ACS1 encodes an acetyl-CoA synthetase, which catalyzes the formation of acetyl-CoA from acetate and CoA. ACS1 was cloned by its homology to the acetyl-CoA synthetase genes of Aspergillus nidulans and Neurospora crassa. An acs1 null mutant can grow with ethanol as the sole carbon source, but there are conflicting reports whether the mutant has a growth defect on acetate medium. ACS2 encodes a second acetyl-CoA synthetase, and an acs1 acs2 double mutant is inviable. ACS1 mRNA levels are reduced when cells are grown on ethanol or glucose. ACS1 transcription is positively regulated by Abf1p and negatively regulated by Ume6p.