THE NOUMEDYNAMIC HUMAN: A NEW HOLISTIC MEDICAL MODEL SUPPORTS KEY ELEMENTS OF HOMEOPATHIC PRACTICE AND POSSIBLY EXPLAINS THE MECHANISMS OF HOMEOPATHIC ACTION

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INTRODUCTION

MICH has developed an understanding of the human being and human pathogenesis which we are calling Noumedynamic. Noume- is related to the word noumenon. You may remember from Study Guide Year One Lesson 5 that “noumenon” is derived from the Latin “numen” which means deity, divine will or divine presence. “Noumenon” corresponds to Plato’s “Form” — immaterial level of Reality that can only be apprehended by a non-sensory faculty, (and not by reason, as explained by Kant). The "noumenal" world is the world of the immaterial, the spiritual, the world of realities not accessible to the body's senses. The “noumedynamic” human incorporates the idea of the human being as driven by a “noumenal” force such as the soul.

At MICH, our understanding of pathogenesis involves a body-mind-soul, holistic and dynamic process (noumedynamic).

In this article I would like to illustrate how current perspectives in conventional medicine are moving towards a holistic model that supports the MICH understanding of pathogenesis. Perhaps even more importantly, is how these conventional perspectives are driving research towards discovering possible mechanisms by which homeopathic treatment affects the organism.

The key areas of research that are currently most relevant to homeopathy are those that have been looking at the effects of stress on the organism and its relationship to disease.

Stress, in its simplest form, is the application of, or resistance to, a force. Stress, by definition, is the process through which adaptation and evolution occur in response to externally and internally driven forces. Life is movement, a dynamic interaction of forces. Stress can be environmentally-induced or self-induced. Self-induced stress can be experienced as two forms: a force pushing the individual (striving) or a force resisting change or life (ego resistance).

In order to decipher the true cause to be treated in chronic disease, the homeopath must understand the individual's processes of adaptation and evolution (state of susceptibility).

In their clinical practice, homeopaths frequently encounter pathogenesis linked to self-induced stress. The causes and consequences of such self-induced stress, such as striving for an ideal beyond the grasp of the individual, are now well-documented by recent research, as this article will demonstrate. We will see that current research has also observed and recorded auditory and visual variations and distortions as well as other misinterpretations of the environment when striving occurs, supporting the notion of delusion as central to disease. Thus, research confirms the importance of delusion rubrics, and the delusion level revealed in case taking in homeopathic practice as a necessary element in considering a curative prescription, and striving as an important causal factor in the development of chronic disease (pathogenesis).

What current research also shows is that the discrepancy between the real and the perceived in a stressed individual causes another dimension of stress-related consequences on a very subtle level of biological organization.
Mitochondria are the sites of fundamental quantum energy exchange processes critical to life in every cell of every living organism. The first moment of evolutive life on earth was the moment when an organism capable of translating energy forms united with a bacteria cell. This union of two independent organisms formed the basis of the eukaryotic cell (one that has an enclosed nucleus) which could now evolve and adapt and allow all the life forms that exist on the planet to emerge. Mitochondria live in the cells of all evolved (only bacteria are not eukaryotic) living organisms acting as the cell's power producers. They convert energy into forms that are usable by the cell. Located in the cytoplasm, they are the sites of cellular respiration that generate fuel for the cell's activities. Mitochondria are also involved in innumerable other cell processes such as cell division, growth, cell death (apoptosis), adaptation and evolution.

![Figure 1 Mitochondrial structure](image1)
![Figure 2 mitochondria within eukaryotic cell](image2)

Because mitochondria are at the basis of life, evolution and all adaptation, they are logically the first line response to the related stress responses. Because they are found in every cell, they are systemic - sensitive to changes in the entire body, thus important to be considered in any holistic approach. As they are the seat of all fundamental quantum life processes, they are also logical candidates to being the mediators of quantum level homeopathic signals. The more we understand about mitochondria, the more they reveal themselves to be the logical receptors of homeopathic remedy waveforms.

