

Infectious form of endosymbiotic bacterium *Holospora* induces selective digestive vacuole formation in the host *Paramecium*

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When cells of *Paramecium caudatum* are mixed with an infectious form of *Holospora obtusa*, the bacteria usually infect the host macronucleus through the digestive vacuoles within 30 min. Within 6 hours after mixing, the paramecia infected with *H. obtusa* exhibit selective digestive vacuole formation. That is, paramecia cease to ingest the infectious form of *H. obtusa* in the digestive vacuoles, whereas they continue to ingest the reproductive and boiled infectious forms of *H. obtusa*, as well as *Klebsiella pneumoniae* as food bacteria. The infected paramecia seem to acquire an ability to distinguish infectivity of *H. obtusa* and to avoid ingesting the infectious form into digestive vacuoles. To attempt to identify the components of the infectious form of *H. obtusa* involved in this behavior, the infectious forms were mixed with paramecia in the presence of rifampicin and chloramphenicol. Furthermore, the bacteria were pretreated with proteinase K, lipase PN, lyticase and β -galactosidase, and then mixed with paramecia. None of these treatments inhibited the induction of selective ingestion.