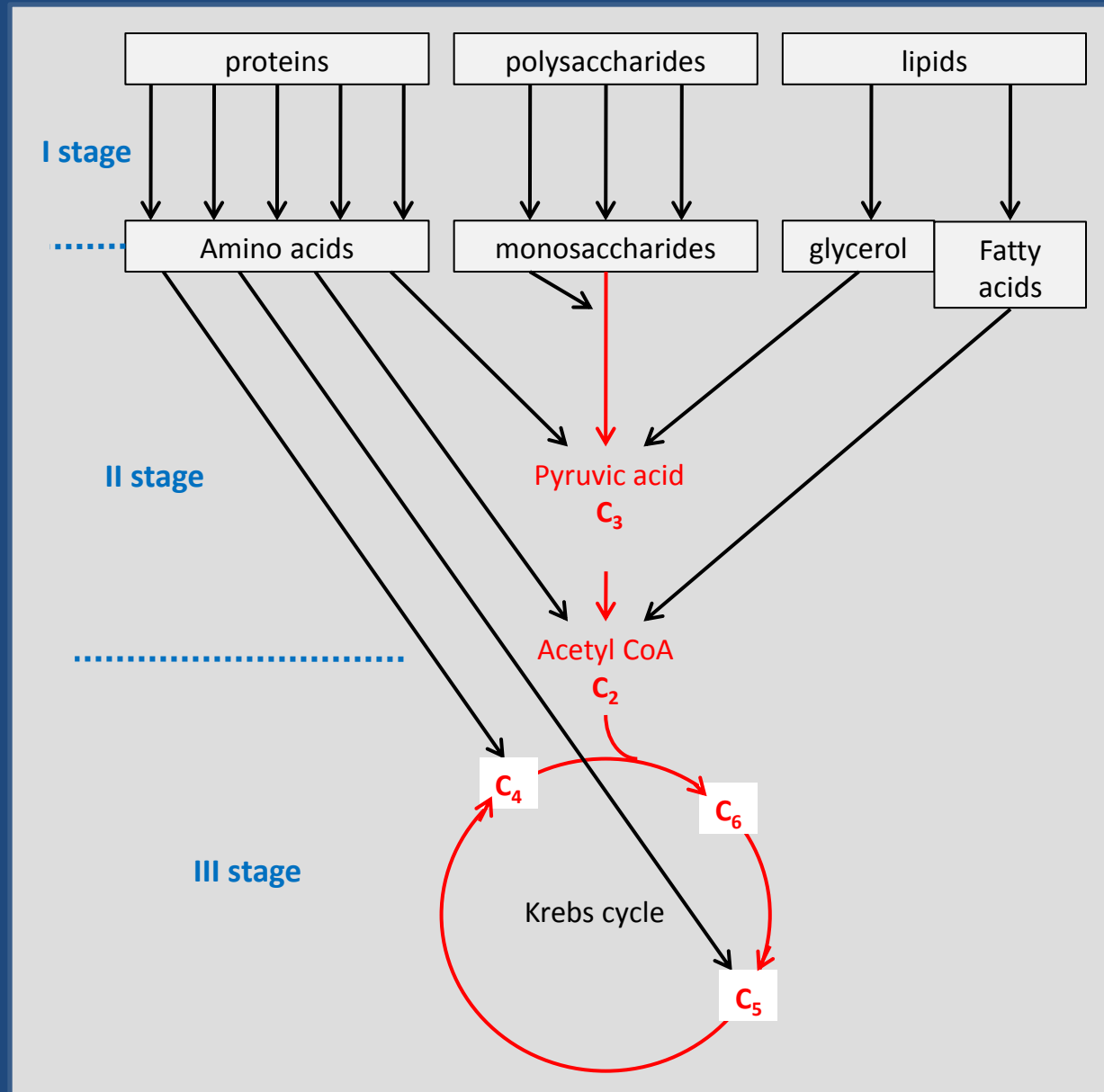


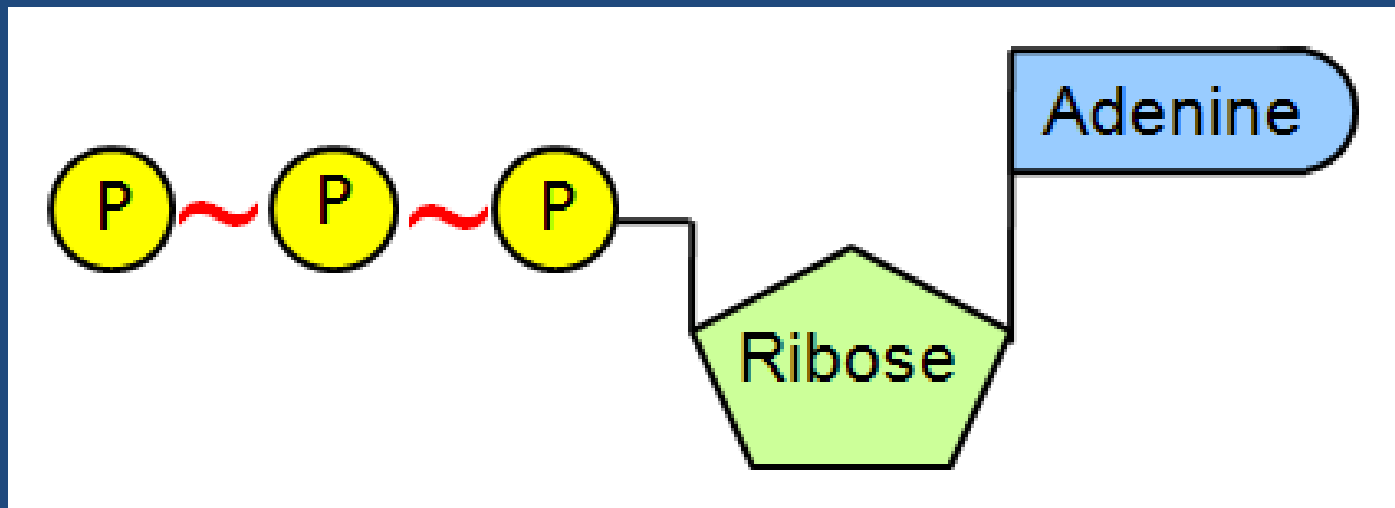
Glycolysis. Krebs cycle. Energy sources in the cell. Role of ATP. Electron-transport chains and oxidative phosphorylation

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Breakdown reactions are collectively called catabolism. Their main function is to supply energy

