BESC Reports Clostridium thermocellum Ethanol Stress Responses

U.S. DEPARTMENT OF ENERGY | Office of Science

Objective:

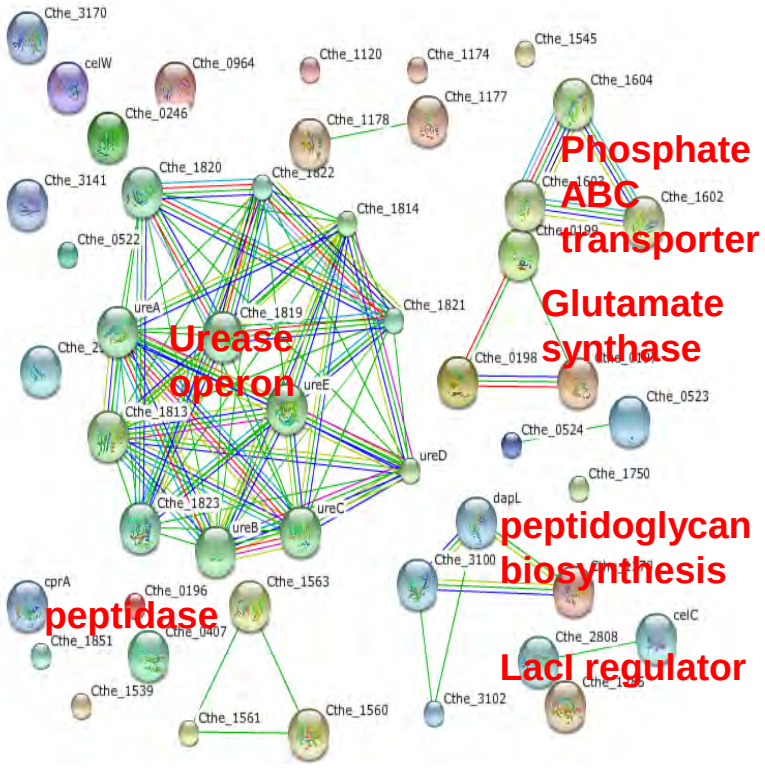
Understanding, and ultimately engineering increased tolerance to biofuels in microbes will be an important metric for lignocellulosic biofuels process economics.

Approach:

Examine *C. thermocellum* stress response to ethanol by analyzing transcriptomic, metabolomic and proteomic profiles.

Results/Impacts:

- **Largest responses were related to nitrogen uptake and metabolism**
  - **Likely important for redirecting the cells physiology to overcome inhibition and allow growth to resume.**
- **Study suggests possible avenues for metabolic engineering and provides comprehensive, integrated systems biology datasets**
  - **Useful for future metabolic modeling, synthetic biology and strain development endeavors.**



Citation: Yang, S. et al. "*Clostridium thermocellum* ATCC27405 transcriptomic, metabolomic and proteomic profiles after ethanol stress", BMC Genomics, 13:336 2012. doi: 10.1186/1471-2164-13-336

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