

Can Energetic Vaccines, Based on Physics, be the Sound Options for COVID-19 and Other Pandemics, in the Absence of Pharmaceutical Vaccines?

Savely Yurkovsky*

Department of Cardiology, Winthrop University Hospital, New York, United States of America

Abstract

The aim of the study is to rapidly produce an energetic SARS-CoV-2 vaccine for an urgent clinical trial.

The methods used to conduct the study: (1) a process of serial dilutions in water media and mechanical impacts, as used in homeopathic preparation from viral culture; (2) imprint of electromagnetic field of the virus through a therapeutic frequency imprinting device into water media, without physical exposure of the virus (US patent, August 2020, number pending).

Results of the study: This method presents substantial scientific and clinical support for the efficacy of an energetic vaccine. Among this, laboratory evidence for specific immune response induced by analogous energetic vaccines prepared from influenza viruses and other microorganisms. Both basic research and clinical evidence is presented on behalf of therapeutic frequency imprinting technology in its ability to induce positive biological effects through microbial energetic vaccines.

Other relevant considerations: Besides the fact that energetic vaccines can literally be produced within minutes, they have a very low safety risk and a virtually non-existent cost factor. Note the fact that a few pharmaceutical vaccine trials were halted due to volunteer illness. Also, the novel vaccines can be readily mass distributed and administered. Furthermore, in the event of continued mutation of the virus that may present a considerable challenge to sustaining the effect of pharmaceutical vaccines, the energetic vaccines can be rapidly remade.

Conclusion: A positive clinical trial would set a precedent in the prevention and resolution of future pandemics or occurrences of infections carrying high morbidity or mortality such as Ebola, Zika and other viruses in the absence of effective vaccines. Likewise, the method can be extended to increasing incidences of antibiotic and antifungal resistant infections as well as vector-borne endemics such as Lyme disease and others.

The method, due to its ontological synergism between molecular and electromagnetic biology is fully in line with physicians' training in infectious diseases that would render its introduction in their medical practice intuitive.

Keywords: Energetic SARS-CoV-2 vaccine; Synergistic medicine; Integrative medicine; Translational medicine; Information medicine; Homeopathy; Antibiotic resistance; Vector-borne infections

Introduction

The current pandemic of COVID-19, causing over a million deaths, economic and social devastation worldwide, has exposed the same shortcomings of pharmaceutical medicine against other recent serious pandemics, in the absence of pharmaceutical vaccines. Among these are SARS, H1N1 and Ebola with combined mortality in the hundreds of thousands of lives and economic losses in the hundreds of billions of dollars, worldwide.

In the US, H1N1 infected some 61 million people with the death toll over 12,000, in 2009 and 2010 flu season [1]. A recent, 2017-2018 influenza epidemic caused over 61,000 deaths in the US alone, with the flu vaccine being only partially effective [2,3].

While pharmaceutical vaccines have successfully contained many devastating epidemics, yet their deficiency for many vector-borne endemics and shortcomings against influenza, herpes, Ebola, Zika and other viruses remain. Flu vaccines are still unable to offer public protection in cases of the sudden epidemics, due to a prolonged production process, or the uncertainty in matching seasonal strains. The ongoing viral mutations may also undermine the efficacy of annual flu vaccines, leaving 40%-60% of the vaccinated population unprotected. The efficacy of the future SARS-CoV-2 vaccine has already raised concerns, as the virus has displayed serial mutations, since being detected in China and other strains in Italy [4-6].

Safety, with the current time pressure is another concern with vaccines' known iatrogenicity, including rare anaphylaxis and death [7,8] with some questioning the paradigm's need for change [9]. One must

disagree with labeling that report, "a dangerous paper" that supports antivaccine proponents, since finding solutions to problems in science conflicts with their concealment [10]. Among other pharmaceutical limitations against influenza viruses is a poor penetration of intracellular compartments by antiviral drugs that it seeks to overcome through nanomedicine that incidentally, homeopathy represents [11-13].

A non-lasting immunity among the recovered from SARS-CoV-2 adds to the challenges [14]. These facts and a clinical success of this author in treating viral and other infectious diseases with energetic vaccines have led to the confirmation of this approach in the scientific literature. Among this, was a sponsored by NIH study to explore viable alternatives to this type of crisis, flu epidemic in the absence of pharmaceutical vaccine. The study authors, mainly conventional virologists, recommended a homeopathic flu isode or a vaccine, prepared from an influenza virus, Influenzinum, as "an ideal choice" [11]. (Isodes, nosodes, represent the homeopathic model of isopathy that utilizes remedies prepared from etiological agents of pathology).

Similar recommendations for "homeopathic nosodes," to render public protection from infectious and toxicological agents for which

***Corresponding author:** Savely Yurkovsky, Department of Cardiology, Winthrop University Hospital, New York, United States of America, E-mail: info@yurkovsky.com

Received date: November 06, 2020; **Accepted date:** November 20, 2020; **Published date:** November 27, 2020

Citation: Yurkovsky S (2020) Can Energetic Vaccines, Based On Physics, Be The Sound Options For COVID-19 And Other Pandemics, In The Absence Of Pharmaceutical Vaccines? J Infect Dis Ther 8:441.

Copyright: © 2020 Yurkovsky S. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

vaccination is unavailable and reducing morbidity and mortality were made by another conventional academician and homeopathy researcher, Professor Wayne Jonas, MD, and the researchers associated with the US FDA and Department of Defense [15,16]. The latter noted that the homeopathic approach remains obscure due to neglected research efforts. Influenzinum and another isode, Influenza A, have registered specific immune responses as well as 90% efficacy and 97% safety record in clinical studies [17,18].

Materials and Methods

In a survey, the Influenzinum isode indicated 90% efficacy as a flu preventive, over a 10 year period [19]. Other trials indicated significant preventative or therapeutic benefits of homeopathy against meningitis, influenza, and Japanese encephalitis, acute respiratory infections and Chikungunya, through isopathic and other models [20-27].

By far, the most impressive evidence of efficacy of isopathy on as many as 2.3 million people was produced by conventional immunologists and infectious disease specialists in Cuba, using a multi-strain isode of leptospira bacteria to prevent an annual endemic of leptospirosis [28]. This displayed a dramatic efficacy, comparable with a pharmaceutical vaccine, and was 10 times less costly. A department of the Indian government, the equivalent of the NCCIH under NIH, AYUSH, invited homeopathic practitioners to treat COVID-19 patients, as have several hospitals. A medical school faculty member, Dr. Masiello presented COVID-19 cases, with severe respiratory symptoms and an elderly, confirmed by laboratory tests, who recovered through individualized homeopathic treatment [29]. However, homeopathy remains a medical taboo in conventional medicine due to the alleged conflicts with science, with the foremost of these being its “implausible” and “unknown” mechanism of action because of its highly diluted remedies, especially those beyond Avogadro number.

The other implausible aspects, deemed by the dominant pharmaceutical paradigm, are the law of similar that uses remedies for diseases which produce similar disease and vital force or animal magnetism which the founder of homeopathy, Samuel Hahnemann, MD, deemed as the source of health and response to remedies. In addition, in order to produce true healing remedies must somehow replay symptoms of the past diseases. It seemed logical that the pharmaceutical paradigm called for homeopathy's funeral, once some meta-analysis studies equated it to a placebo [30]. However, besides the copious evidence to the contrary, independent scientists consider the epistemology of the pharmaceutical medical model to be so scientifically limited that it is unable to comprehend the bioenergetic paradigms such as homeopathy and acupuncture [31]. Science educators and other scientists blame this on an enormous amount of information in the health sciences to the sacrifice of such fundamental sciences like physics, without which molecular biology ignores its ontological level of cells “electrome” [32-34]. The statement of Harvard University biology Professor Edward O. Wilson, Ph.D, “biologists do not know what an electron is and confuse a string theory in physics with violins” underscores this gap [35]. Once homeopathy was examined through more integrated scientific knowledge, by the mainstream academicians and multidisciplinary scientists, its conflicts vanished and it was deemed a frontier in medical science [36]. Among the supporters, a medical Nobelist and virologist, Professor Luc Montagnier, MD warned that “excluding homeopathy from medicine would constitute a monumental mistake” [37]. Since homeopathy is also practiced and consumed by over 500 million people worldwide, the following information to support these statements and application of energetic vaccines for SARS-CoV-2 and other infections, might be useful to physicians and research grant institutions.

The law of similars

This principle that applies to the SARS-CoV-2 energetic vaccine is not in assaulting the body with the same pathogen, but to stimulate its defense mechanisms with attenuated version of the same or similar morbid agent. This serves preventative and therapeutic purposes by stimulating the defense mechanisms. In 400 BC, Hippocrates attested to this principle when bee venom was used to relieve inflammation and pain. “By similar things a disease is produced and through the application of the like is cured.” Modern medicine successfully uses similars in vaccinology, allergy desensitization, and pharmacology: botulin in neurology, beta-blockers in CHF and amphetamines in ADHD.

In physics, superimposed waves of sound or water with the same format display distinct interactions. Science of hormesis demonstrated beneficial health effects, including extended lifespan by diluted toxic substances. Such dilutions, with mechanical agitations used later, represent original homeopathic preparations. Hormetic remedies neutralize pathogenesis of their morbid counterparts and share common metabolic mechanisms with homeopathy [38-43]. Double blind experiments demonstrated mitigation of the cellular damage through the same very diluted toxic substances. A registered production of heat shock proteins is deemed to “unequivocally support the principle of similarity at the cellular level” [44]. In numerous toxicological studies on the living, homeopathic isodes of the toxicological agents, registered protective and curative effects, against the corresponding agents [45-75].

A dissimilar toxicological isode failed to produce biological protection [76]. Expedited recoveries over the control group, were reported in thermal injuries, too when a milder thermal impact was applied close to their sites [77-81] and a reduction of hypoxic damage in myocardial infarction, through mild hypoxic stress [82].

A small group of arthritis patients, reported improvement from homeopathic remedies, in dilutions far exceeding Avogadro number, which electromagnetic frequencies were similar to the ones of their serums, with dissimilar frequencies rendering no benefit [83]. All of this data supports Hahnemann's observation that two similar diseases cannot exist in the same space, due to their mutual cancellation, and reminds us that evolution itself has been fundamentally based on the principle of similar. The adaptation to stressors such as elements, infections and pollutants, over billions of years, was based on the development of mechanisms of tolerance of the same assaults, instead of resorting most of the time, or at all, to the opposite measures, whether heat against cold, antiseptics or purifications. From this ontological perspective, homeopathic remedies, by delivering the same attenuated stressors tend to expedite adaptation from long years to hours, days or weeks and have been viewed as adaptogens [84].

Return of past diseases and cell memories

Physiologist Pert demonstrated that widespread network of neuropeptides may account for a global psychosomatic system and act as subconscious mind in somatic cells [85]. This is corroborated by the experience of many organ transplant recipients displaying new emotional and physical preferences, matching ones of the donors who they had not known [86]. Quantum physics supports a holographic nature of cellular information storage and the evidence exists for energetic coupling between body and brain consciousness, through neural and connective tissues, as well as the crystalline properties of water [87,88]. The experiments of Becker registered that following a perceptive message changes of DC field on periphery preceded ones in

the brain [89]. More references on the subject are presented elsewhere [90]. These residual pathological cellular memories, which homeopathy uniquely reactivates, raises challenging implications that recovery from signs of disease may not equate with its complete resolution and the long-term health ramifications.

Overdilution violating science law

This constitutes the main presumptive fallacy against homeopathy, as expressed in this common cliché: “highly diluted material that overtly flies in the face of science and has caused homeopathy to be regarded as placebo therapy at best and quackery at worst” [91]. From here, this computer virus corrupts the rest of the data, by deeming homeopathic biological effects and mechanisms of action as impossible and therefore, credible positive RCTs and meta-analysis studies flawed.

But what actually “flies in the face of science,” quoting materials scientists: “placebo-water reflects naïve dilution concept, the simpleminded argument” and “ignorance in and distortion of science” [92]. The ignorance involves scientific understanding of the nature of water that is not just the bulk of a passive diluent, but a material with “extraordinary properties” [93-96]. Among these are its crystallinity, that British Nobelist in physics Brian Josephson, among other scientists, attributes to retention of information in homeopathic remedies based on physics of crystals. Detected crystals in water form specific for each remedy and its potency structural networks which amplify information of the original solute in the homeopathic preparation process that negates the constraint of Avogadro number [97-99]. Additionally, electromagnetic layer at water surface, an exclusion zone (EZ), possesses prominent conduction properties and is amenable to recording of information, like a CD, rendering Avogadro number irrelevant, also [100-102]. A leading water scientist, Pollack, who absolves homeopathic remedies of scientific conflicts, sees water “tomorrow’s wonder drug,” through therapeutically programmed EZ [100]. Materials scientists and physicists state the importance of mechanical agitations, potentization, which accompany each dilution cycle and generate a high amount of kinetic energy for chemical, structural and electromagnetic changes in homeopathic solutions. These gain, in the process, charged particles of silicate and other ions released from glass vials, nanobubbles from dissolved gas and redox-active materials, nanostructure, forming stable cluster networks which retain information or memory of the starting material [103-107]. Yet, potentization is either ignored or dismissed as “a ritual,” by the “overdilution” proponents.

Overall, chemical composition based information is superseded by one of physical radiative structure, with water structure being sensitive to perturbations of mechanical, electric and magnetic nature. The clusters and bubbles of nano-scale heterogenous structures in homeopathic solutions possess different electric and magnetic susceptibilities from the rest of the surrounding “bulk” water. Epitaxy and quantum phenomenon of coherence (molecules oscillating in phase and time), where trapped electromagnetic fields of nanostructures are responsible for superradiance, resemble a laser effect with formed water structures acting as mini-lasers [108-121].

Smith highlighted the importance of a concept of coherence in homeopathy, health and medicine [122-124] and Widom offered support of physics to the experiments of the French immunologist, Professor Jack Benveniste, MD whose career was ruined over the demonstration of the homeopathic biological effects on immune cells [125,126].

Other research also supports electrical and magnetic properties of the remedies which represent energetic signals [127-131]. Smith and

Endler correlated a number of potentizations, with an exponential rise in electrical frequency of the remedies [132]. Most of NMR and similar instrumentation registered different emission patterns between potentized homeopathic solutions and controls, contradicting the “overdilution” dogma, too [133-145].

Many of the cited studies were conducted on remedies diluted beyond Avogadro number, with some studies, still, detecting nanoparticles of the original substances present in high dilutions [146]. Different testing methods have established distinctive patterns between remedies of the same potencies, as well as potentized remedies and just serially diluted water [147,148]. A great potential for rapid mass production of energetic vaccines can be deduced from the Brazilian research, where a liter of water with only 10 drops of a homeopathic remedy, far exceeding Avogadro number, impregnated a 2,200 m³ lake. Its water samples, 50 ml each, yielded a physical pattern of the remedy for 72 hours, until the natural outflow of water abolished it [149]. The experiment was blinded, with control water samples from an adjacent, untreated 1,385 m³ lake not exhibiting the remedy pattern. Numerous placebo-controlled and other studies indicated homeopathic biological effects through EEG patterns and immune responses in infections, allergies and cancer. Among these are basic research and positive clinical trials in pediatrics and veterinary medicine which essentially excluded placebo effect [150-184].