Throughout this article all italics, bold, underlined phrases are my additions. Comments inside square brackets [] are my words.
PART ONE: HOW EMERGING HOLISM IN CONVENTIONAL MEDICINE SUPPORTS THE PRIMARY PRINCIPLES OF HOMEOPATHIC CASE TAKING

We will begin with an overview of current conventional research and the emerging holistic vocabulary of science. This new vision and vocabulary is being birthed by transdisciplinary exchange between researchers searching the true causes of disease. This is illustrated in the words of prize winning researcher, Dr. Bruce McEwen, who has published over 700 research papers, introduced and developed the understanding of the body-mind mechanisms (allodynamic) that lead to chronic disease:

Holistic programs, such as a program that exemplifies combining education, physical activity, and social engagement—along with one other ingredient that is hard to quantify, namely, finding meaning and purpose in life, should serve as models of the kinds of interventions that can dramatically affect the course of chronic and prevalent health conditions via allodynamic brain mechanisms.

In his article, "Stress- and Allostasis-Induced Brain Plasticity", Dr. McEwen explains why science is just beginning to put the pieces together into a more holistic view: "Stress and stressful experiences have long been implicated in the etiology and pathophysiology of chronic physical and mental health conditions that now pose a great threat to public health. Historically, disciplinary variation in defining and studying stress and stressful experiences posed both methodological and conceptual challenges to the medical community's understanding of how an individual's health status could be affected by such complex processes over the life course. These challenges have been addressed by current perspectives, which build on recent advances in translational animal and human research and emphasize that the relationships between stressful experiences and health status depend on a dynamic interaction between genetic liability and exposure to environmental factors. This interaction begins in utero and continues until death."

"Allodynamic mechanisms" is a much broader and deeper development of homeostasis theory (see glossary). “Allo-” means “other or different” : allodynamic mechanisms take into account “other or different” parameters relative to what has been considered conventionally.
In the same article, Dr. McEwen discusses the role of the brain to illustrate allodynamic processes in relationship to stress.

"The brain is the key organ of stress processes. It determines what individuals will experience as stressful, it orchestrates how individuals will cope with stressful experiences, and it changes both functionally and structurally as a result of stressful experiences. Within the brain, a distributed, dynamic, and plastic neural circuitry coordinates, monitors, and calibrates behavioral and physiological stress response systems to meet the demands imposed by particular stressors. These allodynamic processes can be adaptive in the short term (allostasis) and maladaptive in the long term (allostatic load). Critically, these processes involve bidirectional signaling between the brain and body."

“The brain processes not only external sensory inputs from the environment but also internal inputs from the body. This parallel processing enables the brain to control and coordinate behavioral and physiological adjustments engendered by external or internal challenges to homeostasis. These adjustments can promote adaptation, such as calibrating cardiac output and peripheral vascular resistance to provide hemodynamic and metabolic support for large muscle groups needed for immediate or anticipated action (e.g., escape from a predator).”

**PNEI - PSYCHO-NEURO-ENDOCRINE-IMMUNE STRESS RESPONSES LEADING TO CHRONIC DISEASE**

The biological systems that promote such adaptation include the hypothalamic-pituitary-adrenal (HPA) axis, the autonomic nervous system, the metabolic system, the gut [as a center of intelligence or sensing], the kidneys, and the immune system (including the network of cytokine-producing cells throughout the body). The chief mediators of these systems (e.g., cortisol, sympathetic and parasympathetic transmitters, cytokines, metabolic hormones) operate within a nonlinear, dynamic, and interactive network.

Importantly, the activities of these systems and mediators are influenced by the *genetic* make-up, developmental history, and current behavioral and *psychological states of the individual." [Italics mine.]
MITOCHONDRIA AS SYSTEMIC MEDIATORS

What we now know is that mitochondria determine the changes that happen in the brain. Mitochondria are involved in the activation and duration of synapses, and the neuronal functions basic to memory and cognition.

