

Pond Scum to Petrol

Genetic Engineering of Cyanobacteria for Biodiesel Production



Advantages of Microalgal Biofuels

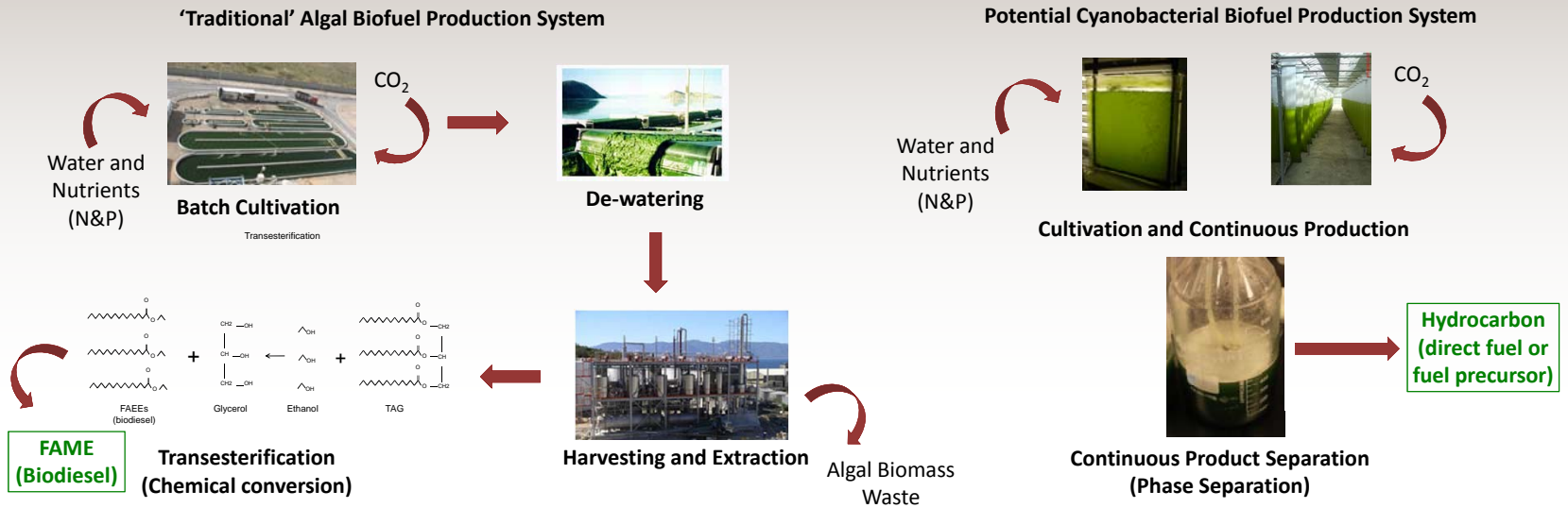
- Direct conversion of CO₂ into hydrocarbons via photosynthesis
- No requirement for arable land; does not compete with agricultural industry
- Microalgae are reported to have higher photosynthetic efficiencies than plants
- Domestic source of renewable energy

Advantages of Cyanobacterial Biofuels

- Genetic engineering tools available for strain optimization
- Known to excrete or secrete hydrocarbon products such as free fatty acids – allows for continuous production with reduced nutrient requirements
- Can be engineered to tailor-design fuel properties and produce direct drop-in replacement fuels rather than a fuel precursor

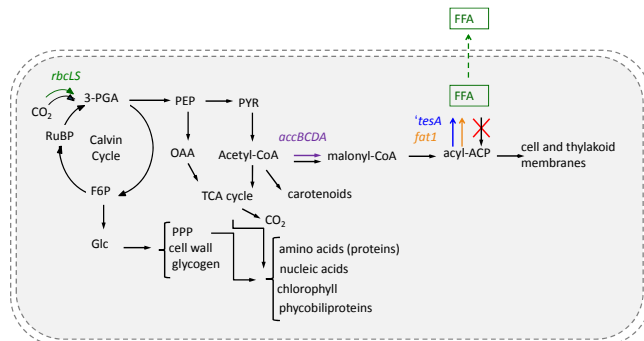


Exceptional service in the national interest

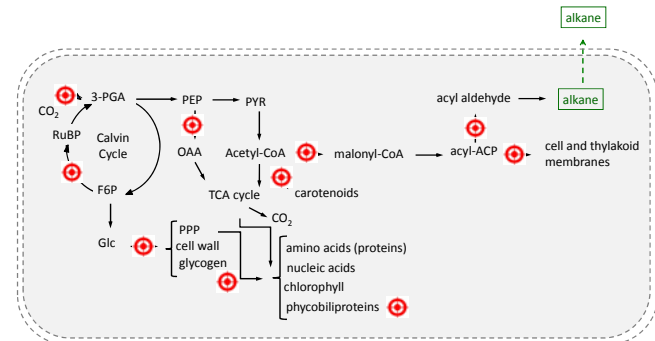


Cyanobacterial Strain Development for High-Energy Density Fuels at Sandia National Laboratories

Traditional Genetic Engineering Approaches



Novel, High-Throughput Genetic Engineering Approaches



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