The National Cancer Institute accepted in its best case series several documented cases of total regression of malignancies which deemed incurable under oncological, but responded to homeopathic care [185]. Frenkel, a lead author of the study that demonstrated apoptosis of human breast cancer cell cultures induced by homeopathic remedies, expressed their potential in oncology [170]. Even the academicians of pharmacology, the science that has been notoriously dismissive of homeopathy, encourage their colleagues to seriously examine scientific evidence for homeopathy [186,187]. The statement of the Russian professor of chemistry, Vladimir Voeikov, PhD offers a closure to the overdilution fallacy, “Homeopathy does not contradict modern physics or chemistry, it has a very solid scientific foundation” [188].

Animal magnetism, vital force and are biology and medicine only physics?

As contemporary biology routinely uses terms, “information,” “chemical code,” and “molecular signaling,” it is yet to define their fundamental source that also answers the important puzzles concerning the key issue of health and medicine, homeostasis.

The puzzles are: The source of chemical molecular codes through which gigantic biochemical machinery is so flawlessly coordinated, globally? How do trillions of cells and thousands of genes synchronize their functions? How can a low for the task speed of biochemical reactions assure optimal functioning of homeostasis, particularly under sudden life-threatening stress? How would the organism be routinely meeting an enormous energy demand that is necessary for the maintenance of instantaneous information exchange and coordinated global adjustments? [189].

The NIH has acknowledged these as “a lack of comprehensive understanding of the cellular and molecular states and interactive networks” [190]. The same stated by other sources: “many well-documented biochemical processes lack a molecular mechanism,” including proteins and DNA or even, “how enzymes distinguish between sodium and potassium?” [191]. In the 1950s, medical Nobelist, biochemist Szent-Györgyi pointed to physics of electromagnetism and water for the answers, with another biochemist and molecular

biologist, Ling, stating at the time that molecular reductionism cannot be truly fruitful without physics [192,193]. The first scientific discovery of electromagnetism in the living was made by the Russian biologist, Alexander Gurwitsch in the 1920s [194]. In the same decade, the French physicist Louis de Broglie was awarded the Nobel Prize for the discovery of the wave nature of matter that transformed into the major principle of physics, particle-wave or matter-energy duality of all matter in nature. British physicist Herbert Frohlich introduced a groundbreaking integration between living matter and quantum physics, in 1969, that invoked further research [195-198]. Quantum field theory underscored the role of coherence, water and molecular oscillatory communications in the living [199-208].

It also drew a mutual physico-chemical synergism between coherence and metabolic chemical reactions in meeting the body's high energy demand [209]. A major role in coherence is relegated to water, the dominant constituent of proteins, cell membranes and cytoskeleton, with the significant electromagnetic properties of its interfacial layer [210-214]. Some of these are owed to water's minerals and trace elements or metalloids, which are electromagnetic conductors. Water's connection, interaction with DNA [215-227] and the role in evolution has been also emphasized [228-233].

Physics version of biblical "genesis" and Darwinism is that instead of "spirit hovering over the earth," and before the onset of the race of the fittest, life began evolving through natural electromagnetic radiation, cosmic, first, then, aquatic and later on, earth's. Physics draws a link from nature's electromagnetic spectrum of cosmic rays, lightning, thunderstorms, light, sound and gravitational forces to the birth of evolution through water [234,235]. Not a coincidence that many living organisms, including human brain and tissues, display electrical activity in ELF, the same range as Schumann resonances on the surface of the earth and ionosphere, which are crucial to health [236-238].

Ultimately, all organic molecules and then, cells evolved with their own electromagnetic fields which form chemical codes and represent ordered electromagnetic structures, as all matter in the universe [239-253]. Einstein summed this up, "Everything in life is vibration" and "matter is only an optical illusion." These vibrations conduct both internal and environmental communications, of DNA and epigenetic too, and constitute the first and main language of all life, including humans and microorganisms. The experiments registering resonant distant intercellular interactions between the separated cell cultures support this [254-264].

Smith presented physics of the living as ontological macro-quantum systems where all molecules communicate through resonances at speed exceeding one of chemical reactions by thousands of time [265-270,258]. The same epistemology equates the living with bio-computers due to the common properties in conduction, storage and processing information, based on electromagnetism and electronics, with the latter enabling superspeed conduction, through quantum tunnelling [271-276].

Physicist Gariaev and his group developed a theoretical and experimental model of the DNA-wave biocomputer wave genetics and immunity with holographic information storage. They claim experimental reversals of pathologies through stem cells, wave-based gene repair [277-283]. This model would explain biophysical functioning of DNA and that it is millions of times more efficient in storing information than a computer's hard drive [284-286].

It seems certain that electromagnetic properties and communication "appear to play a fundamental part, both in the

processes of morphogenesis and in the physiologic functions of all organisms" [287]. The emerged fundamental model of organism is one of global storage and use of information in a holographic mode and coordinated regulation, exceeding the speed of light. This model solves the molecular-chemical puzzles in pharmaceutical medicine and supports the necessary working synergism between important conventional medical knowledge and physics based interventions, including homeopathy, with a great potential for quality healthcare.

Other sources present additional supporting information concerning the interface of biology and physics, homeopathy and the related molecular-energetic synergism of energetic vaccines [288-294].

RCTs and meta-analysis studies proved homeopathy a placebo

Besides this statement being factually incorrect, since formally the number of meta-analysis studies demonstrating the opposite have prevailed, [295] statistics can only display trends not proof due to an inherent arbitrariness and crude nature of the method. Its crudeness may conceal a significance of a phenomenon and its medical benefits for individual patients, behind mass data, and arbitrariness that is often influenced by bias with "as to what one is willing to accept as scientific information" [295] compelled a comparison with "statistical alchemy" by some [296]. Numerous authors pointed to the flaws in both RCTs and meta-analysis studies and questioned their reliability, as well as a methodological and clinical strength of both a placebo and blinding [297-308].

As notoriously exposed by Kuhn, bias is common in science [309] and especially in medicine with its divisive paradigms, where the common "lack of open-mindedness, political and economic interests foster bias" [310]. Within the conventional medical paradigm, itself, interventions fall victims to bias too, when the interpretation of the same data is influenced by the professionally and economically rivaled specialties [311,312]. Since a major factor in bias commonly correlates with its familiarity, including the mechanism of action, homeopathy with its alleged unknown mechanism is particularly tagged for bias. Quoting Kuhn and others, "not fitting the box" and "unknown is unloved" [313-315], which virtually represent the same tribal instincts that invoke racial, religious and other bigotries. The instinct rejects even good quality, positive RCTs and meta-analysis studies of homeopathy. 398 researchers, reviewers for a respected medical journal, concluded that a drug effect significantly exceeded one of a homeopathic remedy, even though the entire data, unknown to them, was equally fictitious [316]. The American College of Cardiology lamented encountering bias in the mainstream peer-reviewed journals, particularly against bioenergetic interventions such as homeopathy, and the opposite bias in CAM literature, confirming universality of tribal loyalties [317].

The cited Cuban study, demonstrating a successful mass homeoprophylaxis of leptospirosis, was rejected for a publication by several mainstream peer-reviewed journals, without a single scientific reason, according to the lead author, immunologist Gustavo Bracho, MD. Such obstructionism to the simple, effective and low-cost energetic vaccine for public's mass protection with a proven benefit of saving lives, is particularly appalling in light of already over a million dead in this pandemic.

When some reviewers admitted that a major meta-analysis study, with homeopathy exceeding a placebo effect, was "technically superb meta-analysis," they still managed to eliminate the effect through their own recalculations [318,319]. Another study, considered of low-quality, had to exclude 90% of the data, in order to equate homeopathic effect

with placebo [320-327]. Overall, meta-analysis reviews for homeopathy produced conflicting conclusions and independent reviewers noted the publication bias against it in conventional medical journals [328-331].

Likewise, conflicting evidence concerning statistical outcomes of the efficacy of pharmaceuticals versus homeopathy was reported [332,333]. To mention that the published statistical proof of drugs' benefits can be undermined by the "uncertainty principle," in industry sponsored research that may amount to as many as 50% of falsely positive studies [334,335].

A reminder to all medical paradigms that statistical and scientific weight are not, necessarily, directly proportional is a known failure of initially revered evidence-based medicine (EBM) that is based on RCTs, to improve quality care [336]. Among the reasons are that "the evidence-based movement in the health sciences is outrageously exclusionary and dangerously normative with regards to scientific knowledge" and that drugs work poorly for individual patients that is the main focus of homeopathy [337-342].

While RCTs have been placed on the top of the science hierarchy pyramid, with case reports and experts' opinions at the bottom, EBM has stifled physicians' creativity and turned their entire education into a bulletin board of drug studies, and so has the grant approval process [343-350]. Drugs do have their necessary place in medicine, but the fact is that complex systems, such as the living, cannot be properly studied and managed without multidisciplinary approaches [351-353]. The NIH expressed this in its desperate and sound translational research initiative, "to remove organizational barriers," which preclude the bench to translate its research into quality care at bedside, that would be better served if this direction is mainly reversed. Why can't physicians advise the stagnant, exclusively drugs focused bench with the creative, sound feedback from the medical frontline, patient care, regarding which interventions benefit their patients the most and are worth researching? [350-355]. Besides the fact that the training of the bench is limited, essentially only to drug research, the sobering economic reality is that medical research and shareholding in drug patents and profits have increasingly become one. This tends to subvert the goals of science, its integrity and duty to the sick, where important knowledge for physicians is sacrificed to important knowledge of the pharmaceutical, medical industry [356-363]. The fact that homeopathic remedies cannot be patented and are 'priced' as "frequencies cost nothing" [36] does not help their acceptance in this climate of "commercialized medical knowledge" [358].

Some of the referenced authors correctly emphasized the journals' role in physicians' education through an open forum for debating issues in depth, in search of more meaningful approaches versus unproductive "trafficking in facts" that are devoid of new insights [364]. The latter are often triggered by anomalies, such as homeopathy, to the prevailing paradigm, which having been historically recognized as the driving engine of science [351,352].

While homeopathy and its different models must establish their exact utility, yet burying a personalized approach and its viable phenomenon in a mass grave of statistics designed to test a medical retail approach, is not science. This is exactly the case when a secondary role of statistics overrides a primary one, of medical importance [365].

Both the homeopathic and mainstream researchers proposed that individualized CAM treatments, such as homeopathy with its challenge in addressing multisystemic networks in disease, unlike narrow, isolated targets of drugs, be tested through different models [366-371]. Perhaps, Hippocrates cautionary advice might be of use to statistics' researchers

before arriving at ultimate conclusions: "full discovery will be made, if the inquirer be competent, conduct his research with knowledge of the discoveries already made, and make them his starting-point; but anyone who, casting aside and rejecting all these means attempts to conduct research in any other way or after another fashion, and asserts that he has found out anything, is and has been, the victim of deception" (Ancient Medicine 1.2 [6]).

Unknown and implausible mechanism of action

Elucidation of therapeutic mechanisms cannot be overemphasized however, denying an overarching phenomenon and its verified biological effects amounts to the same scientism as denying our existence because of the unknown exact mechanism of the Big Bang. As the great paradox in rejecting homeopathy and its energetic vaccines on this ground, is the birth of vaccinology in 1796, when in spite of its mysterious mechanism, the smallpox vaccine began saving countless lives. But "unknown" may only apply to all of the possible mechanisms of homeopathic action because of their vast number. Given the fact that both parties, the organism and the remedies, consist of mainly two in the same, water and an electromagnetic media, one can only state that the interaction is inevitable, but to determine thousands of its possible components in the process, is "impracticable" [372]. The challenge stems from the unfathomable inventory of the responding party, organism. These are: liters of water in circulatory system, inter- and intracellular compartments, proteins including the bound to DNA and RNA, 2,500 enzymes in each cell and 109 of chemical reactions occurring per second in its space [373-375]. Besides, thousands of tissues, organs and chemical substances combined, with their own energy fields and water being a part of these, can respond to electromagnetic signals of the remedies, directly and indirectly, as receiving and interacting antennas. The documented gene expressions, following homeopathic signaling further overwhelm the discovery process because of numerous components and interactions between genes regulatory networks, most of which remain unknown. This particularly concerns homeopathic actions based on totality or the dozens of phenotypical expressions of multisystemic genotype-environment interactions. The same challenges in tracing exact pathways of actions of energetic forces acting at any exceedingly complex, nonlinear and interconnected biotic system were stated in the similar atmospheric model, as "the possibly countless electrical interactions within biological material" [376].

Unlike pharmaceuticals, electromagnetic signals cannot be traced through radio isotopes to determine their exact pathways within an organism [376,377], nevertheless, a number of plausible mechanisms and results of homeopathic signals were presented. These involve cytokines, signal proteins, cell signaling, epigenetics, gene expressions, cell stress mediators and neuro-endocrine-immune responses [378-389]. Gene expression was also registered in cancer research, following a homeopathic remedy Carcinosisin, an equivalent of the cancer autovaccine or autoisode [170]. The established hormetic effects, with homeopathic solutions containing nanoparticles of the original substances detected by some studies, are known to activate stressor-specific complex mechanisms leading to documented self-repair [390-396]. Homeopathic actions were also explained through sciences of complexity and nanopharmacology [35] and an enhanced sensitivity by inflammation of sensory neurons, to ELF (extremely low frequency) electromagnetic waves, in the range of homeopathic signals range, to trigger a variety of adaptational neuroimmune-endocrine processes [397-403].

ELF represents the dominant electrical spectrum in vertebrates and invertebrates [404] where ELF signals can be significantly amplified

in biological systems and impact gene expression through nonlinear stochastic resonance effect. The latter tends to increase in a heightened state of thermodynamic nonequilibrium that is associated with pathology and enhance a state of co-resonance between a substrate and a signal, resulting in a robust response [405-407]. The close range of frequencies between homeopathic remedies and biological water structures in the organism stimulate co-resonant interactions [408].

A theory of ordered chaos also allows significant effects through weak signals in a complex, dynamic system in an unstable state of bifurcation, as displayed by a computer simulation registering a tornado in Texas, triggered by a flap of butterfly wings in Brazil. Sensitivity of humans to meaningful electromagnetic signals was demonstrated in a blind study when control, plain water, and indicated homeopathics, in closed vials were applied externally with the remedies producing a statistically significant electric skin response [409].

