



# Isocitric acid (ICA)

## Sustainable Bioprocess for Industry



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### Project:

The project focuses on optimizing a yeast-based process for the sustainable and cost-effective production of isocitric acid (ICA). Using *Yarrowia lipolytica* and bioethanol, the team aims to improve yields, simplify operation, and significantly lower production costs. This will enable ICA to become accessible for broader industrial applications, such as blood stabilisation, food, cosmetics, and pharmaceuticals, where it was previously unavailable due to high costs and limited supply.

### Financial volume/ term:

49,837.67 € / 12 months

### Team:

**Project leader:** Andreas Aurich, Steffi Hunger

**Partner:** ChiroBlock GmbH

**Mentor:** Oliver Seidelmann (ChiroBlock GmbH)

### Status Quo:

ICA can now be produced at multi-kilogram scale and high purity, opening new opportunities for industrial use. Further process optimisation and cost reductions are planned to enable broad market entry.

### Challenge:

High costs, limited supply, and complex processes have restricted ICA's market use. The Chinese competitor Enzymaster offers ICA at lower prices but with reduced purity.

### Solution:

The process optimization focuses on a repeated fed-batch fermentation with bioethanol, which ensures robust, long-term operation and higher yields. Cost efficiency is further improved through non-sterile process strategies and automation. Using non-GMO yeast and validated by life cycle assessment, the process delivers isocitric acid at over 98% purity, meeting the requirements of demanding industrial applications.

### Partners:



If you are also interested in funding, please get in touch with us by email, phone or in person!

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