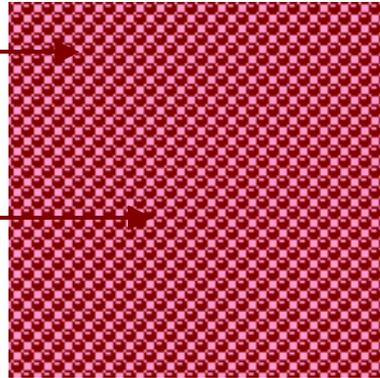


SIMPLE MODEL FOR CELL GROWTH

LIPIDS MUST BE
ADDED TO MEMBRANE

FLUID MUST BE
ADDED TO INTERIOR



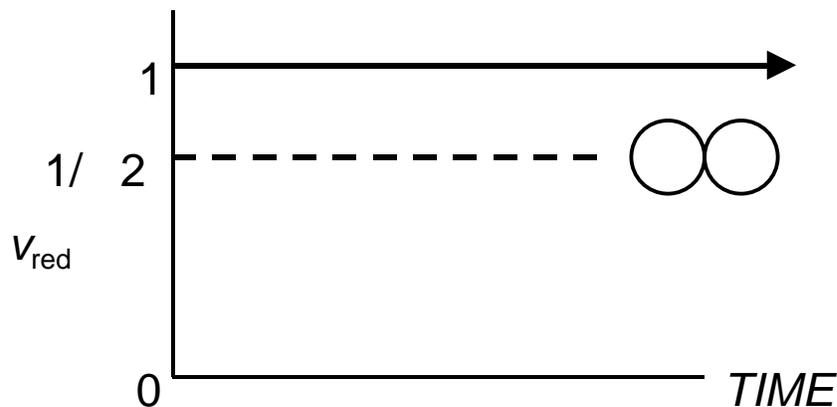
ASSUME THAT

- CONCENTRATION OF NUTRIENTS IS CONSTANT
- LIPID ADDITION RATE IS INDEPENDENT OF MEMBRANE CURVATURE

$$dA / dt = \lambda A$$

λ = LIPID ADDITION RATE

IF VOLUME INCREASE MAINTAINS SPHERICAL
SHAPE:



IN THIS GROWTH DOMAIN

$$R(t) = R_0 \exp(\lambda t / 2)$$

$$A(t) = A_0 \exp(\lambda t)$$

$$V(t) = V_0 \exp(3\lambda t / 2)$$

(SPHERE)