In fact, everything that Dr. McEwen attributed to the brain, the mitochondria can take credit for. It is the mitochondria that "pick up" subtle signals of what is happening inside the whole organism. Physical changes in the mitochondria have been observed whenever there is a change in concentration of any of the biomarkers that indicate stress (and possible ensuing chronic disease), as illustrated in figure 5 below:

![Figure 5 Biomarkers of allostatic load shown to affect mitochondria (Dr. Martin Picard)](image)

From the same McEwen article: "Allostasis is essential for maintaining homeostasis in the face of external and internal demands that are registered by the brain. Critically, however, alldynamic adaptation has a price, and the cost of this adaptation is called allostatic load—the wear-and-tear on the body and brain. Allostatic systems promote adaptation to stressful experiences and are generally most useful when rapidly mobilized and terminated. [Acute reactions]. When they are prolonged or not terminated promptly [what we call miasmatic responses], allostatic systems undermine mental and physical health."

IMPORTANT PSYCHOLOGICAL FACTORS

McEwen continues: "An important aspect of allostasis and allostatic load is the notion of anticipation...psychological states, such as apprehension, worry, and anxiety, as well as cognitive preparation for a forthcoming event. Anticipation arising from neural activity within the brain can drive the output of allostatic mediators, and it is likely that states of prolonged anxiety and anticipation can result in allostatic load. Other important aspects of individual responses to stress in relation to allostasis and allostatic load are health-damaging and health-promoting behaviors such as smoking, alcohol consumption, sleep, diet, and physical activity, collectively called lifestyle behaviors. These may be embodied within the overall
**notion of allostasis**—i.e., how individuals adapt to and cope with a *challenge*—and they also contribute to allostatic load."

**ALLODYNAMIC REGULATION AND PSYCHOLOGICAL FACTORS**

What kind of challenge leads us to health-damaging behaviors, and states of prolonged anxiety and anticipation? Leaving McEwen for now, let us turn to some leading edge research in behavioral psychology that also uses this new "allodynamic" terminology to bridge into a more holistic view that provides the answer to this question.

The following excerpts have been taken from the book: "*Infant child mental health, early intervention, and relationship based therapies*" by Connie Lillas and Janiece Turnbull.

"Allodynamic regulation involves not only the central nervous system but also autonomic nervous systems that support behavioral flexibility and adaptability. Allodynamic regulation explains that higher neural controls can bypass, inhibit, or modulate regulatory mechanisms (e.g. thoughts can affect physiology and vice versa)." [In other words, stress is also thought and behavior based, and signs of stress are seen in the loss or reduction of the individual’s ability to be flexible and adaptable (reduced susceptibility).]

"Synchronistic with the loss of mental and behavioral flexibility (diminished freedom of response), is that systems become stuck in chronic or malfunctioning stress responses [what we call the miasms or “loops”], leading to risk factors for allostatic load."

"Allostatic load conditions can be assumed when one of three primary stress states of autonomic arousal – the hypo alert, hyper alert, or flooded state dominates the landscape. In addition, a sleep related stress response is the inability to cycle into deep sleep. Stress responses are in and of themselves not unhealthy, in fact, they are intrinsic part of typical development and are necessary for adaptive functioning." [Or, what we at MICH call "susceptibility".]

**COMPROMISED SUSCEPTIBILITY = MIASTMATIC LOOPS = “SYSTEMS STUCK IN MALFUNCTIONING STRESS RESPONSES”**

The authors then describe the loss of susceptibility (as we know it) as the key indicator of a disturbance that can lead to disease: "When the underlying activating and inhibiting processes within the stress response cycle: 1. occur too frequently; 2. do not accommodate to situations that should no longer be stressful; or 3. stay on too long or do not shut down after the stressor is removed; or 4. are inadequate in their stress recovery, the allodynamic load creates wear and tear on internal organs. In short, because of their persistence, states become traits. (Perry, Pollard, Blakely, Baker, and vigilante, 1995)"

"Furthermore certain risk factors increase the likelihood that stress reactions become load conditions...Such as: the individual’s experience of a *real or perceived challenge that is beyond his or her reach*, [what we call "striving"], or the individual’s experience of real or perceived threat [or the "delusion", as termed by Rajan Sankaran].

