

## The Creator's Origin of Life - 12

Last time we saw one of the chlorophyll molecules absorb a pulse of light, and immediately send the energy to a neighbouring chlorophyll in the group. The energy pulse was bounced closer and closer until it reached the chlorophyll closest to the Primary Electron Acceptor. The next step will spring the trap which will capture that evasive pulse of energy that came from the sun.

Before continuing to follow the energy flow, it will be useful to take a step back to view the bigger picture of how plants, and other living things, process energy. Because of the way it is made, the living cell must use a chemical method of extracting energy from its food. The quantity of energy in a molecule of sugar is so high that a single step release of that energy would be a flash of destructive heat - impossible to use.

But the Creator has devised a method of absorbing smaller pulses of energy in a series of chemical steps, so that energy can be safely used for the benefit of that cell. It releases the energy in a series of usable steps of electron transfers. The chemical which He has designed to do this is adenosine triphosphate, ATP for short.

A water molecule will break off the 3rd phosphate group - see diagram - from the ATP tail, to release energy in a form that can be used in the cell, and leaving ADP = adenosine diphosphate. The cell uses the energy, with the help of an enzyme, by transferring the phosphate group from ATP to some other molecule such as contractile proteins to power the movement of muscles.

The two adenosines are like a battery. The charged form is ATP, which is discharged by removing one of the phosphates. The resulting ADP is the discharged battery. Toss it out and make a new one? That would be wasteful. We are told that a working muscle uses up all its ATP in about one minute. The body regenerates ATP by burning up the food (glucose) in those series of chemical steps to end up with carbon dioxide, water and energy. In this way the ADP batteries are continuously "recharged".

Whereas the ADP = adenosine diphosphate is used in burning the glucose fuel, it has a "cousin" chemical, NADP = Nicotinamide Adenine Dinucleotide Phosphate, which is used instead for the production of sugar from carbon dioxide in photosynthesis - yet another in the complex series of interconnected biochemicals which those in the quest for a creatorless origin of life would have us believe came into existence through a line of purposeless and mindless random mutation.

We now return to the final chlorophyll, which traps its excited electron, before that electron can drop back to its normal energy level, and sends it to the Primary Electron Acceptor molecule. That last chlorophyll now has the chemical power to take part in another function in the process of photosynthesis. Having lost an electron, it can act as an enzyme to split a water molecule in a process called photolysis -  $H_2O = 2H^+ + 2e^- + \frac{1}{2}O_2$ .

While the sun is shining these reactions are occurring rapidly, and pairs of the  $\frac{1}{2}O_2$  combine to release oxygen into the air as  $O_2$ . The  $2e^-$  represents electrons released by the photolysis. The  $2H^+$  represents two protons (hydrogen without an electron), which are then used in the next phase to load NADP with energy to produce sugar.

In parallel with this operation, another process, remarkable in complexity, channels additional energy by recharging the ADP from the sugar-producing phase and sending back ATP.