



Krebs Cycle

USEFUL PRODUCTS:

Electron and H⁺ carriers
eg. NAD, FAD:
transport H ions and electrons
into oxidative phosphorylation
reaction

PRODUCTS:
Coenzyme A
(reused)
H₂O
(reused)
CO₂
(exhaled)

RAW MATERIALS:
ADP,
Inorganic Phosphate,
Oxygen.

Electron Transport Chain:

A sequence of membrane proteins arranged in order of increasing redox potential; operated by NADH and FADH. Electrons move down the redox gradient and the resulting energy is used to pump H⁺ ions out of the inner mitochondrial membrane. Purpose is to build a negative charge inside membrane and thus attract H⁺ ions back into the mitochondrion. (the membrane is impervious to H⁺ except for proton channels; therefore the protons have no choice but to operate the ATPase enzyme)

Oxidative Phosphorylation:

The conversion of ADP and inorganic phosphate into ATP. This is done by Proton-translocating ATPase. This enzyme is activated by the passage of H⁺ ions into the mitochondrion through a proton channel to which the ATPase is linked.

3 H⁺ ions for 1 ATP molecule