The answer to our question: “What kind of challenge leads us to health-damaging
behaviors, and states of prolonged anxiety and anticipation?” is answered: “a real or perceived challenge that is beyond an individual’s reach”. Thus “striving” is key to the entire pathogenesis. Let’s see how researchers explain how striving and perceived threats (delusions)...become pathology.

**How Striving and Delusion Create Disease**

The current medical paradigm uses the concept of four (sometimes five) “brain systems” to describe “intelligence centers” within the organism, but not located in an organ as such. These intelligence centers correspond to what Aristotle (in De Anima or Soul) identified as the three levels of soul (Sensory, Locomotive and Spiritual or Mental level) reflected in biological activity, which Plato said inspired Logos, or logistikon (mind, nous, or reason), Thymos, or thumetikon (emotion, or spiritedness), and Eros, or epithumetikon (appetitive, or desire)

**The Conventional Model resembles the Aristotelian and Platonic Models of Soul**

In the words of researchers, Lillas and Turnbull, [all italics are mine] “In the neuro-relational conventional framework, each of the four brain system heuristics captures a fundamental influence [soul level] underlying behavior:

1. Arousal (the regulatory system); [Sensory/Spiritual]
2. Sensory processing and modulation (sensory system); [Sensory]
3. Emotional reactivity, memory, and meaning making (the relevance system); [Spiritual] and
4. Motor activity and behavioral control (the executive system) [or Locomotive]

Each system is affiliated with general and specific anatomical regions in the brain as well as general and specific behavioral states. The structural interconnectivity among systems allows for infinite patterns of interaction to support and drive behavior. *In other words, no single brain system could ever stake a claim for always initiating or completely governing any given behavior.*

1. **Arousal states** are located along a continuum from low to high-energy expression:

   Low - coma, sleep, drowsy, hypo alert, alert, hyper alert, flooded - High

2. **Sensory information**: Brains translate energy in the world into sensory information...These include the visual, auditory, and somatosensory processing regions in the occipital, temporal, and power yet to lobes, respectively, and the vestibular, gustatory, and olfactory processing regions in the limbic regions. As the sensory modalities integrate with each other and with [all four] brain systems, the sensory information becomes represented within personal meanings and contextual significance. Variations in physiology or environment from person-to-person set the stage for vast individual differences in sensory processing parameters.” [Or, as Hahnemann said: “each individual case of disease”]

Judyann K. McNamara  A holistic conventional paradigm vF Montreal Institute of Classical Homeopathy © 2014
THE INTIMATE RELATIONSHIP BETWEEN PERCEPTION AND MEANING

“Sensory information is not processed in a purely bottom-up hierarchal fashion; context also determines the meaning of perception. In other words, the meaning that an object or event being perceived holds for the individual is dependent on its contextual significance and personal relevance.

For example a cup may represent its traditional meaning in one context or serve an entirely different function as well. In this way one’s past experience, the sensory information, and one’s contextual goals in the moment also influence the ultimate "meaning" that is shaped from sensory data.

Although we tend to focus on visual and auditory sensations, more recently the brain regions that process bodily sensations such as touch and gut feelings have gained more attention, large the due to a renewed interest and emotional processes, the body as it relates to mind, and connections among emotions and actions. (Damasio, 1999; Dolan, 2007).”

SENSATIONS AND THE INDIVIDUALIZATION OF DISEASE

“The importance of sensations is twofold. First, sensory experiences provide the core foundation for how we perceive our bodies in the world. Just as we each have a unique fingerprint, we also have a unique makeup of sensory receptors and pathways that underlies individual differences in perception and experience. Because of these individual sensory prints, the same center event could yield a broad range of responses across individuals. An experience it is pleasurable to one can be repulsive to another, novel to one and boring to another, safe to one and challenging or threatening to another.

Second, a sensory processing to disruption, from mild to severe, can throw off the quality of sensory information, both within and across systems.”

