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INFLUENCE OF *DICTYOSTELIUM DISCOIDEUM*
UPON SPECIES DIVERSITY WITHIN
PSEUDOMONAS FLUORESCENS

Erica Ryu

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Biodiversity is vital for maintaining the ecology of the world. Interactions between organisms can be crucial for survival, as they can help species to coexist. One possible example is the symbiotic relationship between two strains of *Pseudomonas fluorescens* and *Dictyostelium discoideum*. The selfish bacterial strain PF2 takes advantage of the cooperative strain PF3 by absorbing essential iron-carrying siderophores without producing more siderophores, allowing it to devote energy towards growth and outcompete PF3. Previous studies suggested the strains coexist in field conditions and that *D. discoideum* closely associates with the bacteria. This research studies the fitness of *P. fluorescens* in conditions with and without *D. discoideum* to determine whether the amoeba contributes to the strains' coexistence. We found that the fitness of PF2 decreases and that of PF3 increases in the presence of the amoeba. Images taken using a confocal microscope show that the strains are present in the amoeba spores, supporting that *D. discoideum* plays a crucial role in the coexistence of both strains. These findings will provide novel insights into how communities function and how symbiotic relationships evolve.