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EXPOSURE TO BACTERIA AND BACTERIAL CARRIAGE IN THE SOCIAL AMOEBA

Anthony Bartley

Mentor: Debra Brock

Primitive forms of farming have been found in various organisms such as ants and termites (both of which participate in mutualism with their fungi). Recently, farming practices have also been discovered in some clones of the social amoeba *Dictyostelium discoideum*. These clones, dubbed “farmers”, carry the inedible bacteria *Burkholderia* throughout the social stage. The presence of *Burkholderia* allows the farmers to carry edible bacteria that can be cultivated by *D. discoideum* in environments where food is scarce. Previous studies have shown that when food bacteria are in abundance non-farmers will produce more spores than farmers, indicating that bacterial density may play a role in *D. discoideum*’s interactions with *Burkholderia*. To test whether bacterial density or *Burkholderia* are the sole determinant of *D. discoideum*’s bacterial carriage, farmer clones with and without *Burkholderia* were grown at different bacterial densities. Results showed that the ability to carry bacteria was unaffected by the density of the environment, and that clones without *Burkholderia* were unable to carry bacteria at all.