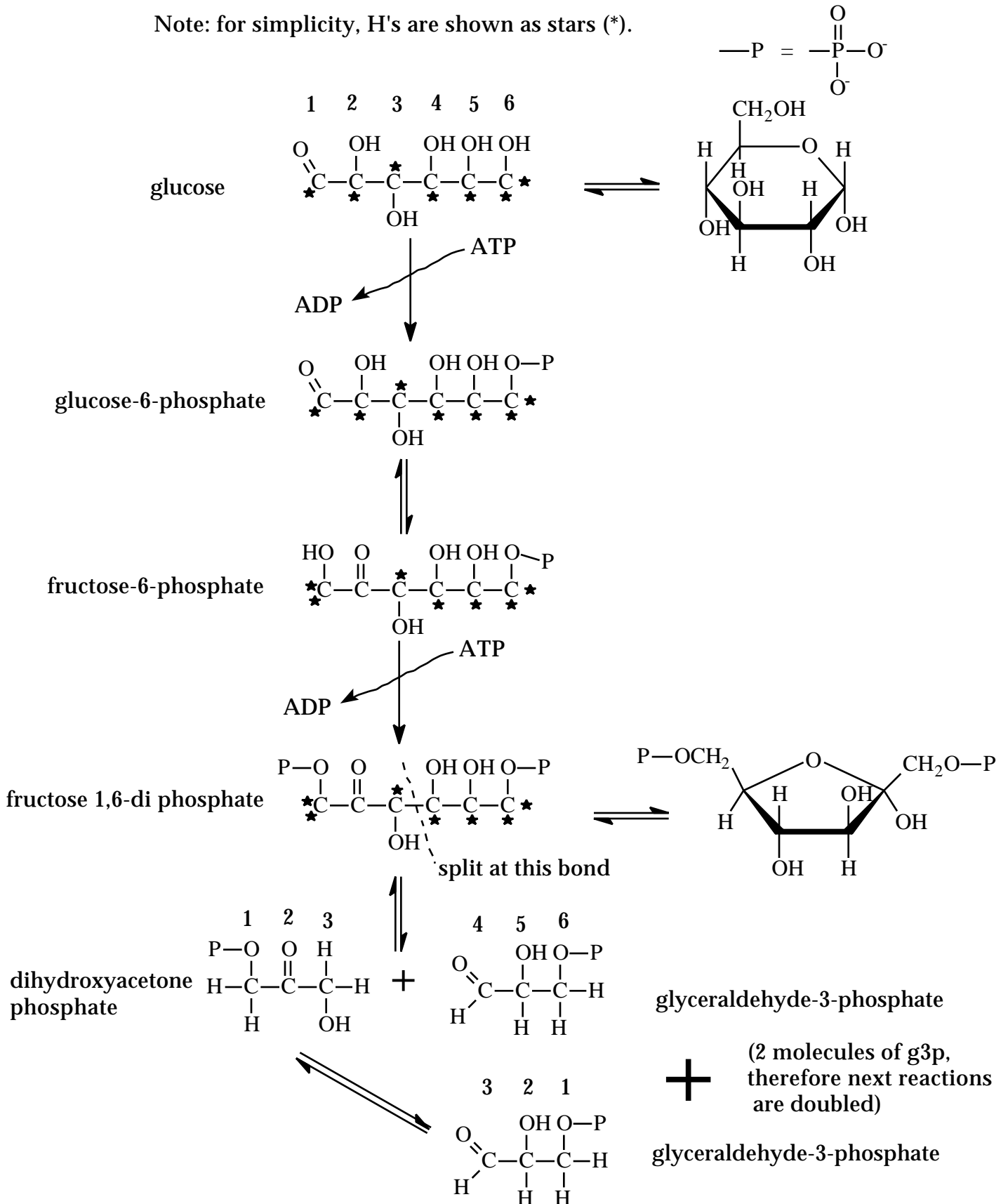


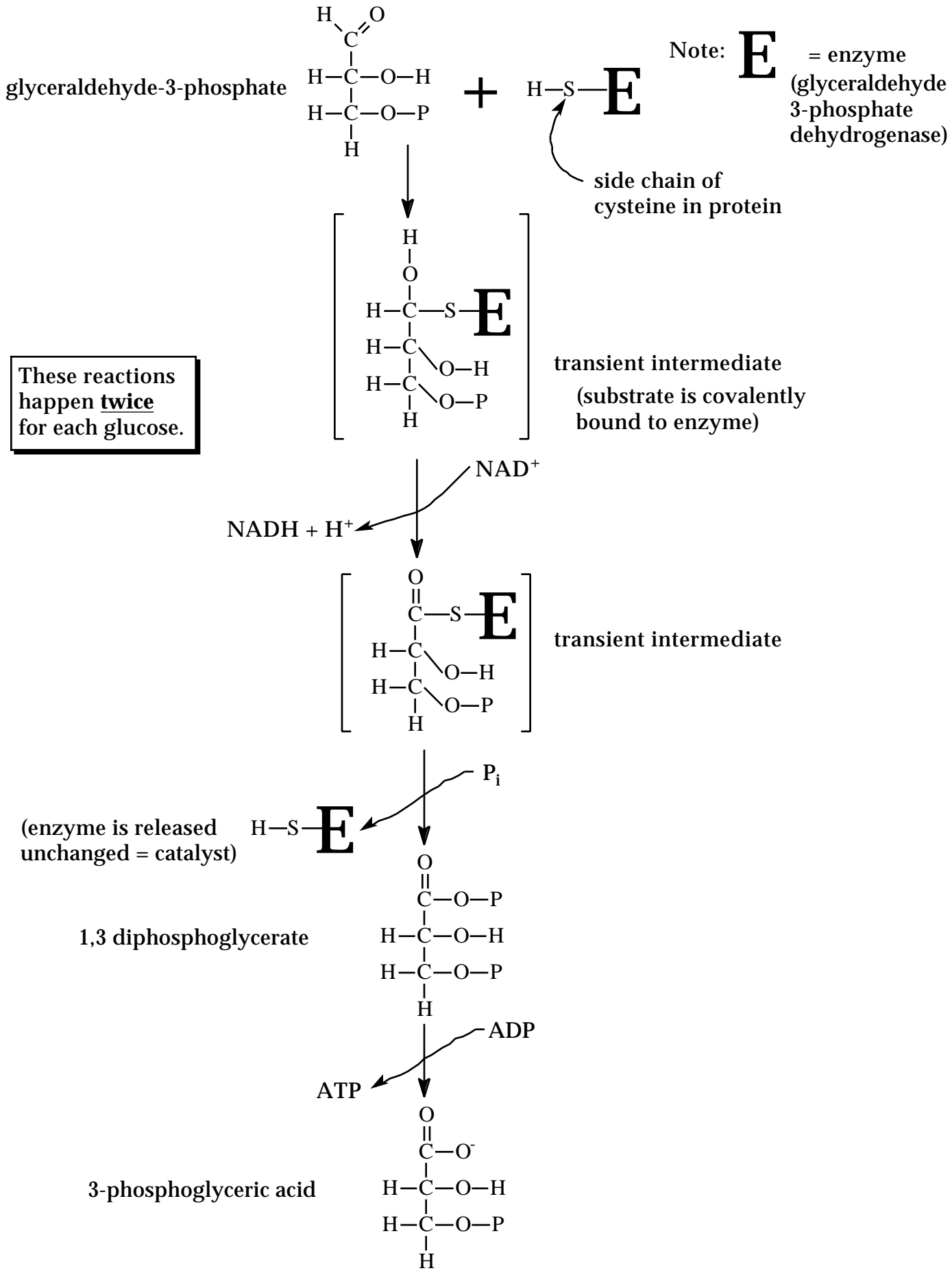
7.014 Handout

Biochemistry V-VI

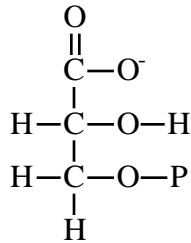
7.014 Glycolysis Reactions Handout

Note: for simplicity, H's are shown as stars (*).



