

Publication

Benefits of host genetic diversity for resistance to infection depend on parasite diversity

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 366862**Author(s)** Ganz, H.; Ebert, Dieter**Author(s) at UniBasel** [Ebert, Dieter](#) ;**Year** 2010**Title** Benefits of host genetic diversity for resistance to infection depend on parasite diversity**Journal** Ecology**Volume** 91**Number** 5**Pages / Article-Number** 1263-8**Keywords** Daphnia magna, genetic diversity, Glugoides intestinalis, heterogeneity, host-parasite, infection, microsporidia, monoculture, Ordospora colligata, prevalence**Mesh terms** Animals; Daphnia, parasitology; Genetic Predisposition to Disease; Genetic Variation; Host-Parasite Interactions; Microsporidia, physiology

Host populations with high genetic diversity are predicted to have lower levels of infection prevalence. This theory assumes that host genetic diversity results in variation in susceptibility and that parasites exhibit variation in infectivity. Empirical studies on the effects of host heterogeneity typically neglect the role of parasite diversity. We conducted three laboratory experiments designed to test if genetic variation in Daphnia magna populations and genetic variation in its parasites together influence the course of parasite spread after introduction. We found that a natural D. magna population exhibited variation in susceptibility to infection by three parasite species and had strong host clone-parasite species interactions. There was no effect of host heterogeneity in experimental host populations (polycultures and monocultures) separately exposed to single strains of three parasite species. When we manipulated the genetic diversity of a single parasite species and exposed them to host monocultures and polycultures, we found that parasite prevalence increased with the number of parasite strains. Host monocultures exposed to several parasite strains had higher mean parasite prevalence and higher variance than polycultures. These results indicate that effect of host genetic diversity on the spread of infection depends on the level of genetic diversity in the parasite population.

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