

P040 Ribosome synthesis meets the cell cycle
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About 150 non-ribosomal proteins have been implicated in post-transcriptional steps of ribosome synthesis in *Saccharomyces cerevisiae*. Several of these have recently been reported to also play a role in cell cycle progression, and we are seeking further examples. Nop1p, Nop56p and Nop58p associate with the box C/D class of small nucleolar RNAs (snoRNAs), which guide methylation of rRNAs. The human homologues of these proteins have been shown to associate with condensed mitotic chromosomes, suggesting some role in chromatin condensation. Genetic depletion of any one of these three proteins from yeast leads to an apparent defect in nucleoplasmic structure. The DAPI-stained region becomes faint and is far less homogeneous than in wild-type strains ("torn-off nucleus"), suggesting a defect in the packaging or organization of the chromatin. In contrast, the nucleolus is not obviously altered. Subsequent analyses showed that depletion of several other components of the early, 90S pre-ribosomes leads to similar defects. This was not, however, observed for components of later pre-40S and pre-60S particles. It appears that there is a link between the early stages of ribosome biosynthesis and some aspect of the "structure" of the nucleoplasm.