

How insects recognize pathogenic and symbiotic microbe and defend their bodies?

Bok Luel Lee

Global Research Laboratory of Insect Symbiosis, college of Pharmacy,
Pusan National University, Busan 46241, South Korea

* Email: brlee@pusan.ac.kr (Bok Luel Lee)

Abstract

During last twenty years, we have involved in the studies of insect innate immunity field. First, by using *Tenebrio molitor* as a holometabolous insect model system, we purified many proteins that are modulating activation of Toll signaling pathway, leading to the production of antimicrobial peptides. From last five years, we changed from holometabolous insect to hemimetabolous insect, *Riptortus pedestris* (bean bug), as a model system. This insect harbored a unique gut symbiont, *Burkholderia* species, in their midgut. We intensively studied the biological significance of this symbiont in development, immunity and fitness. During this study, we questioned how insects handle orally-fed potent entomopathogen, *Serratia marcescens*, and how they survive from the attack of *Serratia* virulence factors. Here, I will present recent our studies about how insects differently recognize pathogenic and symbiotic microbes and defend their bodies against pathogenic bacterial infection.

Key words: innate immunity, Toll, cascade pathway, gut symbiont, entomopathogen