

Abstract

Prp45 is an essential splicing factor of budding yeast *Saccharomyces cerevisiae*. The human ortholog of Prp45 – protein SNW1/SKIP – is involved in splicing and probably influences transcription and histone modification. The genetic interaction of Prp45 with splicing factors is well described. We have additionally demonstrated that Prp45 genetically interacts also with factors involved in transcription regulation and histone modification enzymes. Our preliminary data therefore suggest that Prp45 might be a factor that connects processes of splicing, transcription, and chromatin modification and dynamics in *S. cerevisiae*.

The first aim of this project was to investigate the role of introns in intra- and intergenic expression regulation of paralogous genes *TUB1* and *TUB3* and whether is this regulation influenced by aberrant splicing. Using quantitative PCR we found that expression of paralogous genes *TUB1* and *TUB3* is not dependent on the presence of their introns or correct splicing. The second aim of this project was to explore the potential role of Prp45 in the regulation of chromatin state. For this purpose, we used the system of β -estradiol-induced expression of myc-tagged histone H3 and determined its incorporation into nucleosomes by chromatin immunoprecipitation. Despite the lack of reproducibility, our results indicate that mutation *prp45(1-169)* probably increase the dynamics of nucleosomes in intron-containing genes.

Keywords:

PRP45, intron, gene expression regulation, paralogous genes *TUB1* and *TUB3*, histone H3, dynamics