RNA polymerase II components and Rrn7 form a preinitiation complex on the HomolD box to promote ribosomal protein gene expression in Schizosaccharomyces pombe

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 In Schizosaccharomyces pombe, ribosomal protein gene (RPG) promoters contain a TATA box analog, the HomolD box, which is bound by the Rrn7 protein. Despite the importance of ribosome biogenesis for cell survival, the mechanisms underlying RPG transcription remain unknown. In this study, we found that components of the RNA polymerase II (RNAPII) system, consisting of the initiation or general transcription factors (GTFs) TFIIA, IIB, IIE, TATA-binding protein (TBP) and the RNAPII holoenzyme, interacted directly with Rrn7 in vitro, and were able to form a preinitiation complex (PIC) on the HomolD box. PIC complex formation follows an ordered pathway on these promoters. The GTFs and RNAPII can also be cross-linked to HomolD-containing promoters in vivo. In an in vitro reconstituted transcription system, RNAPII components and Rrn7 were necessary for HomolD-directed transcription. The Mediator complex was required for basal transcription fr