

## Regulation of ATP-Citrate Lyase During Lipogenesis in the Oleaginous Yeast *Yarrowia lipolytica*

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### Abstract

ATP citrate lyase (ACL) catalyzes the ATP-dependent conversion of citrate to the fatty acid precursor, acetyl-CoA. ACL presence in yeasts has been associated with their ability to accumulate lipids (i.e., oleaginous phenotype), but little is known about the regulation of this enzyme in oleaginous yeasts. In the model oleaginous yeast *Yarrowia lipolytica*, ACL is a heterodimer comprised of a catalytic and a regulatory subunit, encoded by the *ACL1* and *ACL2* genes, respectively. From the earlier studies, it was shown that the loss of *ACL1* resulted in lower lipid levels and altered fatty acid profiles. However, the regulation of ACL expression and activity during lipogenesis has not been studied. To better understand the role, ACL plays during lipogenesis in *Y. lipolytica*, we generated antibodies against its two subunits (i.e., Acl1 and Acl2). We also constructed strains that lack Acl2 (i.e., *acl2Δ*) and strains that overexpress Acl1 and Acl2 either alone or in combination. Preliminary experiments showed that the overexpression of Acl1 increased the protein levels of Acl2. We are currently analyzing the effects of Acl2 overexpression and the time-dependent regulation of Acl1 and Acl2.

This is the full abstract presented at the Experimental Biology meeting and is only available in HTML format. There are no additional versions or additional content available for this abstract.