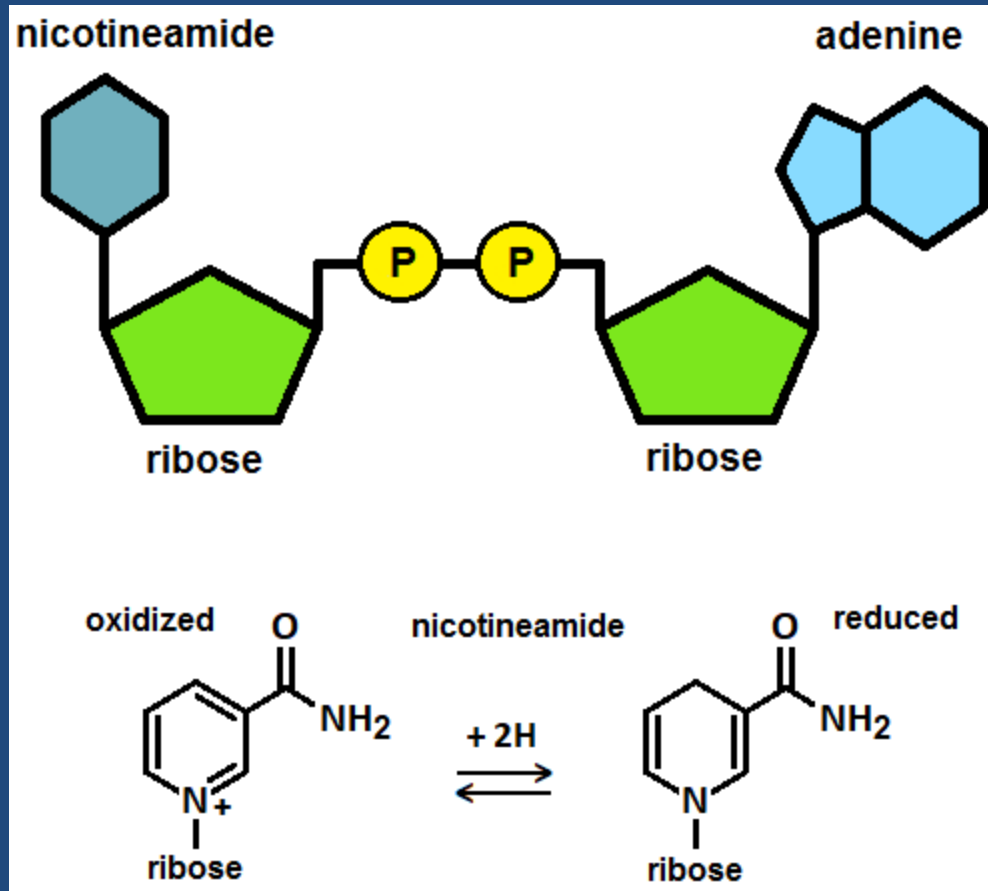


The nucleotide adenosine triphosphate (ATP) is vital for energy metabolism. Energy is