

Information:

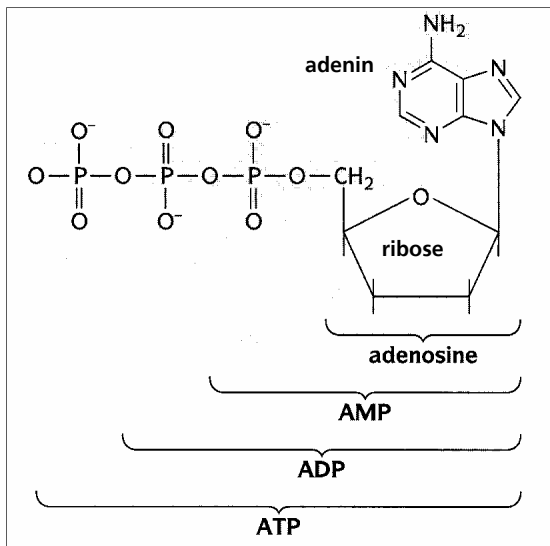
ATP as energy "currency"

ATP

abbreviation for **adenosine triphosphate**, a nucleotide molecule found in all cells. It can yield large amounts of energy, and is used to drive the thousands of biological processes needed to sustain life, growth, movement, and reproduction. Green plants use light energy to manufacture ATP as part of the process of photosynthesis. In animals, ATP is formed by the breakdown of glucose molecules, usually obtained from the carbohydrate component of a diet, in a series of reactions termed respiration. It is the driving force behind muscle contraction and the synthesis of complex molecules needed by individual cells.

or:

ATP (adenosine triphosphate) A nucleotide that is of fundamental importance as a carrier of chemical energy in all living organisms. It consists of **adenine** linked to ribose (i.e. adenosine); the **ribose** component bears three **phosphate groups**, linearly linked together by covalent bonds (see formula). These bonds can undergo hydrolysis to yield either a molecule of **ADP** (adenosine diphosphate) and inorganic phosphate or a molecule of **AMP** (adenosine monophosphate) and pyrophosphate. Both these reactions yield a large amount of **energy** (about 30.6 kJ mol^{-1}) that is used to bring about such biological processes as muscle contraction, the active transport of ions and molecules across cell membranes, and the synthesis of biomolecules. The reactions bringing about these processes often involve the enzyme-catalysed transfer of the phosphate group to intermediate substrates. ATP is regenerated by the rephosphorylation of AMP and ADP using the chemical energy obtained from the oxidation of food.



Structure of ATP.

