

Coinfection and its Dynamics in *Drosophila melanogaster*

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Abstract

In the natural environment, organisms are susceptible to a plethora of pathogens. A lot of research has been conducted to basically explore the single host-single pathogen system. However, few studies have addressed the interactions that occur when a single host is infected with multiple pathogens simultaneously. In this study, we wanted to explore the host-pathogen interaction dynamics and pathogens' effect on the hosts; which could lead to the evolution of the virulence of the pathogen or to other outcomes such as host-protection by the pathogens. To test this, we have coinfecting *Drosophila melanogaster* baseline flies with combinations of two bacteria along with their respective bacterium counterparts and sham control. We hypothesized that, the survivorship of flies coinfecting with combinations of two bacteria will show a mortality response either additive to both bacteria or similar to the virulent bacterium. Results show that different bacterial combinations affect flies differently from their single counterparts, thus having no predictable pattern.

Keywords

Immunity, Coinfection, Host-parasite interaction, *Drosophila melanogaster*, Survivorship