

ENERGY INNOVATION FORUM

University of Massachusetts Lowell

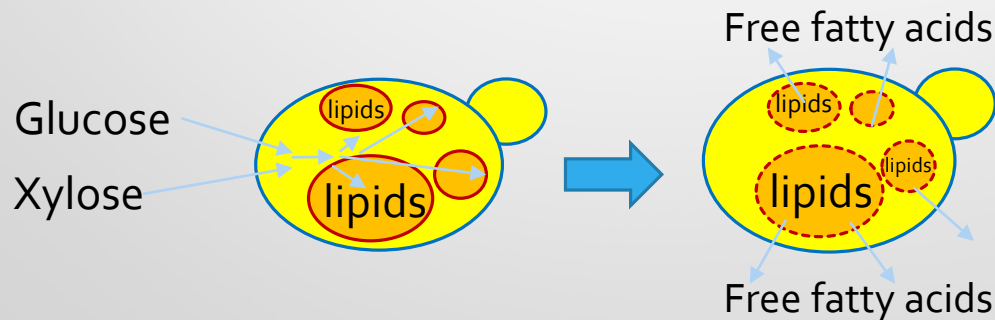
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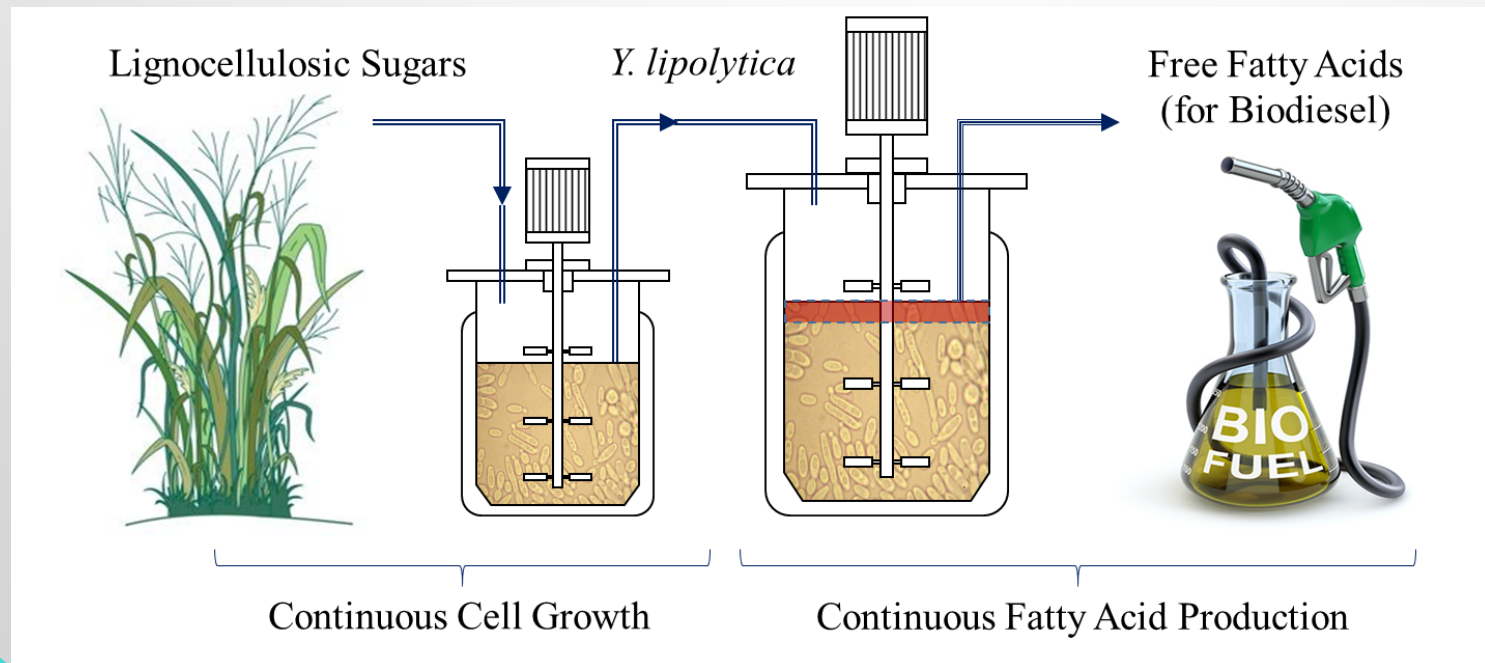
Biodiesel from Yeast

