



Figure 2. Biosynthesis pathways of acetyl-CoA and NAD cofactors, and their involvement in chromatin-related processes. Acetyl-CoA is produced via two pathways to metabolize pyruvate, involving the key catalytic action of ACL or AceCS1. Acetyl-CoA is an essential metabolite required for the activity of HATs involved in creating an active chromatin conformation via the acetylation of histones. NAD is produced via the NAD salvage pathway. It is an essential cofactor for the PARP and SIRT enzymes, among other proteins. A link exists between the two pathways, as indicated by the dashed lines, by virtue that the NAD-using enzyme, SIRT1, activates the AceCS1 enzyme via protein deacetylation, which, in turn, produces the metabolite acetyl-CoA.