stored in the macroergic bonds between phosphate residues



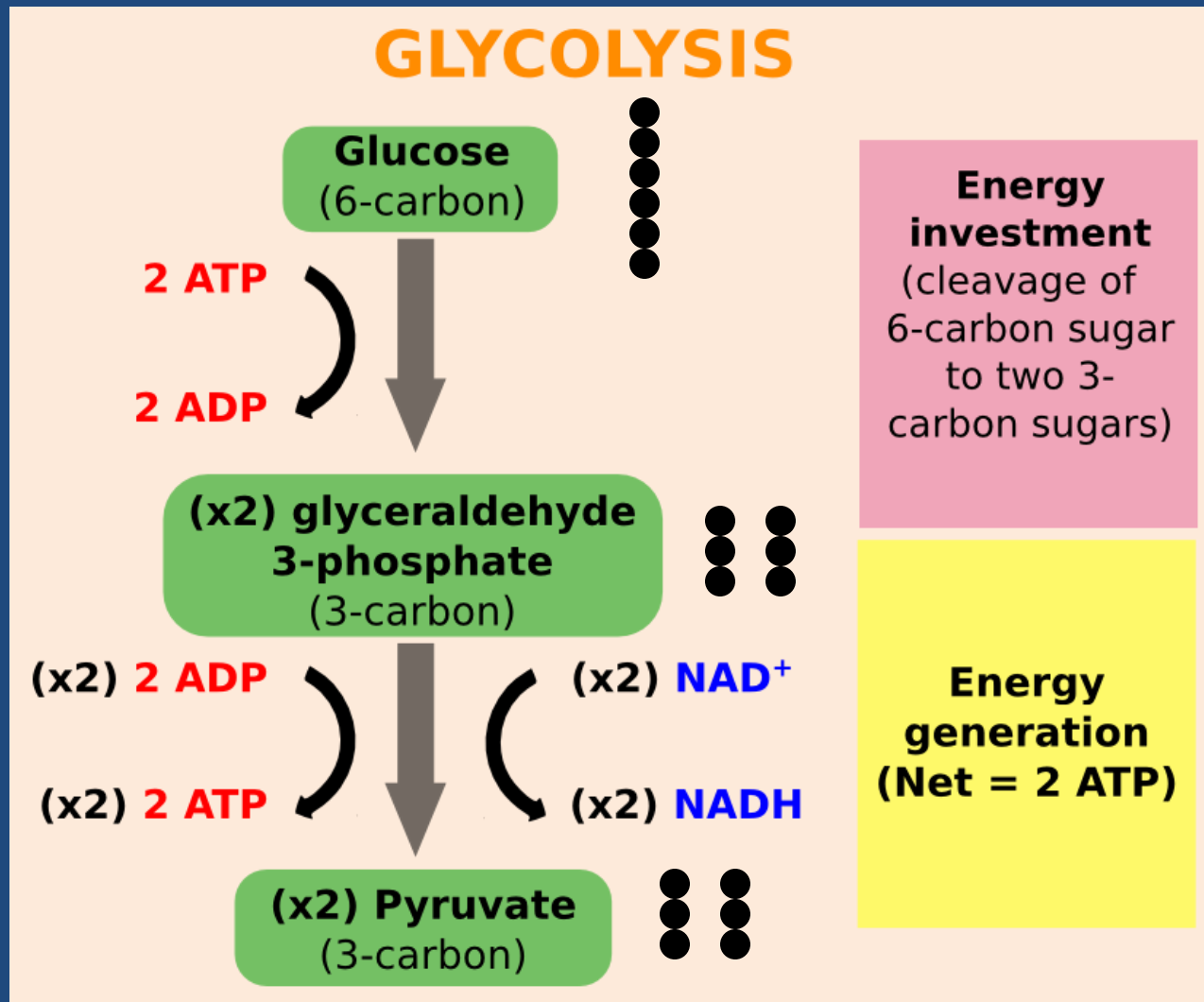
Adenosine triphosphate (ATP)