Safety

Some researchers stated that homeopathic remedies cannot produce side effects because of their physico-chemical compatibility with molecular targets in the body [410]. However, side effects often occur not necessarily due to toxicity of a substance, but its inappropriate use or unforeseen circumstances, concerning the state of the recipient. From this perspective, the common assurance of safety, "natural," in CAM lacks substance. Nevertheless, homeopathic remedies, short of accidental contamination, have displayed a high safety record. This has been the case even when toxic substances were diluted below Avogadro number, as reflected by the FDA and observational studies [411,412]. Also, the poison control agencies presented to the FDA only 1% or less of all reports concerning homeopathic products, with 98% of reports indicating either minor or none adverse effects [413]. A few overviews by independent researchers of safety of CAM treatments found the low to none risk of homeopathy for major side effects, and only transient mild increase in the current or return of old symptoms [414-416]. The fact that the latter remained beyond the reach of pharmaceuticals and other CAM interventions underscores the novelty and depth of homeopathic action.

Producing energetic vaccines through imprinting energy fields of microbes into water

Besides the electromagnetic interactions between mammalian cells, including human leukocytes, microorganisms displayed the same, attesting to their presence of electromagnetic fields and also were found to contain magnetic nanoparticles [417-420]. Magnetic elements were detected in humans, too [421-422]. Water is known to possess paramagnetic properties and its structure changed by magnetic fields [423-434]. Magnetoreception in humans, the existence of magnetic nanoparticles and paramagnetic crystals in organisms, magnetic properties of biological water and effects of solutions which contain magnetic fields on biochemical reactions and organisms were documented [432,435-437]. Two hundred publications are cited concerning a response of organisms to magnetic vacuum and define biological magnetoreception as an universal physical mechanism [432]. Another well-known phenomenon in physics, one of natural resonant frequency of all physical structures that also includes all living and microbes further supports the viability of energetic biological vaccines. It also states that when a force is applied to a structure, mechanical as the case with the homeopathic production process or energetic through application of magnetic or other fields, natural frequency amplifies into a state of vibration. Natural frequency of the brain cells was already proposed for a new diagnostic method in clinical research [435].

Regardless whether information is imprinted in water electrically or electronically, which carry magnetic fields, or purely magnetically, transfer of molecular electromagnetic fields of microorganisms into water that delivers biological effects, is a scientific reality.

The aforementioned Professor Montagnier has produced experimental evidence of electromagnetic diagnosis and treatment of bacteria and viruses, with the therapeutics consisting of the standard and also electronically transmitted homeopathics dissolved in water [438-440].

Several experiments demonstrated positive effects of electronically transferred in water antibacterial, including against MRSA, antifungal and anticancer pharmaceutical drugs against their corresponding targets [441-444]. Likewise, numerous experiments registered biological effects of electronically imprinted and transferred information, with some of these involving homeopathics and immune cells [445-461]. Based on this molecular-energetic synergism, magnetobiology advanced a notion of informational pharmacology. Since every atom possesses a magnetic field and viruses, including the Corona family, contain bound to their proteins metal ions with paramagnetic properties [462] these add further credence to energetic vaccines prepared through magnetic imprint of viral molecules into water. Based on quantum physics, theoretical and experimental data in support of medicinal "wave vaccines" was presented [461-463].

A field of a viral culture can be transferred directly from a sealed glass container into a sealed dropper bottle with water, through a field imprinting device, alleviating any safety concerns. In the case of a homeopathic preparation, a culture would undergo a standard serial dilution and potentization process, beyond Avogadro number. Smith has observed a similar beneficial clinical response among the two groups of patients treated for allergy with the correspondingly, homeopathically and magnetically prepared desensitizing drops [464]. Regardless of the production methods, energetic SARS-CoV-2 vaccine offers a capability of being produced in seconds, or minutes, incrementally impregnate large amounts of water and be promptly distributed throughout the world. Certainly, the research in wave or energetic vaccines would have been more productive with proper funding. In 2015, this author sought a grant from both the main office of the NIH and NCCIH to conduct a clinical trial for Ebola infection with energetic vaccines, but was told of none existing for homeopathy or similar interventions.

Clinical experience with addressing covid-19 symptoms and reversing pneumonia through energetic isodes

Energetic isodes were prepared from the available homeopathic isodes, using a field imprinting device. The main reason for using energetic isodes is to enhance an element of personalized treatments by expanding the range of the potencies, where the available homeopathic isodes were in the too narrow range, for the task. In the case of unavailability of homeopathic microbial vaccines, or cultures, another homeopathic model, autoisopathy, using a patient's infected bodily fluids are used to prepare homeopathic or energetic isodes. In my clinical experience, autoisodes demonstrated a particular efficacy in cases of suspected mutated infections, as in Lyme disease or PANDAS, following repetitive antibiotic treatments, as well as in severe immune reactions due to insect bites or other allergens. Even when autoisodes were prepared from infected blood or serum, autoimmune reactions have never been observed, as if the body's immune cells focus primarily on the foreign invaders.

Because of the unavailability of homeopathic isodes of SARS-CoV-2, different multiple strains of available homeopathic influenza

viruses were combined into one remedy, which potency was amplified through the device, with the aim of eliciting a sufficient nonspecific immune response against the virus. The overall approach is based on the same common heuristic principle in medicine, where physicians expand treatments which are based on the same prudent, successful approach. Likewise, allergology utilizes the same desensitization principle for hundreds of foods and environmental allergens combined, without having to conduct clinical trials for each item to justify its use. Many of the drugs which are approved only for, correspondingly, CAD, CHF and HTN, have been successfully used for any of these conditions.

Those few patients in my practice who developed COVID-19 symptoms, reported recovery within 48 hours, following administration of this energetic multi-strain influenza isode. They signed affidavits with their contact information to this effect, which are available upon request. One of these cases was an employee of a New York hospital, who did not use a face mask due to their initial shortage and became very ill. Following these positive responses, some 60 patients took this remedy prophylactically, twice a week, with none reporting development of COVID-19 symptoms from March through October 2020. During my previous 25 years of using mixed influenza and nosocomial bacterial energetic strains, as a prophylaxis during flu seasons, the incidences of flu were very rare, with virtually no hospital visits. Using these energetic isodes in individual form in cases of respiratory and other infections has produced close to 100% recoveries, without resorting to antibiotics. No claims were ever made to the patients, except an attempt to raise their health resistance, with leaving an open option for receiving a conventional flu vaccine which, with rare exceptions, was refused.

Among the documented cases of recovery from infections, was a case of pneumonia that commenced in July 2019, evidenced by chest x-rays, in a middle-aged man with up to 105°F fever, fatigue and debilitating cough with yellow-green mucous. He refused antibiotics due to sustaining severe side effects after their prolonged use, through “Lyme literate doctors,” in the past, and was treated exclusively with energetic isodes – viral, bacterial and toxicological. The latter were to address a well-known immunosuppression and respiratory problems which are caused by environmental pollutants, as he continued to smoke, work and live in a very polluted environment [465]. He returned to full time work within days, with his first follow-up chest x-ray, demonstrating a reduction of the infiltrate. He made a complete recovery and due to the absence of health insurance coverage, the second follow-up chest x-ray was delayed and showed a complete resolution of pneumonia. According to his narrative, his friend who developed the identical clinical picture of pneumonia, spent weeks in a hospital, but after receiving long courses of intravenous and oral antibiotics never fully recovered. This patient’s affidavit, contact information, and chest x-ray reports are available upon request (Figure 1).

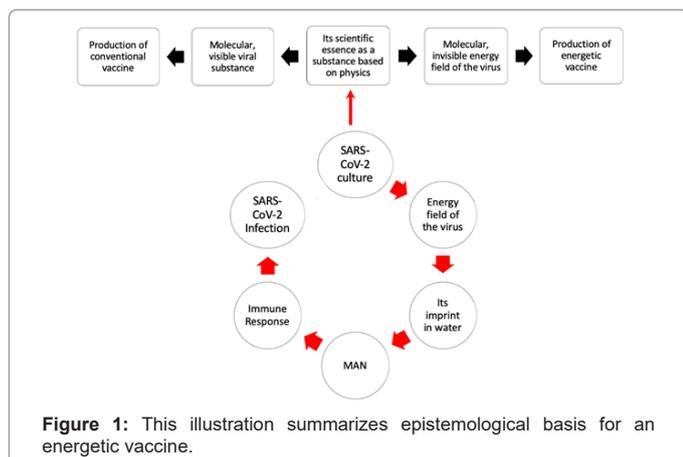


Figure 1: This illustration summarizes epistemological basis for an energetic vaccine.

Molecular-biophysical synergism rendering immune response to either a pharmaceutical or energetic vaccine

Results

This method presents substantial scientific and clinical support for the efficacy of an energetic vaccine. Among this, laboratory evidence for specific immune response induced by analogous energetic vaccines prepared from influenza viruses and other microorganisms. Both basic research and clinical evidence is presented on behalf of therapeutic frequency imprinting technology in its ability to induce positive biological effects through microbial energetic vaccines.

Discussion

Even as the director general of WHO, Dr. Tedros Adhanom, does not foresee a pharmaceutical vaccine as a “silver bullet” in this crisis, such a resignation contradicts the history of science, since it has always used crises for its advancement and finding solutions. This has been often accomplished through a more complete description of a problem that offers more options. The presented information has attempted this along the vertical strata of the subject and calls for its urgent probing through a clinical trial. The simplicity of the proposed solution and its negligent cost may invoke doubt, yet neither the birth of vaccinology, in the archaic 18th century, nor science itself pose any conflict with simplicity. The notorious Occam Razor Rule favors it, as reflected in both homeopathic and energetic vaccines, based on molecular-energetic synergism. However, whether our industrialized medicine will grant it an opportunity for testing and potentially saving many lives, in our supposedly enlightened 21st century might be the real issue.

Conclusion

A positive clinical trial would set a precedent in the prevention and resolution of future pandemics or occurrences of infections carrying high morbidity or mortality such as Ebola, Zika and other viruses in the absence of effective vaccines. Likewise, the method can be extended to increasing incidences of antibiotic and antifungal resistant infections as well as vector-borne endemics such as Lyme disease and others.

Acknowledgement

The author extends acknowledgement to Cyril Smith, PhD for his helpful clarifications concerning physics.

References

1. Coronavirus disease (2009) H1N1 pandemic.
2. 2017-2018 Estimated influenza illnesses, medical visits, hospitalizations, and deaths averted by vaccination in the united states.
3. Centers for disease control and prevention (2020).
4. Katsuyama J (2020) Mutant coronavirus strain more dominant worldwide, possibly more infectious.
5. Lovelace Jr B (2020) CNBC.
6. Le Page, Michael (2020) New Scientist, 124 coronavirus vaccines are in development – but will any work?.
7. McNeil MM, DeStefano F (2018) Vaccine-associated hypersensitivity. J Allergy Clin Immunol 141: 463-472.
8. McNeil MM, Weintraub ES, Duffy J, Sukumaran L, Jacobsen SJ, et al. (2016) Risk of anaphylaxis after vaccination in children and adults. J Allergy Clin Immunol 137: 868-878.
9. Benn CS, Fisker AB, Rieckmann A, Sørup S, Aaby P (2020) Vaccinology: time to change the paradigm? Lancet Infectious Diseases.

