



ERA CoBioTech

BIO TECH RESEARCH AND INNOVATION HACK 2021

Kick Off of the 3. call projects of ERA CoBioTech



Sustainable OLEOchemical bioproduction from carboxylates via oleaginous FERmentation
OLEOFERM

Cristina Gonzalez-Fernandez



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant 722361



27.09.2021

- Market size of Oleochemicals by 2027 will be 31 billion USD
- Alternative to petroderivates include vegetable oils and animal fats

Limited availability and high feedstock cost

NOT OKAY

MICROBIAL OILSOLEAGINOUS YEAST



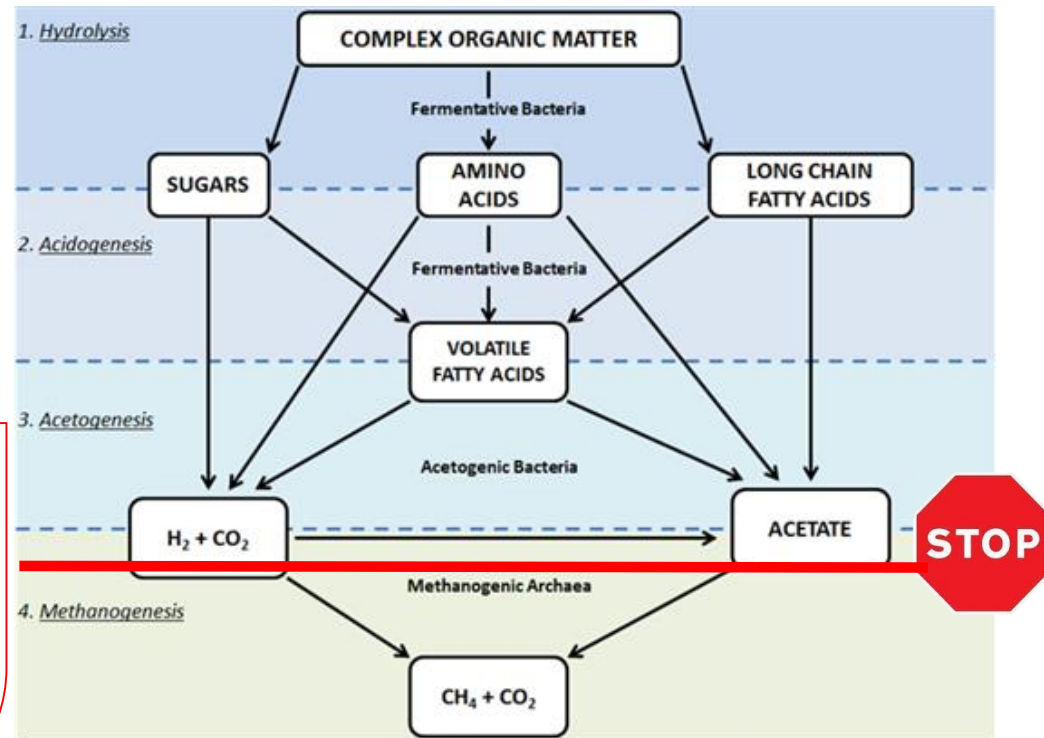
OKAY

No geographical or climatological dependance
Grow at high density and rate

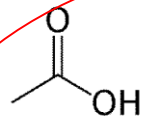


NOT OKAY

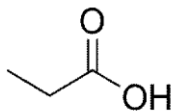
Robust technology is not limited to one particular macromolecule



