

## TECHNOLOGY OFFER

### Sustainable Production of Succinic Acid

Succinic acid is one of the top platform chemicals with wide-ranging applications in diverse sectors. The developed technology features a genetically engineered yeast strain that uses methanol to produce succinic acid at industrially relevant titers, offering a sustainable alternative to conventional petrochemical routes.

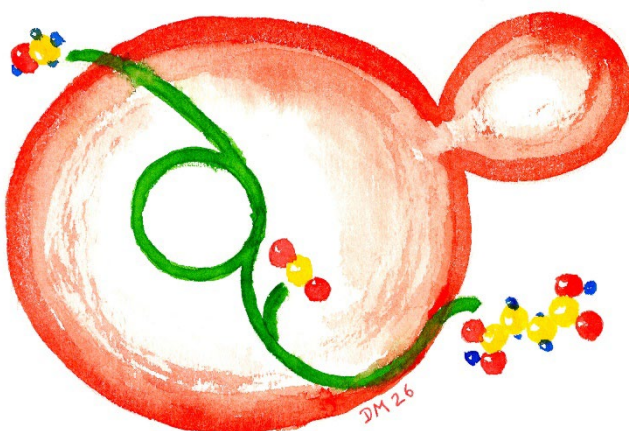
#### BACKGROUND

Succinic acid is a key platform chemical used in surfactants, detergents, flavors, fragrances, food additives, and plastics. Most industrial supply still comes from petrochemical routes, which carry environmental impacts and exposure to volatile fossil resource prices. Succinic acid can also be produced microbially but current routes mainly depend on sugars from first-generation feedstocks. To protect the food supply, current research focuses on high-producing strains that utilize renewable, non-food single-carbon (C1) sources. Carbon dioxide (CO<sub>2</sub>), a prevalent greenhouse gas, can be converted into C1 sources such as methanol which can then be used as substrate for succinic acid production.

#### TECHNOLOGY

Our invention employs a methylotrophic recombinant yeast strain, *Komagataella phaffii* (formerly *Pichia pastoris*) in combination with an optimized microbial cultivation process to convert methanol to succinic acid at high yields, achieving industrially relevant titers. Genetic modifications across several steps of the KREBS cycle, also known as tricarboxylic acid cycle (TCA), together with engineering for succinate over secretion, drive the accumulation of succinic acid in the fermentation broth. This novel approach offers significant

potential, as it avoids reliance on agricultural production and avoids competition with food resources. This technology can help reduce CO<sub>2</sub> emissions while achieving industrially relevant succinic acid titers.



#### BENEFITS

- Efficient conversion of methanol to succinic acid
- Scalable, achieving industrially relevant titers
- Uses non-petrochemical & non-first-generation feedstocks

More Information: <https://doi.org/10.1016/j.biortech.2026.134603>

REFERENCE:  
EM202509

AVAILABLE FOR:  
R&D cooperation  
License agreement

KEYWORDS:  
Succinic acid  
Biobased production  
Bioconversion  
C1 substrate - methanol  
*Komagataella phaffii*  
*Pichia pastoris*

APPLICATION:  
Sustainable production of  
succinic acid

TECHNOLOGY READINESS  
LEVEL  
Prototype (TRL4)

IPR:  
AT Patent filed

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