

Characterization of Chromatin Assembly Factor ASF1 That Interacts with Histone Acetyltransferase Complex

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Nuclear DNA is packaged into a protein structure known as a chromatin. The basic unit of chromatin is nucleosome, which consists of DNA and histone octamer. Nucleosome assembly involves the initial deposition of histone H3/H4 heterodimer onto the DNA and addition of two histone H2A/H2B dimmers. It is well established that modification, including acetylation and methylation, of histone is intimately linked to transcriptional regulation.

Something About Silencing (SAS) 2 in *Saccharomyces cerevisiae* encodes histone acetyltransferase and is essential for maintaining the proper silencing at mating-type loci, telomeres, and rDNA region. We previously identified the yeast histone acetyltransferase complex including Sas2p and named SAS complex. This complex is found to interact with chromatin assembly factor Asf1p, and *asf1* mutants exhibit silencing defects similar to mutants in the SAS complex. Highly conserved Asf1p/CIA binds to histone H3/H4 and has a histone chaperon activity. Asf1p/CIA interacts with the chromatin remodeling factor Brahma and the largest subunit of the basal transcription factor TFIID as well as the SAS complex. To uncover other function of *ASF1*, we identified Asf1p-associated factors from yeast by GST pull-down experiment. Peptide mass fingerprinting analysis revealed that one of Asf1p-associated factors is Vip1p, which function has not been characterized. I will discuss the interaction between the SAS complex and Asf1p and show our recent progresses on Asf1p-interacting factors.