

Biology Facts and Principles 2 (Speedy Study Guides)

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Guides

BIOLOGY

FACTS AND PRINCIPLES 2

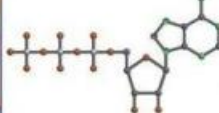
Names, locations, and products of the three stages of cellular respiration

- Glycolysis** happens in the cytoplasm where a glucose molecule is broken in half. 2 molecules of pyruvic acid are produced, and a 3-carbon compound, NADH is also produced.
- Krebs Cycle** happens within the mitochondria, where pyruvic acid is used to make CO₂, NADH, ATP, and FADH₂.
- Electron transport chain** happens within the mitochondria and it uses highly energized electrons from the Krebs cycle to make H^+ within the mitochondria, producing much more ATP with an ATP synthase.

Number of ATP molecules generated from one molecule of glucose in glycolysis (including net energy gain) and from cellular respiration as a whole

- ATP produced in glycolysis - 4 and with net gain 2, 1 glucose molecule as a whole produces 38 ATP.

The stage of cellular respiration that produces the most ATP



- Electron Transport Chain produces the most ATP.

How ATP is generated via the electron transport chain

- The energy that electrons have as they pass down the E.T.C. is used to move H^+ ions (aka protons) across the inner mitochondrial membrane. This establishes a proton gradient, meaning that there is a difference in concentration and charge on either side of the membrane. There is a higher concentration of protons in the inner membrane space than on the outside side of the inner mitochondrial membrane. The enzyme ATP synthase is a channel protein in the inner membrane, because of the proton gradient, the H^+ ions diffuse down their concentration gradient through the channel causing the enzyme molecule to rotate. This rotation energy is directly transformed into chemical energy by adding a phosphate group to ADP, forming ATP.

The role of oxygen in cellular respiration

- As the final electron acceptor.

The main function of the link reaction

- To produce a 2-carbon molecule that can enter the Krebs Cycle.

Where energy comes from during an exercise period lasting longer than 20 minutes

- If the exercise period lasts longer than 20 minutes the body starts using fat as the energy.

Storage sites of glycogen

The storage sites of glycogen are in muscle and liver reservoirs.

The molecule responsible for the discomfort of muscle 'burn' during strenuous exercise

- Lactic acid is responsible for the discomfort of muscle 'burn' during strenuous exercise.

Common uses of fermentation in human society

- Making bread, producing alcohol, yogurt, or cheese are some of the examples in which humans use fermentation.
- Making bread and producing alcohol- alcoholic fermentation.
- Chemo-lactic acid fermentation.

Why does the 3-carbon need to be converted to 2-carbon?

- 3-carbon pyruvic acid converted to 2-carbon molecule (acetyl-CoA) in order to enter Krebs Cycle.

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Reviews

*A superior quality publication and the font utilized was intriguing to read. I could comprehend every little thing using this composed e publication. You will like the way the author compose this publication.
(Mr. Demario Trantow)*

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