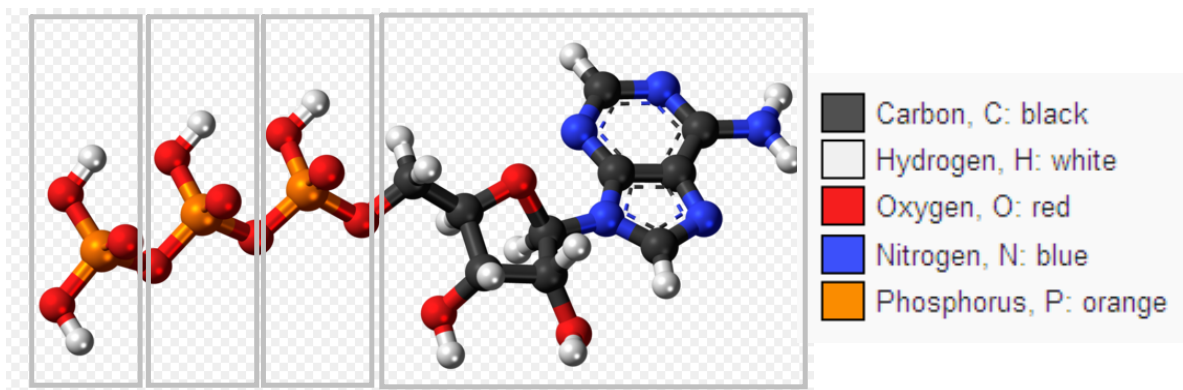


What is ATP?

A critically important molecule that serves as the primary energy currency of the cell.

ATP is the most widely distributed high-energy compound within the human body.

ATP is an abbreviation for **adenosine triphosphate**, a complex molecule that contains adenosine and a tail consisting of three phosphates.



How ATP Transfers Energy

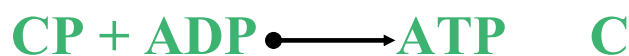
Energy is usually released from the ATP molecule to do work in the cell by a reaction that removes one of the phosphate molecules in the presence of water (hydrolysis).



Free creatine within the muscle cells has a high affinity for phosphate. Creatine will freely bind to the phosphate to produce creatine phosphate. There is 5X as much free creatine in our cell than ATP.

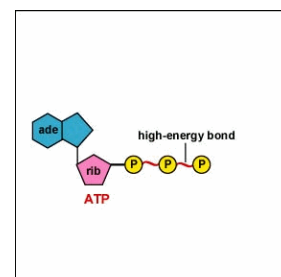


Creatine phosphate molecules will then donate their phosphate molecule back to ADP to recycle ATP back to its original state.

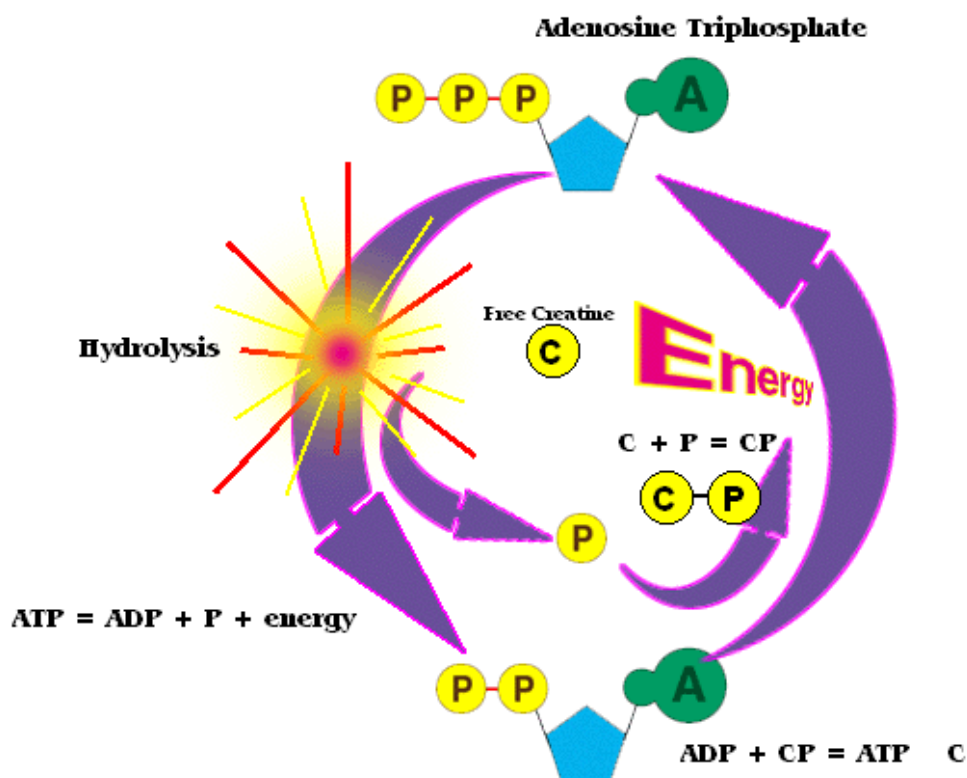


“hooking and unhooking that last phosphate [on ATP] is what keeps the whole world operating.”

ATP AT WORK



Anaerobic Alactic Energy Cycle



WATCH VIDEO



Interesting Facts About ATP

- The body is comprised of roughly one hundred trillion human cells.
- Each cell contains about one billion ATP molecules.
- These one billion cells supply energy sufficient for that cell's needs for only a few minutes and must be rapidly recycled.
- Given a hundred trillion cells in the average person, about 10^{23} or one sextillion ATP molecules normally exist in the body.

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- The body holds about 50 grams of ATP.
- For each ATP the terminal phosphate is added and removed 3 times each minute.

Attachments

ATP Video.mov