10. Berezow A (2020) Vaccines change susceptibility to unrelated diseases, sometimes for the worse.
11. Saxena SK, Chitti SV, Gadugu S (2016) Complementary and alternative medicine in alliance with conventional medicine for influenza therapeutics and prevention. *Future Virol* 11: 661-664.
12. Armstead AL, Li B (2011) Nanomedicine as an emerging approach against intracellular pathogens. *Int J Nanomedicine* 6: 3281-3293.
13. Chikramane PS, Suresh AK, Bellare JR, Kane SG (2010) Extreme homeopathic dilutions retain starting materials: A nanoparticulate perspective. *Homeopathy* 99: 231-242.
14. Seow J, Graham C, Merrick B, Acors S, Steel KJ, et al. (2020) Longitudinal evaluation and decline of antibody responses in SARS-Cov-2 infection.
15. Jonas WB (1999) Do homeopathic nosodes protect against infection? An experimental test. *Altern Ther Health Med* 5: 32-34.
16. Szeto AL, Rollwagen F, Jonas WB (2004) Rapid induction of protective tolerance to potential terrorist agents: a systematic review of low- and ultra-low dose research. *Homeopathy* 93: 173-178.
17. Siqueira CM, Costa B, Amorim AM, Gonçalves M, da Veiga VF, et al. (2013) H3N2 homeopathic influenza virus solution modifies cellular and biochemical aspects of MDCK and J774G8 cell lines. *Homeopathy* 102: 3140.
18. Matikainen S, Sirén J, Tissari J, Veckman V, Pirhonen J, et al. (2006) Tumor necrosis factor Alpha enhances influenza A virus-induced expression of antiviral cytokines by activating RIG-I gene expression. *J Virol* 80: 3515-3522.
19. Coulamy A (1998) survey of the prescription habits of homeopathic doctors on the subject of a single medication: influenzinum. In: french society of homeopathy conference notes: The prescription in homeopathy. French Society of Homeopathy 11: 1-16.
20. Castro D, Galvao Nogueira JW (1974) Prophylaxis of meningitis with meningococinum. *Homeopathy* 41: 6-11.
21. Ferley JP, Zmiron D, d'Adhemar D, Balducci F (1989) A controlled evaluation of a homeopathic preparation in the treatment of influenza-like syndromes. *Br J Clin Pharmacol* 27: 329-335.
22. Vincent S, Demonceaux A, Deswarte D, Scimeca D, Bordet MF (2013) Management of influenza-like illness by homeopathic and allopathic general practitioners in France during the 2009–2010 influenza season. *J Altern Complement Med* 19: 146-152.
23. Rastogi DP, Sharma VD (1992) Study of homeopathic drugs in encephalitis epidemic (1991) in Uttar Pradesh (India). Council for Research on Homeopathy Bulletin 14: 1-11.
24. Siqueira CM, Homsani F, da Veiga VF, Lyrio C, Mattos H, et al. (2016) Homeopathic medicines for prevention of influenza and acute respiratory tract infections in children: blind, randomized, placebo-controlled clinical trial. *Homeopathy* 105: 71-77.
25. Papp R, Schuback G, Beck E, Burkard G, Bengelst JÜ, et al. (1998) OscilloccocimimR in patients with influenza-like syndromes: A placebo-controlled double-blind evaluation. *British Homeopathic J* 87: 69-76.
26. Watanabe Y, Ibrahim MS, Ellakany HF, Abd El-Hamid HS, Ikuta K (2011) Genetic diversification of H5N1 highly pathogenic avian influenza A virus during replication in wild ducks. *J Gen Virol* 92: 2105-2110.
27. Nair KJ, Gopinadhan S, Kurup TS, Kumar BS, Aggarwal A, et al. (2014) Homeopathic genus epidemicus 'Bryonia alba' as a prophylactic during an outbreak of chikungunya in India: A cluster-randomised, double-blind, placebo-controlled trial. *Indian J Res Homeopathy* 8: 160-165.
28. Bracho G, Varela E, Fernández R, Ordaz B, Marzoa N, et al. (2010) Large-scale application of highly-diluted bacteria for Leptospirosis epidemic control. *Homeopathy* 99: 156-166.
29. Masiello DJ (2020) The COVID-19 pandemic: A view from new york city. *Homeopathy* 109: 163-166.
30. Nelson DH, Perchaluk JM, Logan AC, Katzman MA (2019) The bell tolls for homeopathy: time for change in the training and practice of north american naturopathic physicians. *J Evid Based Integr Med* 24.
31. Gottwald FT (2002) Life-a problem inherent in the research context. 4:25-38.
32. Trefil J, Hazen RM (2016) The sciences: an integrated approach. John Wiley & sons.
33. De Loof A (2016) The cell's self-generated "electrome": The biophysical essence of the immaterial dimension of life? *Commun Integr Biol* 9: e1197446.
34. Mohseni M, Omar Y, Engel GS, Plenio MB (2014) Quantum effects in biology. Cambridge University Press.
35. Wilson EO (1998) Consilience: The Unity of Knowledge. Vintage.
36. Bellavite P, Signorini A (1995) Homeopathy: A frontier in medical science: Experimental studies and theoretical foundations (1st edn.). Atlantic Books pp:335-335.
37. Montagnier L (2014) The memory of water.
38. Calabrese EJ (2004) Hormesis: A revolution in toxicology, risk assessment and medicine. *EMBO Reports* 5: S37-S40.
39. Mail L, Franke J (2013) Hormesis in aging and neurodegeneration-a prodigy awaiting dissection. *Int J Mol Sci* 14:13109-13128.
40. Bellavite P, Chirumbolo S, Marzotto M (2010) Hormesis and its relationship with homeopathy. *Hum Exp Toxicol* 29: 573-579.
41. Dei A (2017) Hormesis and Homeopathy: Toward a New Self-Consciousness. Dose-response : A publication of International Hormesis Society, 15: 1559325817744451.
42. Mastrangelo D (2007) Hormesis, epitaxy, the structure of liquid water, and the science of homeopathy. *Med Sci Mon Int Med J Exp Clin Res* 13: SR1–SR8.
43. Clement RT (1997) What every dermatologist should know about homeopathy, Hormesis, and pharmacological inversion. *Arch Dermatol* 133: 245.
44. Wiegant F, Van Wijk R (2010) The similia principle: Results obtained in a cellular model system. *Homeopathy* 99: 3-14.
45. Lapp C, Wurmser L, Ney J (1955) Infinitesimal doses of sodium arseniate causing mobilization of fixed arsenic in guinea pigs. *Therapies* 10: 625.
46. Cazin JC, Cazin M, Gaborit JL, Chaoui A, Boiron J, et al. (1987) A study of the effect of decimal and centesimal dilutions of Arsenic on the retention and mobilization of Arsenic in the rat. *Hum Toxicol* 6: 315.
47. Cazin JC, Cazin M, Chaoui A, Belon P (1991) Influence of several physical factors on the activity of ultra-low doses. In: C. Doutremepuich (ed), Ultra Low Doses. Taylor and Francis, London, United Kingdom, pp: 69.
48. Herkovits, Perez-Coll C, Zeni W (1988) Reduced toxic effect of Cd on bufo arenarum embryos by means of very diluted and stirred solutions of Cd. *Communicationes Biologicas* 7:70-73.
49. Delbancut A, Dorfman P, Cambar J (1993) Protective effect of very low concentrations of heavy metals (cadmium and cisplatin) against cytotoxic doses of these metals on renal tubular cell cultures. *Brit Hom J* 82: 123.
50. Fisher P, Capel ID (1982) The treatment of experimental lead intoxication in rats by plumbum metallicum und penicillamine. In proceedings of the 35th congress of the liga medicorum homeopathica internationis, London: 320-332.
51. Progetti ML, Guillemain J, Tetau M (1985) Curative and preventive effects of homeopathic dilutions of copper sulphate applied to pre- or post-intoxic lentil mins. *Cahiers de Biotherapie* 88: 21-27.
52. Cambar J, Desmouliere A, Cal JC, Guillemain J (1983) Demonstration of the protective effect of homeopathic dilutions of Mercurius corrosivus vis-à-vis mortality from mercuric chloride in mice. *Ann Hom Fr* 25: 160.
53. Guillemain (1984) Protective effect of homeopathic dilutions of nephrotoxic metals against mercury poisoning. *Cah. Biotherapy* 81: 27.
54. Boiron J, Marin J (1965) Action of homeopathic dilutions of HgCl₂ on the respiration of wheat coleoptiles. *Ann Homeop Fr* 7: 259-264.
55. Boiron J, Marin J (1965) Action of two successive dilutions of HgCl₂ on the respiration of wheat coleoptiles. *Ann Homeop Fr* 7: 635-638.
56. Blostin R (1990) Arsenicum album and neurotoxic poisoning in dogs. In Proceedings of the second International Congress for Veterinary Homeopathy. Zutphen, The Netherlands.
57. Aubin M, Berjon JJ, Bildet J, Gomez H, Larue J, et al. (1980) Study of the hepatoprotective activity of Phosphorus on liver fragments of adult rats placed in organotypic culture on artificial medium after intoxication by CCL₄. *Ann Hom Fra* 22: 25-33.
58. Bildet J, Aubin M, Baronnet S, Berjon JJ, Gomez H, et al. (1984) Resistance of the rat liver cell after infinitesimal carbon tetrachloride poisoning. *Ann Hom*

- Fra 72: 175-181.
59. Bildet J, Guere JM, Saurel J, Aubin M, Demarque D (1975) Study of the action of different dilutions of phosphorus on toxic hepatitis in rats. *Ann Hom Fr* 17: 425.
60. Bildet J, Bonini F, Gendre P, Aubin M, Demarque D (1984) Electron microscopic study of the action of dilutions of 15 ch phosphorus on toxic hepatitis in rats. *French Homeopathy* 72: 211.
61. Bildet J, Aubin M, Baronnet S, Berjon JJ, Gomez H, et al. (1984b) Resistance of rat liver cells after infinitesimal carbon tetrachloride poisoning. *Homeopathie Francaise* 72:175.
62. Ugazio G, Koch RR, Recknagel R (1972) Mechanism of protection against carbon tetrachloride by prior carbon tetrachloride administration. *Exp Mol Path* 16:281-285.
63. Pound AW, Horn L, Lawson TA (1973) Decreased toxicity of DMN in rats after treatment with carbon tetrachloride. *Pathol* 5:233-242.
64. Cier A, J Boiron, C Vingerte (1966) On the treatment of experimental diabetes with infinitesimal dilutions of alloxane. *Ann Hom Fr* 8:137.
65. De Gerlache J, Lans M (1991) Modulation of experimental rat liver carcinogens by ultra-low doses of the carcinogens. In ultra low doses C. Doutremepuich, 4th edn, Taylor and Francis, London.
66. Gardes E (1989) Effect of an infinitesimal dilution of nalidixic acid on the elimination of this same molecule in healthy humans. *Pharmacy diploma" French Homeopathic Annals* 77:60.
67. Delbancut A, Dorfman P, Cambar J (1993) Protective effect of very low concentrations of heavy metals (cadmium and cisplatin) against cytotoxic doses of these metals on renal tubular cell cultures. *Brit Hom J* 82:123-124.
68. Guillemain J, Douylliez C, Bastide M, Cambar J, Narcise G (1987) *Pharmacologie de l'infinitesimal. Application aux dilutions homeopathiques.* *Homeopathie* 4:35-69.
69. Pennec JP, Aubin M (1984) Effect of Aconitum and Veratrum on the isolated perfused heart of the common heel (*Anguilla-anguilla L.*) *Comp Biochem Physiol* 77:367-369.
70. Paterson J (2011) Report on mustard gas experiments (Glasgow & London). *J Am Inst Hom* 100:27-35.
71. Khuda-Bukhsh AR, Banik S (1991) Assessment of cytogenetic damage in X-irradiated mice and its alteration by oral administration of potentized homeopathic drug, Ginseng D200. *Berlin J Res Homeo* 81:114.
72. Khuda-Bukhsh AR, Banik S (1991) Alterations of cytogenetic effects by oral administration of a homeopathic drug, *Ruta graveolens*, in mice exposed to sub-lethal X-irradiation. *Berlin J Res Homeop* 81:114.
73. Labonia W (1986) Acao das doses minimas na protecao do envenenamento ofido de animals de laboratorio. congress of liga medicorum homeopathicorum internationalis, Rio De Janeiro.
74. Souza M (1986) Reducao da nefrotoxicidade induzida por aminoglucoisdeos 41.Liga Medicorum Homeopathicorum Internationalis Congress, Rio de Janeiro.
75. Linde K, Jonas, Wayne B, Dieter Melchart, Felege Worku, et al. (1994) Critical Review and Meta-Analysis of Serial Agitated Dilutions in Experimental Toxicology. *Hum Exp Toxicol* 13:481-492.
76. Cambar J (1998) Effects of metal high dilutions on cells and integrated systems in taddei-ferretti c. marotta p. high dilution effects on cells and integrated systems, World Scientific.
77. Shahabi S (2014) Memory of water and law of similars. In P. Rosch (Ed.) *Bioelectromagnetic and subtle energy medicine.* Florida: CRC Press pp:168-179.
78. Shahabi S, Hashemi M, Muhammad Hassan Z, Javan M, Zahra Bathaie S et al. (2006) The effect of post-burn local hyperthermia on the reducing burn injury: The possible role of opioids. *Int J Hyperthermia* 22:421-431.
79. Shahabi S (2006) Evaluation of the effect of post-burn heating on healing of burned skin and burn-induced immunosuppression in Balb/c Mice.Tehran: Tarbiat Modarres University.
80. Shahabi S, Hassan ZM, Hashemi SM, Shahrokhi S, Karimipour M, et al. (2005) Hyperthermia can accelerate the healing process of 2nd degree burn wounds. *J Kerman Univ Medical Sci* 12:110-118.
81. Shahabi S, Hassan ZM, Jazani NH (2009) Post-heat shock tolerance: A neuroimmunological anti-inflammatory phenomenon. *J Inflamm* 6:1-7.
82. Zhao Z, Corvera S, Michael E, Kerendi F, Vinten-Johansen J (2003) Inhibition of myocardial injury by ischemic post conditioning during reperfusion: Comparison with ischemic preconditioning. *Am J Physiol Heart Circ* 285:H579-H588.
83. Chattopadhyay R, Mahata CR (2015) A Fundamental study to observe correlation at molecular level between Bio-Samples of Patients and Indicated Homeopathic Medicines. *Int J High Dilution* 15:11-17.
84. Bell IR (2019) The complexity of the homeopathic healing response Part 1 and 2: The role of the body as a complex adaptive system in simulum-initiated recovery from disease. *Homeopathy* 2:109.
85. Pert CB, Ruff RM, Weber JR, Herkenham M (1985) Neuropeptides and their receptors: a psychosomatic network. *J Immun* 135:820-826.
86. Pearsall P, Schwartz GE, Russek LG (2005) *Organ Transplants and Cellular Memories.* *Nexus Magazine* 12:1.
87. Gariaev PP, Chudin VI, Komissarov GG, Berezen AA, Vasseliev AA (1991) Holographic associative memory of biological systems. *Proc. 81E* 1621:280-291.
88. Ho M (2008) *The liquid crystalline organism and crystal consciousness.* In M.V. Ho 3rd Edn. *The rainbow and the worm: The Physics of Organisms.* World Scientific.
89. Becker R, Selden G (1998) *The body electric: electromagnetism and the foundation of life.* Harper Collins.
90. Varela F, Thompson JE, Rosch E (1991) *The embodied mind: Cognitive science and human experience.* MIT Press.
91. Ernst E, Pittler M (1998) Efficacy of homeopathy *Arnica*: A systematic review of placebo-controlled clinical trials. *Arch Surg* 133:1187-1190.
92. Roy R, Tiller WA, Bell I, Hoover MR (2005) The structure of liquid water; Novel insights from materials research; Potential relevance to homeopathy. *Mat Res Inno* 9:98-103.
93. Cho CH, Surjit Singh G, Robinson W (1997) Understanding all of water's anomalies with a nonlocal potential. *The J Chem Phys* 107:7979-7988.
94. Ball P (2008) *Water- an enduring mystery.* *Nature* 452:291-292.
95. Shu-Kun Lin (2013) Why we understand so little. In pollack g, the fourth phase of water: beyond solid, liquid. 5:638-639.
96. Cabane B, Vuilleunier R (2005) The physics of liquid water. *Comptes Rendus Geoscience*, 337: 159-171.
97. Ho M (2015) Life is water electric. *Electromag Biol Med* 34:113-122.
98. Ho M (2012) *Living Rainbow H2O.* Monograph Institute of Science in Society UK.
99. Sadhukhan M, Sutradhar A, Syam P Mahata CR, Chattopadhyay R (2010) *Mystery of potentised substances: Some significant attempts to unveil it.* 2010 Intern Conf Sys Med Bio.
100. Pollack GH (2013) *The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor.* *Water* 5:638-639.
101. Antonchenko VY, Ilyin VV (1992) Points at issue in the physics of water and homeopathy. *Brit Homeo J* 81:91-93.
102. Elia V, Niccoli M (2004) New physico-chemical properties of extremely diluted aqueous solutions. *J Therm Anal Colorim* 75:815-836.
103. Voeikov VL (2007) The possible role of active oxygen in the memory of water. *Homeo* 96:196-201.
104. Chaplin MF (2007) The memory of water: An overview. *Homeo* 96:143-150.
105. Sergeev B (1971) *Physiology for Everyone.* Mir Pub Moscow Russia p 11-16.
106. Mahata CR (1997) Homeopathy explained in the light of recognized science. *The Homeo Heri* 22:245-252.
107. Mahata CR (2017) Avogadro limit washed out by nano-associates of water which continue as information carriers in serial dilutions and end up with generalized concept of medicines. *Intern J Comple Alter Med* 9:32.
108. Giudice DE, Preparata G, Vitiello G (1988) *Water as a free electric*

