The BioDigital Movement

By Prof. [Dr. of Med.] Charles McWilliams, ©2020

Life and health depend upon Metabolism, from Greek: μεταβολή metabolē, "change", which is the set of life-sustaining chemical reactions in organisms. The three main purposes of metabolism are: the conversion of food to energy to run cellular processes; the conversion of food/fuel to building blocks for proteins, lipids, nucleic acids, and some carbohydrates; and the elimination of metabolic wastes.

Metabolism is driven by enzymes.

Almost all metabolic processes in the cell of humans need enzyme catalysis in order to occur at rates fast enough to sustain life. A key axiom of biology understands that Life depends on signals exchanged among body molecules. For molecular exchanges to occur at a rate to sustain life, they must be accelerated by catalyst enzymes to generate the energy needed for metabolism to occur. Vitamins and minerals act as co-enzymes, and can cure many diseases, but the enzymes are core to the body's vital functions.

These enzyme-catalyzed reactions allow organisms to live, grow and reproduce, maintain their structures, and respond to their environments. The word metabolism can refers to the sum of all chemical reactions that occur in living organisms, including digestion and the transport of substances into and between different cells, in which case the above described set of reactions within the cells is called intermediary metabolism.

In short, enzymes make cellular life possible. Enzymes create chemical reactions in the body by speeding up the rate of a chemical reaction to support life. Specificity is the ability of an enzyme to choose exact substrate from a group of similar chemical molecules. The specificity is actually a molecular recognition mechanism and it operates through the structural and conformational complementarity between enzyme and substrate. Enzymes show different degrees of specificity towards their substrate. To explain the observed specificity of enzymes, in 1894 Emil Fischer proposed that both the enzyme and the substrate possess specific complementary geometric shapes that fit exactly into one another. This is often referred to as "the lock and key" model. This early model explains enzyme specificity, but fails to explain the rapid transition states that enzymes achieve at the near speed of light.

All chemical reactions occur because of electron exchanges at the level of the atom. These reactions are biologically specific and not random. Chemical reactions take place when the atoms of two or more substances exchange or share electrons. When they do that, electromagnetic waves and signals are generated at the speed flight.

The electromagnetic nature of the molecular signal sheds light on many shadowy areas of biology. The enzyme reactions must be frequency specific. We can now understand how millions of biological molecules can communicate (at the speed of light), each with its own corresponding molecule, and it alone, the basic requirement for the functioning of biological systems. The frequency signals are why minute chemical modifications produce considerable functional consequences because of enzymes, something "structural" biologists are at a loss to explain.

A Biodigital recording of cellular frequencies sheds new light on observing enzyme specific reactions. Oscan uses state of the art biomedical visualization and software engineering to improve research, education, communication and the interpretation of health information.

BioDigital Signals

Candace Pert in her landmark book - Molecules of Emotion - explained enzymes and neurotransmitters called peptides, which carry vibration as well as emotional messages. These biosignals trigger reactions like messages and change the chemistry of our body's cells. Likewise, absence of these biosignals equates to dysfunction. This is all mainstream science, and Pert states: "Of course it is chemistry, but it's also physics and vibrations." Neurotransmitters are chemicals, but they carry an electrical charge. The electrical signals in our brains and bodies affect the way cells interact and function.

Understanding enzymes, hormones, and neuropeptides as vibratory molecules, rather than the Cartesian 'lock and key' concept of Fischer, ushered in a whole new understanding of metabolism, being not only electronic, but also acoustic, and Pert explained simply, biomolecules "wiggle."

Electrochemical messages and signals are passed between brain cells at the speed of light and are recorded as EEG waves. Similar signals are passed to every cell in the body. Each cell membrane is studded with "receptor sites," a kind of "mail box" for these electrochemical messengers.

"You have receptors on every cell in your body. They actually are little mini electrical pumps." When the receptor is activated by a matching "molecule of emotion" the receptor passes a charge into the cell changing the cell's electrical frequency as well as its chemistry.

Pert says that just as our individual cells carry an electrical charge, so does the body as a whole. Like an electromagnetic radio generating a field, Pert says that people have a positive charge above their heads and a negative charge below. "So we're actually sending out various electrical signals – vibrations."

"We're all familiar with one kind of vibration: When we talk, we send a vibration through the air that someone else perceives as sound. As I explain in the book, we're also sending out other kinds of vibrations. It's a basic law of physics that when you are close to an energy source it has a greater effect and that diminishes as you move further away. But when you are far away there is no effect."

"It's not something you can say in 25 words or less. It is a whole new paradigm shift that basically leads you to realize you're not alone. You are connected to everybody else. Your emotions are key. And you are leaving a wake, changing the world around you in a huge way."

