

# (A) density maintenance theory

$$\frac{S_A}{V} \sim \frac{\kappa \phi_{mem}}{2(1 + \beta \phi_{rib} - \phi_{mem} - \phi_{peri})}$$

cytoplasm-membrane density ratio  $\kappa \phi_{mem}$  membrane proteome fraction

surface-to-volume ratio  $2(1 + \beta \phi_{rib} - \phi_{mem} - \phi_{peri})$  RNA-protein ratio  $\beta \phi_{rib}$  periplasmic proteome fraction  $\phi_{peri}$

fit uncertainty: 95%, 68%, median,  $\approx 1\sigma$ ,  $\approx 2\sigma$

