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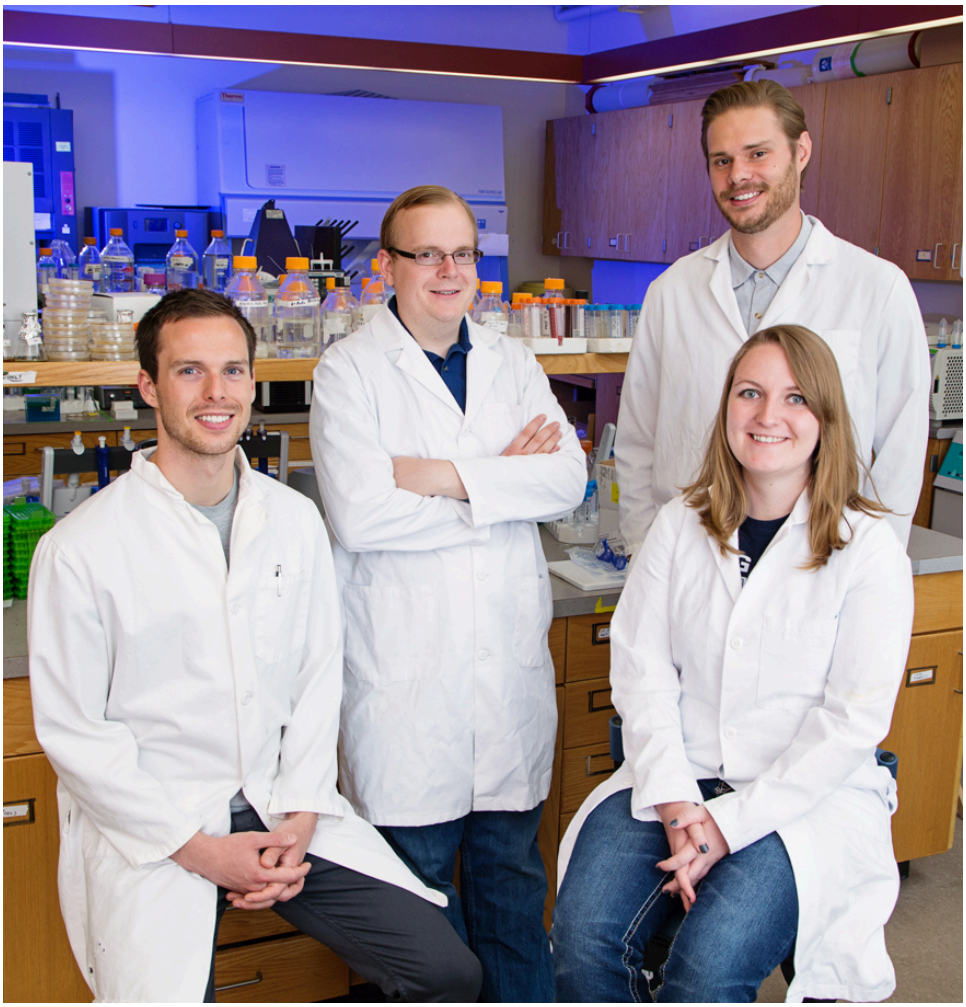
Biological Engineering Students Study Ways to Combat Virus

Cheese manufacturing is under attack by a type of virus called bacteriophages. The viruses infect bacteria used in the dairy fermentation process that yields our beloved cheese and yoghurt. Utah State's 2015 International Genetically Engineered Machines, or iGEM, team has been researching ways to fight back against the virus. The iGEM event is a competition that promotes student involvement in real world synthetic biology research.



Led by Dr. Charles Miller, the team is using synthetic biology to attempt to create a strain of phage-resistant lactic acid bacteria. The new strain will be capable of detecting the presence of the virus by activating a genetic switch. If the virus is found, the bacteria will turn red or green alerting technicians of infection. The iGEM team is also developing a different method, which they've dubbed the 'suicide system,' that works by causing the bacteria to die before the virus fully forms. Miller says the system will hopefully stop further spreading, preventing additional contamination throughout the culture.

Student team members say it's exciting to be part of an innovative research project with a practical application.

“It's a chance to hone my skills in working with synthetic biology, to practice leadership roles and to develop my ability to present information in multiple formats,” said Chad Nielsen.

This year’s team is preparing to compete against more than 280 teams from across the world at the 11th annual iGEM competition in Boston, Mass. This will be the eighth iGEM competition for the USU team, something Miller says is a unique experience for biological engineering students.

“I think each student is taking away something different from their iGEM experience, said Miller, who has been the iGEM faculty advisor since its start. “Several of the students have never worked in a biological engineering laboratory, so they’re learning skills that are not duplicated elsewhere.”

Competing in iGEM also gives students unique training they don’t get inside the classroom.

“It’s a great opportunity for individuals to gain valuable experience working together as a team,” said Tom Overbeck.

iGEM 2015 takes place Sept 24-28.