

## **Abstract**

Acetylation of histone proteins affects chromatin structure and functions as a coactivating signal for transcription. Acetylation of histone lysine residues is mediated by histone acetyltransferases, which utilize molecule of Ac-CoA as a donor of acetyl group. Ac-CoA is located in the centre of intermediary carbon metabolism, where it fuels citric acid cycle and fatty acid synthesis. Level of intracellular Ac-CoA fluctuates in response to changes in availability of utilizable carbon sources and metabolic activity of the cell. Since changes in intracellular concentration of Ac-CoA positively correlate with histone acetylation level, Ac-CoA might contribute to transcriptional modulation in response to nutritional stress. Moreover, Ac-CoA takes part in process of differentiation and seems to be important for cell cycle regulation.

**Key words:** Ac-CoA, histone acetylation, nutrition, intermediary metabolism, regulation of transcription, cell cycle, glucose