

## **Bcp1 is the nuclear chaperone of Rpl23 in *Saccharomyces cerevisiae***

### **ABSTRACT**

Eukaryotic ribosomes are composed of rRNAs and ribosomal proteins. Ribosomal proteins are translated in the cytoplasm and imported into the nucleus for assembly with the rRNAs. It has been shown that chaperones or karyopherins responsible for import can maintain the stability of ribosomal proteins by neutralizing unfavorable positive charges and thus facilitate their transports. Among 79 ribosomal proteins in yeast, only a few are identified with specific chaperones. Besides the classic role in maintaining protein stability, chaperones have additional roles in transport, chaperoning the assembly site, and dissociation of ribosomal proteins from karyopherins. Bcp1 has been shown to be necessary for the export of Mss4, a phosphatidylinositol 4-phosphate 5-kinase, and required for ribosome biogenesis. However, its specific function in ribosome biogenesis has not been described. Here, we show that Bcp1 dissociates Rpl23 from the karyopherins and associates with Rpl23 afterward. Loss of Bcp1 causes instability of Rpl23 and deficiency of 60S subunits. In summary, Bcp1 is a novel 60S biogenesis factor via chaperoning Rpl23 in the nucleus.

**Keyword:** Chaperone; Phosphoinositide; Protein stability; Ribosome; Ribosome assembly