MEANING AND NEEDS, DRIVES, GOALS AND BEHAVIOUR

“3. The Relevance system [Mental or Spiritual Soul level] determines what is salient to the three large domains of emotion, memory, and meaning making. Memories of events and their emotional impact are shaped from their meanings. We tend to remember and be more emotionally sensitive to things that are meaningful to us. Research shows that when directing attention to the same spatial location or witnessing the same event, two people can and usually do, focus on and recall different things. We get two different responses from asking two different people to share the meanings associated with the same witnessed event. What is deemed relevant to the individual and what personal meanings emerge, lead to tremendous variability in behaviors, as well as tremendous complexity in unraveling the contributions to any given behavior.

The “Relevance system” links the state of the body to the perceived state of the environment. (Mesulam, 2000b) The Relevance System is informed by emotions, which determine what is worth expending energy and attention on, and what to approach and what to avoid. Emotions tag what is important to remember; memory informs emotion through the capacity to recall the valence and meaning of past experience. (LeBar Cabeza 2006) Private meanings may or may not be shared in the context of intimate relationships. Some are more easily observed in behavior and create social connections such as hobbies, politics, and traditions.
It is called the relevance system because its primary goal is to link up sensory and motor information with emotional and behavioral significance, the linking process is all about what is relevant. It has to do with an organism's state (its needs, drives, goals) as well as the opportunities and constraints present within the environment.”

STRIVING OR GOAL ORIENTATION, ACHIEVEMENT

“4. The Executive System [Locomotive level of Soul integrated with will] is concerned with: what to do, how to do it, and when to do it. The executive system is about movement: it’s initiation or in addition, that promotes the achievement of goals. Even thinking, typically considered a purely cognitive task, is ultimately concerned with some type of action [Tweed, 2003].

The functions of the executive system involve control of goal oriented behavior (actions, emotions, and thoughts) in real time and are primarily associated with frontal lobes of the brain (Mesulam, 2002). The prefrontal cortex orchestrates a synchrony among the four systems, with each system honoring its affiliations and responding to its goals within the context of overall adaptation.”

SUMMARY

It is interesting to see how research is slowly revealing the importance of individualizing the disease process. What is even more interesting, is that this research has isolated and focused on the same primary individualizing factors that MICH homeopaths use in soul based prescribing: 1) striving for an ideal beyond the capacity of the individual; 2) the “delusion” caused by the interpretation of sensory input through the meaning or symbolic significance held by the individual; and 3) the sensations which are also individualized and significant, and 4) the symbolic or representational meaning driving an individual’s focus (obsession, compulsion).

In the figure below we see the different elements that come together to create the chronic stress response that is core to the expression of allodynamic load and chronic disease.

THE PROCESS BY WHICH STRESS AND ALLODYNAMIC LOAD BECOME DISEASE.
Allodynamic disease process

- **Physical sx**
- **Alterations, changes**
- **Disturbed susceptibility, adaptability**

**Figure 6 Allodynamic Model of Disease (Judyann McNamara 2013)**
PART TWO: A POSSIBLE AND PLAUSIBLE MECHANISM OF HOMEOPATHIC ACTION UNCOVERED IN CONVENTIONAL MEDICINE

The next subject of this article addresses the actual mechanism by which disease occurs, which in homeopathy, as the law of similar is also how cure happens through homeopathic treatment. We will look at recent mitochondrial research that potentially provides the actual mechanism through which an individual’s state of body-mind-soul becomes a physical disease. It is this mitochondrial mediation that would be the prime candidate in considering the site and mechanism through which homeopathic intervention takes place.

Current work with mitochondria can further establish the basis of mind-body interactions, expand the biomedical model, and hopefully lead to the design of higher-level health-promoting interventions based on principles of allostasis and bioenergetics.

The current hypothesis is that mitochondrial act as cellular portal on the environment. Identifying how mitochondria sense and integrate stress-induced metabolic perturbations, and then translate that information into known disease-associated (epi)genomic processes, will build a solid foundation for investigating the link between psycho-social factors and health processes.

