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Does pathogen presence and within-colony relatedness affect social contact networks?

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Social insects depend on complex social networks to communicate information among nestmates. These same networks are also hijacked by parasites to invade social insect societies, resulting in high host exposure due to elaborate contact networks and high host densities. Individual susceptibility to parasites is determined by the individual's genes and by the probability of exposure, as a direct result of the individuals' location and function within the network. Social insects present an excellent study system for integrating social network dynamism and disease transmission. In this study we used *Temnothorax curvispinosus* ant colonies with artificially manipulated relatedness that were exposed to the entomopathogenic fungus *Metarhizium brunneum*. We used an ant network tracking system with individually color marked ants to produce spatial and temporal contact networks among high and low related colonies and with or without the parasite. From these data we extrapolated the effect of pathogen presence and within colony relatedness on the contact network structure, as well as the specific behaviors toward infected individuals that can lead to parasite transmission and parasite suppression.