- dipole laser. *Phy Rev Let* 61:1085-1088.
109. Rao ML, Roy R, Bell IR, Hoover R (2007) The defining role of structure (including epitaxy) in the plausibility of homeopathy. *Homeo* 96:175-182.
110. Roy R, Tiller WA, Bell I, Hoover MR (2005) The structure of liquid water; novel insights from materials research; potential relevance to homeopathy. *Mat Res Innov* 9:98-103.
111. Elia V, Marrari LA, Napoli E (2011) Aqueous nanostructures in water induced by electromagnetic fields emitted by EDS. *J Ther Anal Calor* 107:843-851.
112. Antonchenko VY, Ilyin VV (1992) Points at issue in the physics of water and homeopathy. *Brit Homeo J* 81:91-93.
113. Kononov AI, Rychina LS (2014) Formation of nanoassociates as a key to understanding of physicochemical and biological properties of highly dilute aqueous solutions. *Russian. Chem. Bull Int Edition* 63:1-14.
114. Elia V, Napoli E (2010) Dissipative structures in extremely diluted solutions of homeopathic medicines. A molecular model based on physicochemical and gravimetric evidences. *Int J Des Nat* 5:39-48.
115. Weingartner O (2007) The nature of the active ingredient in ultramolecular dilutions. *Homeo* 96:220-226.
116. Arani R, Bonol, Del Giudice E, (1995) Preparata G (1995) QED coherence and the thermodynamics of water. *Int J Med Phys B9*:1813-1841.
117. Giudice DE, Preparata G (1998) Coherent electrostatics in water. In *Fundamental research in ultra high dilution and homeopathy schulte*. J Endler PC 89-103.
118. Chrubini R, Dal Piaz P, Minette B, Preparata G (1990) Quantum Field theory of superradiance. in *problems of fundamental modern physics*. singapore: World Scientific.
119. Giudice DE (1994) Is the Memory of water a physical impossibility? In *Ultra High Dilution*, Endler P.C, Schulte J. 8:117-119.
120. Preparata G (1995) QED Coherence in Matter. Singapore World Scientific.
121. Del Giudice E, Preparata G (1998) A new QED picture of water: understanding a few fascinating phenomena. *Macroscopic Quantum Coherence* pp:108-129.
122. Smith CW (1998) Electromagnetic effects in humans. In *Biological coherence and response to external stimuli*. Springer, Berlin, Heidelberg, pp:202-232.
123. Smith CW (2004) Quanta and coherence effects in water and living systems. *The J Altern Complement Med* 10: 69-78.
124. Smith CW (1994) Coherence in living biological systems. *Neural Network World* 4: 379-388.
125. Widom A, Srivastava Y, Valenzi V (2010) The biophysical basis of Benveniste experiments: Entropy, structure, and information in water. *Int J Quantum Chem* 110: 252-256.
126. Davenas E, Beauvais F, Amara J, Oberbaum M, Robinzon B, et al. (1988) Human basophil degranulation triggered by very dilute antiserum against IgE. *Nature*. 333: 816-818.
127. Cartwright SJ (2020) Homeopathic Potencies May Possess an Electric Field (like) Component: Evidence from the Use of Encapsulated Solvatochromic Dyes. *Homeopathy* 109:014-022.
128. Mahata CR (2013) Dielectric dispersion studies of some potentised homeopathic medicines reveal structured vehicle. *Homeopathy* 102:262-267.
129. Walach H, Van Asseldonk T, Bourkas P, Delinick A, Ives G, et al. (1998) Electric measurement of ultra-high dilutions-A blinded controlled experiment. *Brit Hom J* 87:3-12.
130. Assumpção R (2008) Electrical impedance and HV plasma images of high dilutions of sodium chloride. *Homeopathy* 97:129-133.
131. Lenger K (2006) Homeopathic Potencies Identified by a New Magnetic Resonance Method: Homeopathy-An Energetic Medicine. *Subtle Energies & Energy Medicine Journal Archive* 15.
132. Smith CW, Endler PC (1994) Resonance phenomena of an ultrahigh dilution of thyroxine-preliminary results. in *ultra high dilution*, Springer, Dordrecht, pp:203-207.
133. Luu C (1976) Study of homeopathic dilutions by Raman-Laser spectroscopy: interpretation test of their mechanism of action. Ed. Of Laboratoires Boiron.
134. Barros J, Pasteur St (1984) Omeopatia, Medicina del Terreno.
135. F Palombi Editore (1977) (original edition: Homeopatia, Medicina del Terreno. E Bibl Universidad Central de Venezuela, Caracas.
136. Smith Jr RB, Boericke GW (1966) Modern instrumentation for the evaluation of homeopathic drug structure. *AJHM* 59:263.
137. Young TM (1975) Nuclear magnetic resonance studies of succussed solutions. *J Am Inst Homeopath* 68:8-16.
138. Lasne Y, Duplan JC, Fenet B, Guerin A (1989) Contribution to the scientific approach of homeopathic doctrine. *From Natura Rerum* 3:38-43.
139. Smith RB, Boericke GW (1968) Changes caused by succussion on NMR patterns and bioassay of bradykinin triacetate (BKTA) succussions and dilutions. *J Am Inst Homeopathy* 61:197-212.
140. Sachs AD (1983) Nuclear magnetic resonance spectroscopy of homeopathic remedies. *J Holistic Med* 5: 172-175.
141. Demangeat JL (2009) NMR water proton relaxation in unheated and heated ultrahigh aqueous dilutions of histamine: evidence for an air-dependent supramolecular organization of water. *J Mol Liq* 144:32-39.
142. Aabel S, Fossheim S, Rise F (2001) Nuclear magnetic resonance (NMR) studies of homeopathic solutions. *Br Homeop J* 90:14-20.
143. Anick DJ (2004) High sensitivity 1 H-NMR spectroscopy of homeopathic remedies made in water. *BMC Complementary and Alternative Med* 4:15.
144. Demangeat JL (2013) Nanosized solvent superstructures in ultramolecular aqueous dilutions: twenty years' research using water proton NMR relaxation. *Homeopathy* 102: 87-105.
145. Rey L (2003) Thermoluminescence of ultra-high dilutions of lithium chloride and sodium chloride. *Physica A* 323:67-74.
146. Chikramane PS, Suresh AK, Bellare JR, Kane SG (2010) Extreme homeopathic dilutions retain starting materials: A nanoparticulate perspective. *Homeopathy* 99: 231-242.
147. Kokornaczyk MO, Würtenberger S, Baumgartner S (2019) Phenomenological characterization of low-potency homeopathic preparations by means of pattern formation in evaporating droplets. *Homeopathy* 108:108-120.
148. Doesburg P, Andersen JO, Scherr C, Baumgartner S (2016) Replication of specific effects of a Stannum metallicum 30x preparation in a cress seedling/biocrystallization test system. *Homeopathy* 105:12-13.
149. Aparicio AC, de Oliveira LH, Silva JS, Coelho CP, Pinheiro SR, et al. (2020) Interaction between solvatochromic dyes and water sampled from a natural source treated with high dilutions of phosphorus. *Homeopathy* 109: 126-132.
150. Bell IR, Lewis DAOO, Lewis SE, Schwartz GE, Brooks AJ et al. (2004) EEG alpha sensitization in individual homeopathic treatment of fibromyalgia. *Int J Neurosci* 14: 1195-1220.
151. Bell IR, Howerter A, Jackson N, Aickin M, Bootzin RR, et al. (2012) Brooks AJ. Nonlinear dynamical systems effects of homeopathic remedies on multiscale entropy and correlation dimension of slow wave sleep EEG in young adults with histories of coffee-induced insomnia. *Homeopathy* 101: 182-192.
152. Bell IR, Schwartz GE, Frye J, Sarter B, Standish LJ (2015) Extending the adaptive network nanomedicine model for homeopathic medicines: nanostructures as salient cell danger signals for adaptation. *Nanosci Technol* 2:1-22.
153. Dei A, Bernardini S (2015) Hormetic effects of extremely diluted solutions on gene expression. *Homeopathy* 104:116-122.
154. Bellavite P, Marzotto M, Olioso D, Moratti E, Conforti A (2014) High-dilution effects revisited. 1. Physicochemical aspects. *Homeopathy* 103: 4-21.
155. Del Giudice E, Preparata G (1998) Coherent electrostatics in water. In *Fundamental Research in Ultra High Dilution and Homeopathy*, Springer, Dordrecht, pp: 89-103.
156. Jonas WB, Dillner D (2000) Protection of mice from Tularemia infection with ultra-low, serially agitated dilutions prepared from Francisella tularensis-infected tissue. *J Scient Explor* 14: 35-52.

157. Betnwich Z (1992) Transfer of immunological information by extreme dilutions of KLH. *OMEOMED* 7:2
158. Oberbaum M, Markovits R, Weisman Z, Kalinkevits A, Bentwich Z (1993) Wound healing by homœopathic silicea dilutions in mice. *Brit Hom J* 82: 61.
159. Bastide M, Doucet-Jaboeuf M, Daurat V (1985) Activity and chronopharmacology of very low doses of physiological immune inducers. *Immunology today* 6: 234-235.
160. Bastide M, Daurat V, Doucet-Jaboeuf M, Pelegrin A, Dorfman P (1987) Immunomodulatory activity of very low doses of thymulin in mice. *Int J Immunotherapy* 3:191-200.
161. Daurat V, Dorfman P, Bastide M (1988) Immunomodulatory activity of low doses of interferon alpha, beta in mice. *Biomed & Pharmacother* 42:197.
162. Davenas E, Poitevin B, Benveniste J (1987) Effect on mouse peritoneal macrophages of orally administered very high dilutions of silica. *Eur J Pharmacol* 135: 313-319.
163. Mazloomi E, Ilkhanizadeh B, Zare A, Shahabi S (2020) Evaluation of the efficacy of isopathic immunotherapy in the treatment of allergic asthma in BALB/C mice. *J Asthma* 57: 670-679.
164. Youbicier-Simo BJ, Boudard F, Mekaouche M, Bastide M, Baylé JD (1993) Effects of embryonic bursectomy and in ovo administration of highly diluted bursin on adrenocorticotropic and immune responses of chickens. *Int J Immunol Immunother* 9:169-180.
165. Camerlink I, Ellinger L, Bakker EJ, Lantinga EA (2010) Homeopathy as replacement to antibiotics in the case of *Escherichia coli* diarrhoea in neonatal piglets. *Homeopathy* 99:57-62.
166. Davenas E, Beauvais F, Amara J, Oberbaum M, Robinzon B (1988) Human basophil degranulation triggered by very dilute antiserum against IgE. *Nature* 333:816-818.
167. Belon P, Cumps J, Ennis M, Mannaioni PF, Roberfroid M, et al. (2004) Sainte-Laudy J, Wiegant FA. Histamine dilutions modulate basophil activation. *Inflammation Research* 53:181-188.
168. Taylor MA (2000) Randomized controlled trial of homeopathy versus placebo in perennial allergic rhinitis with overview of four trial series. *Nr Med J* 321: 471-476.
169. Belon P, Banerjee P, Choudhury SC, Banerjee A, Biswas SJ, et al. (2006) Can administration of potentized homeopathic remedy, Arsenicum album, alter antinuclear antibody (ANA) titer in people living in high-risk arsenic contaminated areas? I. A correlation with certain hematological parameters. *Evid Based Complementary Altern Med* 3:99-107.
170. Frenkel M, Mishra BM, Sen S, Yang P, Pawlus A, et al. (2010) Cytotoxic effects of ultra-diluted remedies on breast cancer cells. *Int J Oncol* 36: 395-403.
171. Roberfroid M, de Gerlache J, Lans M (1983) Action of Hahnemanian potencies upon artificially produced cancer in animals. *Aspects of research in Homeopathy* 1:11-18.
172. Biswas SJ, Khuda-Bukhsh AR (2002) Effect of a homeopathic drug, Chelidonium, in amelioration of p-DAB induced hepatocarcinogenesis in mice. *BMC Complementary and Alternative Medicine* 2:4.
173. Pathak S, Multani AS, Banerji P, Banerji P (2003) Ruta 6 selectively induces cell death in brain cancer cells but proliferation in normal peripheral blood lymphocytes: A novel treatment for human brain cancer. *Int J Oncol* 23: 975-982.
174. Biswas SJ, Khuda-Bukhsh AR (2002) Effect of a homeopathic drug, Chelidonium, in amelioration of p-DAB induced hepatocarcinogenesis in mice. *BMC Complementary and Alternative Medicine* 2:4.
175. Frenkel M, Hermoni D (2002) Effects of homeopathic intervention on medication consumption in atopic and allergic disorders. *Altern Ther Health Med* 8:76.
176. Poitevin B, Davenas E, Benveniste J (1988) In vitro immunological degranulation of human basophils is modulated by lung histamine and Apis mellifica. *Br J Clin Pharmacol* 25:439-444.
177. Belon P, Cumps J, Ennis M, Mannaioni PF, Sainte-Laudy J, et al. (1999) Inhibition of human basophil degranulation by successive histamine dilutions: results of a European multi-centre trial. *Inflammation research*. 48: 17-18.
178. Brown V, Ennis M (2001) Flow-cytometric analysis of basophil activation: inhibition by histamine at conventional and homeopathic concentrations. *Inflammation Research* 50(2): 47-48.
179. Belon P, Cumps J, Ennis M, Mannaioni PF, Roberfroid M, et al. (2004) Sainte-Laudy J, Wiegant FA. Histamine dilutions modulate basophil activation. *Inflammation Research* 53:181-188.
180. Guggisberg AG, Baumgartner SM, Tschopp CM, Heusser P (2005) Replication study concerning the effects of homeopathic dilutions of histamine on human basophil degranulation in vitro. *Complement Ther Med* 13:91-100.
181. Chirumbolo S, Brizzi M, Ortolani R, Vella A, Bellavite P (2009) Inhibition of CD203c membrane up-regulation in human basophils by high dilutions of histamine: a controlled replication study. *Inflammation Research* 58:755-764.
182. Bellavite P, Ortolani R, Pontarollo F, Piasere V, Benato G, et al. (2006) Immunology and homeopathy. 4. Clinical studies-part 1. *Evid Based Complementary Altern Med* 3: 293-301.
183. Bellavite P, Ortolani R, Pontarollo F, Piasere V, Benato G, et al. (2006) Immunology and homeopathy. 4. Clinical studies-part 2. *Evid Based Complementary Altern Med* 3: 397-409.
184. Mathie RT, Baitson ES, Hansen L, Elliott MF, Hoare J (2010) Homeopathic prescribing for chronic conditions in feline and canine veterinary practice. *Homeopathy: J Fac Homeo* 99:243-248.
185. Banerji P, Campbell DR, Banerji P (2008) Cancer patients treated with the Banerji protocols utilising homeopathic medicine: A Best Case Series Program of the National Cancer Institute USA. *Oncol Rep* 20: 69-74.
186. Johnson T, Boon H (2007) Where does homeopathy fit in pharmacy practice? *Am J Pharm Educ* 71:7.
187. Cavaco AM, Arslan M, Şar S (2017) Informing the homeopathic practice for Turkish pharmacists: reviewing the example of Portuguese community pharmacies. *Homeopathy* 106:93-102.
188. Homeopathic Research Conference, London, 2019.
189. Bischof M, Del Giudice E (2013) Communication and the emergence of collective behavior in living organisms: a quantum approach. *Mol Biol Int* 2013:1-19.
190. HuBMAP Consortium (2019) The human body at cellular resolution: The NIH Human Biomolecular Atlas Program. *Nature* 574:187.
191. Wiggins P (2008) Life depends upon two kinds of water. *PLoS ONE* 3:e1406.
192. Szent-Györgyi A (1957) Bioenergetics. *J Chem Educ* 34: 627.
193. Ling G (1962) A physical theory of the living state: The association-induction hypothesis. New York: Blaisdell Publishing Company.
194. Gurwitsch AA (1932) "Die Mitogenetische Strahlung des Markhaltigen Nerven," *Pflugers Arch ges Physiol* 231:234-243.
195. Fröhlich H (1969) Quantum Mechanical Concepts in Biology, in M. Marois (edn) *Theoretical Physics & Biology* Amsterdam: North Holland pp:13-22.
196. Fröhlich H (1988) Biological coherence and response to external stimuli. Springer Science & Business Media.
197. Frohlich H (1978) Coherent electric vibrations in biological systems and the cancer problem *Microwave Theory and Techniques, IEEE Transactions*, 26:613-618.
198. Melkikh AV (2015) Nontrivial quantum and quantum-like effects in biosystems: Unsolved questions and paradoxes. *Progress in Biophy and Mol Biol* 119:137-161.
199. Preparata G (1995) QED Coherence in matter. Singapore: World Scientific.
200. DelGiudice E, Tedeschi A (2009) Water and Autocatalysis in Living Matter. *Electro Biol Med* 28:46-52.
201. Del Giudice E, Doglia S, Milani M, Vitiello G (1998) Structures, correlations and electromagnetic interactions in living matter: Theory and applications. In: *Biological Coherence and Response to External Stimuli*. Springer, Verlag, Berlin, (P 49).
202. Del Giudice E (2015) The origin and the special role of coherent water in living systems. *Fields Cell* 95-111.