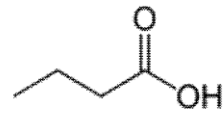
SCFAs



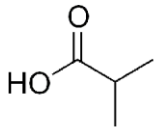
Acetic acid



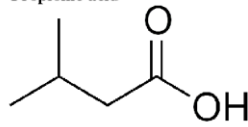
Propionic acid



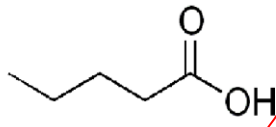
Butyric acid



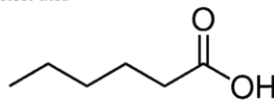
Isobutyric acid



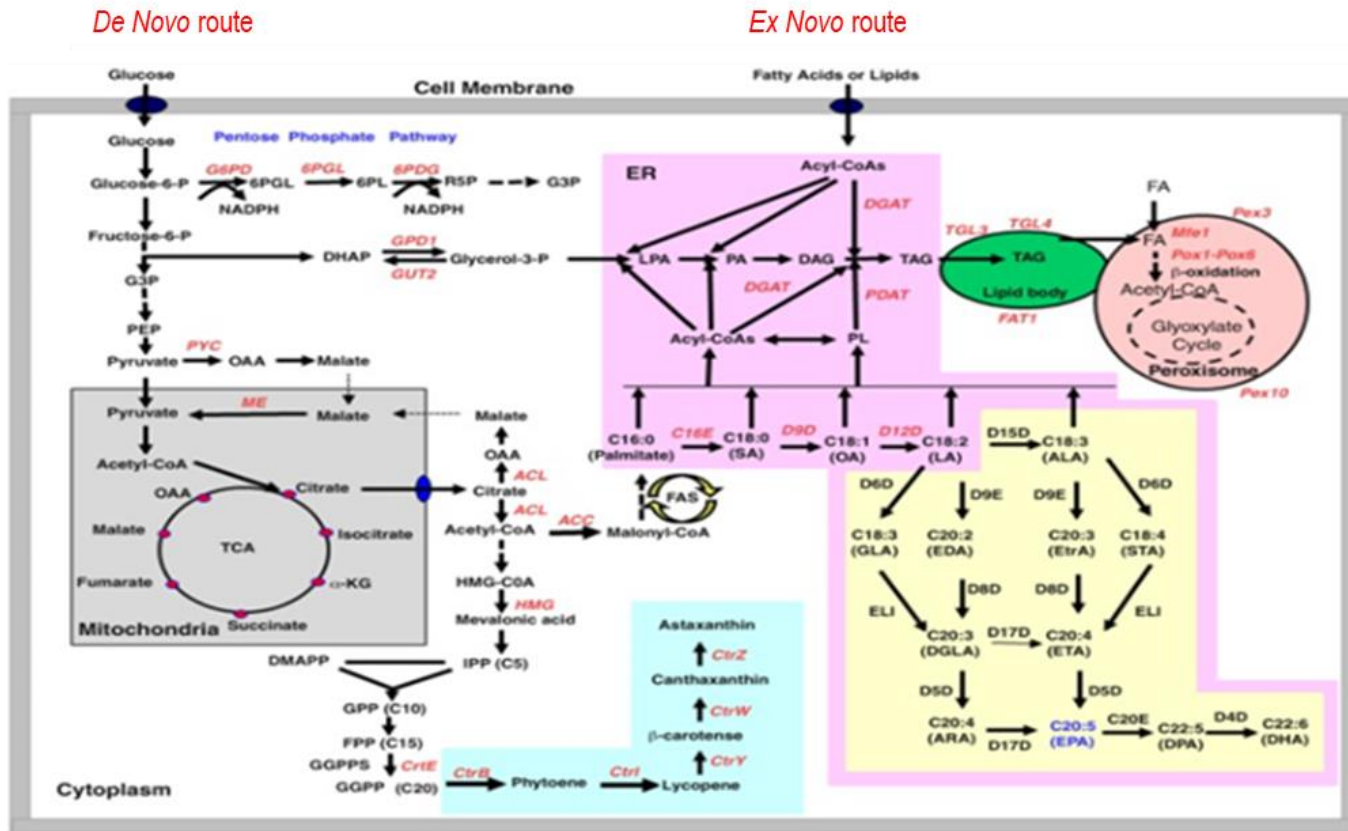
Isovaleric acid



Valeric acid

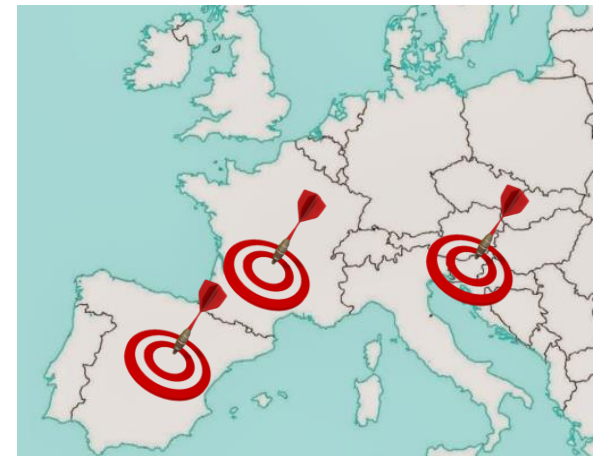
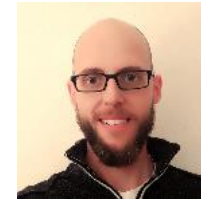


