ACC1 encodes acetyl-CoA carboxylase, a biotin-containing enzyme that catalyzes the first step in de novo fatty acid biosynthesis. Acc1p is essential; a mutant allele of ACC1 called mtr7 is defective in mRNA export from the nucleus, and shows altered nuclear envelope morphology. The mtr7 allele and a cold-sensitive acc1 allele are both synthetically lethal with an hpr1 null mutant; the hpr1 single mutant has a hyperrecombination phenotype. The acc1 hpr1 double mutant phenotype may reflect changes in nucleocytoplasmic transport or the structure of the nucleolus. Transcription of ACC1 is repressed in the presence of the phospholipid precursors inositol and choline, and is regulated by the transcription factors Ino2p, and Ino4p, and the negative regualtor Opi1p. Enzymes with similar amino acid sequences have been identified in chicken and rat.