203. Pokorny J, Wu TM (1998) *Biophysical Aspects of Coherence and Biological Order*. Springer, Berlin, Heidelberg, New, Academia Praha, Czech Republic.
204. Pokorny J (1999) Conditions for coherent vibrations in cytoskeleton. *Bio-electrochemistry and Bioenergetics* 48: 267-271.
205. Del Giudice E, Preparata G, Vitiello G (1988) Water as a free electric dipole laser. *Phy Rev Lett* 61:1085-1088.
206. Popp FA, Nagl W (1988) Concerning the question of coherence in biological systems. *Cell Biophys* 13:218-220.
207. Popp FA (1992) Some essential questions of biophoton research and probable answers, in *Recent Advances in Biophoton Research and its Applications*, Popp FA, Li KH, Gu Q, eds. World Scientific, Singapore, 1-46.
208. Van Wijk R, Schamhart DH (1988) Regulatory aspects of low intensity photon emission. *Experientia* 44: 586-593.
209. Bischof M, Del Giudice E (2013) Communication and the emergence of collective behavior in living organisms: A quantum approach. *Mol Biol Int* 2013: 1-19.
210. Del Giudice E, Preparata G (1995) Coherent dynamics in water as a possible explanation of biological membranes formation. *J Biol Phys* 20: 105-116.
211. Del Giudice E, Preparata G (1998) electrodynamical like-charge attractions in metastable colloidal crystallites. *Mod Phys Lett B* 12: 881-885.
212. De Ninno A, Castellano AC, Del Giudice E (2013) The supramolecular structure of liquid water and quantum coherent processes in biology. *J Phy Conf Ser* 442: 012031.
213. Del Giudice E, De Ninno A, Fleischmann M, Mengoli G, Milani M, et al (2005) Coherent quantum electrodynamics in living matter. *Electromag Biol Med* 24: 199-210.
214. Giudice ED, Preparata G (1998) Electrodynamic like-charge attractions in metastable colloidal crystallites. *Mod Phys Lett B* 12: 881-885.
215. Del Giudice E, Preparata G (1998) A new QED picture of water: Understanding a few fascinating phenomena, in: *Sassaroli, Macroscopic Quantum Coherence*, World Scientific, Singapore, New Jersey, London pp:108-119.
216. Del Giudice E, Spinetti PR, Tedeschi A (2010) Water Dynamics at the Root of Metamorphosis in Living Organisms. *Water* 2:566-586.
217. Arani R, Bono I, Giudice ED, Preparata G, et al. (1995) QED Coherence and the thermodynamics of water, *Int J Mod Phys B* 9:1813-1841.
218. Fels, D (2009) Cellular communication through light. *PLoS ONE* 4: e506.
219. Fleming GR, Scholes G, Cheng YC (2011) Quantum effects in biology. *Proc Chem* 3: 38-57.
220. Wiggins P (2008) Life depends upon two kinds of water. *PLoS ONE* 3: e1406.
221. Ho MW, Yu-Ming Z, Haffegge J, Watton A, Musumeci F (2006) The liquid crystalline organism and biological water. Pollack G (ed), *Cell Biology*, Springer Dordrecht.
222. Ho M (2015) Illuminating water and life: Emilio Del Giudice. *Electromag Biol Med* 34: 113-122.
223. Ball P (2008) Water as an Active Constituent in Cell Biology *Chem. Rev* 108: 74-108.
224. Ball P (1999) *H₂O: A Biography of Water*. Weidenfeld and Nicholson.
225. Sunnerhagen M, Denisov VP, Venu K, Bonvin AM, Carey J, et al. (1998) Water molecules in DNA recognition I: hydration lifetimes of trp operator DNA in solution measured by NMR spectroscopy. *J Mol Biol* 282: 847-858.
226. Bonvin AM, Sunnerhagen M, Otting G, van Gunsteren WF (1998) Water molecules in DNA recognition II: A molecular dynamics view of the structure and hydration of the trp operator. *J Mol Biol* 282: 859-873.
227. Subirana JA, Soler-Lopez M (2003) Cations as hydrogen bond donors: a view of electrostatic interactions in DNA. *Annu Rev Biophys Biomol Struct* 32: 27-45.
228. Jerman I (2016) The Origin of Life from Quantum Vacuum, Water and Polar Molecules. *Ame J Mod Phy* 5: 34
229. Geesink H, Jerman I, Meijer D (2020) Water, the cradle of life via its coherent quantum frequencies. *Water* 11: 78-108.
230. Geesink H J, Meijer DK (2016) Quantum wave information of life revealed: An algorithm for electromagnetic frequencies that create stability of biological order, with implications for brain function and consciousness. *NeuroQuantology* 14: 106-125.
231. Bizzarri M, Monti N, Minini M, Pensotti A (2019) Field-dependent effects in biological systems. *Organisms J Biol Sci* 3: 35-42.
232. Chai BH, Yoo H, Pollack GH (2009) Effect of radiant energy on near-surface water. *J Phy Chem B* 113: 13953-13958.
233. Chai BH, Pollack GH (2010) Solute-free interfacial zones in polar liquids. *J Phy Chem B* 114: 5371-5375.
234. Kasting JF, Siefert JL (2002) Life and the evolution of the Earth's atmosphere. *Science* 296: 1066-1068.
235. Price C, Williams E, Elhalel G, Sentman D (2020) Natural ELF fields in the atmosphere and in living organisms. *Int J Biometeorol* 8: 1-8.
236. Bullock TH (2002) Biology of brain waves: natural history and evolution of an information rich sign of activity. Arkan K, Moore N (ed), *Advances in electrophysiology in clinical practice and research*, Kjeilberg, Wheaton.
237. Bullock TH, Hopkins CD, Fay RR (2006) *Electroreception*. Springer Scienc and Business Media, Berlin.
238. Elhalel G, Price C, Fixler D, Shainberg A (2019) Cardio protection from stress conditions by weak magnetic fields in the Schumann resonance band. *Sci Reg* 9: 1645.
239. Cosic I (1994) Macromolecular bioactivity: is it resonant interaction between macromolecules? – Theory and applications. *IEEE Trans Biomed Eng* 41: 1101-1114.
240. Cosic I (1997) *The Resonant Recognition Model of Macromolecular Bioactivity: Theory and Applications*. Birkhauser: Basel, Switzerland.
241. Del Giudice E (2007) Old and new views on the structure of matter and the special case of living matter. *J Phy: Confe Ser* 67: 012006.
242. Cope FW (1975) A Review of Applications of Solid State Physics Concepts to Biological Systems. *J Biol Phys* 3:1-41.
243. Rapp PE (1979) An Atlas of Cellular Oscillators. *J exp Biol* 81:281-306.
244. Dürr H (2002) Inanimate and animate matter: Orderings of immaterial connectedness -The physical basis of life. In H.P. Dürr, F.A. Popp, & W. Schommers (Eds.), *What is life?: Scientific approaches and philosophical positions*. Singapore: World Sci Pub Com 4:145-166.
245. Pokorny J, Vacek K, Fiala J (1984) Frohlich electromagnetic fields generated by living cells: computer results. *J Biol Phys* 12: 79-84.
246. Sitko SP, Gizhko V (1998) Towards a quantum physics of the living state. *J Biol Phys* 18:1
247. Welch GR (1992) An analogical 'field' construct in cellular biophysics: history and present status. *Prog Biophys Mol Biol* 57:71-128.
248. Welch GR, Smith HA (1990) On the field structure of metabolic space-time. In *Molecular and Biological Physics of Living Systems*, Mishra RK (ed), Dordrecht, Netherlands: Kluwer, pp:53-85.
249. Wolkowski ZW (1995) Recent advances in the phoron concept: an attempt to decrease the incompleteness of scientific exploration of living systems. In *Biophotonics – Nonequilibrium and Coherent Systems in Biology, Biophysics and Biotechnology*. Belousov LV, Popp FA (eds) pp: 33-51.
250. Zeriger, Berndt F, Bischof M (1998) The quantum vacuum and its significance in biology. *Proceedings of the Third International Hombroich Symposium on Biophysics*. Neuss, Germany.
251. Barenboim GM, Domanski AN, Turoverov KK (1969) *Luminescence of Biopolymers and cells*. Springer pp:1-8.
252. Volkenstein MV (1991) *Physical approaches to biological evolution*. In Peliti L (edn), *Biologically Inspired Physics*. Plenum Press: New York.
253. Orzel C (2018) *Breakfast with Einstein: The exotic physics of everyday objects*. Ben Bella Books.
254. Kaznacheev VP, Mikhalova LP 1981 *Ultraweak Radiation in Cell*

- Interactions. (Sverkhslabye izlucheniya v mezhkletochnykh vzaimodeistviyakh). Nauka, Novosibirsk, Russian.
255. Kaznacheev VP, Mikhailova LP (1985) Bioinformational Function of Natural Electromagnetic Fields. (bioinformatsionnaya funktsiya yestestvennikh elektromagnitnikh poley). Nauka, Novosibirsk, Russian.
256. Kaznacheev VP, Mikhailova LP, Kartashov NB (1980) Distant intercellular electromagnetic interaction between two tissue cultures. *Exp Biol* 89:345-348.
257. Cosic I (1994) Macromolecular bioactivity: Is it resonant interaction between macromolecules? -theory and applications. *IEEE Trans Biomed Eng* 41:1101-1114.
258. McClare CWF (1974) Resonance in Bioenergetics. *Ann NY Acad Sci* 227:74-97.
259. Rossi C, Foletti A, Magnani A, Lamponi S (2011) New perspectives in cell communication: Bioelectromagnetic interactions. *Sem Can Biol* 21: 207-214.
260. Meyl K (2012) DNA and cell resonance: Magnetic waves enable cell communication. *DNA Cell Biol* 31:422-426.
261. Meyl K (2011) Task of the introns, cell communication explained by field physics. *J Cell Commun Signal* 6:53-58.
262. Cosic I, Cosic D, Lazar K (2015) Is it possible to predict electromagnetic resonances in proteins, DNA and RNA? *EPJ Nonlinear Biomed Phys* 3:5.
263. Veljkovic V, Cosic I, Lalovic D (1985) Is it possible to analyze DNA and protein sequences by the methods of digital signal processing? *IEEE Trans Biomed Eng* 32:337-341.
264. Meyl K (2011) DNA and Cell Resonance, Communication of cells explained by field physics including magnetic scalar waves. Villingen: INDEL Publ 2nd edn.
265. Smith C (1997) Is a living system a macroscopic quantum system? *Front Perspe* 7:9-15.
266. Adey WR (1988) Physiological signaling across cell membranes and cooperative influences of extremely low frequency electromagnetic fields. *Biolog Coheren Resp Exter Stim* 148-170.
267. Cosic I (1994) Macromolecular bioactivity: is it resonant interaction between macromolecules theory and applications. *IEEE Trans Biomed Eng* 41:1101-1114.
268. Popp FA (2000) The power of weakness. international congress, "weak and ultraweak fields and radiation in biology and medicine," St. Petersburg 7:4-7.
269. Pokorny J, Hasek J, Jelinek F, Saroch J, Palan B (2001) Electromagnetic activity of yeast cells in the M phase. *Electro Magnetobiology* 20:371-396.
270. Pienta KJ, Coffey DS (1991) Cellular harmonic information transfer through a tissue tensegrity-matrix system. *Med Hypo* 34:88-95.
271. Giudice ED, Doglia S, Milani M, Smith CW, Vitiello G (1989) Magnetic flux quantization and Josephson behaviour in living systems. *Physica Scripta* 40:786-791.
272. Kwiatkowska M Z, Heath JK (2009) Biological pathways as communicating computer systems. *J Cell Sci* 122:2793-2800.
273. Hong FT (2012) Molecular Electronics: Biosensors and Biocomputers. *Sprun Sci Busi Med*.
274. Bischof M (1998) Holism and field theories in biology – non-molecular approaches and their relevance to biophysics. *Biophotons* 30:398.
275. Bischof M (2000) Field concepts and the emergence of a holistic biophysics. *Biopho Coh Struc* 1-25.
276. Benveniste J (2014) A fundamental basis for the effects of EMFs in biology and medicine: The interface between matter and function. *Bioelectro Subt Ene Medi* 5: 31-33.
277. Gariaev PP (2015) Another understanding of the model of genetic code theoretical analysis. *Open J Genetics* 5:92-109.
278. Gariaev PP (2007) Theoretical models of wave genetics and reproduction wave immunity in the experiment. *N med tech equip* 11:26-70.
279. Gariaev P, Kaempfer U, Marcer P, Tertishny G, Birshtein B, et al The DNA-wave biocomputer. *Inst Cont Sci* 4:1-22.
280. Gariaev PP, Berezin AA (1991) The genome as a holographic computer. *Hypothesis* 24:49-64.
281. Gariaev PP, Chudin VI, Komissarov GG, Berezin AA, Vasiliev AA (1991) Holographic associative memory of biological systems in optical memory and neural networks. *Int Soci Opti Photo* 162:280-291.
282. Gariaev PP (2014) Materialization of DNA Fragment in Water through Modulated Electromagnetic Irradiation. *DNA Decipher Journal* 4:1-2.
283. Gariaev PP, Kokaya AA, Gariaeva EAL, Muldashev ER, Smelov MV, et al (2011) Exploration of Wave Genetics & Wave Immunity. *DNA Decipher Journal* 1:191-217.
284. Press WH, Hawkins JA, Jones SK, Schaub JM, Finkelstein IJ (2020) HEDGES error-correcting code for DNA storage corrects indels and allows sequence constraints. *Proce Nat Aca Sci* 117:18489-18496.
285. Edwards GS, Davis CC, Saffer JD, Swicord ML (1985) Microwave-field-driven acoustic modes in DNA. *Biophys Jour* 47:799-807.
286. Van Zandt LL (1986) Resonant microwave absorption by dissolved DNA. *Phys Rev Let* 57:2085-2087.
287. Athenstaedt H (1974) Pyroelectric and piezoelectric properties of vertebrates. *Ann New York Acad Sci* 238:68-94.
288. Dürr H (2002) Are biology and medicine only physics? Building bridges between conventional and complementary medicine. *Buli sci techno soci* 22:338-351.
289. Ho M (2008) The Rainbow and the Worm: The Physics of Organisms. World Scientific.
290. Ho M, Popp FA, Warnke U (1994) Bioelectrodynamics and Biocommunication. World Scientific.
291. Oschman JL (2000) Energy Medicine: The Scientific Basis. Edinburgh, Harcourt Publishers 121-137.
292. Butler JA, Noble D (2014) Progress in biophysics and molecular biology. Elsevier.
293. Hans-peter D, Albert PF, Wolfram S (2002) What Is Life? Scientific approaches and philosophical positions. World Scientific.
294. Manchanda RK (2017) Scientific framework of homeopathy: Evidence based homeopathy revised edition. Liga medic homeo int.
295. Walach H, Jonas WB, Ives J, Wijk RV, Weingärtner O (2005) Research on homeopathy: State of the art. *J alter comple medi* 11:813-829.
296. Chalmers I (2007) The lethal consequences of failing to make full use of all relevant evidence about the effects of medical treatments: The importance of systematic reviews. Treating individuals—from randomised trials to personalised medicine. *Lancet* 10:37-58.
297. Moher D, Coo DJ, Eastwood S, Olin I, Rennie D, et al (2000) Improving the quality of reports of meta-analysis of randomized controlled trials: The QUOROM Statement. *Br J Surg* 87:1448-1454.
298. Liberati A, Tetzlaff J, Altman DG (2009) PRISMA Group: Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *J Clin Epidemiol*, 62:1006-1012.
299. Higgins JP, Altman DG, Sterne JA (2011) Assessing risk of bias in included studies. *Coch Han Syst Revi Inter*.
300. Bornhöft G, Maxion-Bergemann S, Wolf U, Kienle GS, Michalsen A, et al. (2006) Checklist for the qualitative evaluation of clinical studies with particular focus on external validity and model validity. *BMC Med Res Methodol* 6:56.
301. Akobeng AK (2008) Assessing the validity of clinical trials. *J Pediatr Gastroenterol Nutr* 47:277-282.
302. Goodman SN (1999) Toward evidence-based medical statistics. 2: The Bayes factor. *Ana Intern Med* 130:1005-1013
303. Cornfield J (1976) Recent methodological contributions to clinical trials. *Am Epidemiol* 104:408-421.
304. Juni P, Witschi A, Bloch R, Egger M (1999) The hazards of scoring the quality of clinical trials for meta-analysis. *JAMA* 282:1054-1060.
305. Juni P, Altman DG, Egger M (2001) Assessing the quality of controlled

