

Energy cycle or metabolism.

A cell has small molecules (micromolecules) as well as large molecules (macromolecules). The chemical reactions of a living organism can be divided into main two types

(1) The chemical reactions by which the large molecules are constantly broken down into smaller ones are called **catabolism**.

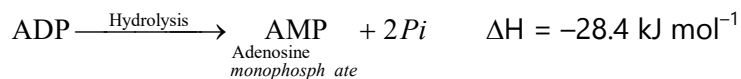
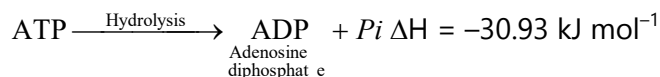
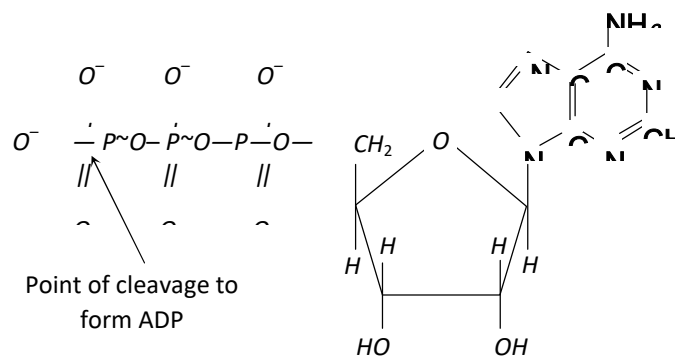
(2) The chemical reactions by which the macromolecules are synthesised within the cell are called **anabolism**.

The two processes i.e., degradation and synthesis are collectively called **metabolism**. Catabolism reactions are usually accompanied by release of energy whereas anabolism reactions require energy to occur.

The primary energy found in living cells is chemical energy, which can be easily stored, transferred and transformed. For this, the living cells contain a chemical compound called **adenosine triphosphate (ATP)**. It is regarded as **energy currency** of living cells because it can trap, store and release small packets of energy with ease.

ATP consists of a purine base called **adenine** linked to a five carbon sugar named **ribose** which is further attached to **three molecules of phosphate**.

ATP is energy rich molecule, this is because of the presence of four negatively charged oxygen atom very close to each other. These four negatively charged o-atoms experience very high repulsive energy.



ADP can change to ATP in the presence of inorganic phosphate. This process is called **phosphorylation**.

