammunition against biofilms. The research is published in the June 2011 issue of the *Journal of Bacteriology*.

Bacterial pathogens frequently form biofilms, which adhere to surfaces, and which are far more resistant to [antibiotics](#) than are individual [bacteria](#). Biofilms are the culprits in a wide variety of infections, which range from minor problems to major chronic problems, to the lethal.

The predatory bacteria, members of the genus *Bdellovibrio*, eat their prey, larger, oft-pathogenic bacteria, from the inside. They have other amazing attributes, including their incredible speed, 100 body lengths per second, propelled by a single sheathed flagellum, which leads their student, Liz Sockett of the University of Nottingham, UK, to characterize them as the Bugatti Veyron (top speed 250 mpg) of the microbial world. But in the new research, Sockett's colleagues Carey Lambert and Andy Fenton show that *Bdellovibrio bacteriovorus* can switch "engines"—who knew it had two?—and crawl along at a snail-like 20 body lengths per hour. That laid back locomotion "lets the *Bdellovibrio* exit from a bacterial prey cell which it has finished digesting, and crawl across a solid surface to find other bacterial prey to invade," says Sockett.

It is important to understand and preserve this laid back form of locomotion "if *Bdellovibrio* are to be used in the future to kill pathogenic bacteria on solid surfaces, like medical biofilms, where there

may be too little liquid for swimming,” says Sockett. Others, she says, have identified the similarly slow engines in the *Bdellovibrio* relatives, the *Myxobacteria*, and comparing the two engines may illuminate the mechanics in ways that could lead to medical applications, she says.

As for those medical applications, suffice it to say that biofilms play a role in urinary tract infections, and middle ear infections; they form on catheters, on teeth and in gums (dental plaque, and gingivitis, respectively), and they are common in lethal infections such as cystic fibrosis and endocarditis. “The hope is that one day *Bdellovibrio* in slow gear will mop them up.”

More information: C. Lambert, et al., 2011. Predatory *Bdellovibrio* bacteria use gliding motility to scout for prey on surfaces. *J. Bacteriol.* 193:3139-3141.

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