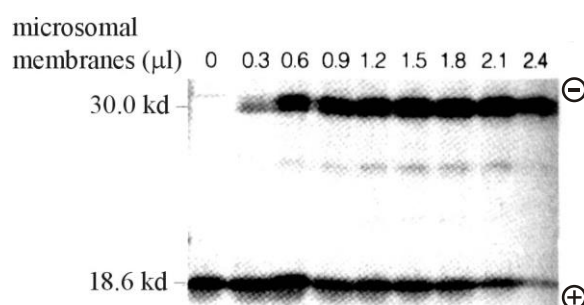


A CELL-FREE PROTEIN SYNTHESIZING SYSTEM

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

*reticulocytes * nucleases * mRNA * in vitro protein synthesis * [³⁵S] methionine * SDS polyacrylamide gel electrophoresis (SDS-PAGE) * autoradiography * microsomes*

The figure



In an *in vitro* experiment reaction mixtures of the following composition were constructed:

- rabbit reticulocyte lysate mildly treated with micrococcal nuclease (to destroy globin mRNAs);
- an mRNA coding for a specific yeast protein;
- complete amino acid mixture (containing the 20 amino acids including [³⁵S]methionine);
- ribosome-free microsomal membranes (as indicated in the figure).

The mixtures were incubated for 60 minutes, then analyzed by SDS-polyacrylamide gel electrophoresis and autoradiography. (⊖ and ⊕ indicate the positions of electrodes during electrophoresis.)

Answer the following questions:

1. What is the basis of separation during SDS PAGE?
2. What molecules are present in the lower band?
3. What molecules are present in the upper band?
4. Interpret the effect of microsomal membranes!

The source of the figure

Promega Catalog, 2004, p240.

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