- clinical trials. *BMJ* 323:42-46..
306. Browner WS, Newman TB (1987) Are all significant P values created equal? The analogy between diagnostic tests and clinical research. *JAMA* 257:2459-2463.
307. Enkin MW (2009) Questioning the methodological superiority of 'placebo' over 'active' controlled trials. *Amer J Bioethi* 9:66-67.
308. Moustgaard H, Clayton GL, Jones HE, Boutron I, Jorgensen L, et al. (2020) Impact of blinding on estimated treatment effects in randomised clinical trials: Meta-epidemiological study. *BMJ* 368:16802.
309. Kuhn TS (1996) *The Structure of Scientific Revolutions*. University of Chicago Press.
310. Dei A (2017) *Hermesis and homeopathy: Toward a new self-consciousness*. Dose-Response, 15:155932581774445.
311. Vandenbroucke J, De Craen AJ (2001) Alternative medicine: A Mirror image for scientific reasoning in conventional medicine. *Anna Inter Medi* 135:507-513.
312. Kaptchuk TJ (2003) Effect of interpretive bias on research evidence. *BMJ* 326:1453-1455.
313. Mahoney MJ (1997) An experimental study of confirmatory bias in the peer review system. *Cogn ther res* 1:161-175.
314. Linde K, Willich SN (2003) How objective are systematic reviews? Differences between reviews on complementary medicine. *J roy soc medi* 96:17-22.
315. De Loof A (2016) The cell's self-generated "electrome": The biophysical essence of the immaterial dimension of Life?. *Comm integr bio* 9:e1197446.
316. Resch K, Ernst E, Garrow JA (2000) Randomized controlled study of reviewer bias against an unconventional therapy. *J R Soc Med* 93:164-167.
317. Vogel JHK, Bolling SF, Costello RB, Guarneri EM, Krucoff MW, et al. (2005) American college of cardiology foundation task force on clinical expert consensus documents (writing committee to develop an expert consensus document on complementary and integrative medicine). *J Am Coll Cardiol* 46:184-221.
318. Ernst E (2002) A systematic review of systematic reviews of homeopathy. *Br J Clin Pharmacol* 54:577-582.
319. Linde K, Clausius N, Ramirez G, Melchart D, Eitel F, et al. (2005) Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *The Lancet* 366:2081-2082.
320. Shang A, Huwiler-Müntener K, Nartey L, Juni P, Dorig S, et al. (2005) Are the clinical effects of homeopathy placebo effects? Comparative study of placebo-controlled trials of homeopathy and allopathy. *Lancet* 366:726-732.
321. Hahn RG (2013) Meta-analyses of pooled clinical data. *Complementary Medicine Research* 20:1-1.
322. Kiene H, Kienle GS, Schön-Angerer TV (2005) Failure to exclude false negative bias: A fundamental flaw in the trial of Shang et al. *J Altern Complement Med* 11:783.
323. Jonas W, Kaptchuk T, Linde K (2003) A critical overview of homeopathy. *Ann Int Med* 138:393-400.
324. Ernst E (1998) Are highly diluted homeopathic remedies placebos. *Perfusion* 11:291-292.
325. Ernst E, Pittler MH (2000) Re-analysis of previous meta-analysis of clinical trials of homeopathy. *J Clin Epidemiol* 53:1188.
326. Mathie RT (2003) The research evidence base for homeopathy: a fresh assessment of the literature. *Homeopathy* 92:84-91.
327. Kleijnen J, Knipschild P, Ter Riet G (1991) Trials of homeopathy. *BMJ* 302:960.
328. Cucherat M, Haugh MC, Gooch M, Boissel JP (2000) Evidence of clinical efficacy of homeopathy: A meta-analysis of clinical trials. *Eur J lin Pharmacol* 56:27-33.
329. Caulfield T, DeBow S (2005) A systematic review of how homeopathy is represented in conventional and CAM peer reviewed journals. *BMC Compl Alt Medi* 5:1-4
330. Bellavite P, Pitari G, Italiano M (2006) Homeopathy and placebo. *Homeopathy* 95: 51.
331. Frass M, Schuster E, Muchitsch I, Duncan J, Gei W, et al. (2005) Bias in the trial and reporting of trials of homeopathy: a fundamental breakdown in peer review and standards? *J Altern Complement Med* 11:780-782.
332. Kiene H, Kienle GS, von Schön-Angerer T (2006) Bias in meta-analysis. *Homeopathy* 95:54.
333. Jonas WB, Anderson RL, Crawford CC, Lyons JS (2001) A systematic review of the quality of homeopathic clinical trials. *BMC Complement Altern Med* 1:12.
334. Nuhn T, Lütke R, Geraedts M (2010) Placebo effect sizes in homeopathic compared to conventional drugs—a systematic review of randomised controlled trials. *Homeopathy* 99:76-82.
335. Djulbegovic B, Lacevic M, Cantor A, Fields KK, et al. (2000) The uncertainty principle and industry-sponsored research. *The Lancet* 356:635-638.
336. Chan AW, Hróbjartsson A, Haahr MT, Gotsche PC, et al. (2004) Empirical evidence for selective reporting of outcomes in randomized trials: comparison of protocols to published articles. *Jama* 291:2457-2465.
337. Rosnow RL, Rosenthal R (1992) Statistical procedures and the justification of knowledge in psychological science. *MISCR* 295-314.
338. Holmes D, Murray SJ, Perron A, Rail G (2006) Deconstructing the evidence-based discourse in health sciences: truth, power and fascism. *Int J Evid Based Healthc* 4:180-186.
339. Horwitz RI, Hayes-Conroy A, Caricchio R, Singer BH (2017) From evidence-based medicine to medicine-based evidence. *Am J Med* 130:1246-1250.
340. Bhatt AS, Vaduganathan M, Butler J. Growing Mismatch Between Evidence Generation and Implementation in Heart Failure. (2020) *Am J Med* 133:525-527.
341. Clarke B, Gillies D, Illari P, Russo F, et al. (2013) The evidence that evidence-based medicine omits. *Prev Med* 57:745-747.
342. Blunt, Chris (2015) *Hierarchies of evidence in evidence-based medicine*. PhD thesis, The London School of Economics and Political Science (LSE).
343. Mandrola J, Cifu A, Prasad V, Foy A (2019) The case for being a medical conservative. *Am J Med* 132:900-901.
344. Abu HO, Goldberg RJ (2020) Make Scientific Reading Great and More Meaningful Again: Reappraisal of the Traditional P Value in Modern-Day Clinical Research and Practice. *Am J Med* 133: 4-6.
345. Blaylock, RL (2015) Regimentation in medicine and the death of creativity.
346. Rennie D (1998) The present state of medical journals. *The Lancet* 352:S18-S22.
347. Horrobin DF (1996). Peer review of grant applications: A harbinger for mediocrity in clinical research *The Lancet* 348:1293-1295.
348. Horrobin DF (1990). The philosophical basis of peer review and the suppression of innovation. *JAMA* 263:1438.
349. Smith, R S (2008). The trouble with medical journals. *Med Leg J* 76:79-93.
350. Naylor C D (1994) Reviewing applied-research grant proposals: can we learn from medical journals. *CMAJ* 150:1207-1209.
351. Kligler B, Weeks J (2014) Finding a Common Language: Resolving the Town and Gown Tension in Moving Toward Evidence-Informed Practice. *EXPLORE* 10: 275-277.
352. Laszlo E (2007). *Science and the Akashic Field: An integral theory of everything*. Simon & Schuster.
353. Wilson E O (2014). *Consilience: The Unity of Knowledge*: Vintage.
354. Capra, Fritjof (1996) *The Web of Life: a New Scientific Understanding of the Living System*.
355. NIH (2005) Road Map Initiative.
356. Toulmin, SE (2009) *Return to reason*. Harvard University Press.

357. Bok D (2009) *Universities in the Marketplace: The Commercialization of Higher Education*. Princeton University Press.
358. Kassirer, Jerome (2004) *On the Take: How Medicine's Complicity with Big Business Can Endanger Your Health*. New York, NY: Oxford University Press.
359. Abramson J (2005) *Overdosed America: The broken promise of American medicine*. HarperCollins.
360. Heckenlively K, Mikovits J (2020) *Plague of corruption: Restoring faith in the promise of science*. Simon & Schuster.
361. Mahony S (2019) *Can medicine be cured?: The corruption of a profession*. Head of Zeus.
362. Piller C (2020) FDA and NIH let clinical trial sponsors keep results secret and break the law. *Science AAAS*.
363. Angell M (2015) *Drug Companies & Doctors: A Story of Corruption*. The New York Review of Books magazine.
364. Kearney P, Simoons M, Ryden L, Kirchhof P, et al. (2019) The Medical Profession, Industry, and Continuing Medical Education: Finding the Balance That's Right for Patients. *Am J Med* 132:921-925.
365. Firestein S (2012) What science wants to know. *Scientific American*.
366. Mitchell MS, Yuv MC, Whiteside TL (2010) The tyranny of statistics in medicine: a critique of unthinking adherence to an arbitrary p value. *Cancer Immunol Immunother* 59:1137-1140.
367. Bell IR, Koithan M (2006) Models for the study of whole systems. *Integr Cancer Ther* 5:293-307.
368. Pilkington K, Rapses H, Richardson J (2006) Complementary medicine for depression. *Expert Rev Neurother* 6:1741-1751.
369. Mathie RT, Roniger H, Van Wassenhoven M, Frye J, et al. (2012) Method for appraising model validity of randomised controlled trials of homeopathic treatment: multi-rater concordance study. *BMC Med Res Methodol* 12:49.
370. Bayr GA (1986) A model for homeopathic drug tests including statistical analysis. *Br Homeopathy J* 75:80-88.
371. Vithoulkas G (2017) Serious mistakes in meta-analysis of homeopathic research. *J Med Life* 10:47-49.
372. Milgrom IR (2003) Patient-practitioner-remedy (PPR) entanglement, Part 3. Refining the quantum metaphor for homeopathy. *Homeopathy. J Faculty Homeopathy* 92:152-160.
373. Khuda-Bukhsh A R (2003) Towards understanding molecular mechanisms of action of homeopathic drugs: an overview. *Mol Cell Biochem* 253: 339-345.
374. Watterson JG (1987) A role for water in cell structure. *Biochem J* 248: 615-617.
375. Del Giudice E, Stefanini P (2018) Emergence of self-organization in aqueous systems and living matter.
376. Hunting ER, Matthews J, de Arróyabe Hernández PF, England SJ, et al. (2020) Challenges in coupling atmospheric electricity with biological systems. *Int J Biometeorol* 14:1-4.
377. Shigemitsu T (2006) *Electromagnetic Fields, Biophysical Processes, and Proposed Biophysical Mechanisms*. In *Electromagnetics in Biology*. Springer 193-220.
378. Bell IR, Koithan M (2012) A model for homeopathic remedy effects: low dose nanoparticles, allostatic cross-adaptation, and time-dependent sensitization in a complex adaptive system. *BMC Complement Altern Med* 12:191.
379. Bell IR, Schwartz GE, Frye J, Sarter B, et al. 2015 Extending the adaptive network nanomedicine model for homeopathic medicines: nanostructures as salient cell danger signals for adaptation. *Nanosci Technol* 2:1-22.
380. Bell IR (2019) The complexity of the homeopathic healing response Part 1: The role of the body as a complex adaptive system in simillimum-initiated recovery from disease. *Homeopathy* 109: 042-050.
381. Bell IR (2019) The complexity of the homeopathic healing response Part 2: The role of the homeopathic Simillimum as a complex system in initiating recovery from disease. *Homeopathy* 109:051-064.
382. Khuda-Bukhsh AR (2003) Towards understanding molecular mechanisms of action of homeopathic drugs: An overview. *Mol Cell Biochem* 253:339-345.
383. Sukul NC (1990) Increase in serotonin and dopamine metabolites in mouse hypothalamus following oral administration of *Agaricus muscarius* 12, a homeopathic drug. *Sci Culture* 56:134-137.
384. Benwich Z (1992) Transfer of immunological information by extreme dilutions of kH.
385. Khuda-Bukhsh AR (1997) Potentized homeopathic drugs act through regulation of gene-expression: a hypothesis to explain their mechanism and pathways of action in vitro. *Complement Ther Med* 5:43-46.
386. Khuda-Bukhsh AR (2014) Current trends in high dilution research with particular reference to gene regulatory hypothesis. *Nucleus* 57:3-17.
387. Saha S, Hossain DM, Mukherjee S, Mohanty S, et al. (2013) *Calcarea carbonica* induces apoptosis in cancer cells in p53-dependent manner via an immuno-modulatory circuit. *BMC Complement Altern Med* 13:230.
388. Khuda-Bukhsh AR, Bhattacharyya SS, Paul S, Dutta S, et al. (2011) Modulation of signal proteins: A plausible mechanism to explain how a potentized drug *secale cor 30C* diluted beyond avogadro's limit combats skin papilloma in mice. *BMC Complement Altern Med* 2011:1-12.
389. Marzotto M, Oliosio D, Brizzi M, Tononi P, et al. (2014) Extreme sensitivity of gene expression in human SH-SY5Y neurocytes to ultra-low doses of *Gelsemium sempervirens*. *BMC Complement Altern Med* 14:104.
390. Chikramane PS, Suresh AK, Bellare JR, Kane SG (2010) Extreme homeopathic dilutions retain starting materials: A nanoparticulate perspective. *Homeopathy* 99:231-242.
391. Mattson MP (2008) Hormesis and disease resistance: activation of cellular stress response pathways. *Hum Exp Toxicol* 27:155-162.
392. Wiegand F, Van Wijk R (2010) The similia principle: Results obtained in a cellular model system. *Homeopathy* 99: 3-14.
393. Buzea C, Pacheco II, Robbie K (2007) Nanomaterials and nanoparticles: sources and toxicity. *Biointerphases* 2:17-71.
394. Armstead AL, Li B (2011) Nanomedicine as an emerging approach against intracellular pathogens. *Int J Nanomedicine* 6:3281.
395. Bousta D, Soulimani R, Jarmouni I, Belon P, et al. (2001) Neurotropic, immunological and gastric effects of low doses of *Atropa belladonna* L, *Gelsemium sempervirens* L. and *Poumon histamine* in stressed mice. *J Ethnopharmacol.* 74:205-215.
396. Marotti I, Betti L, Bregola V, Bosi S, et al. (2014) Transcriptome profiling of wheat seedlings following treatment with ultrahigh diluted arsenic trioxide. *Evid Based Complement Altern Med* 2014:1-15.
397. Shahabi S (2014) Memory of water and law of similars: Making sense out of homeopathy. *Bio magn Eng Med* 2014:168-179.
398. Shahabi S, Kasariyans A, Noorbakhsh F (2013) Like cures like: a neuroimmunological model based on electromagnetic resonance. *Electromagn Biol Med.*32:508-26.
399. Teixeira M (2019) Isopathic use of auto-sarcode of DNA as anti-miasmatic homeopathic medicine and modulator of gene expression? *Homeopathy* 108:139-148.
400. Das D, De A, Dutta S, Biswas R, Boujedaini N, et al. (2011) Potentized homeopathic drug *Arsenicum Album 30C* positively modulates protein biomarkers and gene expressions in *Saccharomyces cerevisiae* exposed to arsenate. *J Chin Integr Med* 9:752-760.
401. Khuda-Bukhsh AR, Saha SK, Roy S (2013) Evidence in support of gene regulatory hypothesis: Gene expression profiling manifests homeopathy effect as more than placebo. *Int J High Dilution Res* 12:162-167.
402. Bigagli E, Luceri C, Bernardini S, Dei A, Filippini A, et al. (2014) Exploring the effects of homeopathic *Apis mellifica* preparations on human gene expression profiles. *Homeopathy* 103:127-132.
403. Price C, Williams E, Elhalel G, Sentman D. (2020) Natural ELF fields in the atmosphere and in living organisms. *Int J Biometeorol* 8:1-8.
404. Poponin V (1994) Nonlinear stochastic resonance of ions loosely bound within proteins as a mechanism for the detection of weak EMF by cells. In: Allen MJ, Sowers AE, Cleary SF (eds) *Charge and Field effects in Biosystems*: 4

