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Dynamics of mRNA translation inferred from experimental data

Translation is a fundamental intracellular process by which ribosomes synthesise proteins from the genetic information encoded in messenger RNA (mRNA). A long-standing question in molecular biology is to predict how mRNA sequences specify dynamics of protein synthesis. Over the past 15 years, several new techniques have been developed to measure protein synthesis at a genome-wide level. Simultaneously, new advances have been made to understand the dynamics of mRNA translation using theoretical models based on the totally asymmetric simple exclusion process. I will summarise recent efforts to integrate these models with experimental data, which will ultimately help us to understand sequence determinants of protein synthesis dynamics.

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