

ABSTRACT

Saccharomyces cerevisiae cells produce 2000 ribosomes per minute under normal conditions. The expression of ribosomal proteins is massive – it takes 50% of RNA polymerase II transcription and 90% of pre-mRNA splicing in rapidly growing cells. Since cells need an equimolar amount of individual ribosomal proteins, the tight coregulation of gene expression is required. The transcription is a main target of regulation, however, it is inherently unable to set a stoichiometric balance of ribosomal proteins. Various types of post-transcriptional regulation deal with fluctuations of individual ribosomal proteins and fine-tune their expression. Intron-dependent regulation appears to be predominant among ribosomal protein genes. Besides balancing their expression, presence of introns provides a rapid global regulation (repression) of ribosomal protein genes in response to environmental stress.

KEY WORDS

ribosomal protein genes, RPG, ribosomal protein, gene expression regulation, coregulation, *Saccharomyces cerevisiae*