MITOCHONDRIA IN HEALTH AND DISEASE

MITOCHONDRIA ARE THE BASIS OF ADAPTATION AND EVOLUTION

Mitochondria are at the origin of complex life. About 1.5 billion years ago, the ancestor of the human cell (proto-eukaryotic cell) incorporated an aerobic bacterium capable of using oxygen for cellular energy production. The bacterium then became the mitochondrion with many remnant characteristics of its bacterial origin. Their own circular genome is known as the mitochondrial DNA (mtDNA) which encodes essential element of the respiratory chain, where the oxygen we breathe and foods we eat are converted to cellular energy.

MITOCHONDRIA ARE THE KEY COMPONENTS OF THE MECHANISM BY WHICH STRESS CAUSES DISEASE

Mitochondria are considered a key component of the stress response due to their role in energy production and role in cellular adaptation. Mitochondrial energy capacity may in part determine the limits of an organism’s adaptive capacity, with substantial mitochondrial content and optimal function being related to maximal resilience, whereas reduced content and impaired mitochondrial function being related to vulnerability to mild and repeated stressors.

Among the aspects of mitochondrial function that influence cell function and adaptation are dynamic changes in mitochondrial morphology via processes of fusion and fission. This results in longer/bigger or shorter/smaller mitochondria, respectively. Mitochondria immediately respond to cell stress signals by undergoing life-promoting networking through fusion. In contrast, prolonged and/or too severe stress leads to widespread mitochondrial fragmentation and dismantlement of the mitochondrial network. Functionally, excessive and prolonged
fragmentation of mitochondria is associated with accumulation of mtDNA damage and increased oxidative stress, such that the adverse health outcomes related to chronic metabolic stress (i.e., such as in diabetes) could be caused by chronic perturbations in mitochondrial dynamics and consequent accumulation of mtDNA damage. This would contribute to accelerate the cellular aging process.

**MITOCHONDRIA DETERMINE CELL FUNCTION AND FATE**

“Likely as a result of their role in the evolution of complex life forms, mitochondria also exert a strong regulatory role on cell fate. The process of cellular development and differentiation is influenced by mitochondrial function. Likewise, the flipside biological process of programmed cell death is closely regulated by mitochondrial signals. For instance, the release of bacterial-like pro-apoptotic factors (e.g., apoptosis-inducing factor – AIF, cytochrome c) from mitochondria as a result of prolonged mitochondrial stress are potent inducers of cell death. Stresses deemed insurmountable by individual cells lead to mitochondrial fragmentation and apoptotic signaling that activate cell death. Notably, defects in this and other mitochondrial processes can promote cancer development. Like the accumulation of mtDNA damage, increased production of mitochondrial reactive oxygen species (ROS) and apoptotic signaling are features of aging tissues. Thus, mitochondria are functionally positioned at the crossroad of energy metabolism, cell function, death and aging. Therefore, because biological systems need to be in tune with their environment to sustain normal function, it comes as no surprise that mitochondria exhibit astute sensitivity to stress hormones and metabolic perturbations.”

**THE MITOCHONDRIAL LINK**

Dr. Martin Picard has coined the term “MAL” or “mitochondrial allostatic load” in demonstrating the role mitochondria have in stress response. “Mitochondrial allostatic load (MAL) refers to the structural and functional changes that mitochondria undergo in response to elevated glucose, poor lifestyle habits, [mental-emotional and social stress], aging and stress pathophysiology. Stress hormones seem to have a damaging “primary effect” on mitochondria, cellular dysfunction and senescence.”

Perhaps as a result of their central role in the evolution of biological complexity, mitochondria have developed astute sensitivity to primary stress mediators, enabling tight matching of bioenergetics with the stress response. The bioenergetics reactions are part of Mitochondrial Allostatic Load (MAL) or, a chronic activation of allostatic mechanisms at the level of mitochondria (excessive mitochondrial fragmentation, ROS production, respiratory deficiency and mtDNA damage).