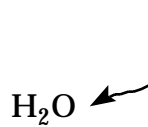
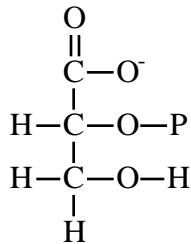


3-phosphoglyceric acid

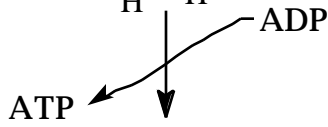
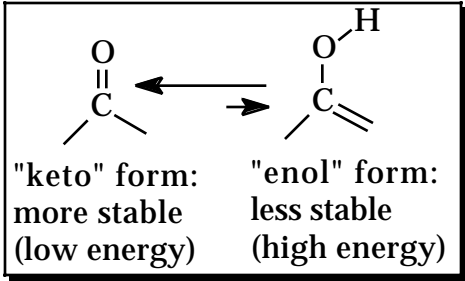
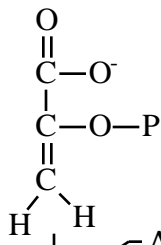


These reactions happen twice for each glucose.

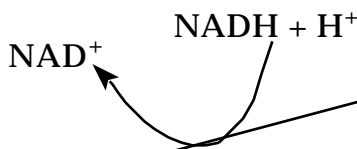
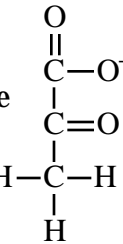
2-phosphoglyceric acid



phospho-enol-pyruvate (PEP)



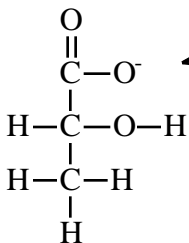
pyruvate



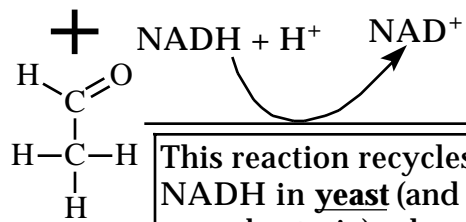
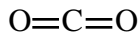
or

(Thiamine - a B-vitamin is required for this step)

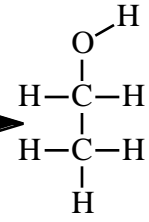
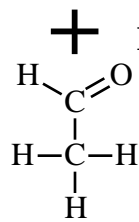
This reaction recycles the NADH in human muscle cells when O₂ is low or absent.



lactate

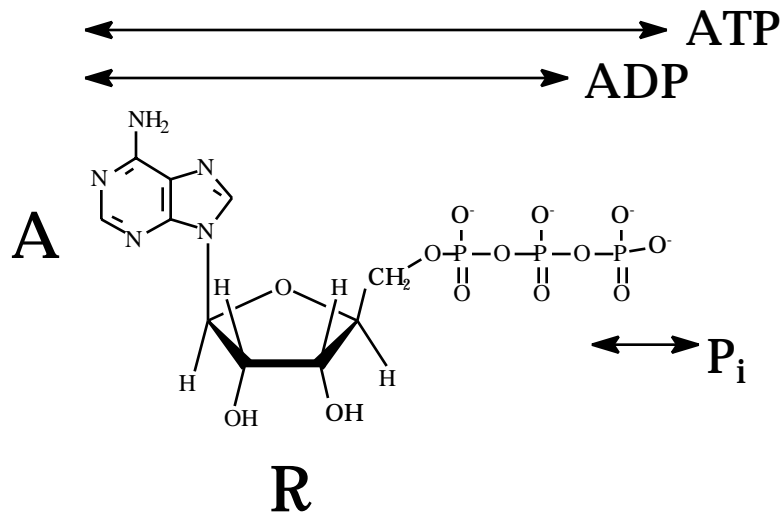


This reaction recycles NADH in yeast (and some bacteria) when O₂ is absent.



