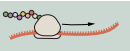


# protein synthesis



$$N_{\text{peptide bonds}} \approx 1 \times 10^9 \text{ peptide bonds}$$

number of peptide bonds  
per cell

$$r_{\text{translation}} \approx 15 \text{ peptide bonds / (ribosome} \times \text{sec)} \quad \text{BNID: 109043}$$

translation elongation  
rate

$$N_{\text{ribosomes}} \approx \frac{N_{\text{peptide bonds}}}{r_{\text{translation}} \times t_{\text{division}}} \approx 1 \times 10^4 \text{ ribosomes}$$

number of ribosome  
complexes