Importantly, the signals released by mitochondria cause known downstream primary, secondary and tertiary health outcomes.”
**MITOCHONDRIA AND THE HAHNEMANNIAN MIASMS**

The following diagram of some preliminary research shows that the mitochondria respond to stress by turning on and off certain genes (epigenetics) in the cellular nucleus in order to try to find a mutation that will work. At a certain level of stress induced toxicity (around 50%), the mitochondria stop experimenting and develop a steady state seemingly similar to sycosis. Further stress and toxicity leads to a “reboot” (cancer) or destructive actions like cell death (syphilis).

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**Figure 10** Mitochondrial damage and miasms (Judyann McNamara, 2013)
**MITOCHONDRIA: THE QUANTUM CONNECTION**

In summary, it is becoming increasingly clear that mitochondria determine everything that happens in the cell: from division, to respiration, and function, to death. It is important to remember that the most important functions of a living organism are quantum effects that occur within the cristae of the mitochondria. The Kreb’s cycle, the basis of metabolism and energy transformation are primary functions of the mitochondria.

**A BIOENERGETIC MODEL AND MITOCHONDRIA**

Twenty or more years of experience and research at HeartMath institute has provided the world with the first electromagnetic waveform maps of the human being. The electromagnetic waveforms are of greatest density around the heart. Interestingly, researchers have found that the mitochondria in heart cells illustrate the clearest force field effects.

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*Figure 11 Bio Energetic fields (HeartMath Institute)*
MITOCHONDRIA: QUANTUM PORTALS TO THE UNDERLYING VITAL FIELD

The proposal this article is making is that mitochondria are “informed” by an underlying field, the vital field. As the primary structures related to adaptation and evolution, they also bridge the environment (larger reality) with the perceived inner reality of the individual. They determine if, when and how the organism will adapt to the environment. Or, as Dr. Steve Cole, another leading researcher in the field of mitochondria, said in an article published in the most prestigious scientific journal “Nature” "[...] the way people see the world could affect everything from their risk of chronic illnesses such as diabetes and heart disease to the progression of conditions such as HIV and cancer." (The Pursuit of Happiness, Jo Marchant, November 2013)

As Picard puts it: “Mitochondria sense the metabolic environment. These subcellular organelles constantly move about within cells and undergo processes of fusion and fission, collectively termed MITOCHONDRIAL DYNAMICS.”

Recent research shows that the mitochondria are also susceptible to physical, mental and emotional states in the organism as a whole. As research shows, when the individual perceives challenges beyond his or her reach, perceptions are altered, and stress responses become fixed, creating a dichotomy between the real external environment and what is perceived by the individual.

Figure 12, on the following page, illustrates the relationship between the underlying informative field of the soul or the vital field channelled by the mitochondria, the external environmental conditions, and the internal conditions as perceived by the individual.

The top section of the figure illustrates a situation of optimal health and susceptibility. When the difference between the external and perceived realities are somewhat consistent, the mitochondria can coherently channel the vital field to enable to cell and the organism to adapt to changing conditions, and evolve. In this scenario, the mitochondria show themselves to be fusional, in close contact and together, as a group forming a coherent image of an underlying electromagnetic field through the alignment of their cristae.

When the difference between perception and reality increases, this coherency is lost. Perhaps with this loss is the loss of adaptation, freedom of response and the possibility of evolution.

When the difference reaches a certain threshold, the mitochondria change shape (balloon out) and become dysfunctional.

