

BACKGROUND

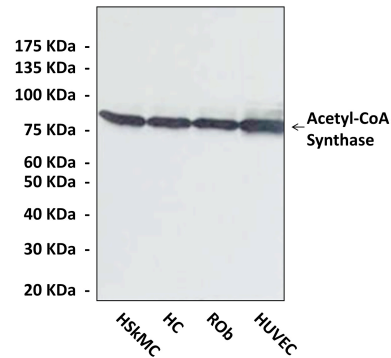
Acetyl-CoA synthetase (AceCS, EC 6.2.1.1) catalyzes the ligation of acetate with CoA to produce acetyl-CoA, an essential molecule utilized in various metabolic pathways. These pathways include fatty acid and cholesterol synthesis and the tricarboxylic acid cycle.¹ The activity of the enzyme is controlled in several ways. The essential lysine residue (Lys642 in human) in the active site plays an important role in regulation of activity. The lysine molecule can be deacetylated by another class of enzyme called sirtuins, more specifically Sirt3.²

In addition to sirtuins, protein deacetylase (AcuC) can also modify acetyl-CoA at a lysine residue. While acetyl-CoA synthetase's activity is usually associated with metabolic pathways, the enzyme also participates in regulating gene expression. In yeast, acetyl-CoA synthetase delivers acetyl-CoA to histone acetyltransferases for histone acetylation. Without correct acetylation, DNA cannot condense into chromatin properly, which inevitably results in transcriptional errors.³ Acetyl-CoA synthetase also participates in the Wood-Ljungdahl Pathway, which fixes anaerobic CO₂.⁴

References:

1. Starai VJ & Escalante-Semerena JC: Cell Mol Life Sci. 61:2020-30, 2004.
2. North BJ & Sinclair DA: Trends Biochem Sci. 32:1-4, 2007.
3. Takahashi H. et al.: Mol Cell. 23:207-17, 2006.
4. Hegg EL: Acc Chem. Res. 37:775-83, 2004.

QUALITY CONTROL DATA



Western Blot detection of endogenous Acetyl-CoA Synthase protein in normal primary cell lysates using Acetyl-CoA Synthase Antibody. HSKMC: Human Skeletal Muscle Cell. HC: Human Chondrocytes. ROB: Rat Osteoblasts. HUVEC: Human Umbilical Vein Endothelial Cells.

TECHNICAL INFORMATION

Source:

Acetyl-CoA Synthase Antibody is a mouse monoclonal antibody raised against human Acetyl-CoA Synthase N-terminal sequence.

Specificity and Sensitivity:

This monoclonal antibody detects endogenous levels of Acetyl-CoA proteins in normal primary cell lysates.

Storage Buffer: PBS and 30% glycerol

Storage:

Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	1:50
IHC	1:100

**Optimal dilutions must be determined by end user.*