Oxidation and reduction ultimately mean transfer of electrons or hydrogen atoms

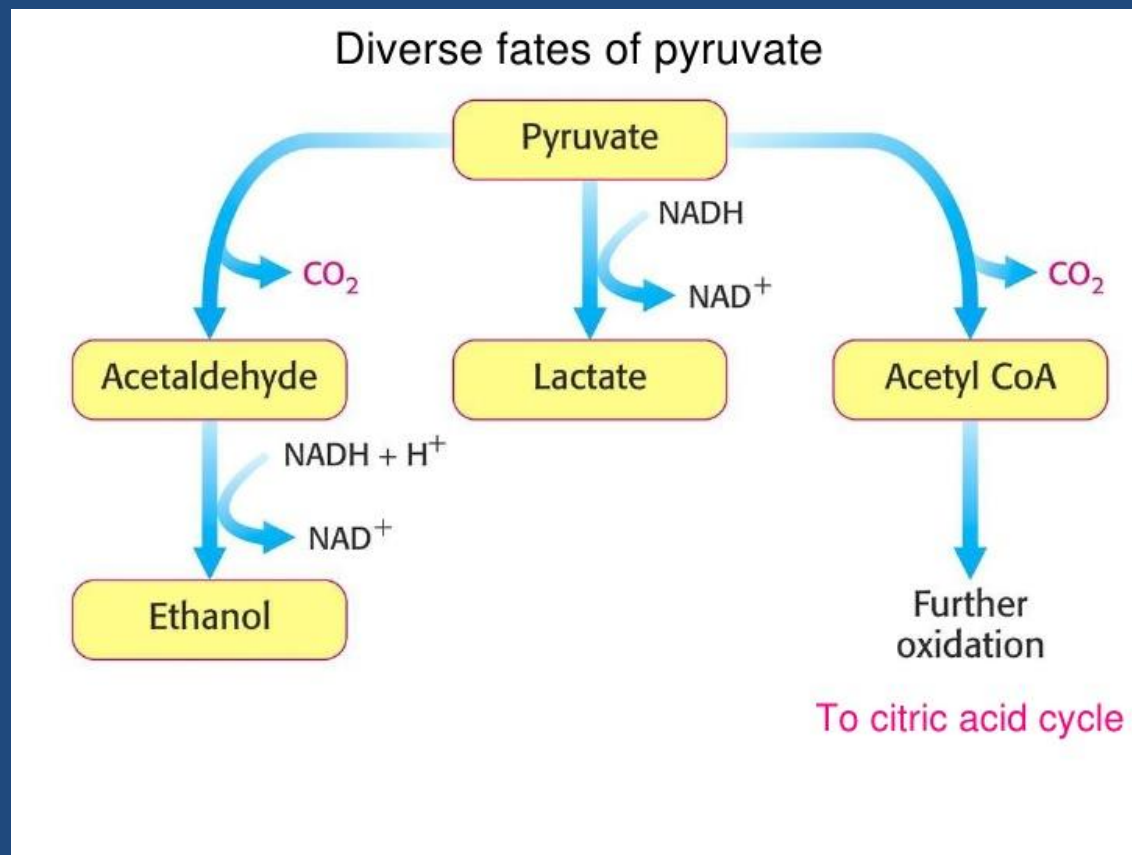


The molecule of NAD (nicotinaemide adenine dinucleotide) takes and gives H atoms very well.

