（学位第３号様式）

学 位 論 文 要 旨

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題　目	The evasion mechanism of bacterial-feeding nematodes from insect immunity （線虫による昆虫免疫からの回避機構）

The evasion/suppression of host insect immunity is essential for insect parasitism in nematodes. Cell-mediated insect immunity such as the surrounding reaction by hemocytes (encapsulation) is effective against nematodes but the mechanism by which nematodes evade/suppress the encapsulation is still unclear. The objective of this study is to clarify the evasion/suppression mechanism of nematodes from insect cellular immunity. First, I examined the cellular immune response against nematodes. Not only entomopathogenic nematodes but also the non-parasitic bacterial-feeding nematodes such as *Caenorhabditis elegans* were not encapsulated in the larvae of the greater wax moth *Galleria mellonella*. *In vitro* observation of insect cellular response against nematodes revealed that hemocytes from *G. mellonella* did not adhere to the surface of the nematodes. Then, to clarify the mechanism by which nematodes evade immunity, I examined the effect of nematodes on insect hemocytes. While hemocyte mortality was low in insects injected with *C. elegans*, hemocyte density decreased. By co-incubation of nematodes and hemocytes, *C. elegans* was found to ingest hemocytes, suggesting that the decrease in insect hemocoel is due to the nematode's ingestion. However, the decrease did not contribute for evading encapsulation. I hypothesized that the substance on nematode' body surface inhibits adherence of hemocytes to nematodes. I examined the inhibitory effect of the nematode extract on hemocyte spreading which is an essential morphological change in adherence of hemocytes. In addition, I examined the suppressive effect of nematodes on the spreading of hemocytes in the hemocoel of the insect. The hexane extract from *C. elegans* inhibited the spreading of hemocytes. Moreover, when *C. elegans* was injected into hemocoel, spreading of hemocytes was delayed and phosphorylated extracellular signal-regulated protein kinase (ERK), which is important for a signal transduction for spreading in hemocytes, decreased. These results suggest that non-parasitic bacterial-feeding nematodes as well as entomopathogenic nematodes have an ability to evade/suppress cellular immunity of insects as pre-adaptation.