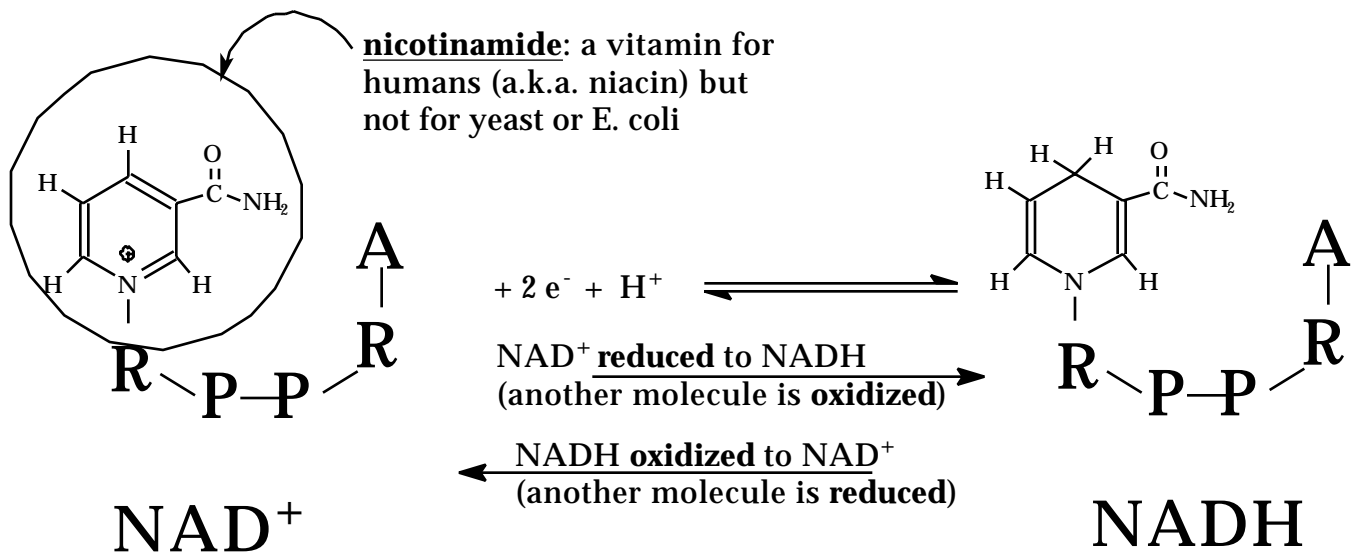
ethanol

ATP & ADP



NAD⁺ & NADH

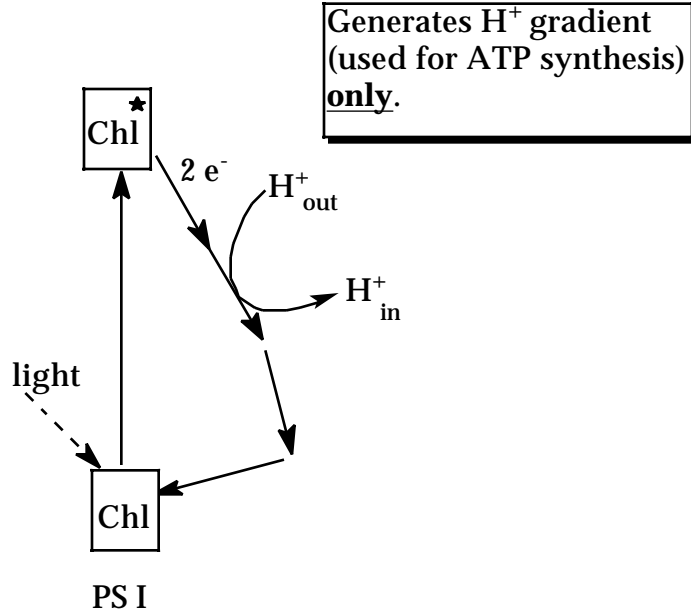
NAD = Nicotinamide Adenine Dinucleotide



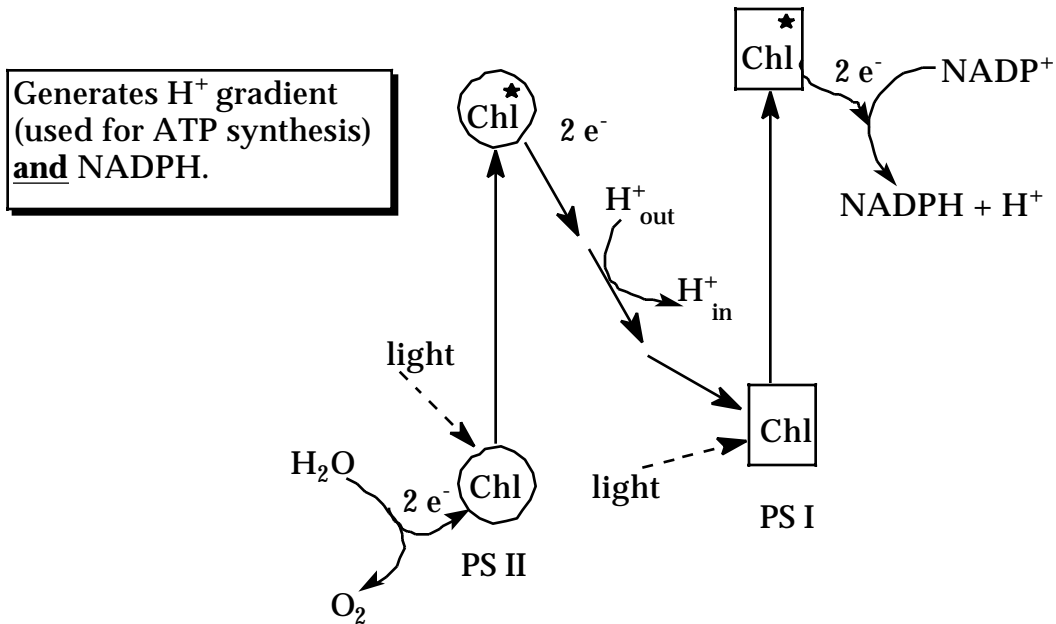
Photosynthesis & Electron Transport

Photosynthesis:

Cyclic Photophosphorylation

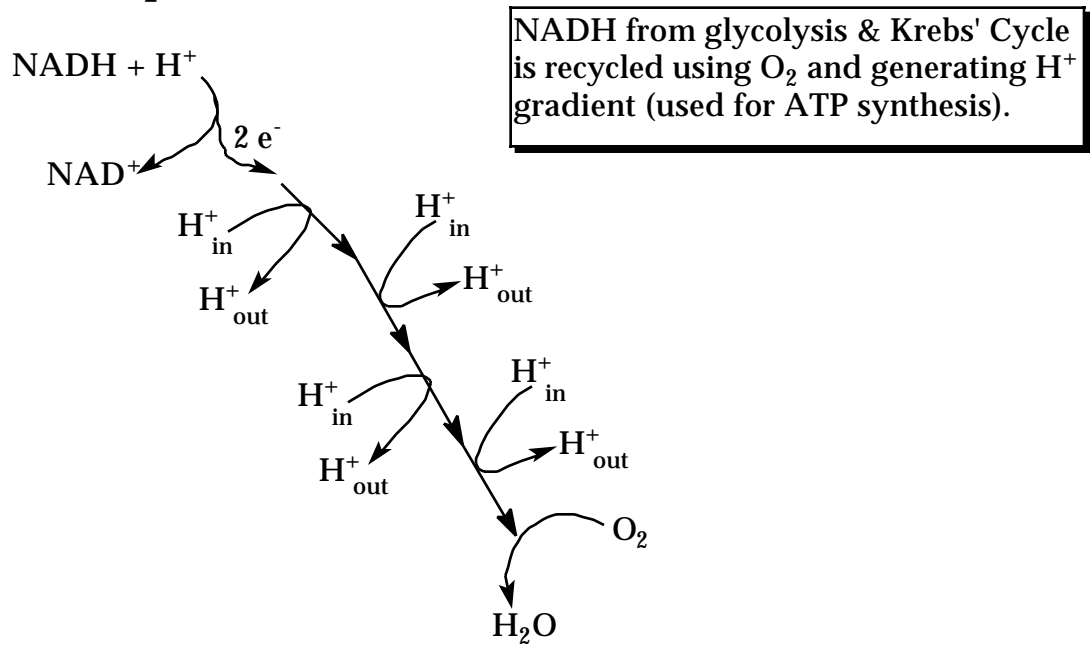


Non-cyclic Photophosphorylation



Respiration

Electron Transport



ATP Synthesis from H^+ Gradient

(H^+ gradient is generated by electron transport in photosynthesis & respiration)