Glucose is preferred as energy source. Its breakdown begins in the cytosol by a catabolic pathway called glycolysis

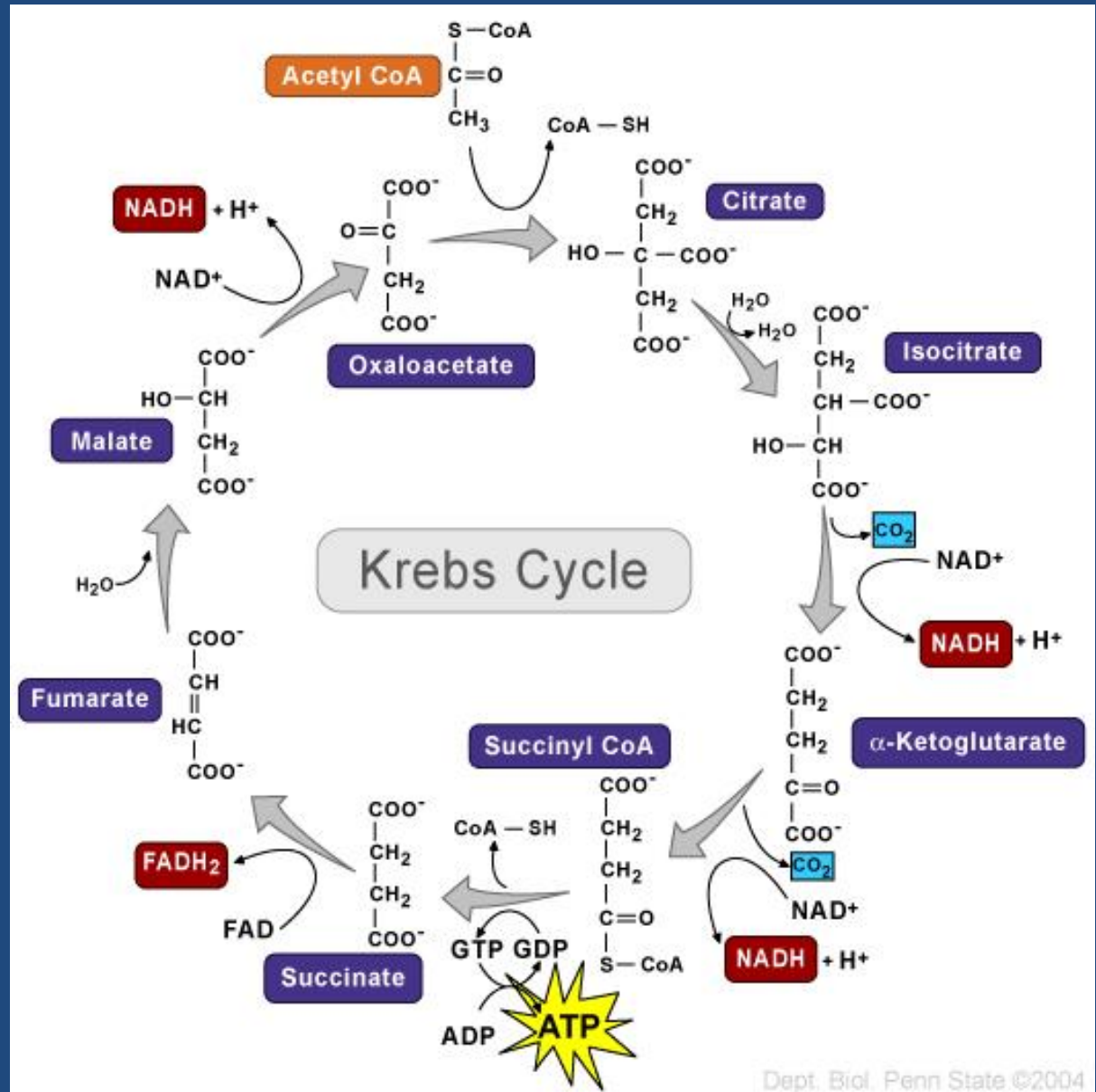


