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## **HOST SPECIALIZATION OF THE PROKARYOTIC PREDATOR BDELLOVIBRIO BACTERIOVORUS**

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*Bdellovibrio bacteriovorus* is a small gram-negative bacterium with the ability to parasitize other gram-negative bacteria via periplasmic invasion leading to host cell death. *B. bacteriovorus* is considered a generalist and as such has been touted as a potential “living antibiotic”. To be useful in treating human/veterinary infections, antibiotics should have minimal impact on commensal microflora, yet the ability of *B. bacteriovorus* to specialize on specific hosts while ignoring others has not been documented. In this experiment, we

investigated the ability of *B. bacteriovorus* to specialize on one of two different hosts: *Escherichia coli* or *Erwinia amylovora*. Our results show that over approximately 875 generations of growth, some *B. bacteriovorus* populations grown only in the presence of *E. coli* demonstrate improved growth on *E. coli* and significantly diminished ability to infect and kill *E. amylovora*. *B. bacteriovorus* populations exposed only to *E. amylovora* show growth deficits on *E. coli*, but the magnitude of this effect is much smaller and perhaps reflects a longer association of the *B. bacteriovorus* strain used here with *Erwinia* spp. in nature. Future work examining the genetic basis of host preference in these populations will allow greater insight into mechanisms of host specialization and serve to inform the utility of *B. bacteriovorus* as a targeted rather than non-specific "living antibiotic".