

Identification of novel carboxylate transporters encoded in the *Cyberlindnera jadinii* transportome by heterologous expression in *S. cerevisiae*

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Novel strategies to boost bio-based production of organic acids are focused in the expression of specific transporter proteins, to improve adequate uptake and export mechanisms.

This study focused on the identification and characterization of novel carboxylate (CA) transporters in the yeast *Cyberlindnera jadinii*. Transporters homologous to Jen1p and Ady2p, the lactate and acetate permeases from *Saccharomyces cerevisiae*, were identified and expressed in the *S. cerevisiae* W303-1A *jen1Δ ady2Δ* strain. Genes were identified by homology prediction and expressed under the control of a GPD constitutive promoter. GFP-fusions were used to determine protein expression and localization. The transformants were characterized physiologically by growth tests in different carbon sources, and evaluation of mediated transport systems for CAs. Molecular docking studies were performed, to unveil the residues involved in substrate binding in these transporters.

We have identified 4 CjADY2 and 6 CjJEN1 homologs that are functional carboxylate transporters in *S. cerevisiae*. All permeases transport CAs, presenting different specificities. The full characterization of these plasma membrane transporters is underway.

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