The truth, based on facts, is very simple to understand. We constantly vibrate, and when harmonic, we have health; and when dissonant we have disease. It does not require any "collapse of the physical or chemical worlds." That molecules vibrate, we have known for decades. Every atom of every molecule and every intermolecular bond-the bridge that links the atoms-emits a group of specific frequencies. Specific frequencies of simple or complex molecules are detected by digital signals. Biophysicists describe these frequencies as an essential physical characteristic of matter, but biologists have not generally considered that electromagnetic waves can play a role in molecular functions themselves until just recently.

Dr. Jacques Benveniste is another researcher at the origin of his work in digital biology. A Doctor of Medicine, former Resident of the Paris Hospital System, Research Director at the French

National Institute for Medical Research, known worldwide as a specialist in the mechanisms of allergy and inflammation, he distinguished himself in 1971 by his discovery:

"We cannot find the words "frequency" or "signal" (in the physical sense of the term) in any treatise on molecular interactions in biology, not to speak of the term "electromagnetic," use of which would be- at least in France - a cause for excommunication of any offending biologist by the scientific Papal Office… Like Archimedes, I would have liked to have had a brilliant idea in my bathtub: "Eureka, the vibrations of molecules don't exist for them to dance the salsa at a Saturday night ball; vibrations are the tools of their trade, which allow them to send instructions to the next molecule down the line in the cascade of events which govern biological functions, and probably, to a large extent, chemical ones as well."

After eight years of research, around 1991, his experiments showed that transfer specific molecular signals by using an amplifier and electromagnetic coils could replicate these digital signals. In July, 1995, he recorded and replayed these signals using a multimedia computer. A computer sound card easily records frequencies up to about 20,000 Hz. In the course of several thousand experiments, he found that receptors (specific to simple or complex molecules) to "believe" that they are in the presence of their favorite molecules by playing the recorded frequencies of those molecules. These are the same conclusions of Candace Pert. The revolution had begun!

MOLECULAR SIGNALING

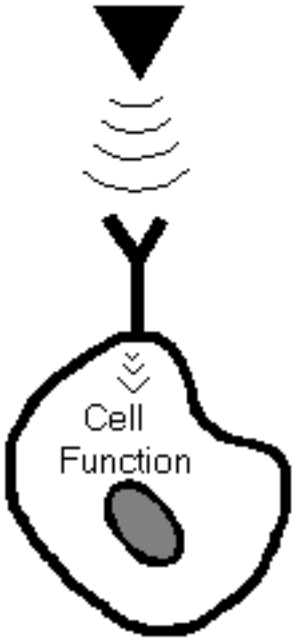

Fig A - The 3D structure of the ligand molecule, e.g. an antigen (or an agonist) matches the 3D structure of the antibody (or the receptor, respectively). This physical contact induces the cell function.

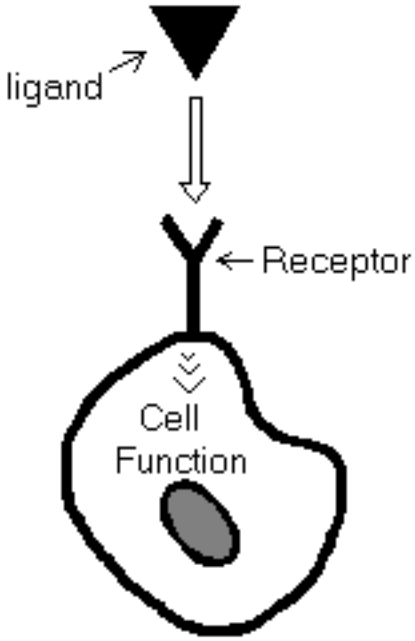

Fig B - The agonist molecule carries and emits an EM signal which coresonates with the receptor's molecules thus activating it and inducing the cell function.

The 3D structure of Fischer and the ligand molecule, e.g. an antigen (or an agonist) matches the 3D structure of the antibody (or the receptor, respectively). This physical contact induces the cell function. This Cartesian Mechanical explanation, like explaining the action of gravity by pressure forces caused by pushes, without the use of any action at a distance, is no longer tenable in light of quantum dynamics. Atoms and molecules do have zonal forces, but it is due to electrostatic and magnetic fields, and there is 'action at a distance'.

The Current Theory: "structural matching"

In biology, cells that are sustaining life mean that they are "alive and kicking". It means that they are receiving messages, decoding and interpreting them, and initiating appropriate responses. This is one definition or viewpoint of "metabolism." Cells have receptors that receive and process "information" or signals. All information on the physical biologic terrain, is purely and only electromagnetic, whether it is optical, radiant heat, microwave, radio wave, or of Earth-based extremely low frequencies, including sonic. Biologic receptors are membrane bound proteins that are effectively signal transducers. Receptors receive signals from mineral ions, gases, peptides, hormones, nucleotides (AMP, ATP, ADP), drugs; and equally electromagnetic radiations directly - light, color, UV (e.g. vitamin D), heat, microwave (e.g. mind control), and sound.

