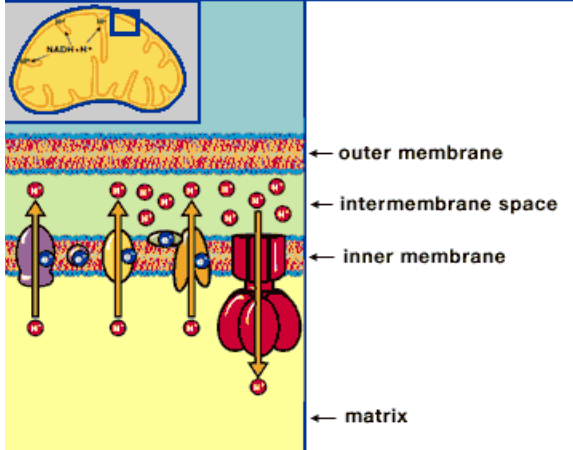
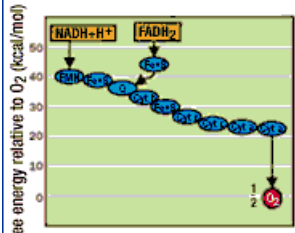


Biology Lecture Notes

The Electron Transport Chain

>> Key Concepts:

- ↪ The energy stored in reduced coenzymes is used to set up a proton gradient by way of the **electron transport chain**. This gradient sets up the equivalent of a battery within the mitochondria. As charges move, the work that is done can be used to make ATP.

| | |
|---|---|
|  | <p>Energy released from the electrons of reduced coenzymes is used to set up a proton gradient. Proteins embedded in the inner mitochondrial membrane can accept electrons from the $\text{NADH} + \text{H}^+$ and FADH_2 to make NAD^+ and FAD and use the energy lost from those electrons to pump protons into the intermembrane space.</p> |
|  <p>As electrons are moving from a high energy state to a low energy state, energy is released.</p> | <p>Electrons are transferred from protein to protein in the electron transport chain. Each successive protein in the transport chain can accept a lower-energy electron. As electrons travel from a high-energy state to a low-energy state, energy is released. This energy is used to pump protons across the membrane to set up a gradient.</p> <p>The final electron acceptor is oxygen (O_2). Oxygen has a high electronegativity; thus, oxygen's high affinity for electrons makes it an ideal acceptor for low-energy electrons. With the electrons, hydrogen is added to oxygen forming water as the final product.</p> |
| <p>So where's the ATP? To be continued...</p> | |