

CELL ENERGY: cellular respiration

The background of the slide is a solid blue color. Overlaid on this background are several diagonal stripes of a slightly darker shade of blue, running from the top-left towards the bottom-right. These stripes are of varying widths and are positioned to create a sense of depth and movement.

Review-ATP:

- ENERGY SOURCE FOR BIOLOGICAL REACTIONS
- ADENOSINE TRIPHOSPHATE
- A-P-P-P
- BONDS ARE VERY HIGH ENERGY
- ATP CYCLE
- BIOSYNTHESIS, LOCOMOTION, bioluminescence, MUSCLE CONTRACTION AND CELL REACTIONS

ATP PRODUCTION:

- CELLULAR RESPIRATION
- AEROBIC-with oxygen
- ANAEROBIC-without oxygen
- $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \longrightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
releasing ATP

FOUR STEPS:

- GLYCOLYSIS-occurs in cytoplasm
- FORMING ACETYL coA-IN MITOCHONDRIA
- KREBS CYCLE-IN MITOCHONDRIA fluid
- ELECTRON TRANSPORT CHAIN-on cristea of mitochondria (membrane folds)

GLYCOLYSIS:

- BREAKING DOWN GLUCOSE INTO 2 MOLECULES OF PYRUVIC ACID
- PRODUCES 2 ATP AND RELEASES 4 H
- OCCURS IN THE CYTOPLASM

FORMING ACETYL coA:

- RELEASES 2CO_2 AND 4H

KREBS CYCLE:

- STARTED BY ACETYL coA
- PRODUCES ONLY 2ATP, 4CO₂, AND 16H

ELECTRON TRANSPORT CHAIN:

- Uses all the released Hydrogens
- MANY ATP AND 6 WATERS
- 32 ATP
- O_2 is final electron acceptor

ANAEROBIC:

- FERMENTATION
- GLYCOLYSIS IS ANAEROBIC
- GLUCOSE



PYRUVIC ACID



LACTIC ACID

- Two types of fermentation-lactic acid and alcoholic
- NO ELECTRON TRANSPORT CHAIN, NO O₂ TO ACCEPT ELECTRONS
- 4ATP produced with net gain of 2ATP