



Front cover image: Nucleosomes, the basic building blocks of chromatin, are formed by coiling 147 base pairs of DNA around a protein core that consists of two copies each of histones H2A (Yellow), H2B (Red), H3 (Blue) and H4 (Green). Acetylated lysine 56 in histone H3 (Violet) is associated with nucleosome assembly during replication and DNA repair, and is thus likely to predominate in regions of chromatin containing nucleosome-free regions. X-ray crystallographic studies determined that mutation of H3 lysine 56 to glutamine (to mimic acetylation) or glutamate (to cause a charge reversal) has no detectable effects on the structure of the nucleosome. In contrast, defects in interactions between arrays of nucleosomes in *trans* ('oligomerization') are selectively observed for mutant H3 lysine 56 arrays that contain nucleosome-free regions. The data suggest that H3K56 acetylation is one of the molecular mechanisms employed to keep chromatin with nucleosome-free regions accessible to the DNA replication and repair machinery. The cover image was generated from PDB ID 3KWQ. For details please see Watanabe et al.

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