

Abstract

Constitutive heterochromatin of eukaryotes includes various types of repetitive DNA and transposons characteristic for given region. DNA of centromeric and telomeric regions is usually highly methylated and transcribed to RNA transcripts, which participate in formation, functions and spreading of heterochromatin along with histones, their modifications and non-histone proteins. The most typical histone modification in heterochromatin is methylation, which forms the binding site for protein HP1. This protein (and his paralogues in other eukaryotes except for *S. cerevisiae*) participates in formation of complexes including other proteins like histone methylases SUV39H and their paralogues. Essential are also telosome proteins regulating telomeric heterochromatin, Polycomb group proteins and many others, for instance MBD1, Epe1, SUMO and DNA methylases DNMT. Many proteins form complexes, which partake in mechanisms necessary for heterochromatin maintenance, for example RDRC and RITS complexes in RNA interference, SHREC complex in heterochromatin spreading, and PRC complexes forming heterochromatin in specific situations.

Key words: centromere, DNA, histone, HP1, constitutive heterochromatin, methylation, modification, protein, RNA, specific, telomere