



Figure 6. The Transition from a Euchromatic State to a Heterochromatic State Requires a Series of Changes in Histone Modification

(a) Active genes are marked by H3K4me₂ and me₃; if present, this mark must presumably be removed by LSD1 (not yet characterized in *Drosophila*). H3K9 is normally acetylated in euchromatin; this mark must be removed by a histone deacetylase, HDAC1. Phosphorylation of H3S10 can interfere with methylation of H3K9; dephosphorylation appears to involve a phosphatase targeted by interaction with the carboxyl terminus of the JIL1 kinase. These transitions set the stage for acquisition of the modifications associated with silencing, shown in *b*, including methylation of H3K9 by SU(VAR)3-9, binding of HP1, and subsequent methylation of H4K20 by SUV4-20, an enzyme recruited by HP1. Methylation of H3K27 by E(Z) may also occur.