

$$\frac{\overbrace{S_A}^{\text{surface area}}}{\underbrace{V}_{\text{cell volume}}} = \frac{\text{density ratio} \cdot \underbrace{\kappa}_{\text{membrane allocation}} \underbrace{\phi_{mem}}_{\text{membrane allocation}}}{1 + \underbrace{\beta \phi_{Rb}}_{\text{ribosomal allocation}} - \underbrace{\phi_{mem}}_{\text{membrane allocation}} - \underbrace{\phi_{peri}}_{\text{periplasmic allocation}}} \sim \frac{1}{\underbrace{W}_{\text{cell width}}}$$

