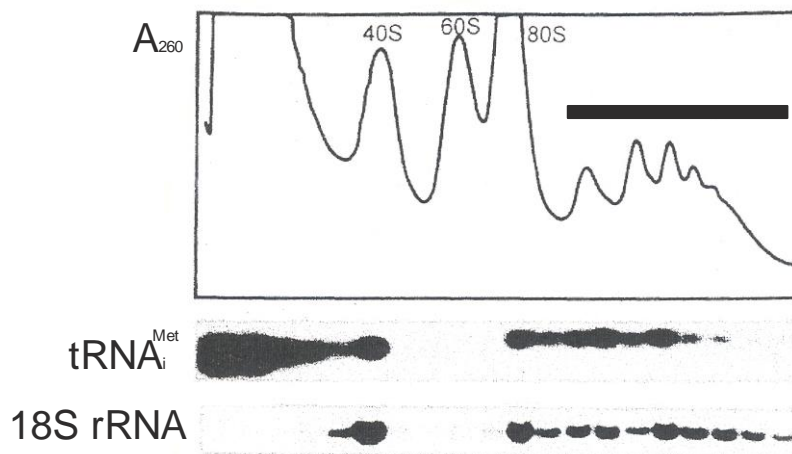


SEDIMENTOGRAM OF A YEAST RIBOSOME FRACTION

Terms to be familiar with before you start to analyze the figure

*ribosome fraction * sucrose density gradient centrifugation * isolation of RNA * Northern blotting * mechanism of translation * initiator tRNA^{Met} * 18S rRNA * hybridization probe*

The figure



A ribosomal fraction was prepared from yeast cells and subjected to sucrose density gradient centrifugation. UV absorption (A_{260}) was measured in the gradient fractions and then RNA was isolated from them. Northern blot analysis was carried out using probes specific for initiator $tRNA^{Met}$ and 18S rRNA.

Study the figure and answer the following questions!

1. The concentration of which molecules was measured in the fractions by taking UV absorption?
2. Which end of the X axis corresponds to the top of the gradient?
3. What complexes are present in the fractions indicated by the horizontal bar?
4. Why does the $tRNA^{Met}$ -specific probe give a strong signal in the first, high peak of the sedimentogram?
5. Why does the $tRNA^{Met}$ -specific probe give a signal in the 40S fraction?
6. Why there is no $tRNA^{Met}$ signal in the 60S fraction?
7. Why there is a $tRNA^{Met}$ signal in the 80S fraction and in the bar-labeled fractions?
8. Interpret the 18S rRNA pattern on the Northern blot!

The source of the figure

Bhattacharya, A., McIntosh, K.B., Willis, I.M., Warner, J.R. (2010) Why Dom34 stimulates growth of cells with defects of 40s ribosomal submit. *Mol. Cell. Biol.* 30, 5562-5571.

Supported by a grant from the European Union (TÁMOP-4.1.1.C-13/1/KONV-2014-0001).