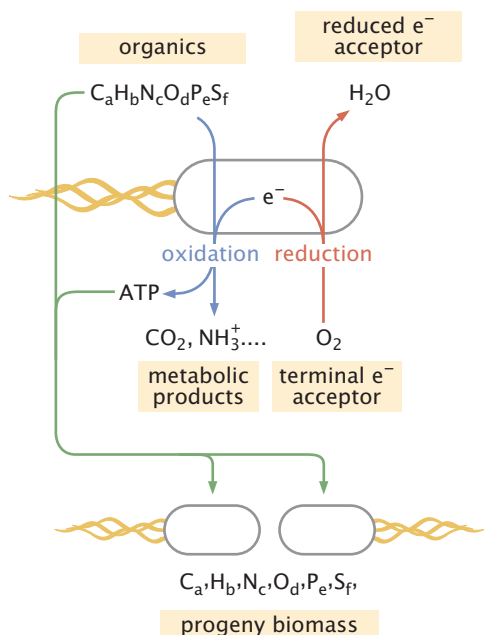


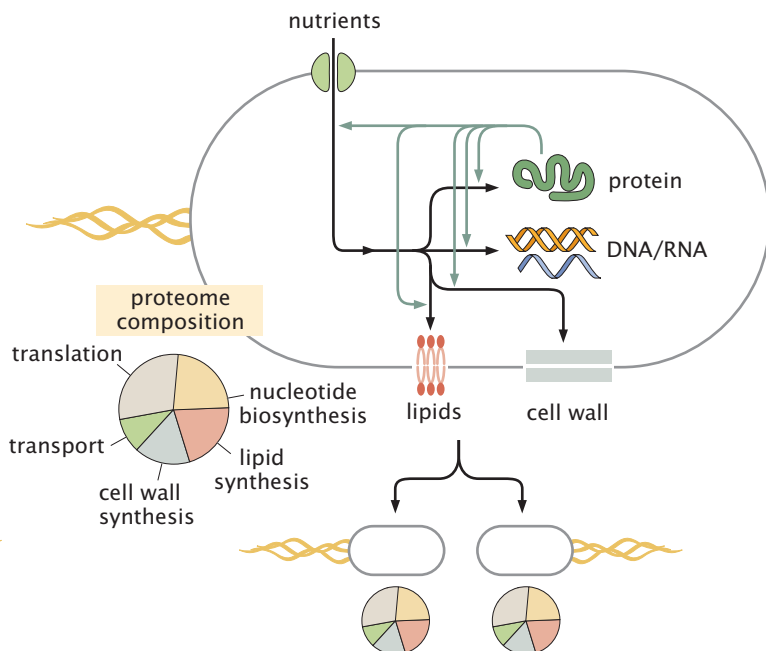
(A) growth as redox chemistry



chemically specific? ✓

intrinsic max rates? ✗

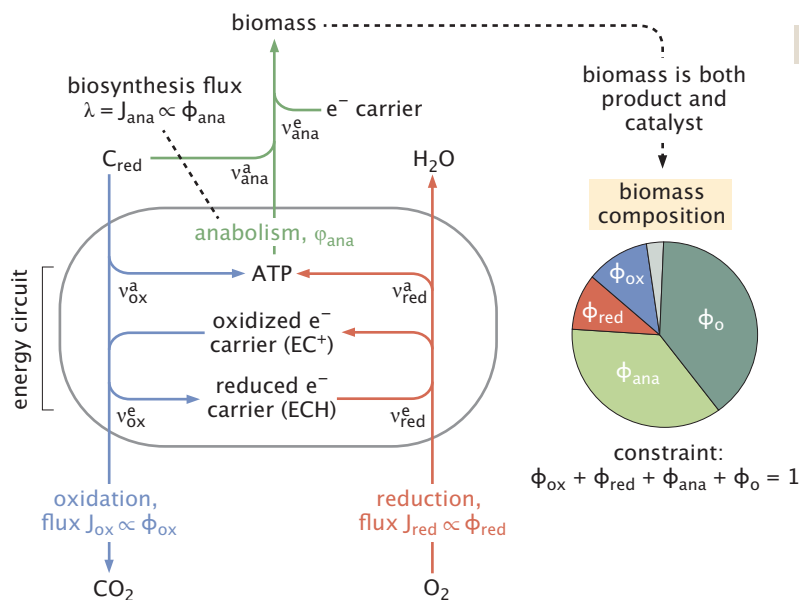
(B) growth as self-replication



chemically specific? ✗

intrinsic max rates? ✓

(C) unified model: self-replicating redox chemistry



glossary of terms

J_α	mass-specific flux through process α
ϕ_α	biomass fraction catalyzing process α
ϕ_o	non-catalytic biomass fraction
ϕ_α^a	ATP stoichiometry for process α
v_α^e	e^- carrier stoichiometry for process α
γ_α	kinetic constant for process α
$Z_{C,x}$	average redox state of C in pool x

chemically specific? ✓

intrinsic max rates? ✓