Each cell hosts a cohort of receptors and other signaling proteins that govern its life activities. The range of action of the signaling proteins can be rapid (optical or radiant, acting in milliseconds); fast (cardiac, respiratory, eicosanoidal/allergic); or slow (hormonal/lunar; gastric/diuranal; etc.). Cell membrane receptors also activate secondary messengers like cyclic AMP, glycogen responses, histamine/inflammatory reactions, etc.

The presently dominant and antiquated biologic axiom of molecular signaling claims that two structurally matching molecular objects exchange specific information by mere contact, also referred to as the lock and key-ligand/receptor interaction model. Specific molecular interactions happen after random collisions between partners on a trial-and-error basis, using electrostatic, short range (two to three times the molecule size) forces. But this kind of random encounter, amidst the bulk of molecules which are foreign to a given biochemical reaction, would give to these meetings statistically little chance of really occurring. On a basis of quantum physics, the model is totally untenable. Thus, the simplest biological event might require a very long time to happen, like life without enzymes evolving over thousands of years. This paradox is still unexplained by those adhering to this paltry theory.

The shortcomings of this approach are best illustrated by the now widely-recognized failure of "drug design" to produce the expected volumes of new therapeutic substances. In this context, it is worth noting that the words "molecular signal" are routinely used by biologists, yet they present no precise, nor adequate physical or quantum definition. Thus, orthodox biology appears exceedingly vague to physicists.

The BioDigital Theory: "electromagnetic signals"

Conversely, in the Biodigital model, the agonist molecule carries and emits an EM signal which co-resonates with the receptor's molecules thus activating it and inducing vital cell functions. The concept is similar to the striking of tuning forks of equal notes, both resonant when in zonal proximity. Using various experimental protocols Benviniste was able to activate specific cell functions with the corresponding low frequency (<20kHz) electromagnetic waves, thus 'action at a distance'. This prompted Perth and Benviniste to hypothesize that the molecular signal is composed of such low frequency waves and that the ligand co-resonates with the receptor pretty much as the tuning of a radio receiver with its antenna.

It is important to note that these concepts do not violate any current biological or physical basic principle. It is well-documented that:

1) all molecules emit specific EM frequencies;

2) a complex set of high frequency waves can produce low frequencies according to the "beat frequency" phenomenon (the drums of light),

3) all biological interactions occur in water, since, on the average, there are ten thousand molecules of water per molecule of protein. Water is a sufficient crystal carrier when immersed with mineral ions.

Quantum electrodynamics calls for the existence of long range electromagnetic fields that can be transmitted by large - hundreds of angstroms - coherent domains present in water (adapted from E. Del Giudice & E. Preparata, 1994, Journal of Biological Physics, vol. 20, p. 105). Such long range EM fields would be capable of transmitting the EM message coming from molecules, thus generating a long distance specific attraction between two molecules with matching spectra, excluding non-resonating, unwanted random events. The field resulting from the aggregation of the two co-resonating molecules would obviously exhibit a different frequency which would then co-resonate with the next molecule or cluster of molecules which intervene in the next step of the biochemical reaction, and so forth and so on... In this instance, picture the proton pump or the electron chain transport system of mitochondria.

The fact that small changes in the spectrum of a molecule (e.g. induced by a tiny structural change or a resonant tickle) would profoundly alter its resonating characteristics, and would explain how minute changes (e.g. phosphorylation, replacement of an ion by a similar one, switching of two peptides, etc.) radically modify the molecular tertiary structure and function in a chain reaction to normalcy or homeostasis. This summation explains how vitamins and minerals in such small doses can and do act as drugs. Equally, if one were to simply broadcast the same frequency of a particular vitamin, the effect would be equal to the actual ingestion of the vitamin. Equally, this would explain the action of homeopathic drugs, wherein the actual molecule is not present in the compound, but its frequencies are retained by the oscillating liquid.

Summary

In summary, the current short range electrostatic theory of molecule interaction-recognition via random collision cannot help us understand how biological reactions really work. The lock and key theory and the structural matching are just 19th century descriptions of the exceedingly more sophisticated mechanisms which are required to command the extraordinarily complex and rapid cascade of intricate biochemical reactions supporting life. By contrast, the EM interactions afforded by the capacity of water to support long range EM fields provide fascinating possibilities for understanding, research, and therapeutics:

1) the specific and rapid long distance attraction of co-resonating, frequency specific matches by simulated analogs;

2) how the formation of aggregate systems with appropriate frequencies initiates the next step in the biochemical, chain-reaction sequence;

3) how the steric structure of molecules can be altered or stabilized by subtle changes in their primary composition by frequency specific, therapeutic signals.

The *Benveniste affair* was a major international controversy in 1988, when Jacques Benveniste published a paper in the prestigious scientific journal Nature describing the action of very high dilutions of anti-IgE antibody on the degranulation of human basophils, findings which seemed to support the concept of homeopathy. In 1997, he founded the company DigiBio to "develop and commercialise applications of Digital Biology." Benviniste one day made claim that it was his belief the frequencies of all drugs could be captured and recorded as mp3 files and sent freely over the internet. Benveniste died in 2004 in Paris following heart surgery.

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