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Stacey Uhm
Washington University in St. Louis

Carriage of Symbiotic *Burkholderia* spp. Changes the Number of Innate Immune Cells in Social Amoebae

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Mentors: David Queller and Joan Strassmann

Innate immunity is the first line of defense for eukaryotes. This non-specific immune response targets agents of harm such as toxins and pathogens. The innate immune mechanism has been studied in depth in many organisms, especially humans, and now in the social amoeba *Dictyostelium discoideum*. The innate immune cells in *D. discoideum* called sentinel cells phagocytize harmful material inside multicellular aggregates of *D. discoideum* during the social stage. These spent sentinel cells are left behind in trails as the multicellular slug migrates and can be counted using fluorescent confocal microscopy.

Some *D. discoideum* clones known as farmers carry symbiotic *Burkholderia* spp. We have previously reported that farmers have fewer sentinel cells than non-farmers and thus their innate immunity could be impaired. We also reported that farmers exposed to a toxic environment gained protection from Burkholderia spp. while non-farmers were significantly harmed even with greater number of sentinel cells.

Here, we determine if fewer sentinel cells in *D. discoideum* farmers are a consequence of the symbiotic relationship with *Burkholderia* spp. If true, these data suggest that *Burkholderia* spp. are able to manipulate the innate immunity of their host farmer to reduce the possibility of clearance during the multicellular stage and possibly facilitate the symbiotic relationship with their host farmer. Further study of this simple system could lead to insights in how bacteria are able to interact and manipulate the innate immunity of their eukaryotic hosts.