Hexanoic acid



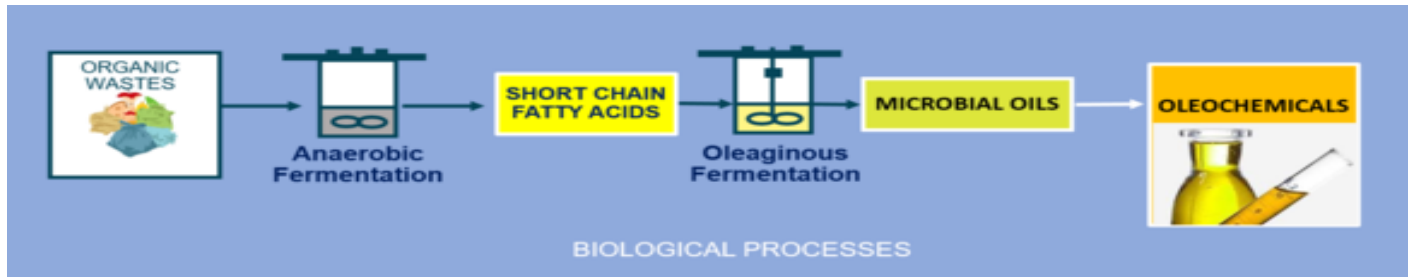
Zhu, Q. & Jackson E. N. Metabolic engineering of *Yarrowia lipolytica* for industrial applications. *Curr. Opin. Biotechnol.* **36**, 65–72 (2015).

Partners



Total project budget: 1,033,000 euros

Project start and end date: 01/04/2021-30/03/2024



1

- Attaining a suitable conversion of organic wastes into SCFAs by means of AF

2

- Development of an economic energy efficient and effective SCFAs separation

3

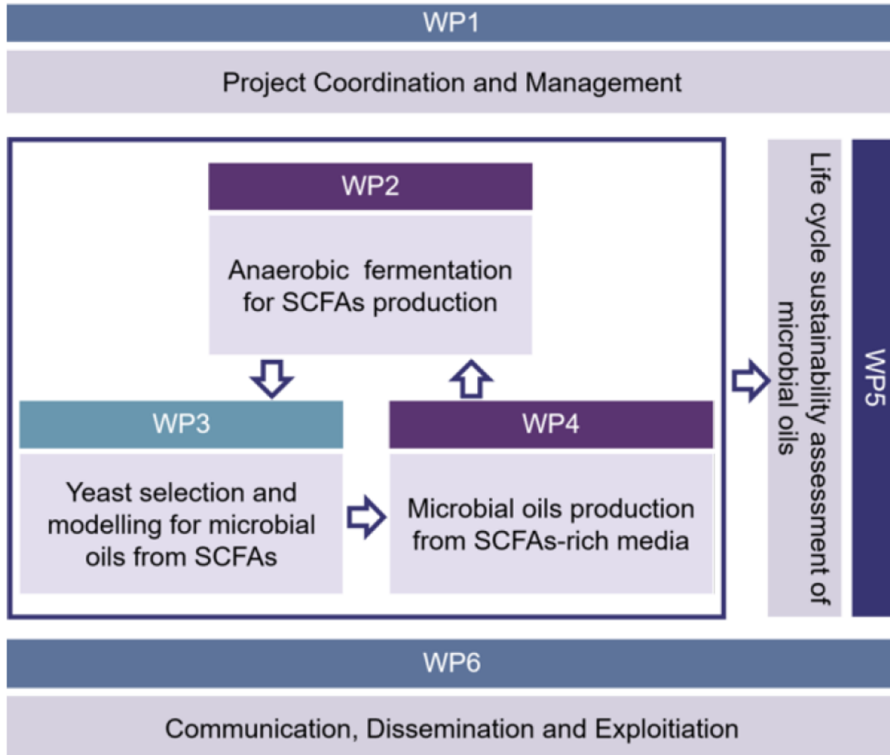
- Identification of metabolic routes involved in lipid production from SCFAs in yeast

4

- Optimization of fermentation to favor lipids accumulation in yeasts

5

- Quantification of environmental, economic and social impact of the new microbial lipids compared to current technologies



WPL

Coordinate & monitor WP

Apply PSB decisions

Periodic Project reports

PSB

Strategic Decisions

Ensure information exchange

Approval of progress reports (6 months)

Risk and Contingency

I&EB

Identify market opportunities

Looking for interested stakeholders

Contact public administration to promote Project activities

Oversee IPR matters

OUTPUTS

- 6 peer review publications (genome and transcriptome data)
- 6 participation at International Conferences
- Outreach activities: Researchers Night, Women in Science, Science Week
- 3 seminar + 2 workshops + 1 Final Conference

OUTCOMES

- Progress towards decarbonisation by developing technologies to produce microbial oils that are affordable and sustainably produced
- Strengthen European innovation and competitiveness by creating new market avenues to solve societal challenges

<https://oleoferm.eu/>



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