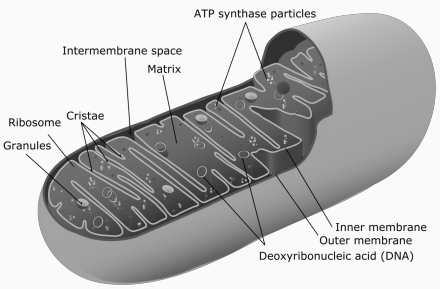
Cheatography

AP Biology Unit 3: Energy and Metabolism Cheat Sheet

by hlewsey via cheatography.com/36676/cs/11549/

Mitochondria



Glycolysis

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> 2 ATP + 1 Glucose ➞ 2 pyretic acid + 4 ATP

Substrate level phosphorylation➞ATP

PFK=allosteric enzyme inhibited by ATP

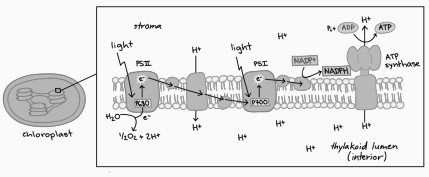
Chloroplasts

Parts: outer/inner membranes, intermembrane space, thylakoid membrane/space, storm

Chlorophyll a/b=absorb red/blue/violet

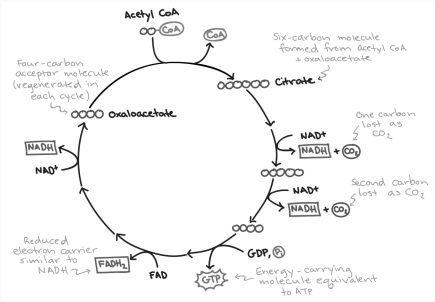
Carotenoids=absorb blue/green/violet

Noncyclic Photophosphorylation



Photosystem II (P680)➞Photolysis➞ETC➞Chemiosmosis➞NADP➞Photosystem I (P700)

Citric Acid/Krebs Cycle

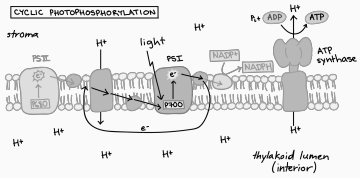


substrate-level phosphorylation➞ATP+pyruvate

pyruvate+coenzyme A➞acetyl CoA

products=3 NADH, 1 ATP, 1 FADH, CO_2

Cyclic Photophosphorylation

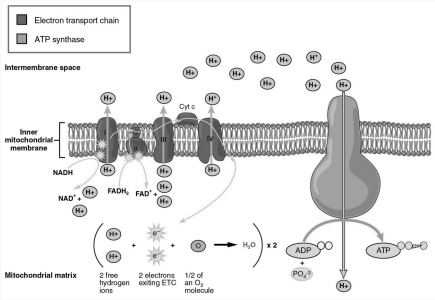


Cycles electrons from P680 ETC➞P700➞primary electron acceptor➞cytochrome complex (ETC)

Photorespiration, C-4, & CAM

Photorespiration	rubisco binds with O_2 instead of CO_2; produces no ATP or sugar
C-4 plants	use alternate C-fixation (PEP carboxylase) that ends in a 4C compound (occurs in mesophyll & bundle sheath cells)
CAM plants	carbon fixation to organic acids at night➞light reactions release CO_2 in the day

ETC/Oxidative Phosphorylation/Chemiosmosis



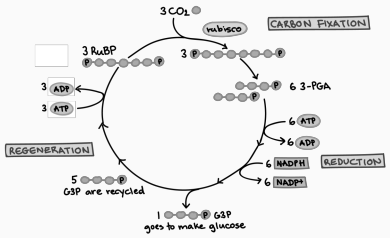
chemiosmosis= energy-coupling mechanism using potential energy in H^+ gradient; phosphorylates ADP➞ATP

oxygen=final hydrogen acceptor

Fermentation

facultative anaerobes	tolerate, but do not use, O_2
obligate anaerobes	cannot live in an environment w/O_2
alcohol fermentation	converts pyruvate into ethyl alcohol+CO_2 & oxidizes NADH to NAD^+
lactic acid fermentation	reduces pyruvate into lactic acid (lactate) & oxidizes NADH to NAD^+

Calvin Cycle



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