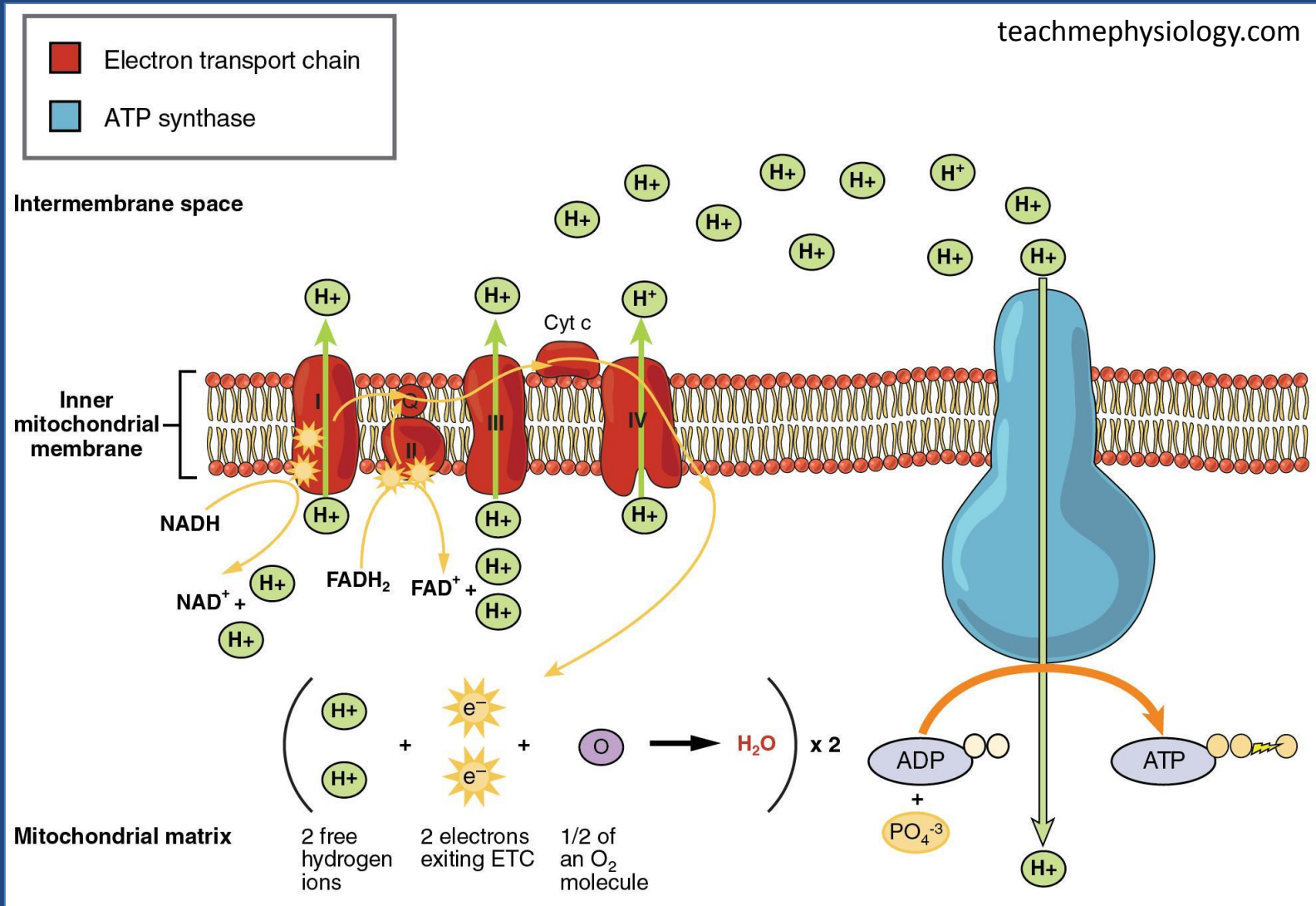
Catabolism can be aerobic or anaerobic.
Pathways are identical until pyruvate, then split.



