

Further developments in systems biology: Virtual scanning

Graham Wilfred Ewing

CEO & Director, Montague Healthcare, England

There is a theoretical void between cognition and cellular & molecular biology. Most biomedical research focuses upon the exome i.e. of proteins expressed (genotype) and almost completely ignores phenotype however 90% of drugs, which are based upon drug-protein interactions, are recognised to be ineffective in circa 50% of the population i.e. circa 50% is unexplained. Factors such as age, weight, sex, racial origins, the influence and nature of stress, etc; influence the way in which drugs function. In order to explain this identified theoretical void research must take into account the cognitive or environmental factors which influence phenotype and which influence the ability of proteins to react e.g. pH; temperature; levels of minerals, hormones, cofactors; blood glucose; blood cell content; digestion; excretion/elimination of toxins; osmotic pressure; sleep; breathing; etc. These are the physiological systems, the study of which is recognised to be significantly under-researched; perhaps because there are few tools which are available for researchers to use to research the physiological systems. The physiological or functional systems comprises networks of organs which perform a unique physiological function. Under normal circumstances these systems are regulated by the neuroregulatory processes in the brain – neuroregulatory dysfunction leading to the impaired function of one organ and hence the instability of one or more organ networks. Light offers a technique which can be used to make an assessment of genotype and phenotype. The energy of light absorbed by proteins being an expression of genotype and the energy of light emitted by proteins and pathologies being an expression of rate of reaction or phenotype. It enables researchers to differentiate between the measured levels of expressed proteins, the uncoiled and unreactive nature of proteins, and the rate at which proteins react. This is particularly significant in the case of diabetes mellitus in which altered colour perception is linked to the early onset of the condition and before the onset of diabetic retinopathy. Moreover the innate and extraordinary ability of the eye to detect small amounts of light indicates that this technique may be able to diagnose the early onset of pathologies earlier than orthodox biomedical techniques. This absorption and emission of biophotons is the biochemical equivalent of bits of information used in a computer. It deals with the rate at which proteins react rather than their levels. Accordingly it is not influenced by the limitations of contemporary biochemical testing and can diagnose the onset of pathologies from their presymptomatic origins. Virtual Scanning is the first of a new generation of medical technology. It is based upon a mathematical model of the physiological systems. To be precise, it is based upon a mathematical model of the consequences of cognitive input (mainly, but not solely, of colour perception) upon the autonomic nervous system. It incorporates an understanding of the structure and significance of the organ networks commonly referred to as physiological systems. It provides a summary of genotype and phenotype for all organs and most common pathologies which can be hugely valuable (i) advancing the current level of understanding of disease states, (ii) in routine medical diagnosis and (iii) advancing the development of new drugs or therapies which can be used as treatments.

Biography

Graham Ewing is Director of Montague Healthcare. He established Montague Healthcare with the sole aim of commercialising Virtual Scanning technology. He has a B.Sc. Chemistry and has published a book and over 20 medical articles in a wide range of medical journals in his efforts to raise the scientific credibility of this novel technology.