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Transposon Mutagenesis: The Key to Discovering the Genetic Factors Behind the Dictyostelium discoideum and Burkholderia Symbiosis

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Transposon Mutagenesis: The Key to Discovering the Genetic Factors Behind the *Dictyostelium discoideum* and *Burkholderia* Symbiosis

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The interaction between the bacterium *Burkholderia* and social amoeba *Dictyostelium discoideum* has become a model for both symbiotic relationships and even agriculture within microorganisms. However, one major obstacle preventing a full understanding of the relationship between these two organisms is what are the genetic factors that cause it. Our lab used transposon mutagenesis to singularly mutate every gene with the genome of *Burkholderia fungorum*, a strain of *Burkholderia* known not to engage in a symbiotic relationship with *Dictyostelium discoideum*. Our future plan is to then grow the mutants with the social amoeba and isolate knockouts that develop a symbiotic relationship. By creating a library of genes that promote this specific symbiotic relationship, we can use it to search for analogs within other symbiotic organisms and further our understanding of what general genetic factors lead to these relationships as a whole.