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**"Metabolic strategies of oomycete pathogens of potato"**

The oomycetes are an evolutionarily distinct group of organisms often confused with fungi because of their filamentous growth habits and frequent saprophytic tendencies. The most well-studied oomycete is the potato and tomato pathogen *Phytophthora infestans*, which is more commonly known as late blight. A prolific and highly destructive pathogen, *P. infestans* is known to have caused the infamous Irish Potato Famine and today is responsible for billions of dollars of crop losses each year. We are studying the infection strategies of *P. infestans* and other oomycete pathogens such as *Pythium* with the long-term goal of mitigating disease through a better understanding of their fundamental biology. In this summer's project, we will investigate how oomycete pathogens obtain the energy and nutrients required for growth and infection. To answer this, the expression of metabolic genes from species of *Phytophthora* and *Pythium* that infect potato will be compared. Total RNA will be extracted from infected tubers at several stages of disease, and quantitative reverse transcription-PCR used to assess the relative abundance of various metabolic gene transcripts. These data will provide insights into the differences between the metabolic strategies of the pathogens. With this improved knowledge of pathogen metabolism will come the ability to formulate more effective mitigation strategies for devastating diseases such as late blight.

