



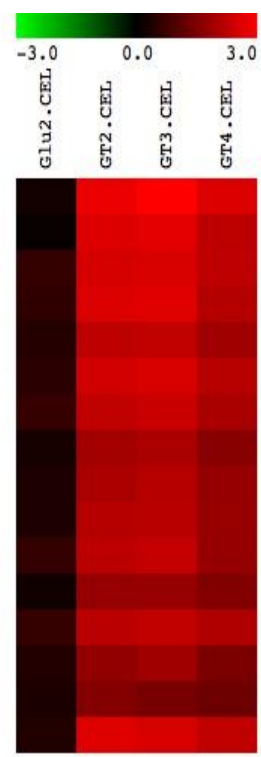
INSTITUTE FOR CELLULAR ENGINEERING

The role of phage in the death of *Clostridium phytofermentans*

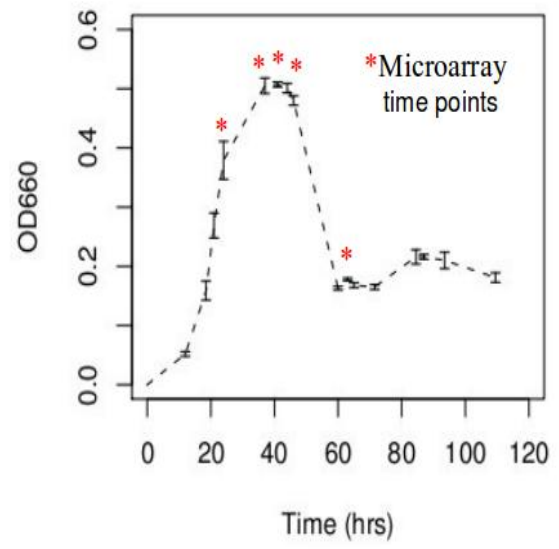
Erin Garlock, ICE REU student

PI: Prof. Jeffrey Blanchard (Umass Microbiology)

Collaborator: James Hayes (IGERT student, Microbiology)



Cphy_0799
 Cphy_0798
 Cphy_0797
 Cphy_0796
 Cphy_0795
 Cphy_0794
 Cphy_0793
 Cphy_0792
 Cphy_0790
 Cphy_0789
 Cphy_0788
 Cphy_0787
 Cphy_0786
 Cphy_0785
 Cphy_0784
 Cphy_0783



Left: Cphy genome microarrays where phage genes are identified.
 Top: Growth of Cphy on glucose.

Clostridium phytofermentans (Cphy) can convert the fibrous parts of plants into a renewable source of gasoline. Development of this technology will lead to the decreased use of oil and reduce greenhouse emissions without impacting food production. For my research, I am trying to figure out why Cphy enters a rapid death phase after exponential growth instead of entering a stationary phase. There are few hypotheses such as cannibalism, programmed cell death and bacterial viruses (phage) that may explain why Cphy enters the death phase. I used whole genome microarrays to identify phage genes in the Cphy genome that are turned on as the cell enters the death phase. I am trying to isolate these phage and strains of Cphy that are phage resistant.