

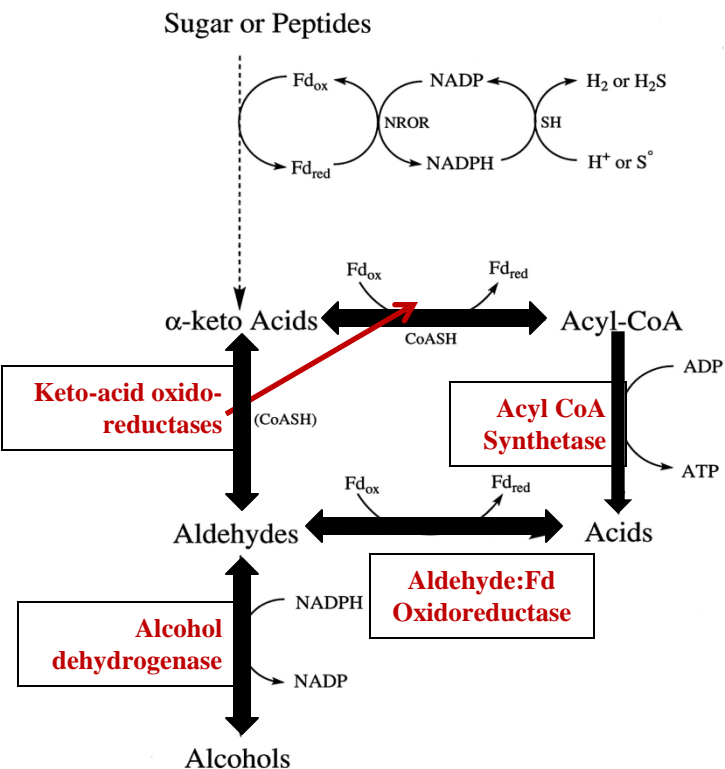


INSTITUTE FOR CELLULAR ENGINEERING

Using Hyperthermophilic Archaea To Distill Higher Carbon Alcohols

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Predicted alcohol production pathway from peptide fermentation products. Key enzymes are in red. Adapted from Ma and Adams, 1998.

Short-chain alcohols are desired for biofuels because they have higher energy densities and lower hygroscopicities than ethanol. Hyperthermophilic microbes grow rapidly and produce larger quantities of desirable metabolic end products than their mesophilic counterparts due to their high maintenance energy requirements.

Pyrococcus and *Thermococcus* species produce both ethanol and short-chain alcohols during peptide fermentation; however little is known about this process. By studying the enzymes involved in peptide fermentation and alcohol formation under different conditions *in vivo* and *in vitro* we hope to elucidate and eventually exploit the pathway these organisms are using for alcohol production.