- Proceedings of the 1994 international symposium. World Scientific. pp 306-319.
405. Tosi M, Del Giudice E (2013) The principle of minimal stimulus in the dynamics of the living organism. *Sci Soc* 60:26-29.
406. Antonchenko VY, Ilyin VV (1992) Points at issue in the physics of water and homeopathy. *Br Homeopath J*. 8:91-93.
407. Van Wijk R, Wiegant FA (2015) Physiological effects of homeopathic medicines in closed phials—a critical evaluation. *Homeopathy* 104:292-294.
408. Matsumoto J (1995) Molecular mechanism of biological responses to homeopathic medicines. *Med Hypotheses* 45:292-296.
409. Bregola V (2015) US Food and Drug Administration. Homeopathic product regulation: evaluating FDA's regulatory framework after a quarter century.
410. Dantas F, Rampes H (2000) Do homeopathic medicines provoke adverse effects? A systematic review. *Br Homeopath J* 89:S35-S38.
411. Krenzelok EP (2014) 2009 Annual report of the American Association of poison control centers' national poison data system (NPDS): 27th annual report. *Clin Toxicol* 52:1284-1284.
412. Robinson N, Lorenc A, Lewith G (2011) Complementary and alternative medicine (CAM) professional practice and safety: A consensus building workshop. *Eur J Integr Med* 3:e49-53.
413. Pilkington K, Rampes H, Richardson J (2006) Complementary medicine for depression. *Expert Rev Neurother* 6:1741-1751.
414. Tournier A, Roberts ER, Viksveen P (2013) Adverse effects of homeopathy: a systematic review of published case reports and case series—comment by Tournier et al. *Int J Clin Pract* 67:388.
415. Cifra M, Fields JZ, Farhadi A (2011) Electromagnetic cellular interactions. *Prog Biophys Mol Biol* 105:223-246.
416. Pollock JK, Pohl DC (1988) Biological coherence and response to external stimuli. Springer: Berlin, Heidelberg, New York. Ch. Emis Rad Act Cells 140-147.
417. Reguera G (2011) When microbial conversations get physical. *Trends Microbiol* 19:105-113.
418. Pósfai M, Dunin-Borkowski RE (2009) Magnetic nanocrystals in organisms. *Elements* 5:235-240.
419. Kirschvink JL, Kobayashi K, Kirschvink A, Diaz Riccio JC, Kirschvink SJ (1992) Magnetite in human tissues: a mechanism for the biological effects of weak ELF magnetic fields. *Bioelectromagnetics* 13:101-113.
420. Binhi V (2002) Magnetobiology: Underlying Physical Problems. Academic Press.
421. Fesenko EE, Gluvstein AY (1995) Changes in the state of water, induced by radiofrequency electromagnetic fields. *FEBS letters* 367:53-55.
422. Otsuka I, Ozeki S (2006) Does magnetic treatment of water change its properties? *J Phys Chem B* 110:1509-1512.
423. Ozeki S, Otsuka I (2006) Transient oxygen clathrate-like hydrate and water networks induced by magnetic fields. *J Phys Chem B* 110:20067-20072.
424. Grewal HS, Maheshwari BL (2011) Magnetic treatment of irrigation water and snow pea and chickpea seeds enhances early growth and nutrient contents of seedlings. *Bioelectromagnetics* 32:58-65.
425. Dotta BT, Karbowski LM, Murugan NJ, Persinger MA (2013) Incremental shifts in pH spring water can be stored as "space-memory": encoding and retrieval through the application of the same rotating magnetic field. *Neuroquantology* 11:511-518.
426. Gang N, Persinger MA (2011) Planarian activity differences when maintained in water pre-treated with magnetic fields: a nonlinear effect. *Electromag Biol Med* 30:198-204.
427. Gang N, St-Pierre LS, Persinger MA (2012) Water dynamics following treatment by one hour 0.16 tesla static magnetic fields depend on exposure. *Water* 3:122-131.
428. Binhi VN, Rubin AB (2007) Magnetobiology: the kT paradox and possible solutions. *Electromag Biol Med* 26:45-62.
429. Binhi VN (2001) Theoretical concepts in magnetobiology. *Electro Magnetobiol* 20:43-58.
430. Norman RL, Dunning-Davies J (2017) The informational magneucle: the role of aqueous coherence and information in biological dynamics and morphology. *Am Journal Mod Phys* 6-17.
431. Binhi VN, Prato FS (2017) Biological effects of the hypomagnetic field: An analytical review of experiments and theories. *PLoS One* 12:e0179340.
432. Cardella C, De Magistris L, Florio ET, Smith CW (2001) Permanent changes in the physico-chemical properties of water following exposure to resonant circuits. *J Sci Explor* 15:501-518.
433. Tsouris PA (1995) Investigation of Coherent Signals in Water. Ph.D. Thesis, University of Surrey, UK.
434. Pershin SM (2013) Effect of quantum differences of ortho and para H2O spinisomers on water properties: Biophysical aspect. *Biophysics* 58:723-730.
435. Jerman I, Ružič R, Krašovec R, Škarja M, Mogilnicki L (2005) Electrical transfer of molecule information into water, its storage, and bioeffects on plants and bacteria. *Electromag Biol Med* 24:341-353.
436. Giuliani L, D'Emilia E, Ledda M, Grimaldi S, Lisi A (2011) New perspectives of bioelectromagnetics in biology and in medicine: DNA spectra for diagnostic purposes. *J Phys Conf Ser* 329:p. 012011.
437. Montagnier L, Aissa J, Ferris S, Montagnier JL, Lavallée C (2009) Electromagnetic signals are produced by aqueous nanostructures derived from bacterial DNA sequences. *Interdisciplinary Sciences: Computational Life Sciences* 1:81-90.
438. Montagnier L, Del Giudice E, Aïssa J, Lavallée C, Motschwiller S, et al. (2015) Transduction of DNA information through water and electromagnetic waves. *Electromag Biol Med* 34:106-112.
439. Heredia-Rojas JA, Torres-Flores AC, Rodríguez-De la Fuente AO, Mata-Cárdenas BD, Rodríguez-Flores LE, et al. (2011) Entamoeba histolytica and Trichomonas vaginalis: Trophozoite growth inhibition by metronidazole electro-transferred water. *Exp Parasitol* 127:80-83.
440. Heredia-Rojas JA, Villarreal-Treviño L, Rodríguez-De la Fuente AO, Herrera-Menchaca LI, Gomez-Flores R, et al. (2015) Antimicrobial effect of vancomycin electro-transferred water against methicillin-resistant *Staphylococcus aureus* variant. *Afr J Tradit Complement Altern Med* 12:104-108.
441. Heredia-Rojas JA, Gomez-Flores R, Rodríguez-de la Fuente AO, Monreal-Cuevas E, Torres-Flores AC, et al. (2012) Antimicrobial effect of amphotericin B electronically-activated water against *Candida albicans*. *Afr J Microbiol Res* 6:3684-3689.
442. Foletti A, Ledda M, D'Emilia E, Grimaldi S, Lisi A (2011) Differentiation of human LAN-5 neuroblastoma cells induced by extremely low frequency electronically transmitted retinoic acid. *J Altern Complement Med* 17:701-704.
443. Foletti A, Ledda M, D'Emilia E, Grimaldi S, Lisi A (2012) Experimental finding on the electromagnetic information transfer of specific molecular signals mediated through the aqueous system on two human cellular models. *J Altern Complement Med* 18:258-261.
444. Alberto F, Mario L, Sara P, Settimio G, Antonella L (2014) Electromagnetic information delivery as a new tool in translational medicine. *Int J Clin Exp Med* 7:2550.
445. Aissa J, Litime MH, Attias E, Benveniste J (1993) Molecular signaling at high dilution or by means of electronic circuitry. *J Immunol* 150: pp. A146-A146.
446. Benveniste J (1993) Transfer of Biological Activity by Electromagnetic Fields. *Frontier Perspectives* 3:113-115.
447. Benveniste J, Aissa J, Litime MH, Tsangaris GT, Thomas Y (1994) Transfer of the molecular signal by electronic amplification. *FASEB J* 8:pp. A398-A398.
448. Thomas Y, Schiff M, Litime MH, Belkadi L, Benveniste J (1995) Direct transmission to cells of a molecular signal (phorbol-myristate acetate, pma) via an electronic device. *FASEB J* 9:pp. A227-A227.
449. Benveniste J, Aissa J, Guillonnet D (1999) A simple and fast method for in vivo demonstration of electromagnetic molecular signaling (EMS) via high dilution or computer recording. *FASEB J* 13:pp. A163-A163.
450. Benveniste J, Aïssa J, Guillonnet D (1998) Digital biology: Specificity of the digitized molecular signal. *FASEB J* 12:pp. A412-A412.

451. Benveniste J, Jurgens P, Assa J (1996) Digital recording/transmission of the cholinergic signal. *Faseb J* 10:pp. 2761-2761.
452. Benveniste J, Jurgens P, Hsueh W, Aïssa J (1997) Transatlantic transfer of digitized antigen signal by telephone link. *J Allergy Clin Immunol* 99.
453. Benveniste J, Kahhak L, Guillonnet D (1999) Remote detection of bacteria using an electromagnetic/digital procedure. *FASEB J* 13:pp. A852-A852.
454. Citro M, Smith CW, Scott-Morley A, Pongratz W, Endler PC (1994) Transfer of information from molecules by means of electronic amplification preliminary results. *Ultra High Dilution* pp. 209-214.
455. Aïssa J, Litime MH, Attias E, Allal A, Benveniste J (1993) Transfer of molecular signals via electronic circuitry. *FASEB J* 7:pp. A602-A602.
456. Endler PC, Pongratz W, Smith CW, Schulte J (1995) Non-molecular information transfer from thyroxine to frogs with regard to homeopathic toxicology. *Vet Hum Toxicol* 37:259.
457. Thomas Y, Schiff M, Litime MH, Belkadi L, Benveniste J (1995) Direct transmission to cells of a molecular signal (phorbol-myristate acetate, pma) via an electronic device. *FASEB J* 9:pp. A227-A227.
458. Thomas Y, Schiff M, Belkadi L, Jurgens P, Kahhak L, et al. (2000) Activation of human neutrophils by electronically transmitted phorbol-myristate acetate. *Med Hypotheses* 54:33-39.
459. Senekowitsch F, Endler PC, Pongratz W, Smith CW (1995) Hormone effects by CD record/replay. *Faseb J* 9:pp. A392-A392.
460. Chaturvedi UC, Shrivastava R (2005) Interaction of viral proteins with metal ions: role in maintaining the structure and functions of viruses. *FEMS Immunol Med Microbiol* 43:105-114.
461. Gariaev PP (2014) Materialization of DNA fragment and wave genetics in theory & practice. *DNA Decipher Journal* 4:1.
462. Gariaev P (1994) The DNA-wave biocomputer. Moscow: MGU. Presented at Liege Belgium, 2000.
463. Gariaev P, Tertishny G, Leonova K (2000) The wave, probabilistic and linguistic representations of cancer and HIV. *Nonlocality Remote Mental Interactions* 1.
464. Smith CW (2005) Watergates-logic operations in water. *Intl J Comp Anticip Syst* 19:323331.
465. Burns L, Meade B, Munson A CH (1995) Toxic Responses of the Immune System. *Casarett and Doull's Toxicology*.