

Genetic Manipulation and Monitoring Gene Expression in Novel Microbial Catalysts

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Novel Microbial Catalysts

- Synthesis gas (CO, CO₂, H₂) as sole carbon and energy source
- *Clostridium* strain P11
 - Produces acetate and ethanol
- *Clostridium carboxidivorans* (P7)
 - Produces acetate, ethanol, butanol, butyrate, and even hexanol

Genetic Manipulation

Vector for strain P11 and P7

adh cloned from P7 and
C. acetobutylicum

Accomplished

Current

Transform P11 and P7 with
additional *adh* genes

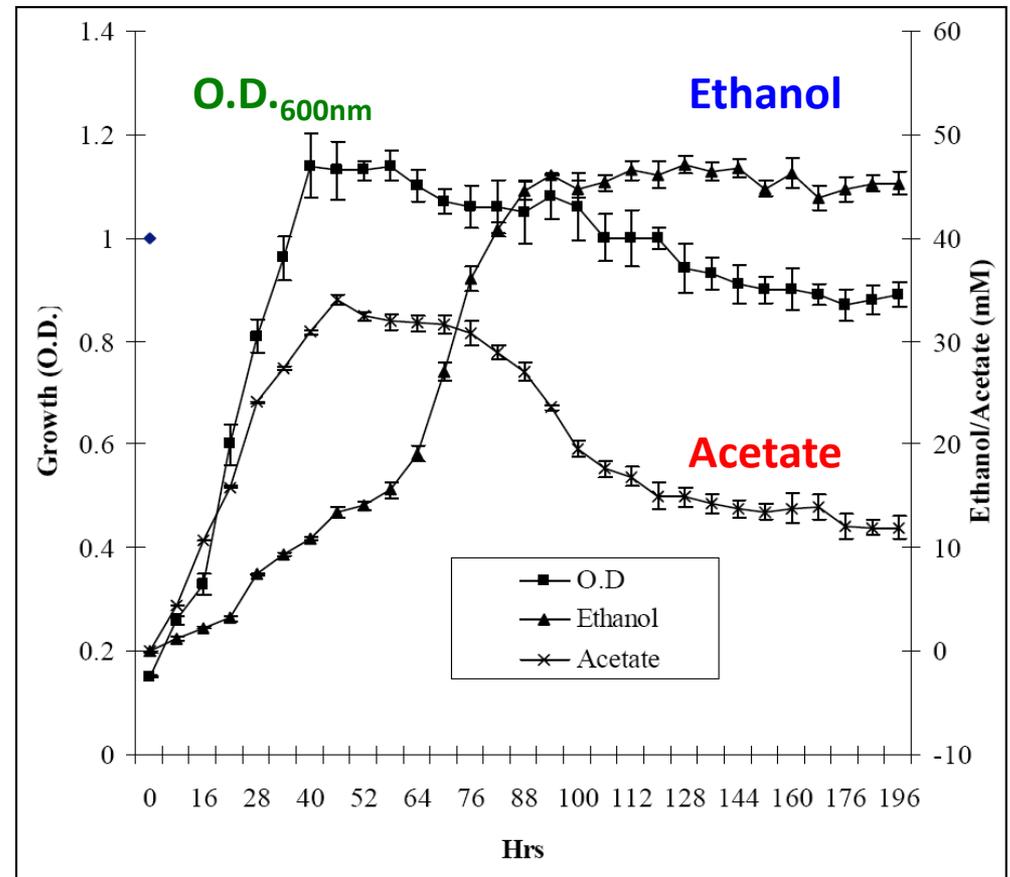
Characterize
each ADH

Monitor gene
expression and
enzyme activity

Gene expression

Conditions of interest:

- Genetic manipulation
- Growth phase
- Gas/medium composition
- Solvent production



Future directions

- Ongoing large scale expression study
- Sub-cloning followed by transformation of P7 and P11
- ClosTron to create mutants (Heap et al 2007)
- Gene expression in P11