

Course 2851 Principles of Metabolism
Metabolism and endocrinology programme, Karolinska Institutet

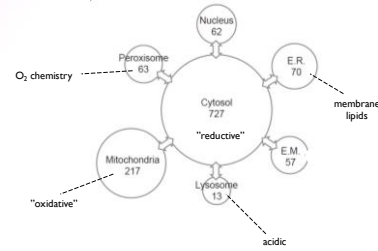
Lecture 18
Compartmentalization & Transport

Roland Nilsson, Ph.D

Department of Medicine, Solna
Center for Molecular Medicine
Karolinska Institutet

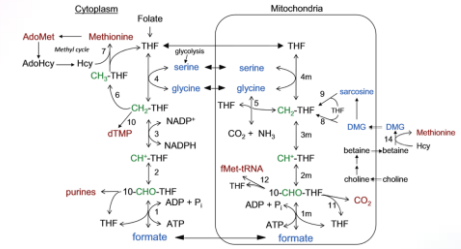


Metabolic compartments
Isolating reactions and metabolites



data from
Duarte et al. PNAS 104:1777-1782, 2007.

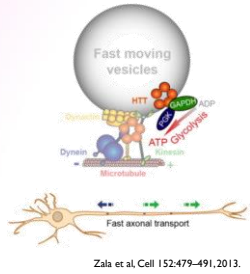
Example: one-carbon metabolism



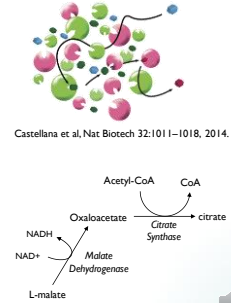
Tibbets & Appling, Ann Rev Nutr 30:57-81, 2010.

Microenvironments

Localized metabolism

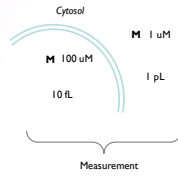


Substrate/metabolite channeling



Compartments and measurements

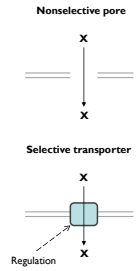
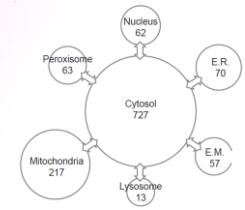
Concentrations



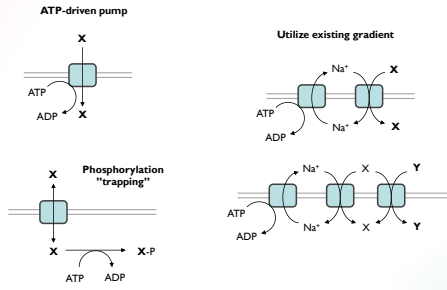
Isotopomers



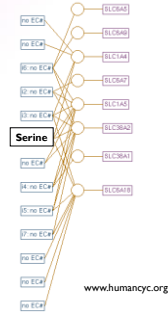
Transporters control inter-compartment traffic



Transporting against a gradient



Transporters are often unspecific



- A metabolite can have many transporters
- A transporter can accept several metabolites
