Environmental light and biological processes in human body

It is well known that the life on Earth originated and has been sustained by the electromagnetic energy from the sun light. In primitive organisms and plants the sun light directly influences biological processes, while in more complex organisms it has more indirect role. In these organisms, due to their more complex structure, the sun light cannot penetrate into each cell, therefore they have to create their own “internal sun” energy to drive selectivity of biological processes in their cells, as it was originally initiated by the sun light.

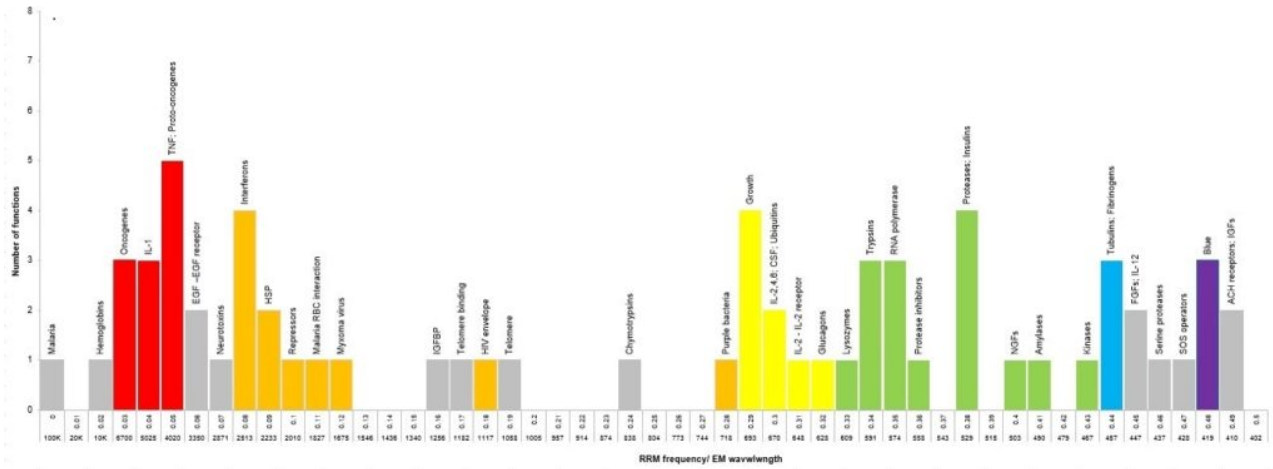

Fig. 1. Number of functional groups within each RRM frequency range of 0.01. X axis represent RRM frequency in steps of 0.01, as well as corresponding electromagnetic frequency in nanometers. Y axis represent number of functional groups. Names of functional groups are written on the top of each bar. Super families are presented in different colours.

The selectivity of biological processes, within living organisms, is driven by the information contained within linear macromolecules: DNA and proteins. While information in DNA is written within the long sequences using different combinations of 4 different nucleotides, information in proteins is also written within long sequences, but using different combinations of 20 amino acids. DNA carries the complete backup information of any organism, but proteins are macromolecules that read the necessary parts of DNA information to actually perform all selective biological activity through a number of very specific interactions.

The meaning and influence of light to biomolecular processes/interactions and consequently to health has been analysed using the Resonant Recognition Model (RRM), which proposes that biological processes/interactions are based on electromagnetic resonances between interacting biomolecules at specific electromagnetic frequencies within the infra-red, visible and ultra-violet frequency ranges. Each interaction can be presented by the certain RRM frequency critical for

resonant activation of specific biological function of DNA and proteins.

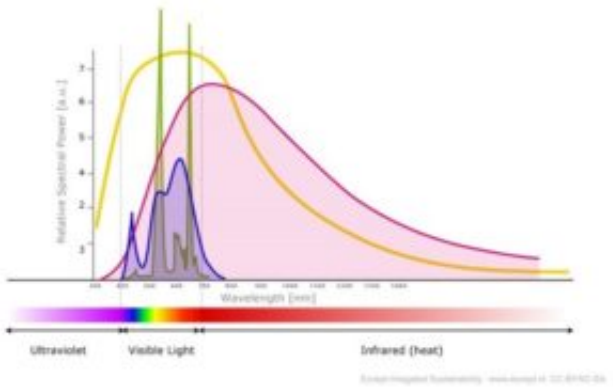

Fig. 2. Diagram of the spectrum a LED lamp (blue), a CFL (green) and an incandescent (purple) superimposed the solar spectrum (yellow).

We found that:

- the various biological functions could be grouped according to their resonant frequency into super families of protein functions, enabling simpler analyses of these functions and consequently analyses of influence of electromagnetic frequencies to health, as presented in Figure 1;
- the RRM spectrum of all analysed biological functions/interactions is the same as the spectrum of the sun light on the Earth, which is in accordance with fact that life originated by the sun light;
- the water is transparent to RRM frequencies, enabling DNA and proteins to interact without loss of energy;
- the spectrum of some artificial sources of light, as opposed to the sun light, as presented in Figure 2, do not cover the whole RRM spectrum, causing concerns for disturbance to some biological functions and consequently influence to health.

Here for the first time, the environmental light electromagnetic radiation was investigated as source and influence of biomolecular interactions, related biological functions and consequent health effects. In addition, the relationship between the theoretical Resonant Recognition Model (RRM) and sun light, as origin of life, gives the possible explanation on how life processes have evolved and are controlled in more complexed organisms, where the sun light could not penetrate all cells and cellular processes. Although biological processes are currently looked as a large number of different events, we have shown that they are grouped in a relatively small number of general functions enabling the simpler approach to understanding macromolecular interactions, biological functions and related health effects. Accordingly, the role of water and possible influence of artificial

light on biological processes has been shown. Having all this in mind, we can conclude that the Resonant Recognition Model (RRM) is a powerful tool in analysis of DNA and protein functions/interactions, which are proposed to be based on resonant electromagnetic energy transfer.

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