



insects



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Insect Microbiome and Immunity

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Insects are the most diverse group of organisms, representing approximately 80 percent of the world's species. It is estimated that there are some ten quintillion individual insects alive. During millions of years of evolution, insects developed extraordinary adaptations that allowed them to reside in different habitats. As with all other organisms, insects encounter a wide range of microbes. Although lacking adaptive immunity, they rely on robust innate immune systems to combat these microbes to maintain organismal homeostasis. Conversely, some microbial communities can benefit the host and profoundly affect the host's physiology and overall fitness. Microbiotas have been proven to provide nutrients, promote host defense, and mediate host reproductive behavior. In recent decades, the emergence of high-throughput sequencing has enabled researchers to study host–microbe interactions from the whole microbiome level rather than single microbial species, greatly expanding our knowledge of insect biology.



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