- Lignocellulosic biomass as the raw materials;
- Engineering the yeast *Yarrowia lipolytica* to convert C5/C6 sugars derived the cellulosic biomass to lipids;
- Engineering the yeast to secrete the produced fatty acids for high yield production and low-cost down stream recovery;
- Continuous fermentation and product recovery.



Biodiesel from Yeast

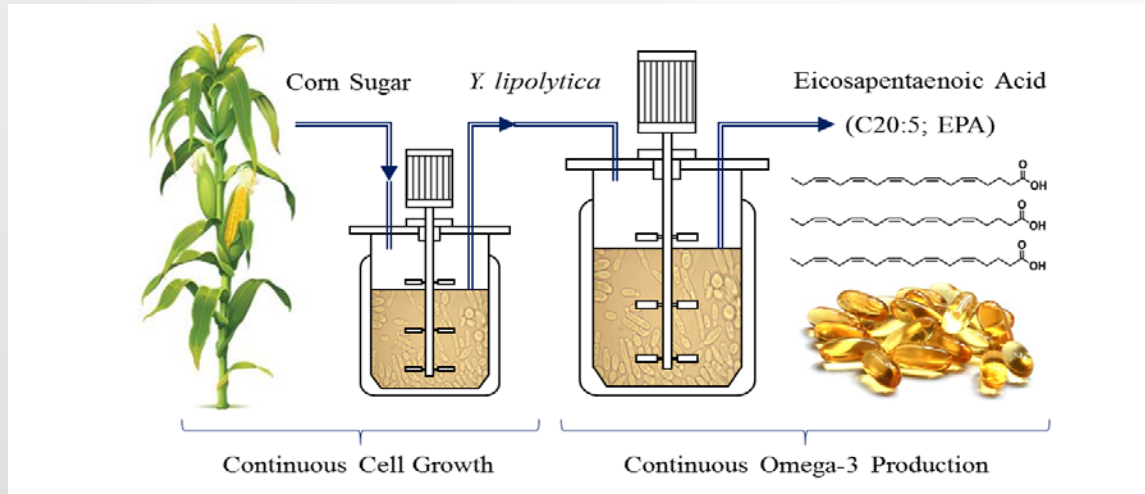
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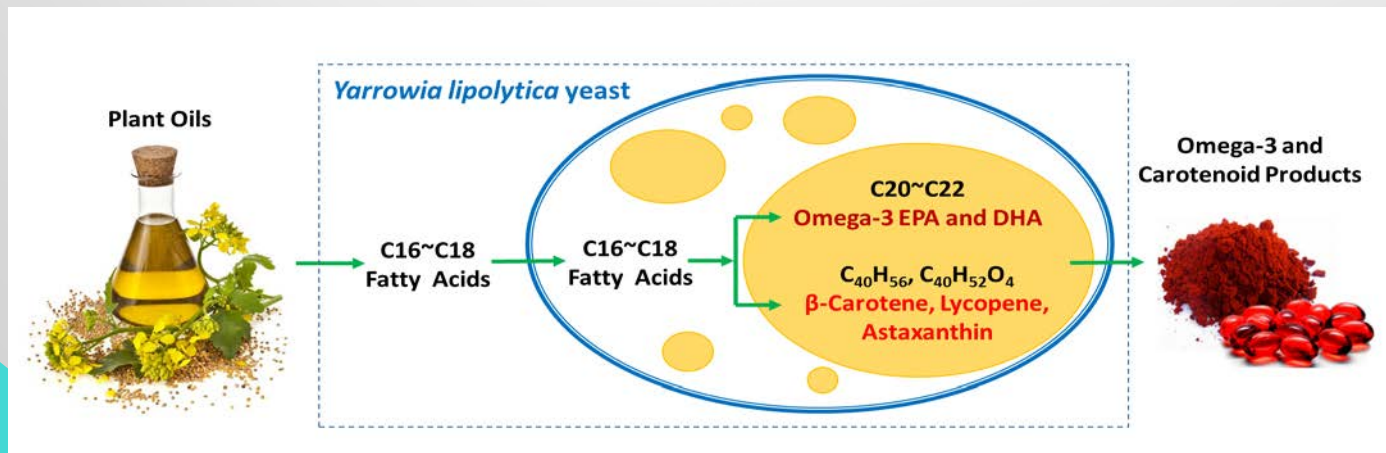
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LATEST RESEARCH RELEVANT TO COMPANIES

