

Stages of respiration

Write the overall equation for aerobic respiration of glucose.

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Where does the carbon dioxide from respiration come from?

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Why is respiration a stepped process?

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Define substrate-level phosphorylation.

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Glycolysis: ATP used, made and net?

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What are the products of glycolysis per glucose?

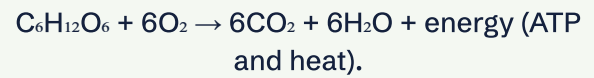
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What is formed when pyruvate is decarboxylated and dehydrogenated in the link reaction?

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Products of one turn of the Krebs cycle?

From the carbon in the substrate, removed by decarboxylation.



ATP formed by direct transfer of a phosphate group from a substrate molecule to ADP, without the electron transport chain.

Each step is catalysed by its own intracellular enzyme, so energy is released in small amounts, more is captured as ATP and each step can be controlled.

2 pyruvate, 2 reduced NAD and a net gain of 2 ATP.

2 ATP used, 4 made, net gain of 2 ATP per glucose.

2 CO₂, 3 reduced NAD, 1 reduced FAD and 1 ATP.

Acetyl CoA (the acetyl group joined to coenzyme A), CO₂ and reduced NAD.

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Which stages of aerobic respiration take place in the mitochondria?

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Where is the electron transport chain?

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Define chemiosmosis.

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What is the role of oxygen in oxidative phosphorylation?

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Why is pyruvate converted to lactate in anaerobic conditions?

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What happens to lactate after anaerobic respiration?

On the inner mitochondrial membrane (cristae).

The link reaction, the Krebs cycle and oxidative phosphorylation. Glycolysis occurs in the cytoplasm.

Final electron acceptor: combines with electrons and protons to form water.

Flow of protons down their gradient across a membrane through ATP synthase, providing energy to make ATP.

It is carried to the liver, converted to pyruvate and respired aerobically or converted to glycogen.

To oxidise reduced NAD so that NAD is regenerated and glycolysis can continue.