The citric acid cycle (Krebs cycle) is used by aerobic cells

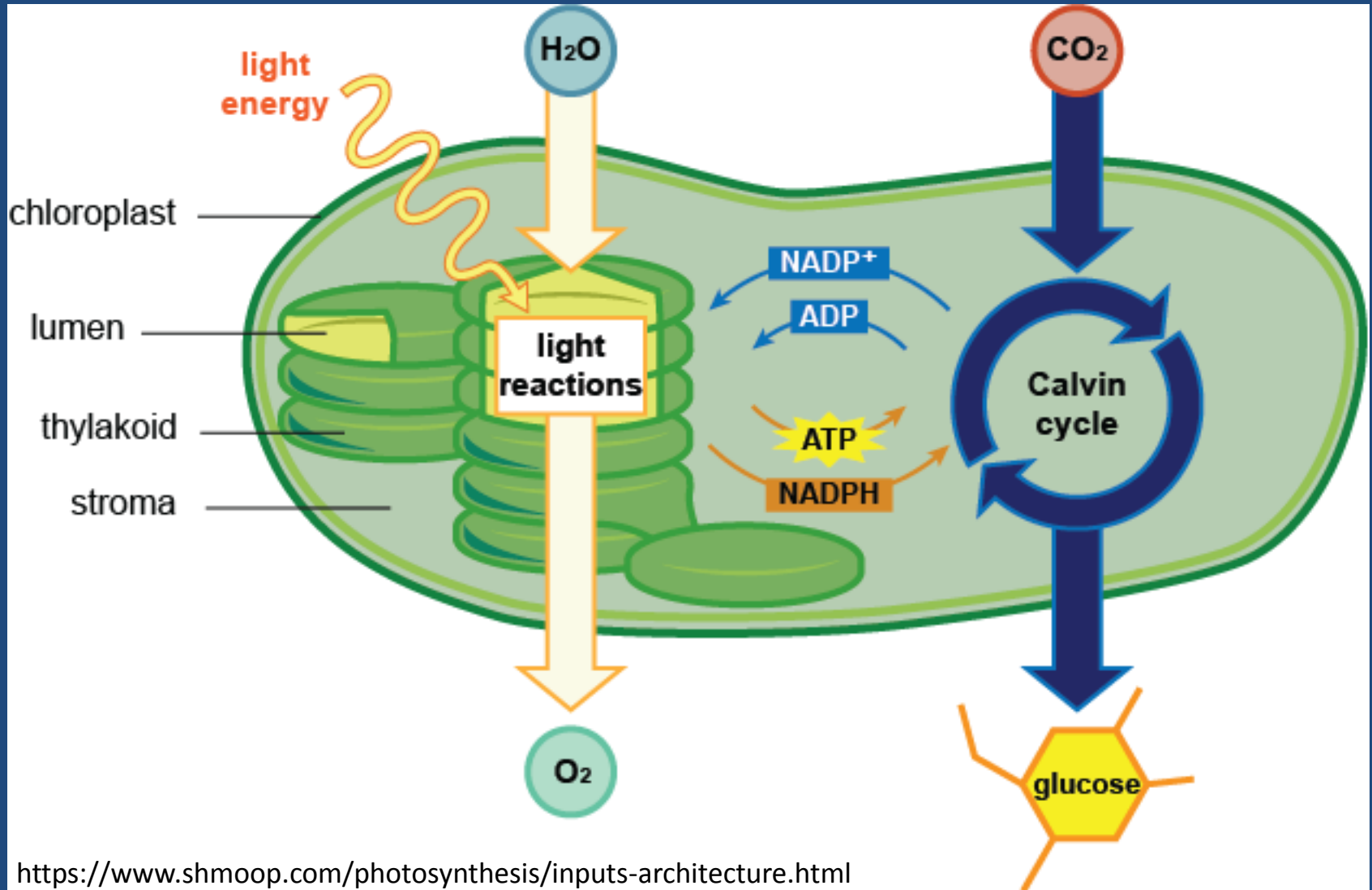
It oxidizes acetyl-CoA derived from carbohydrates, fats, and proteins to carbon dioxide.





ATP is generated at the inner membrane of mitochondria by oxidative phosphorylation, involving several membrane-bound enzymes forming an electron transport chain (respiratory chain) and an ATP synthase.

In plant cells - ATP is synthesized also in the chloroplasts.
Another source of energy - light.



The chloroplast has its own electron transport chain.
And also an ATP synthase carrying out photophosphorylation.