- Omega-3 Fatty Acids from Metabolically Engineered *Y. lipolytica*



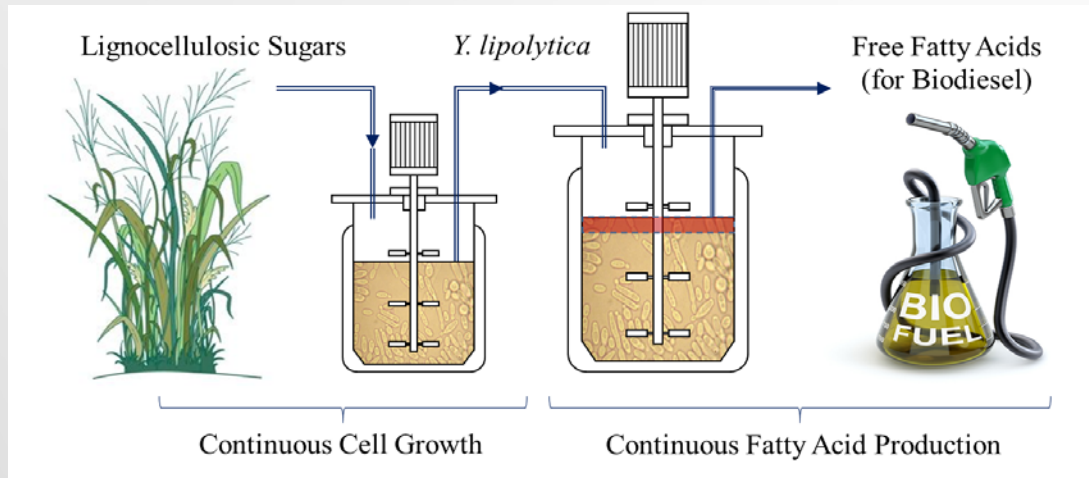
- High-Value Products from Plant Oils



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KEY PRODUCTS/TECHNOLOGIES

- **Biodiesel** from Lignocellulosic Biomass



- R&D plan that you aim to implement in the next 2 years?
 - A strain capable of converting C5/C6 sugars to extracellular free fatty acids;
 - A continuous fermentation and product recovery process suitable for biodiesel production.

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IMPACT OF RESEARCH

- Will establish a unique platform for **continuous production of biofuels**.
- Will make **lignocellulosic biodiesel** an economically attractive option for advanced biofuels.
- Will **collaborate with both academia and industry** for more funding opportunities to commercialize the technology.
- Will provide great **education and training opportunities** for undergraduates and graduate students.

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NEXT STEPS AND NEEDS

- Establish a ***Yarrowia lipolytica* technology platform** for production of advanced biofuels and high-value products.
- Close collaboration from both Academia and industry for potential commercialization.
- Funding opportunities