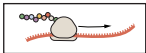translation

$N_{peptide\ bonds} \approx 3 \times 10^6\ proteins \times \dfrac{300\ amino\ acids}{1\ protein} \times \dfrac{1\ peptide\ bond}{1\ amino\ acid}$

$\approx 10^9\ peptide\ bonds$

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

$N_{ribosomes} \approx \dfrac{N_{peptide\ bonds}}{r_{translation} \times t_{division}} \approx 10^4\ ribosomes\ /\ cell$

number of ribosomes

cell size dependence
point estimate
Li et al. 2014
Peebo et al. 2015
Schmidt et al. 2016
Valgepea et al. 2013

growth rate [hr^{-1}]