

ABSTRACT

Splicing is a key step of eukaryotic gene expression and as well as other steps of this vital process, splicing has to be tightly regulated. Hub1 protein is a ubiquitin-like protein which noncovalently interacts with spliceosomal proteins Snu66 and Prp5 ATPase. According to the proposed model, low level of Hub1 protein stimulates ATPase activity of Prp5 helicase sufficiently for splicing of optimal splice sites, but not for splicing of suboptimal ones. Nevertheless, high level of Hub1 protein stimulates Prp5 ATPase sufficiently for splicing of both splice-site types. Excessive level of Hub1 protein may be harmful for the cell, because the immoderate splicing of suboptimal splice sites may produce aberrantly-spliced transcripts as a by-product. Hub1-induced negative feedback loop safeguards the cell from Hub1 protein hyperactivity by regulation of Prp5 ATPase level. Additionally, Hub1 protein regulates alternative splicing of *Saccharomyces cerevisiae SRC1* gene and ensures appropriate balance of its products.