If environmental factors are too extreme, they lose their shape completely, become pale and anemic, and begin a process that will lead to the death of the cell in which they are enclosed (alternate scenario in figure 12 below).
Mitochondria as Bioenergetic Portals

External Environment

Mitochondria are quantum portals into underlying vital field

External/Internal Environment as perceived by the individual

Form a coherent image Informed by the Vital field created by the soul

External/Internal Environment as perceived is close to external reality

Optimal adaptation and susceptibility

External Environment Within reasonable limits

Loss of coherency

External/Internal Environment as perceived is not congruent w external reality

Dysfunction

External Environment Within reasonable limits

Dysfunction

External/Internal Environment as perceived is too far to be bridged to external

Alternate scenario

External Environment NOT within reasonable limits

Dysfunction

External/Internal Environment as perceived is too far to be bridged to external

Figure 12 Mitochondrial response to misperceptions within the individual (Judyann McNamara)

Figure 12 Mitochondria as bioenergetic portals (McNamara)
We can now add the corresponding synchronistic physical process (grey boxes) to our earlier figure 6 representing the allodynamic disease process. This additional information provides the link between the mental-emotional-spiritual levels of expression and the physical expression of disease.

With the help of homeopathic experience we are able to fill in the source of the “meaningful” symbol that both inspires and mesmerizes the individual into a striving, delusional state that leads to disease.
THE BIG PICTURE: THE COMPLETE PICTURE OF HOMEOPATHY

In figure 14 below, the complete process of pathogenesis is shown. The many branches of homeopathy reveal their association with a specific aspect of the disease process. One can easily imagine that the remedy emerging from each level of the process provides a specific signal to the mitochondria, informing it of that level of organization, or disorganization within the organism. One can see how each method complements the other, and how clinical experience evolved to probe into deeper levels of disturbance to finally arrive at the source of the original dis-ease. This schematic may help us begin to use the complementary homeopathic approaches in a way that supports the mitochondria in its quantum role of allodynamic adaptation and evolution.

![Diagram of Homeopathic Interventions at different stages of pathogenesis](image-url)
GLOSSARY:

**Allostasis:** The process whereby an organism maintains physiological stability (homeostasis) by changing parameters of its internal milieu by matching them appropriately to environmental demands.

**Allostatic load:** Allostatic load (AL) is the biological ‘wear and tear’ that chronic stress exacts on organs and tissues that, when prolonged, ultimately predisposes the organism to disease. AL arises when the individual chronically experiences prolonged or poorly regulated allostatic (stress) responses.

**Allostatic Overload:** Both Allostatic load and Allostatic overload (which is an extreme form of allostatic load) occur in nature and are important in adaptation and evolution. An example of allostatic load is a bear putting on fat for the winter that they then burn off. Allostatic overload is a salmon dying after migration and mating. Allostatic overload involves the dysregulation of allostatic responses, coupled with health-damaging behaviors (poor sleep, increased caloric intake, smoking, alcohol and lack of exercise) lead to chronic disease or death.

**Alldynamic regulation:** Berntson and Cacioppo expand the concept of allostasis into their theory of allodynamic regulation (2000,2007) to highlight the reciprocal interactions between the central [top-down] and autonomic [Bottom-up] nervous systems that support behavioral flexibility and adaptability [Burntson et al 2003].

Alldynamic regulation explains that higher neural controls can bypass, inhibit, or modulate regulatory mechanisms, thereby altering regulatory setpoints. The concept of allodynamic regulation accords more complex connectivity and greater flexibility to the target visceral parameters. For example, higher level control means that internal and external conditions can influence the visceral regulation and vice versa. (e.g.thoughts can affect physiology and vice versa)

**Homeostasis:** also spelled homoeostasis or homœostasis (from Greek: ὄμοιος, "hómoios", "similar", and στάσις, stásis, "standing still"). Homeostasis is the ability to maintain a constant internal environment in response to environmental changes. It is a central theory at the basis of allopathy.

Among the assumptions of homeostatic theory is 1. that organisms attempt to maintain homeostasis--a balanced physiological state or equilibrium--by constantly adjusting themselves to the demands of the environment. And, 2. that every living being has certain biological needs--sex, hunger, thirst--that are caused by imbalance, which become the motivators for all behavior.

**Stress:** A real or interpreted threat to an individual’s physiological and psychological integrity that results in biological and behavioral responses115.
(1) Stress- and Allostasis-Induced Brain Plasticity, Bruce S. McEwen1 and Peter J. Gianaros2

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Other references pertaining to Mitochondrial role in health:


