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Mechanism of MRET Treated Water Inhibition Effect on Morphology of Pathogenic Microorganisms

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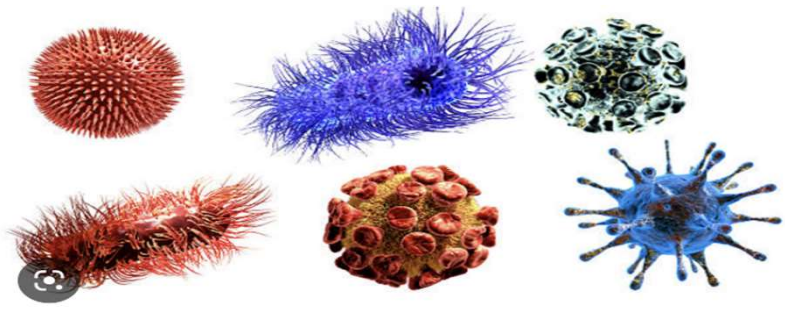

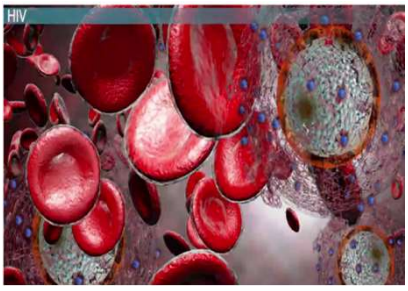

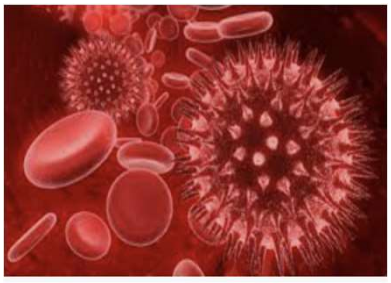

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MRET Treated Water as A Possible Agent for Inhibition of Coronavirus Life Cycle: A Review

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Health

Relevance of having expertise in multiple fields with Igor Smirnov

4 days ago Abraham Deleon

The modern world has surpassed the ancient thinking of being a master of your field. Instead, through the 21st century, it is widely seen that the jack of all trades is preferred in every field. Experts in several fields are urged to have an understanding of other fields as well as to understand the pace of the modern world. Various businesses around the globe are now preferring people with expertise in more than one field. For example, widely across the world, Human Resource personnel are inclined by the company to understand the financial side along with their job description so that they can do multiple jobs at once.

Moreover, several famous personalities, such as Igor Smirnov, have made a name for themselves in different fields, such as Art, Business, and Science. The decorated Russian American is the creator of the resourceful MRET technology. The brilliance of the machine doesn't stop there, as Igor's creation has been a valuable asset to saving yourself from deadly diseases such as Cancer and HIV. Technology has made drinking water a healthy and risk-free task.

Igor did not stop there as he came up with his expertise in business and art. After conquering the world of science, Igor opted to open an Art Gallery after getting inspiration from his father's art. Igor Smirnov gained worldwide recognition with his paintings displayed in museums and galleries in the United States, Europe, Asia, and Russia. He is now recognized worldwide through his art gallery and scientific prowess. His artistic and intelligent mind has helped him reach the top in every field he went in.

According to several studies, people with considerable expertise tend to have a higher chance of attaining a job than their competitors. People globally fail to recognize their talents and fail to work on making them a success for themselves. It can be tempting to focus all your growth efforts in one area, but there are benefits to pushing yourself to develop various talents. You'll be able to excel in a variety of fields thanks to it, which will make achieving your objectives a lot simpler. Bear in mind, though, that trying to improve yourself in every single area that humanity is aware of is impossible and not fun. Instead, decide which areas of interest you are passionate about and which will best assist you in reaching your life goals. Once you accomplish this, you will notice an exponential rise in your capacity to generate value!

Looking at businesses, industries, or individuals who are already doing what you want to accomplish might help you figure out what abilities they have that enable them to succeed above average. By doing this, you'll see areas where you can improve, increasing your competitiveness and attractiveness as a candidate for any circumstance or issue you're interested in solving.
The job market is getting more competitive every year, and you have to stand out to get yourself known. The best way to do this is by being an expert in multiple fields, as it can help you obtain a bigger pool of jobs to apply in. Having numerous expert personnel is the future the cooperate world is inclining over.

Abraham Delon

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Full Length Research Paper

The effect of MRET activated water on staphylococcal infection *in vivo* in animal model and *in vitro* on the culture of *Staphylococcus aureus* wood-46

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The article relates to detailed observation of the effect of MRET activated water with the modified molecular structure on *Staphylococcus aureus*. MRET water is produced with the help of Molecular Resonance Effect Technology patented in the USA. The investigation described in this article was conducted in animal model and *in vitro* at the Division of Microbiology and Immunology, Biological Department of Kyiv National Shevchenko University, Ukraine. The research in animal model revealed the fact that the consumption of MRET water stimulated the phagocytic activity and the immune response. The phagocytic system is one of the main factors of natural non-specific cellular resistance to infections and inflammations. It is the first line of protection of an organism against the penetration and reproduction of pathogenic microorganisms. The protective role of phagocytes is based on their capacity to identify, engulf and neutralize the alien agents penetrating into internal environment of a macro-organism. Particularly, the consumption of MRET water reduced the death rate from 30% (control group of mice on non-activated water) to 0% (two groups of mice on MRET water) during the first 9 days of experiment after intra-peritoneal inoculation of *Staphylococcus* culture. The significant bacteriostatic effect of 70 - 100% (depending on initial concentrations of pathogens) was observed *in vitro* for MRET-activated nutrient medium in this investigation.

Key words: MRET water, *Staphylococcus aureus*, *Phagocytes*, *Macrophages*, *Neutrophils*, cytotoxic activity, bacteriostatic.

INTRODUCTION

The research was conducted under supervision of Prof. Vladimir I. Vysotskii and Prof. Lydia S. Kholodna, at Division of Microbiology and Immunology, Biological Department of Kyiv National Shevchenko University, Ukraine.

MRET water activator is the stationary source of subtle, low-frequency, resonant electromagnetic field of composite structure. The origin of the low-frequency composite electromagnetic field is the intensive electrical activity of nano-rings formed by linear molecular groups of MRET polymer compound (volumetric fractal geometry matrix) when polymeric body is exposed to the external electromagnetic fields of specific frequency and wavelength [Vysotskii et al., 2005].

The research regarding the physical parameters of water conducted earlier at Moscow State University, Russia confirmed that MRET treatment of distilled water leads to substantial modification of basic physical-molecular properties of distilled water.

The anomalous viscosity of MRET water (subject to very low tangent pressure) and electrodynamic characteristics of MRET water (subject to applied electromagnetic field of low frequency range) confirmed the high level of long-range dynamic structuring of water molecules in polarized-oriented multilayer formations in activated water produced with the help of MRET activation process (Smirnov, 2007b). The prior researches confirmed the ability of MRET water to enhance morphology of blood cells, im-mune response and to inhibit the growth of mutated cells (Smirnov 2006a, b; Vysotskii, 2006).

Taking in consideration the beneficial effect of MRET water on the metabolism of the body and its ability to the inhibition of tumor growth, as well as the high bacteriostatic activity of MRET water confirmed by the previous studies, the goal of this research was to investigate the effect of MRET water on *Staphylococcus aureus* in animal model and *in vitro.*

In the process of the research the effect of MRET activated water was studied in animal mice model on the

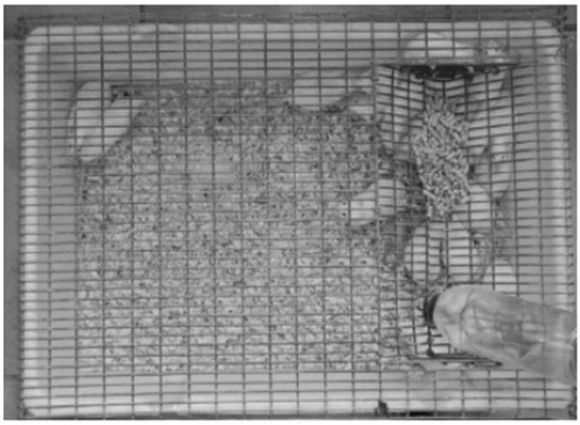


Figure 1. The view of an open-air cage with mice and the container with MRET water available to mice for unlimited consumption (on the right bottom part of the picture).

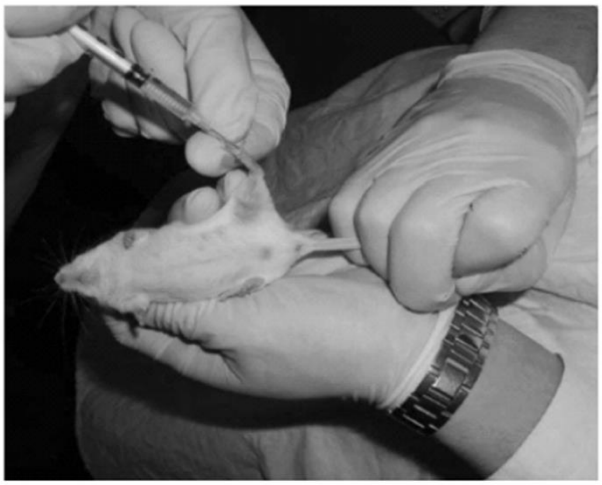


Figure 2. The procedure of inoculation of Staphylococcus aureus culture in the hind left paw of a mouse.

characteristics of weight and cellularity of lymphoid organs of immune system and on functional activity of phagocytes (peritoneal macrophages and neutrophils of the peripheral blood).

MATERIALS AND METHODS

The investigation of the effect of MRET activated water was conducted in two steps: the evaluation of the immune-stimulatory effect following the ingestion of MRET water on the immune-competent cells in the model of mice infected with *S. aureus* Wood-46 (*in vivo*) and the evaluation of the inhibition of growth of culture of *S. aureus* Wood-46 in MRET activated nutrient mediums (*in vitro*). The *S. aureus* Wood-46 culture was received from the Czechoslovak collection of microorganisms.

The research was conducted on 400 mice-male of line BALB in the age of 11 - 13 weeks and of the weight 18 - 21 grams. In the process of investigation all mice were divided into three groups. Prior to the inoculation of *S. aureus* Wood-46 culture one group of mice consumed MRET water for 4 weeks (Group 1), another group consumed MRET water for 2 weeks (Group 2), the control group consumed non-activated ordinary distilled water. During the following 2 weeks of experiment the first two groups continued to consume MRET water and the control group consumed ordinary distilled water. The first preliminary line of experiments was conducted on 225 mice in order to analyze the persistence of pathogen in the homogenate of kidneys of mice comparing 5 groups of mice (two Group 1 and two Group 2 on 15 and 30 min MRET ac-tivated water and Control). After preliminary experiments the opti-mal 30 minutes MRET activated water (distilled) was chosen for the main line of investigation. The view of an open-air cage with mice is shown on Figure 1. In the process of the investigation two types of staphylococcal infection were studied: the local inflammation and the intraperitoneal infection. In order to induce a local inflammation the culture of *S. aureus* Wood-46 was inoculated in the hind left paws of mice (Figure 2). For other series of experiments the inoculation of culture of *S. aureus* Wood-46 was conducted intra-peritoneal in dose LD30 in order to spread the infection all over the body.

The second step of investigations was conducted *in vitro* based on the analysis of the growth of staphylococcal culture on meat-peptone agar (MPA) at a temperature of 37°C during 18 - 24 h with different initial concentrations of *S. aureus* (from 10^1 - 10^9 bacteria/ml). The samples were treated with the help of MRET activator during different periods of time (in the range of 15 - 60 min) right after the introduction of staphylococcal culture to MPA.

The following experiments were designed to study the effect of MRET activation on the process of growth and development of *S. aureus* Wood-46 culture *in vitro* in nutrient medium (MPA). The bacterial culture was grown overnight to stationary phase and then platted on MPA in the form of suspension at different inoculation densities. The MPA with culture was MRET activated during the different periods of time (activation for 15, 30, 45 and 60 min respectively) following the requirements of sterility. Petri dishes with activated and non-activated medium (MPA with culture) were covered with glass caps (aerobic environment) and placed in the thermostat for cultivation at a temperature of 37°C during 18 - 24 h.

After the cultivation the morphological and tinctorial properties of cultures were observed and the numbers of colonies grown on MPA were counted. The bacteriostatic activity of MRET activated nutrient medium (MPA) was measured as an Index of Bacteriostatic Activity (IBA). An Index of Bacteriostatic Activity is defined as a coefficient of the inhibition of growth and reproduction of pathogens in bacteriostatic medium, particularly in MRET activated nutrient medium. It is calculated as reduction of the number of colonies (CFU – Colony Forming Units) in MRET activated medium related to the control samples not exposed to the activation:

$$IBA = (N_{control} - N_{act})/N_{control}$$

Where N – number of bacteria colonies (CFU) in Control (non-activated) and MRET activated nutrient medium, respectively.

In order to verify the sterility of experiments Petri dishes with nutrient medium (MPA) without staphylococcal culture were exposed to the process of activation and then were kept in the thermostat. No colonies of culture were observed that confirms the sterility of environment. (Table 1)

RESULTS

The effect of MRET water on staphylococcal infection *in vivo* in animal model

The significant protective properties of MRET water were confirmed by substantial decrease of *Staphylococcus*

Table 1. The effect of consumption of MRET water on the persistence of pathogens of staphylococcal infection in homogenate of kidneys of mice.

Groups of experimental animals	Period of activation, minutes	Number of CFU in 1 ml of homogenate of kidneys in 1 day	Number of CFU in 1 ml of homogenate of kidneys in 3 days	Number of CFU in 1 ml of homogenate of kidneys in 5 days
Group 1, N = 15	15	24266 ± 1330*	43227 ± 5600*	15160 ± 1310*
Group 1, N = 15	30	19316 ± 1460	29600 ± 1890*	14000 ± 1660*
Group 2, N = 15	15	23387 ± 2760*	42550 ± 4500*	14550 ± 1750*
Group 2, N = 15	30	24060 ± 870*	41760 ± 3090*	10600 ± 1200*
Control, N = 15	–	19000 ± 2620	76590 ± 4340	31250 ± 2220

CFU – colony forming units
– marks statistically significant results with $p < 0.05$ compared to Control.

CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice following the intra-peritoneal staphylococcal infection after the first 24 h. For this purpose the kidneys of animals were dealt individually. The analysis of data in the beginning of experiments leads to the conclusion that significant decrease of pathogen's colonies in homogenate of kidneys of mice on MRET water begins only after 24 h following the inoculation of *S. aureus*. The results on 30 min activated water were much better than on 15 min activated water and all further experiments were conducted on 30 min activated water.

The consumption of MRET water reduced the death rate from 30% (control group) to 0% (MRET groups) during the first 9 days of experiment. There was no case of animal death in all investigated groups within the first 24 h after intra-peritoneal inoculation of *Staphylococcus* culture, which is a pretty standard result. During the next 8 days 30% of animals died in control group which is an expected result for such experimental procedure. There was no death case in both groups of mice that ingested MRET activated water and it is a very unusual result. Nevertheless, the main consequences of *Staphylococcus* infection do not manifest in death of animals as in case of oncology diseases. *Staphylococcus* bacteria affect the live systems and organs of the body. These pathogenic microorganisms cause inflammations, suppurations, abscesses, furuncles, quinsy, cepsical conditions, etc. That's why a detailed investigation of the process of stimulation by MRET water of phagocytes and of lymphoid organs of immune system of mice infected with *S. aureus* culture was conducted and is presented in this report.

The development of the local acute inflammation is essentially suppressed in case of ingestion of MRET activated water

The local inflammation was induced with the help of the inoculation of *S. aureus* culture into the hind left paw. The ordinary inflammatory reaction was observed in the group of mice on non-activated water: the intensive reddening of the hind left paw (Figure 3). Both groups of mice on MRET water did not develop any reddening of the hind left paw inoculated with *S. aureus* culture (Figure 4). The results of this experiment confirm the fact of the substantial inhibition of inflammatory infection in case of the regular consumption of MRET water.

The consumption of MRET water stimulates the activity of phagocytic system and the level of natural resistance of animals to pathogenic microorganisms.

For the following series of experiments the inoculation of *S. aureus* Wood-46 was conducted intra-peritoneal in dose LD30 in order to spread infection all over the body.

The phagocytic system is one of the main factors of natural non-specific cellular resistance to infections and inflammations. It is the first line of protection of an organism against penetration and reproduction of pathogenic microorganisms. The protective role of phagocytic cells is based on their capacity to identify, engulf and utilize the alien agents penetrated into internal environment of a macro-organism. Phagocytosis is the main mechanism of natural resistance especially at the first stage of contagious process; it is a regular part of formation of the specific immune response.

The most common methodology applied in the studies of the functional activity of phagocytes is the examination of their phagocytic (engulfing of alien cells) and oxygen-dependent bactericidal activity. Phagocytic activity of neutrophils and macrophages is estimated based on Phagocytic Index (percentage of phagocytes which engulfed test-bacteria) and on Phagocytic Number (average number of test-bacteria engulfed by one phagocyte). The cultures of *S. aureus* and Latex are usually used as test-bacteria. The oxygen-dependent bactericidal activity of phagocytes is studied with the help of NBT-test: an oxygen-dependent reduction of Nitro Blue Tetrazolium into an insoluble Diformazan of Nitro Blue Tetrazolium derivative by phagocytes. With the help of NBT-test it is possible to distinguish the activated phagocytes from the non-activated ones.

MRET water stimulated the phagocytic capacities of neutrophils of a peripheral blood and peritoneal macro-

Figure 3. The view of paws of a mouse on non-activated water (reddening of the injected paw) in 24 h after the injection of Staphylococcus culture.

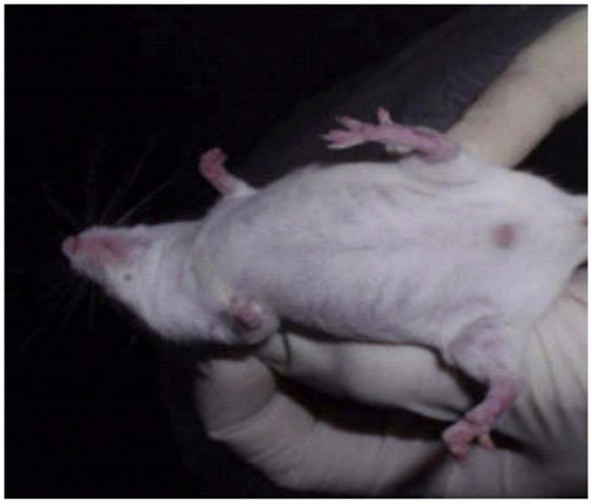


Figure 4. The view of paws of a mouse on MRET activated water (no reddening of the injected paw) in 24 h after the injection of Staphylococcus culture.

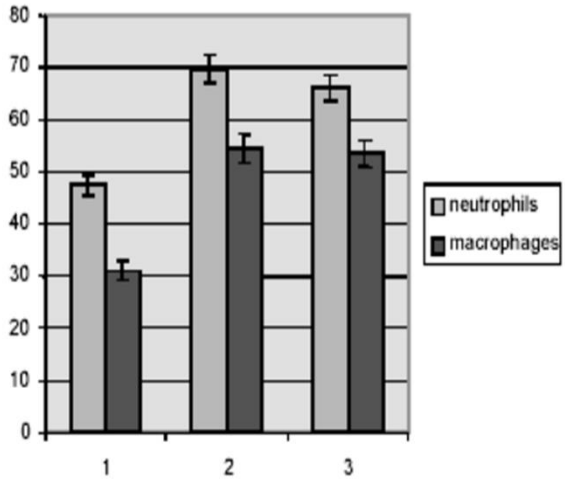


Figure 5. Phagocytic Index of neutrophils and macrophages in two weeks of experiment (object of phagocytosis - Staphylococcus aureus): 1 – Control group; 2 – Mice on MRET water (preventive for 4 weeks); 3 – Mice on MRET water (preventive for 2 weeks).

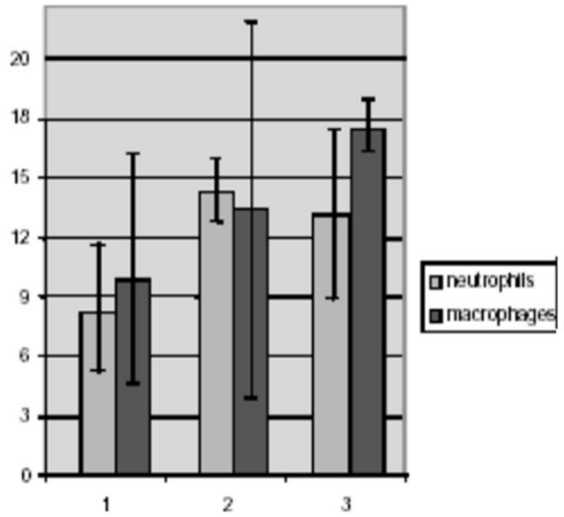


Figure 6. Phagocytic Number of neutrophils and macrophags in two weeks of experiment (object of phagocytosis – Staphylococcus aureus): 1 – Control group; 2 – Mice on MRET water (preventive for 4 weeks); 3 – Mice on MRET water (preventive for 2 weeks).

phages increasing their phagocytic activity, particularly Phagocytic Index (Figure 5) and Phagocytic Number (Figure 6). It also stimulated their oxygen-dependent bactericidal activity, particularly the increase of quantity of NBT-positive phagocytes (Figure 7).

These experiments confirmed the increase of effective potentials of phagocytes, which constitute one of the main factors of natural protection of an organism and initiate the immune response. The analysis of data in the beginning of experiments leads to the conclusion that significant intensification of phagocytic and bactericidal activity of macrophages and neutrophils of mice on MRET water begins only after 24 h following the intra-peritoneal inoculation of *Staphylococcus* culture. At the end of two weeks of experiment the mean values of studied parameters in both groups of mice on MRET water substantially increased compared to the control group. The differences in mean values of the parameters of functional activity of phagocytes of groups of mice consuming MRET water compared to the control group of mice on non-activated water were statistically significant with $p < 0.05$ (for Phagocytic Index and NBT-test). These results confirm the significant intensification of phagocytic and bactericidal activity and of immune system response following the

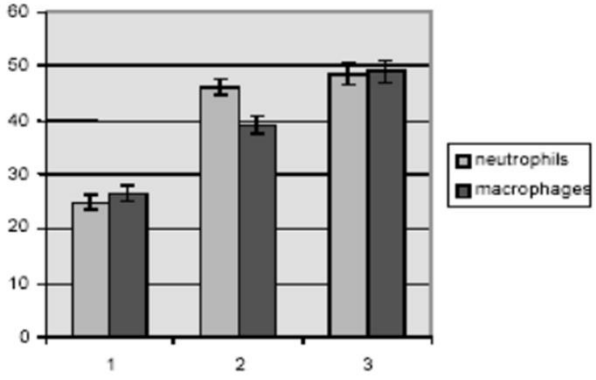


Figure 7. Oxygen-depended bactericidal activity (NBT-test) of neutrophils and macrophages in two weeks of experiment: 1 – Control group; 2 – Mice on MRET water (preventive for 4 weeks); 3 – Mice on MRET water (preventive for 2 weeks).

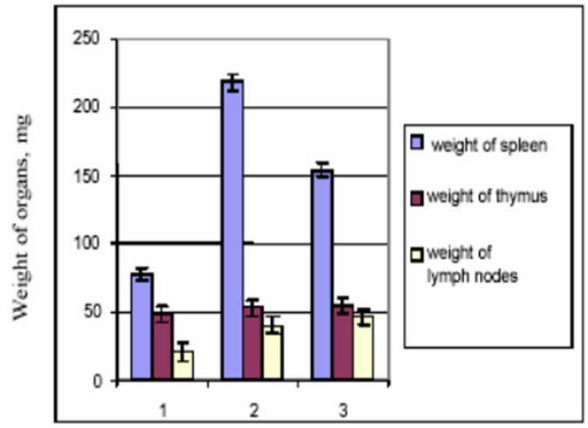


Figure 8. The weight of lymphoid organs in two weeks of experiment: 1 – Control group; 2 – Mice on MRET water (preventive for 4 weeks); 3 – Mice on MRET water (preventive for 2 weeks).

consumption of MRET water.

The differences in mean values of studied parameters for the groups of mice on MRET water compared to each other were statistically insignificant, which confirms the similarity of the level of beneficial effect of MRET water in both groups. This fact also confirms that the regular consumption of MRET water provides health benefits in rather short time (2 weeks in case of the animal mice model).

The consumption of MRET water substantially enhances the immune activity of lymphoid organs

By the end of another series of experiments in both groups of mice on MRET water was observed substantial

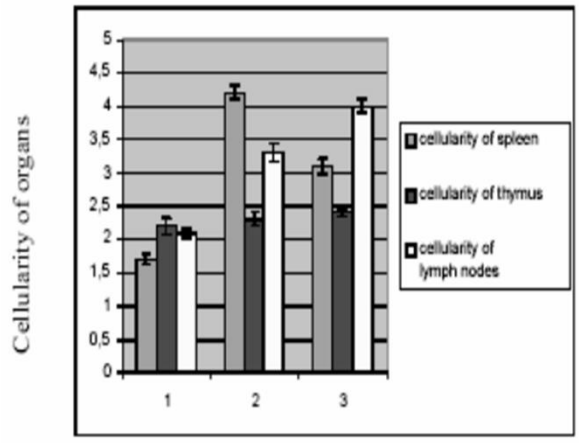


Figure 9. The cellularity of lymphoid organs in two weeks of experiment: 1 – Control group; 2 – Mice on MRET water (preventive for 4 weeks); 3 – Mice on MRET water (preventive for 2 weeks).

statistically significant ($p<0.05$) increase in the weight and the cellularity (quantity of cells) of the spleen and lymph nodes as well as an insignificant increase in the weight and cellularity of the thymus (Figures 8 and 9).

These results confirm the fact of significant intensification of immune system response in animals on MRET water subject to *Staphylococcus* infection. The difference in studied parameters between the groups of mice on MRET water (4 and 2 weeks of preventive consumption of MRET water) was insignificant which confirms quite fast beneficial effect of MRET water on the immune activity of lymphoid organs.

In the beginning of experiment the cellularity and the weight of lymphoid organs in MRET groups did not show the distinct tendency to modifications. It is reasonable to admit that the consumption of MRET water affects the weight and the cellularity of lymphoid organs only during the infection period.

The effect of MRET activation on the process of *staphylococcal* culture growth in nutrient medium

Following the investigation the direct correlation between times of activation (t_{act}), initial concentrations of *staphylococcal* culture (N_0) and a number of colonies grown on MRET activated medium were observed. The results are presented below in the form of a series of photos of Petri dishes with the colonies grown on MPA surfaces and the following diagrams based on the data of these experiments (Figure 10 - 15).

In the process of investigation the effect of MRET activation on the growth of staphylococcal culture at rather small initial concentration of pathogens was analyzed. The data corresponding to higher initial concentrations $N_0 > 10^3$ bacteria/ml were not analyzed due to the difficulties related to calculation of very high values of a number of colonies, despite the fact of the high bacteriostatic activity

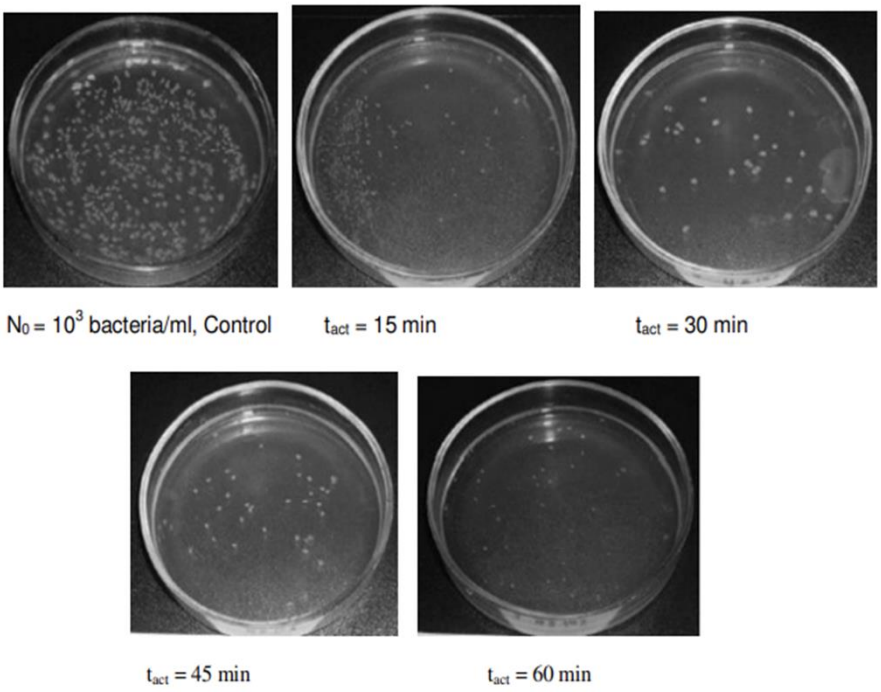


Figure 10. The effect of time duration of MRET activation on the inhibition of growth of culture of *Staphylococcus aureus* Wood-46 with initial concentration of culture $N_0 = 10^3$ bacteria/ml.

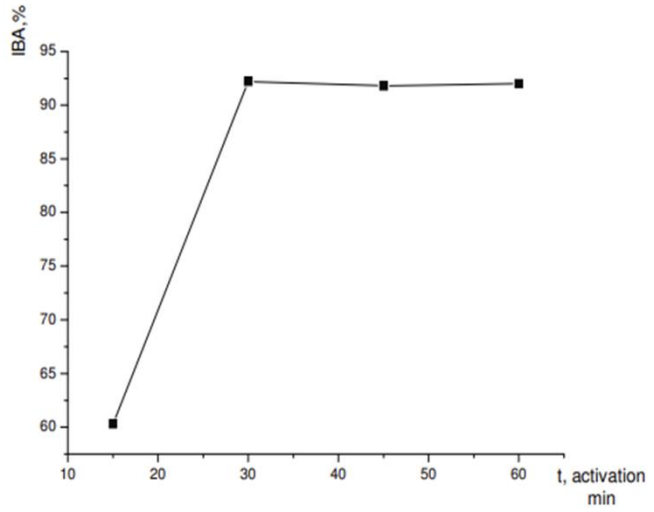
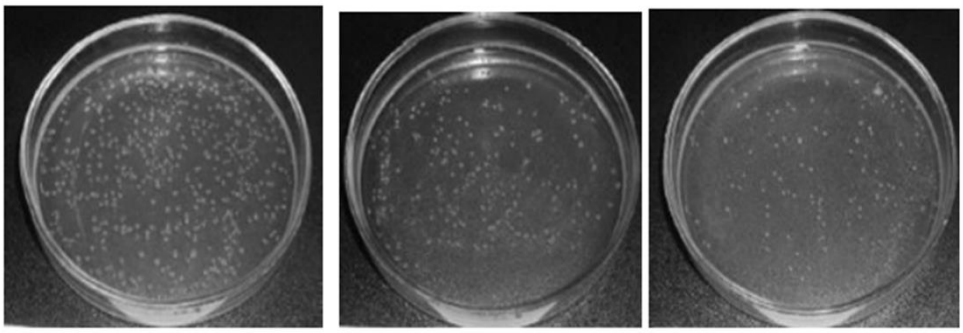


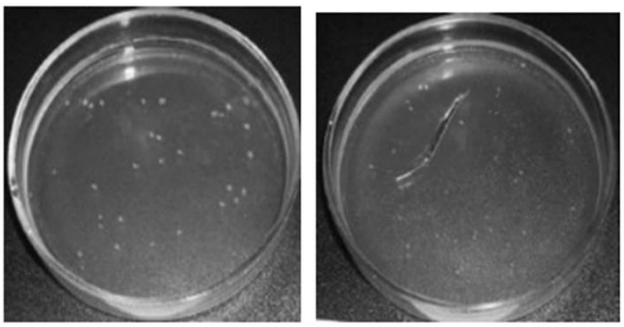
Figure 11. The effect of time duration of MRET activation on the inhibition of growth of culture of Staphylococcus aureus Wood-46 with initial concentration of culture $N_0 = 10^3$ bacteria/ml. IBA – Index of Bacteriostatic Activity (reduction of the number of colonies related to the control samples not exposed to activation).

of MRET activated nutrient medium in case of high initial concentrations.

The highly significant bacteriostatic effect of 92 - 93% was observed after MRET activation for 30 min and more of cultures with initial concentration $N_0 = 10^3$ bacteria/ml (Figures 10 and 11) and of 70 - 90% with initial concentration of $N_0 = 10^2$ bacteria/ml (Figures 12 and 13). In case of cultures with low initial concentration $N_0 = 10^1$ bacteria/ml the bacteriostatic activity in 15 min activated nutrient medium exceeded 93% and in 30 min activated



$N_0 = 10^2$ bacteria/ml, Control t_{act} = 15 min t_{act} = 30 min



t_{act} = 45 min t_{act} = 60 min

Figure 12. The effect of time duration of MRET activation on the inhibition of growth of culture of *Staphylococcus aureus* Wood-46 with initial concentration of culture $N_0 = 10^2$ bacteria/ml.

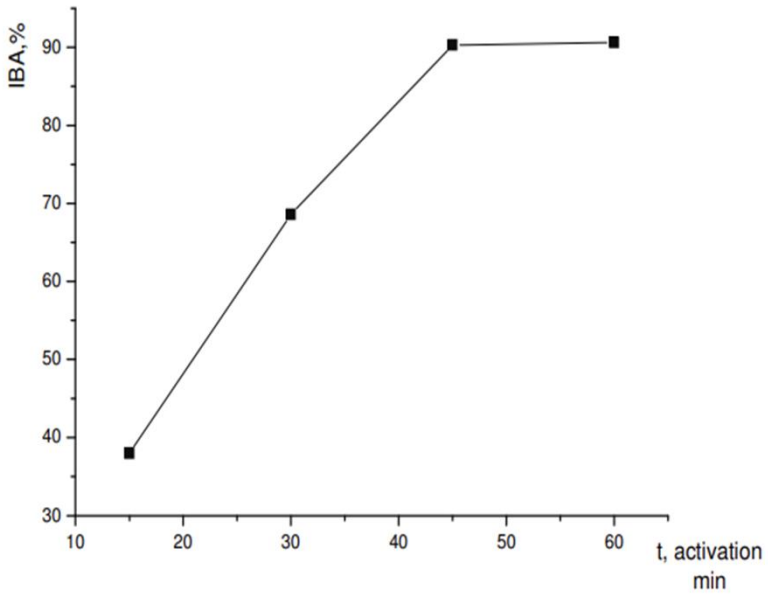
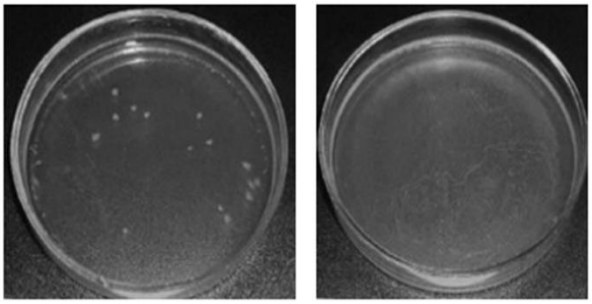


Figure 13. The effect of time duration of MRET activation on the inhibition of growth of culture of Staphylococcus aureus Wood-46 with initial concentration of culture $N_0 = 10^2$ bacteria/ml. IBA – Index of Bacteriostatic Activity (reduction of the number of colonies related to the control samples not exposed to activation).



N_0 = 10 bacteria/ml, Control t_{act} = 15 min

Figure 14. The effect of time duration of MRET activation on the inhibition of growth of culture of Staphylococcus aureus Wood-46 with initial concentration of culture $N_0 = 10^1$ bacteria/ml.

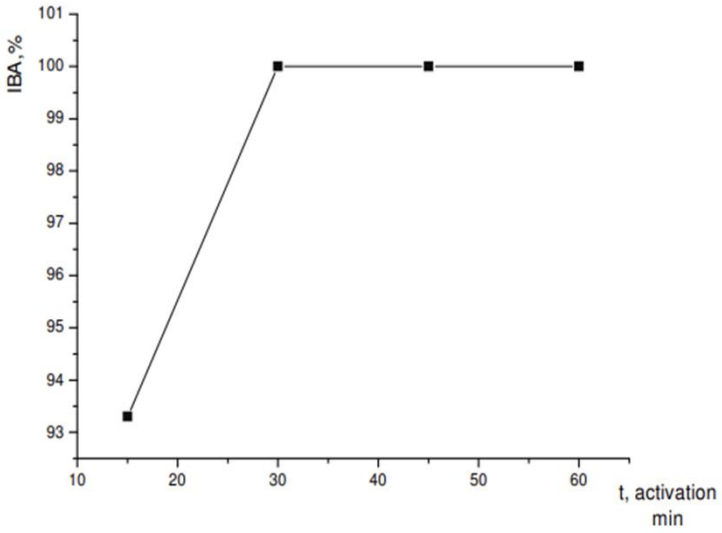


Figure 15. The effect of time duration of MRET activation on the inhibition of growth of culture of *Staphylococcus aureus* Wood-46 with initial concentration of culture $N_0 = 10^1$ bacteria/ml. IBA – Index of Bacteriostatic Activity (reduction of the number of colonies related to the control samples not exposed to activation).

nutrient medium was observed 100% inhibition of *staphylococcal* colonies (Figures 14 and 15).

Conclusions

The consumption of MRET activated water significantly enhances the factors of natural resistance of the body which constitute the first line of protection of an organism against the penetration and reproduction of pathogenic microorganisms.

The analysis of data in the beginning of experiment leads to the conclusion that significant changes in all studied parameters of mice on MRET water (decrease of pathogen colonies in homogenate of kidneys, increase of the weight and the cellularity of lymphoid organs, intensification of the phagocytic and bactericidal activity of macrophages and neutraphils) begins only after 24 h following the inoculation of *Staphylococcus* culture. In other words the consumption of MRET water increases the potentials of immune capacities of the body to counteract the infections without any changes in the vital parameters of immune organs and functions prior to the penetration of infectious pathogens in the body.

At the end of two weeks of *in vivo* experiment the mean values of studied parameters in both groups of mice on MRET water (preventive for 4 and 2 weeks respectively) significantly increased compared to the control group. The differences in mean values of the studied parameters of the groups of mice consuming MRET water compared to the control group of mice on non-activated water were statistically significant with $p < 0.05$ (for most of the para-

meters). Particularly, the consumption of MRET water reduced the death rate from 30% (control group of mice on non-activated water) to 0% (two groups of mice on MRET water) during the first 9 days of experiment after intraperitoneal inoculation of *Staphylococcus* culture. The significant bacteriostatic effect of 70 - 100% (depending on initial concentrations of pathogens) was observed *in vitro* for MRET-activated nutrient medium in this investigation. These results confirm the significant intensification of phagocytic activity and of immune system response following the consumption of MRET water. The differences in mean values of studied parameters for the groups of mice on MRET water compared to each other were statistically insignificant, which confirms the similarity of the level of the beneficial effect of MRET water in both groups. This fact also confirms that the regular consumption of MRET water provides health benefits in rather short period of time (2 weeks in case of the animal mice model).

The results of *in vitro* investigation provide the evidence regarding the high efficacy of MRET activation on the inhibition of growth of colonies and reproduction of *staphylococcal* microorganisms and thus confirm high bacteriostatic (antibacterial) activity of MRET water.

MRET activation of the water based nutrient medium with suspended staphylococcal culture leads to the origination of high bacteriostatic activity of nutrient medium which depends on the time duration of activation and initial concentration of culture cells. The bacteriostatic activity increases following the increase of time of activation (the times of activation up to 60 minutes were studied). The efficacy of bacteriostatic activity increases following the decrease of initial concentration of the suspension of *staphylococcal* culture. The process of MRET activation is most effective on culture suspensions with the concentration not more than 10^3 bacteria/ml.

The results of investigation provide the evidence regarding the high efficacy of MRET activation on the inhibition of growth of colonies and reproduction of staphylococcal microorganisms *in vitro*. These results allow admitting that the process of MRET activation and the sterilization effect of MRET water can be applied in food industry and for water purification.

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(REVIEW ARTICLE)

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MRET treated water as a tool to mitigate mRNA jab side effects: A review

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Abstract

The viral RNA (ribonucleic acid) was found in virtually every organ in the body, which means the spike proteins as well. There are antibodies (like the "vaccine" is supposed to create) but they're irrelevant because, based on a study from Japan, we now know that the spike S1 protein is what does the damage. That means the spike proteins created by the mRNA will be in every organ as well, and we now know it is the spike proteins that do the damage. Another significant mRNA jab side effect was found by Israeli researchers. They discovered a link between Pfizer's COVID-19 vaccine and a rare blood disease called thrombotic thrombocytopenic purpura (TTP). Any formation of proteins depends on Van der Waals interactions. The Van der Waals forces depend in its turn on dielectric property of the protein molecules and water since all biochemistry needs water environment. It is practically impossible to change dielectric property/electrical charge of the proteins, but it is quite easy to modify dielectric property of water. There are research data indicating relation between dielectric constant of the human body tissue (TDC) and temperature: 35° C - 74.9 F/m (TDC) and 40° C - 73.2 F/m (TDC). It shows that normal homeostasis of the human body is allowed at certain range of electrodynamic van der Walls interactions following the small range of tissue dielectric property about 75 - 73 F/m. It allows us to suggest that dielectric property of human body tissue is very important physiological parameter. Considering mentioned above ideas, it allows us to hypothesize that most of biochemical proteins building mechanisms in a healthy human body require certain physiological range "window" of van der Waals interactions and hydrogen bonding between proteins molecules and water - salt medium. In theory, this physiological "window" of van der Waals weak electromagnetic forces may be significantly different from the range of electrodynamic van der Waals interactions required for life sustains formations of DNA/RNA proteins of viruses. Thus, modification of water - based medium electrodynamic parameters of the human tissues that are favorable for the homeostasis of the body (in the range of physiological "window") can lead to significant change of van der Walls interactions and hydrogen bonding that may result in the inhibition and interruption of proper formation of spike proteins chains. Such scenario obviously disables coronavirus life sequence of attachment and fusion with human cell membranes.

We suggest such agent which can interrupt pathogenic microorganism's life sequence is MRET (Molecular Resonance Effect technology) water with anomalous electrodynamic characteristics. MRET water can be consumed on the regular basis by human subjects to prevent infections of pathogenic microorganisms.

Keywords: MRET water; mRNA jab; Dielectric permittivity Spike proteins; Thrombotic

1. Introduction

The first-ever autopsy of a person vaccinated against COVID-19, who tested negative 18 days later upon hospital admission but then tested positive at 24 days after the VAX, has revealed viral RNA was found in almost every organ of the body. The vaccine, while triggering an immune response, did not stop the virus from entering every organ in the body. The viral RNA was found in virtually every organ in the body, which means the spike proteins as well. There are

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antibodies (like the "vaccine" is supposed to create) but they're irrelevant because, based on a study from Japan, we now know that the spike S1 protein is what does the damage.

The report of the postmortem makes clear tests showed "no morphological changes associated with COVID" in his organs. "Morphological" means structural. COVID infection is now known to cause very specific structural changes to the places it infects. Those changes had not appeared in the vaccinated man before he died. The now dead vaccinated man was in a room where another patient ultimately tested positive for COVID, and the report states they think the dead vaccinated man caught COVID after he was admitted, from the other patient in the same room. So, the damage to the organs of the now dead vaccine recipient, took place before he was infected with COVID by the other hospital room patient. Worse, once the vaccinated man actually got COVID, it spread so fast within his body, he apparently never stood a chance.

People think that only a minority of people get adverse effects from the vaccine.

Based on this new research, it means that everyone eventually will have adverse effects, because those spike proteins will be binding to ACE2 receptors everywhere in the body. That mRNA was supposed to stay in the injection site and it's not. That means the spike proteins created by the mRNA will be in every organ as well, and we now know it is the spike proteins that do the damage. Worse, the viral RNA being found in every organ despite a vaccine, indicates either:

- The vaccine doesn't work at all, or;
  The virus is enjoying Antibody Dependent Enhancement (ADE), meaning it actually spreads faster in vaccinated people [1].

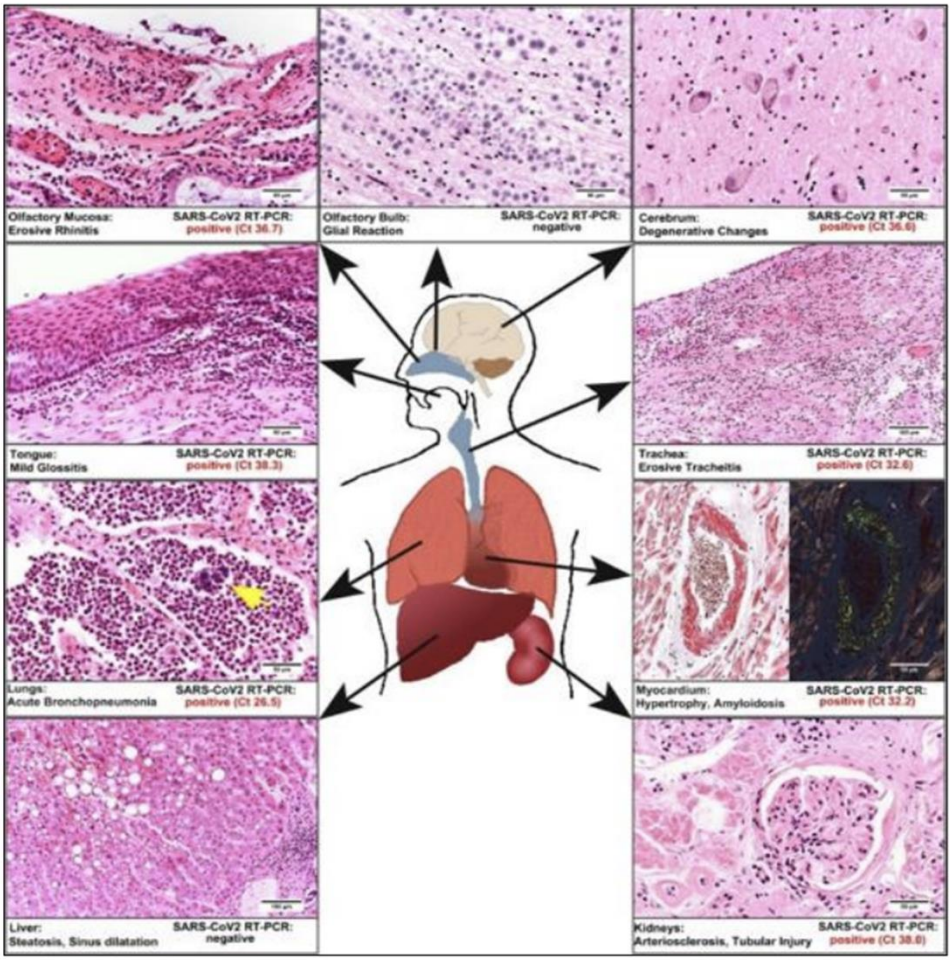


Figure 1 Here are tissue images [1]

Another significant mRNA jab side effect was found by Israeli researchers. They discovered a link between Pfizer's COVID-19 vaccine and a rare blood disease called thrombotic thrombocytopenic purpura (TTP). Scientists with the Institute of Hematology at Shamir Medical Center said they began researching the possible link after reports of a sudden increase in TTP across Israel. The team said they discovered a "chronological connection" between when the Pfizer shot was administered to the patient and the onset of symptoms of the blood disease. They said that four cases were detected. "Physicians and patients need to be alert to the clinical symptoms: weakness fatigue, neurological disorders, hemorrhage and chest pain," the Institute of Hematology at Shamir Medical Center told The Jerusalem Post.

According to the U.S. National Library of Medicine, TTP is a rare disorder that causes blood clots to form in small blood vessels in the body. "These clots can cause serious medical problems if they block vessels and restrict blood flow to organs such as the brain, kidneys, and heart," the federal agency says on its website. "Complications resulting from these clots can include neurological problems (such as personality changes, headaches, confusion, and slurred speech), fever, abnormal kidney function, abdominal pain, and heart problems [2].

Descusion: The main goal is to prevent viruses to form spikes. Any formation of proteins depends on Van der Waals interactions. The Van der Waals forces depend in its turn on dielectric property of the protein molecules and water since all biochemistry needs water environment. It is practically impossible to change dielectric property/electrical charge of the proteins, but it is quite easy to modify dielectric property of water.

S-protein synthesis is apparently not a pathophysiological for corona-viruses activity, but without any doubt it is pathophysiological for the normal human cells. mRNA jab apparently leads to s-protein synthesis in the human normal cells by compromising normal cells to recognize spikes in order to develop a defense mechanism.

The pathogenic proteins structures require specific range of Van der Waals interactions between the protein molecules to build for example such formations like spikes. All such specific interactions are available in water environment with a precise dielectric permittivity. If we can introduce activated water with modified dielectric properties it can cancel the required specific Van der Waals interactions between the molecules of pathogenic proteins.

The stability of spike protein structure is based on the overall interactions of van der Walls weak electrodynamic forces and hydrogen bonding. The pre-fusion spike protein stability needs certain medium that supports required van der Walls interactions and hydrogen bonding to form the protein spike chain by coronavirus. It is obvious, that such medium is a water-based one, since all biochemical formations of proteins requires presence of water molecules in biological systems. The following transition of pre-fusion spike protein to post-fusion protein also requires specific water-based medium to support correct transition and formation of the bridges to help coronavirus fuse with the human cell membrane.

The weak electromagnetic van der Walls interactions in aqueous liquids directly depend on relative dielectric permittivity of water. The formation of any protein structures in the human body strictly depends on specific balance of dielectric property of protein molecules and water since it provides certain parameters of van der Walls forces to build such proteins. Dielectric property of water in its turn depends on temperature. We know from medicine that normal homeostasis of the human body is allowed at the precise physiological temperature parameters of the body: 35° C - 41° C on general basis. The drop of the body temperature below 35°C as well as the rise of the body temperature above 41° C leads to the inability to sustain life. There are research data indicating relation between dielectric constant of the human body tissue (TDC) and temperature: 35° C - 74.9 F/m (TDC) and 40° C - 73.2 F/m (TDC). It shows that normal homeostasis of the human body is allowed at certain range of electrodynamic van der Walls interactions following the small range of tissue dielectric property about 75 - 73 F/m. It is well correlated since we know from physics that relative dielectric permittivity of water is 80 F/m at room temperature (20° C).

It allows us to suggest that dielectric property of human body tissue is very important physiological parameter. For example, for the full band of frequencies analyzed, the dielectric constant of malignant colon tissue is on average 8.8% higher (Figure 2) than the dielectric constant of healthy one (p = 0.002). This difference is even higher at frequencies below 4 GHz.

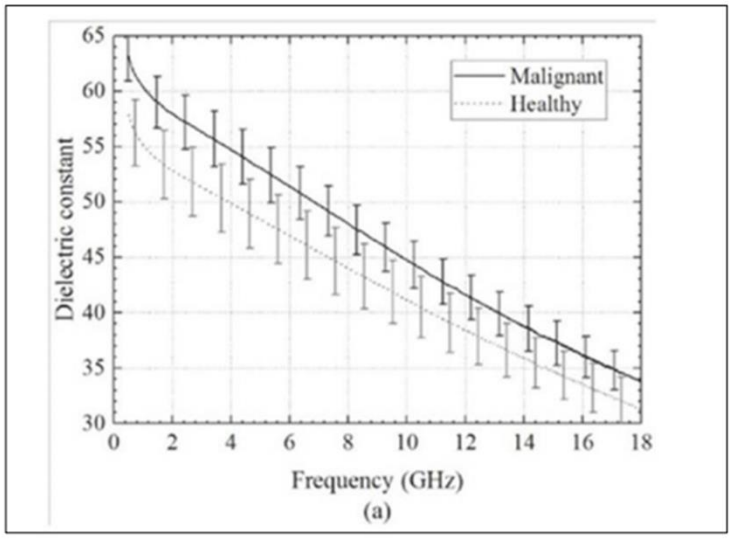


Figure 2 Mean of the dielectric constant (a) of healthy and malignant colon tissue, along with their standard deviation in error bar format

Thus, normal healthy homeostasis of the human body directly depends on physiological temperatures "window", and subsequently relative dielectric permittivity of the body liquids should be kept in the physiological range "window" of about 75 -73 F/m. Any type of shifting from this range may lead to development of diseases including body infection with pathogenic microorganisms. Considering mentioned above ideas, it allows us to hypothesize that most of biochemical proteins building mechanisms in a healthy human body require certain physiological range "window" of van der Waals interactions and hydrogen bonding between proteins molecules and water - salt medium. In theory, this physiological "window" of van der Waals weak electromagnetic forces may be significantly different from the range of electrodynamic van der Waals interactions required for life sustains formations of DNA/RNA proteins of viruses, bacteria and other pathogenic microorganisms. The same type of general mechanism can be adopted for other lines of bacteria and viruses as well.

Thus, modification of water - based medium electrodynamic parameters of the human tissues that are favorable for the homeostasis of the body (in the range of physiological "window") can lead to significant change of van der Walls interactions and hydrogen bonding that may result in the inhibition and interruption of proper formation of spike proteins chains. Such scenario obviously disables coronavirus life sequence of attachment and fusion with human cell membranes.

We suggest such agent which can interrupt pathogenic microorganism's life sequence is MRET water with anomalous electrodynamic characteristics. MRET water can be consumed on the regular basis by human subjects to prevent infections of pathogenic microorganisms. The studies conducted at AltheaDx Technology, USA confirm that MRET activated water-based medium did not affect the morphology of normal PBMC cells on genetic level; it affected the morphology of normal PBMC cells in a positive way increasing their viability [3].

MRET Activated Water is produced with the help of patented in the USA Molecular Resonance Effect Technology (MRET, US Patent # 6022479). MRET water activator is the stationary source of subtle, low-frequency, resonant electromagnetic field with composite structure. The origin of the low-frequency composite electromagnetic field is the intensive electrical activity inside the nano-circles formed by linear molecular groups of MRET polymer compound (volumetric fractal geometry matrix) when polymeric body is exposed to the external electromagnetic fields of specific frequency and wavelength. The significant reduction of values of electrical conductivity and dielectric permittivity confirms the relatively high, long-range dynamic structuring of water molecules in activated water produced with the help of MRET activation process. It demonstrates the anomalous behavior of electrodynamic characteristics (dielectric permittivity and electrical conductivity) of MRET water subject to applied EMF (electromagnetic field) in the area of very low range of frequencies in order to provide some evidence regarding polarized-oriented multilayer structuring of MRET activated water and the possible effect of MRET water on the proper function of cells in biological systems.

The research was conducted under supervision of Prof. Vladimir I. Vysotskii and Prof. Lydia S. Kholodna, at Faculty of Microbiology and Immunology, Biological Department of Kyiv National Shevchenko University, Ukraine.

The significant protective properties of MRET water were confirmed by substantial decrease of Staphylococcus CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice following the intra-peritoneal staphylococcal infection after the first 24 h. The significant protective properties of MRET water were confirmed by substantial decrease of Staphylococcus CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice following the intra-peritoneal staphylococcal infection after the first 24 h. The consumption of MRET water reduced the death rate from 30% (control group) to 0% (MRET groups) during the first 9 days of experiment. There was no case of animal death in all investigated groups within the first 24 h after intra-peritoneal inoculation of Staphylococcus culture, which is a pretty standard result. During the next 8 days 30% of animals died in control group which is an expected result for such experimental procedure. There was no death case in both groups of mice that ingested MRET activated water and it is a very unusual result.

Another study - clinical observation was performed at Thammarakniwet Foundation, WAT Phrabaat Namphu, Lopburi Province, Thailand. The investigation was conducted under supervision of Dr. Peerayot Trongsawad, MD, Director of AIDS Control Department, Bangkok Metropolis.

The study was conducted on 38 AIDS patients during August, 2004 - August, 2005. All patients were consuming 1.5 liters of MRET activated water per day as a complimentary treatment in addition to the prescribed Anti-HIV medications. During the course of clinical observation all 38 patients were tested on a regular basis for CD4 counts and required to submit weekly reports regarding their health conditions.

There was simultaneous observation of other group of AIDS patients during the same period of time (control group). They were on the same type of prescribed Anti-HIV medication, but without the complimentary consumption of MRET water.

- First method: collection and analysis of the weekly health condition reports and CD4 counts reports;
- Second method: group interviews and personal interviews with patients which participate in this observation.

38 patients of the age between 19 and 49 years old were selected for the clinical trial. Summarizing the observation results we can indicate that in compliance with the studied gradations of AIDS patients health conditions 36 patients showed significant improvement and 2 patients did not show any improvement of their health condition.

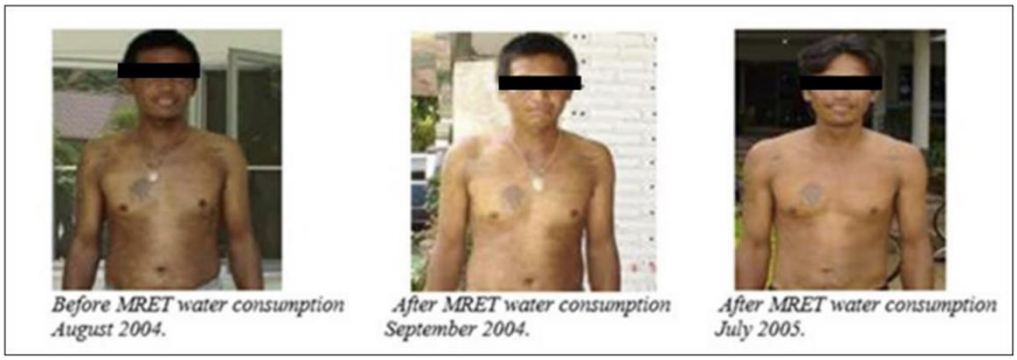


Figure 3 Photos of a patient from the experimental group

Some patients from experimental group were selected to undergo two tests at the Bangkok Pathology Laboratories (Fig.3). One test was the reading of the level of CD4 counts (immune system) and the other was Viral Load (the amount of virus in the body) For CD4 reading, a healthy body should have a range of 800 – 1200 cells / microliter.

For Viral Load, the instrument has the ability to measure from 50 - 5000 copies / ml. The lower the number, the lesser the virus in the body, and subsequently lesser it attacks the patient's body.

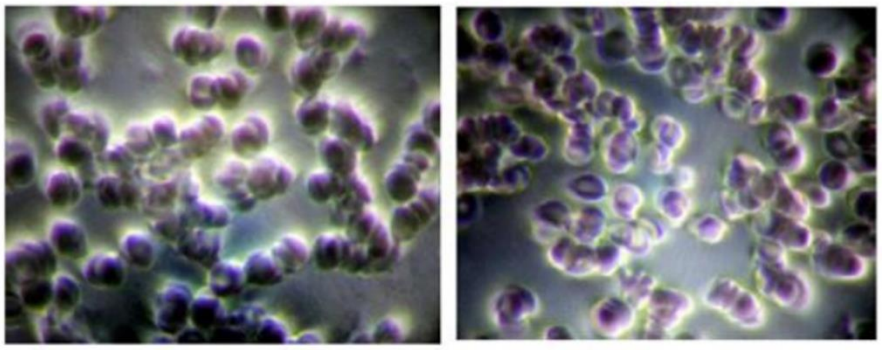
1st Patient Mr. Sa-ad: His CD4 counts increased from 2 to 840 within 11 months of consumption of MRET activated water. His Viral Load was less than 50.

2nd Patient Mr. Un-ruang: His CD4 counts increased from 90 to 805 within 3 months of consumption of MRET water. His Viral Load was also less than 50.

1.1. Group of patients without MRET water treatment

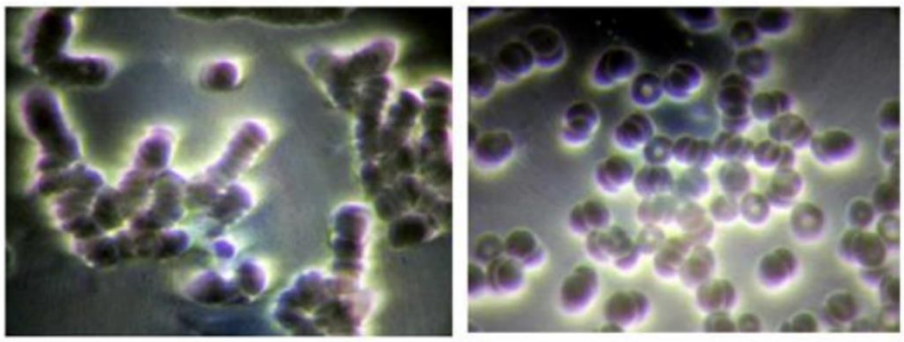
The simultaneous observation of the patients which did not consume MRET water (control group) provides evidence that these patients did not show any significant improvement of their health condition. It clearly indicates that MRET activated water consumption may be applicable for prevention and a complimentary treatment of patients suffering from SARS-CoV type of disease as well.

Mr Ho Wah Sang



Before After

Mdm Ng Lay Hwa



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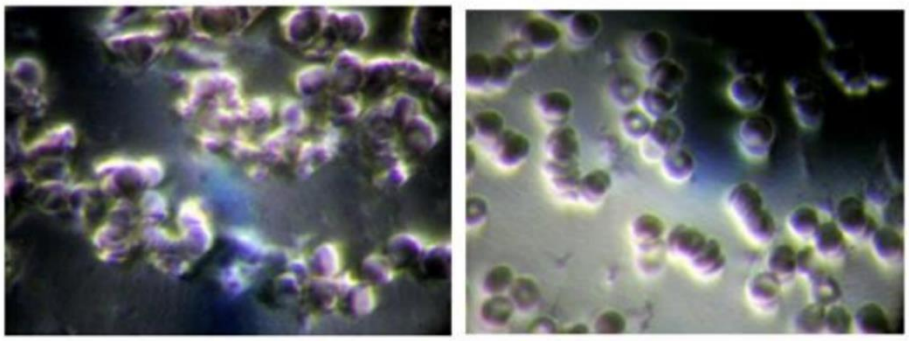
Mdm Boa Sian Ai



Before After

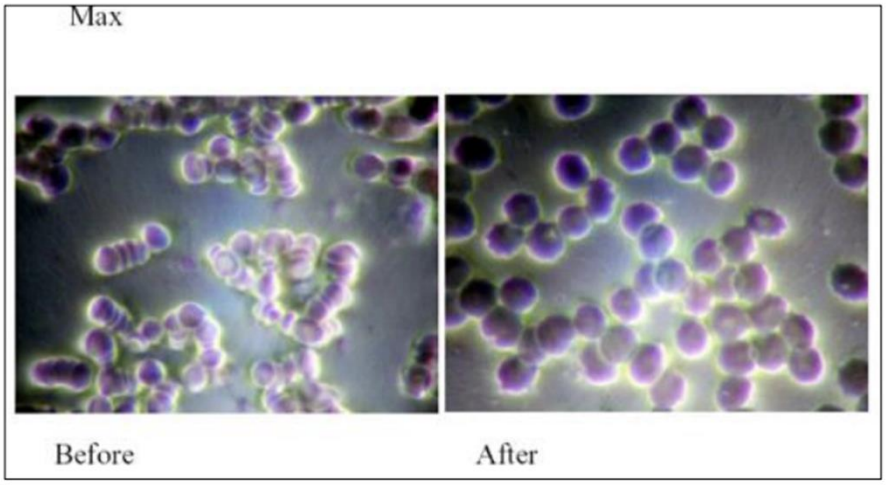


Figure 4 Comparative images of Live Blood Cells Analysis

To realize the effect of MRET treated water on human blood morphology, Live Blood Cell Analysis was conducted at facility of Elixir Health Ltd., Singapore by analyst Vincent Seet according to the standard methodology (Fig.4). A drop of blood sample was taken from the fingertip of the subject who was not drinking MRET water for 24 hours. This sample was placed on a specimen slide and spread into a thin layer by a glass cover. The glass cover is then placed over the thin layer of blood. Digital camera attached to microscope took an image of the sample. Then the same subject drank one glass (8 oz.) of MRET water and in 20 minutes a drop of blood sample was taken from the fingertip one more time. Sample was observed under the microscope, and digital camera took another image. These two images were compared and analyzed. The experiment was conducted on 4 subjects. The images of the blood sample taken before the consumption of MRET water show the patterns known as Rouleau formation of red blood cells. Blood cells are stacked forming worm-like patterns. This type of red blood cells morphology usually leads to development of such symptoms as fatigue, shortness of breath, and poor blood circulation in hands and feet because such red blood cells cannot carry enough oxygen.

The images of red blood cells within 20 minutes after consumption of one glass (8oz.) of MRET water show the immediate restoration and improvement of the blood cells morphology. The comparison of the images before and after consumption of MRET water proves that MRET water has distinctive positive biological effect on the human blood morphology.

2. Conclusion

The review materials suggest, that MRET treated water consumption can be a perfect preventive tool to protect human subjects from unwanted mRNA jab side effects such as:

- Potential formation of spike proteins which will be binding to ACE2 receptors everywhere in the body. That means the spike proteins created by the mRNA will be in every organ;
- Development of rare blood disease called thrombotic thrombocytopenic purpura (TTP). These TTP- clots can cause serious medical problems if they block vessels and restrict blood flow to organs such as the brain, kidneys, and heart.

Compliance with ethical standards

Acknowledgments

I would like to express my very great appreciation to Dr. Peerayot Trongsawad M.D. for his valuable and constructive suggestions. His willingness to give his time so generously has been very much appreciated.

Disclosure of conflict of interest

The author declares that there is no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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MRET Treated Water as A Possible Agent for Inhibition of Coronavirus Life Cycle: A Review

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ABSTRACT

We observed positive results of MRET water complimentary treatment for HIV patients during a clinical trial. There are recent research data which allows pointing to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV. The stability of virus spike protein structure is based on the overall interactions of vander Walls weak electrodynamic forces and hydrogen bonding. It is obvious, that all biochemical formations of proteins require presence of water molecules in biological systems. The overall observed research data suggest that modification of water – based medium electrodynamic parameters of the human tissues (that are favourable for the homeostasis of the body in the range of physiological "window") can lead to significant change of van der Walls interactions and hydrogen bonding that may result in the inhibition and interruption of virus spike proteins formation. Such scenario obviously disables virus life sequence of attachment and fusion with human cell membranes. The same type of mechanism can be adopted for the inhibition of other lines of pathogenic microorganisms.

The studies conducted at AltheaDx Technology; USA confirm that MRET activated water-based medium did not affect the morphology of normal PBMC cells on genetic level; it affected the morphology of normal PBMC cells in a positive way increasing their viability.

MRET Activated Water is produced with the help of patented in the USA Molecular Resonance Effect Technology (MRET, US Patent # 6022479). We suggest that MRET water consumption by human subjects can lead to physiologically favourable modification of dielectric permittivity and hydrogen bonding of water –based medium in the human body tissues. It can provide the initial human body natural defence against intervention and spread of pathogenic microorganisms.

Keywords: *coron virus, MRET water, dielectric permittivity, protein spike;*

INTRODUCTION

Researchers worldwide are racing to develop potential vaccines and drugs to fight the new coronavirus, called SARS-Cov-2. Now, a group of researchers has figured out the molecular structure of a key protein that the coronavirus uses to invade human cells, potentially opening the door to the development of a vaccine, according to new findings. Previous research revealed that coronaviruses invade cells through so-called "spike" proteins, but those proteins take on different shapes in different coronaviruses.

Figuring out the shape of the spike protein in SARS-Cov-2 is the key to figuring out how to target the virus, said Jason McLellan, senior author of the study and an associate professor of molecular biosciences at the University of Texas at Austin. Though the coronavirus uses many different proteins to replicate and invade cells, the spike protein is the major surface protein that it uses to bind to a receptor — another protein that acts like a doorway into a human cell. After the spike protein binds to the human cell receptor, the viral membrane fuses with the human cell membrane, allowing the genome of the virus to enter human cells and begin infection. So "if you can prevent attachment and fusion, you will prevent entry," McLellan told Live Science.

The overall structure of 2019-nCoV S resembles that of SARS-CoV S, with a root mean square deviation (RMSD) of 3.8 Å over 959 Cα atoms. One of the larger differences between these two structures (although still relatively minor) is the position of the RBDs in their respective down conformations (Fig.1). Despite this observed conformational difference, when the individual structural domains of 2019-nCoV S are aligned

to their counterparts from SARS-CoV S, they reflect the high degree of structural homology between the two proteins. [1].

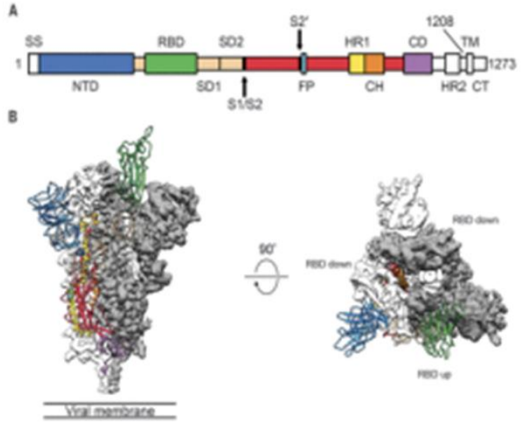


Fig1. *Structure of 2019-nCoV S in the pre-fusion conformation [1].*

The snapshot of this interaction, captured through cryogenic electron microscopy by Qiang Zhou of the Westlake Institute for Advanced Study and colleagues, reveals some of the chemistry behind how the coronavirus hijacks angiotensin converting enzyme (ACE2), an enzyme involved in blood pressure regulation. The researchers think that the structure could lead to the development of antibodies that block this interaction ACE2 is the first in a string of enzymes that convert the hormone angiotensin into its active form. When cleaved by enzymes, angiotensin makes blood vessels contract. The SARS-CoV-2 spike protein has two key elements involved in infecting human cells. A string of amino acids in the S1 subunit directly binds to the protein-cleaving part of ACE2 called the peptidase domain. The S2 subunit of the spike protein helps the virus fuse to the human cell. The scientists found that the protein-cleaving part of ACE2 binds the spike through polar interactions formed from a bridge-like structure on the enzyme. Both ends of the receptor binding domain stick to ACE2 through hydrogen bonding and van der Waals forces. McLellan says that SARS-CoV-2 binds ACE2 more strongly than does the virus that caused the severe acute respiratory syndrome outbreak in 2003. Zhou's research shows the subtle amino acid changes that create salt bridges and improve van der Waals interactions that might underlie this stronger interaction, he says [2].

HYPOTHESIS

Water is the natural background in the scope of which all biochemical processes are running. In nature, only four types of interactions (strong, weak, electromagnetic, and gravitational) are known. Two of the interactions are purely nuclear, and the gravitational one reveals itself only on the cosmic scale. Therefore, it is clear that only the electromagnetic interaction is essential in the scope of any biological system. For the sake of simplicity, we notice that the whole specificity of any biological process is eventually reduced to certain electromagnetic interactions. Just for this reason, the electromagnetic properties of water, which play the decisive role in its self-organization and in its influence on other objects, must be comprehensively investigated. These properties are revealed in all, without exception, biochemical and biophysical processes.

Specific features of the electrodynamic characteristics of water [first of all, a very great value of its dielectric permittivity $\varepsilon(\omega)$] are the reason for the natural dissociation of molecules of many chemical compounds and the formation of the necessary ion composition of vitally important microelements. Otherwise, the normal operation of many systems of a living organism (in particular, the operation of selective membranes) would be impossible.

The change in the dispersive properties of water can render very strong influence (by means of modification of the electrostatic forces between separated charges and forces of the van der Waals type defining the interaction of the systems of neutral atoms and molecules) on the long range interaction of basic elements of living systems such as cells, viruses, biological macromolecules, enzymes, etc.[5]

The coronavirus, SARS-CoV, the primary cause of SARS, gains entry into pulmonary endothelial cells by membrane fusion on binding to this ectoenzyme. This interaction is mediated by the SARS-CoV spike protein. This conclusion is further supported by recent observations that pulmonary endothelial cells express high levels of ACE2.

Though the coronavirus uses many different proteins to replicate and invade cells, the spike protein is the major surface protein that it uses to bind to a receptor — another protein that acts like a doorway into a human cell. After the spike protein binds to the human cell receptor, the viral membrane fuses with the human cell membrane, allowing the genome of the virus to enter human cells and begin infection.

The stability of spike protein structure is based on the overall interactions of van der Walls weak electrodynamic forces and hydrogen bonding. The pre-fusion spike protein stability needs certain medium that supports required van der Walls interactions and hydrogen bonding to form the protein spike chain by coronavirus. It is obvious, that such medium is a water-based one, since all biochemical formations of proteins requires presence of water molecules in biological systems. The following transition of pre-fusion spike protein to post-fusion protein also requires specific water-based medium to support correct transition and formation of the bridges to help coronavirus fuse with the human cell membrane.

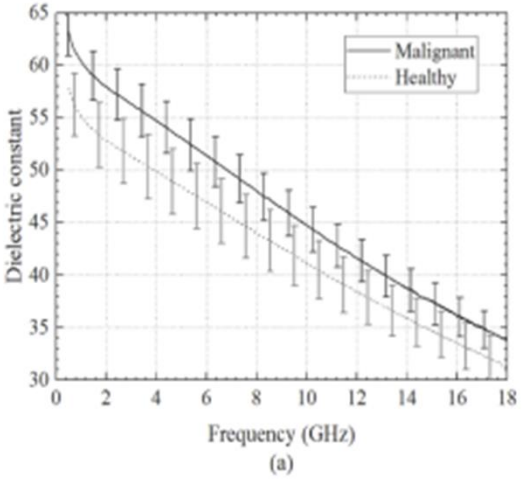
The van der Waals forces among atoms and molecules generally act over relatively short distances, and are proportional to the inverse of the seventh power of the intermolecular distances for molecules and atoms. For two spheres of the same radius R, the interaction energy, W, as a function of the particle separation distance, D, is:

$$W(D) = -\frac{A_{131}\ R}{12\ D} (1)$$

where the Hamaker constant, A_{131}, depends on the relative dielectric constants of the material 1 and medium 3.

The equation (1) yields for the significant role of the medium relative dielectric constant for the value of vander Waals interaction energy. It is seen from the equation the final character of the interaction between any bodies (molecules), its sign, and the intensity depend on the spectrum of the dielectric permittivity of these bodies and the water-salt medium in the region between them. The formation of any protein structures in the human body strictly depends on specific balance of dielectric property of protein molecules and water since it provide certain parameters of vander Walls forces to build such proteins. Dielectric property of water in its turn depends on temperature. We know from medicine that normal homeostasis of the human body is allowed at the precise physiological temperature parameters of the body: 35° C – 41° C on general basis. The drop of the body temperature below 35°C as well as the rise of the body temperature above 41° C leads to the inability to sustain life. There are research data indicating relation between dielectric constant of the human body tissue (TDC) and temperature: 35° C – 74.9 F/m (TDC) and 40° C – 73.2 F/m (TDC). It shows that normal homeostasis of the human body is allowed at certain range of electrodynamic vander Walls interactions following the small range of tissue dielectric property about 75 – 73 F/m. It is well correlated since we know from physics that relative dielectric permittivity of water is 80 F/m at room temperature (20° C).

It allows us to suggest that dielectric property of human body tissue is very important physiological parameter. For example, for the full band of frequencies analyzed, the dielectric constant of malignant colon tissue is on average 8.8% higher (Fig.2) than the dielectric constant of healthy one (p = 0.002). This difference is even higher at frequencies below 4 GHz [7].



(a)

Fig2. *Mean of the dielectric constant (a) of healthy and malignant colon tissue, along with their standard deviation in error bar format. [7]*

Thus, normal healthy homeostasis of the human body directly depends on physiological temperatures "window", and subsequently relative dielectric permittivity of the body liquids should be kept in the physiological range "window" of about 75 –73 F/m. Any type of shifting from this range may lead to development of diseases including body infection with pathogenic microorganisms. Considering mentioned above ideas, it allows us to hypothesize that most of biochemical proteins building mechanisms in a healthy human body require certain physiological range "window" of vander Waals interactions and hydrogen bonding between proteins molecules and water – salt medium. In theory, this physiological "window" of vander Waals weak electromagnetic forces may be *significantly different* from the range of electrodynamic vander Waals interactions required for life sustains formation of DNA/RNA proteins of viruses. The same type of general mechanism

can be adopted for other lines of bacteria and viruses as well.

Thus, modification of water – based medium electrodynamic parameters can lead to significant change of vander Walls interactions and hydrogen bonding that may result in the inhibition and interruption of proper formation of spike proteins chains. Such scenario obviously disables corona-virus life sequence of attachment and fusion with human cell membranes. We suggest such agent which can interrupt coronavirus life sequence is MRET water with anomalous electrodynamic characteristics. MRET water can be consumed on the regular basis by human subjects to prevent coronavirus infection.

The studies conducted at AltheaDx Technology; USA confirm that MRET activated water-based medium did not affect the cells on genetic level; it affected the morphology of normal PBMC cells in a positive way increasing their viability. [6]

A number of studies *in vivo and in vitro* regarding MRET activated water effects confirm that it does not affect the genetic characteristics of living organisms. In all the analyzed cases, no reliable case of a change in specific characteristics of organisms was registered. That is, MRET Activated water is safe for the action on the genetic apparatus. MRET water effects concern only the quantitative characteristics of the development of biological systems (the acceleration or inhibition of the growth of cells and biomass).[5]

MRET Activated Water is produced with the help of patented in the USA Molecular Resonance Effect Technology (MRET, US Patent # 6022479). MRET water activator is the stationary source of subtle, low-frequency, resonant electromagnetic field with composite structure. The origin of the low-frequency composite electromagnetic field is the intensive electrical activity inside the nano-circles formed by linear molecular groups of MRET polymer compound (volumetric fractal geometry matrix) when polymeric body is exposed to the external electromagnetic fields of specific frequency and wavelength. The significant reduction of values of electrical conductivity and dielectric permittivity confirms the relatively high, long-range dynamic structuring of water molecules in activated water produced with the help of MRET activation process. The long-term storage of activated water (up to 5 hours at 20˚C) did not significantly affect its modified electrodynamic characteristics, thus confirming the ability of MRET activated water to keep its anomalous properties for rather long period of time in case of 30 minutes activation, and even higher level of "long-term water memory" phenomenon in case of 60 minutes activation. The significant level of reduction of dielectric permittivity and electrical conductivity kept by MRET water activated for 30 minutes after it was heated to 72˚C confirms its stability to thermal effects. It demonstrates the anomalous behaviour of electrodynamic characteristics (dielectric permittivity and electrical conductivity) of MRET water subject to applied EMF (electromagnetic field) in the area of very low range of frequencies in order to provide some evidence regarding polarized-oriented multilayer structuring of MRET activated water and the possible effect of MRET water on the proper function of cells in biological systems.

Proof of Hypothesis

Severe acute respiratory syndrome (SARS) is a febrile respiratory illness. The disease has been etiologically linked to a novel coronavirus that has been named the SARS-associated coronavirus (SARS-CoV), whose genome was recently sequenced. Since it is a member of the Coronaviridae, its spike protein (S2) is believed to play a central role in viral entry by facilitating fusion between the viral and host cell membranes. The protein responsible for viral-induced membrane fusion of HIV-1 (gp41) differs in length, and has no sequence homology with S2. Infection by many enveloped viruses requires fusion of the viral and cellular membranes. A viral envelope protein mediates this membrane fusion process. These proteins are synthesized as precursors (ENV in Retroviridae, and E2 in Coronaviridae) that are later processed into a transmembrane subunit (gp41 in the retrovirus HIV-1, and S2 in the coronavirus SARS-CoV) that is responsible for viral-induced membrane fusion, and a surface subunit that is responsible for the interaction with the cellular receptor/s. This study points to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV (Fig.3). Recently the FDA approved Enfuvirtide, a synthetic peptide corresponding to the C-terminal heptad repeat of HIV-1 gp41, as an anti-AIDS agent. Enfuvirtide and C34, another anti-HIV-1 peptide, exert their inhibitory activity by binding to a

leucine/isoleucine zipper-like sequence in gp41, thus inhibiting a conformational change of gp41 required for its activation. We suggest that peptides corresponding to the C-terminal heptad repeat of the S2 protein may serve as inhibitors for SARS-CoV entry.[3]

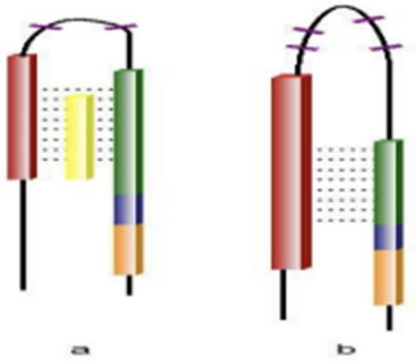


Fig3. *Similarity between the fusion proteins of HIV-1 and SARS-CoV. The HIV-1 gp41 (a) and the equivalent S2 protein from the SARS-CoV (b) are shown. A Leucine/Isoleucine heptad repeat adjacent to the N-terminus of both proteins appears in red. The C-terminal heptad repeat is in green. Cysteine residues (purple) confining a loop structure is located between the two heptad repeats. An aromatic residues-rich motif is marked blue, and the transmembrane segment is in orange. A peptide corresponding to the C-terminal heptad repeat, which acts as potent inhibitor of HIV-1 entry into the cell, appears in yellow.[3]*

The clinical observation was performed at Thammarakniwet Foundation, WAT Phrabaat-namphu, Lopburi Province, Thailand. The investigation was conducted under the supervision of Dr. Peerayot Trongsawad, MD, Director of AIDS Control Department, Bangkok Metropolis.

The study was conducted on 38 AIDS patients during August, 2004 - August, 2005. All patients were consuming 1.5 liters of MRET activated water per day as a complimentary treatment in addition to the prescribed Anti-HIV medications. During the course of clinical observation all 38 patients were tested on a regular basis for CD4 counts and required to submit weekly reports regarding their health conditions.

There was simultaneous observation of other group of AIDS patients during the same period of time (control group). They were on the same type of prescribed Anti-HIV medication, but without the complimentary consumption of MRET water. [4]

First method: collection and analysis of the weekly health condition reports and CD4 counts reports;

Second method: group interviews and personal interviews with patients which participate in this observation.

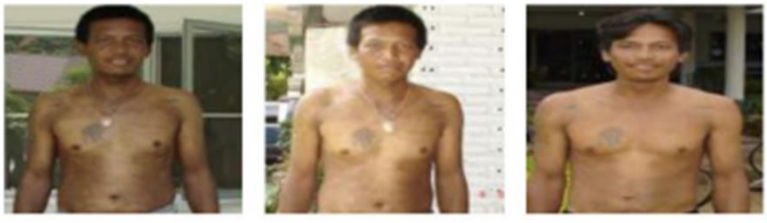
38 patients of the age between 19 and 49 years old were selected for the clinical trial.

Summarizing the observation results we can indicate that in compliance with the studied gradations of AIDS patients health conditions 36 patients showed significant improvement and 2 patients did not show any improvement of their health condition.

Some patients were selected to undergo two tests at the Bangkok Pathology Laboratories. One test was the reading of the level of CD4 counts (immune system) and the other was Viral Load (the amount of virus in the body) For CD4 reading, a healthy body should have a range of 800 – 1200 cells / microliter.

For Viral Load, the instrument has the ability to measure from 50 – 5000 copies / ml. The lower the number, the lesser the virus in the body, and subsequently lesser it attacks the patient's body.

Patient Mr. Sa-ad



Before MRET water consumption August 2004.

After MRET water consumption September 2004.

After MRET water consumption July 2005.

1st Patient Mr. Sa-ad

His CD4 counts increased from 2 to 840 within 11 months of consumption of MRET activated water. His Viral Load was less than 50. His skin recovered back from abnormal dark color to normal one.

2nd Patient Mr. Un-ruang

His CD4 counts increased from 90 to 805 within 3 months of consumption of MRET water. His Viral Load was also less than 50. His skin recovered back from abnormal dark color to normal one.

Group of Patients without MRET Water Treatment

The simultaneous observation of the patients which did not consume MRET water (control group) provides evidence that these patients did not show any significant improvement of their health condition.

CONCLUSION

We observed positive results of MRET water complimentary treatment for HIV patients during the clinical trial conducted at Thammarakniwet Foundation, WAT Phrabaatnamphu, Lopburi Province, Thailand in 2004 -2005. The recent research data allows to point to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV. We suggest that MRET water consumption by patients can lead to the modification of dielectric permittivity, electrical conductivity and hydrogen bonding of water –based medium in the human body. It leads to the significant change of van der Walls interactions and hydrogen bonding; those results in the inhibition and interruption of proper formation of virus spike proteins chains. Such scenario obviously disables coronavirus life sequence of attachment and fusion with human cell membranes. The same type of general mechanism can be adopted for other lines of bacteria and viruses.

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HSOA Journal of
Clinical Studies and Medical Case Reports

Review Article

Mechanism of MRET Treated Water Inhibition Effect on Morphology of Pathogenic Microorganisms: A Review

Igor Smirnov*

Global Quantech SIA, Latvia

Abstract

We found the significant protective properties of MRET water confirmed by substantial decrease of *Staphylococcus aureus* CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice on regular water following the intra-peritoneal staphylococcal infection.

Another study relates to a detailed observation of the effect of MRET activated water with the modified molecular structure, physical and electrodynamic characteristics on metabolic activity and growth of conditionally pathogenic microbiological culture *Escherichia coli* K-12 (*E.coli*) and on metabolic activity of microbial associations (similar to microbial associations in the intestine). Activated (MRET) water produced significant changes of *E.coli* morphology: different shape, color and size of cells, disturbance of process of cellular division.

We also observed positive results of MRET water complimentary treatment for HIV patients during the clinical trial. There are recent research data which allows pointing to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV. The stability of virus spike protein structure is based on the overall interactions of van der Walls weak electrodynamic forces and hydrogen bonding. It is obvious, that all biochemical formations of proteins require presence of water molecules in biological systems.

The overall observed research data suggest that modification of water - based medium electrodynamic parameters of the human tissues (that are favourable for the homeostasis of the body in the range of physiological "window") can lead to significant change of van der Walls interactions and hydrogen bonding that result in the inhibition and interruption of virus spike proteins formation. Such scenario obviously disables virus life sequence of attachment and fusion with human cell membranes. The same type of mechanism can be adopted for the inhibition of other lines of pathogenic microorganisms. The studies conducted at AltheaDx Technology, USA confirm that MRET activated water based medium did not affect the morphology of normal PBMC cells on genetic level; it affected the morphology of normal PBMC cells in a positive way increasing their viability.

MRET Activated Water is produced with the help of patented in the USA Molecular Resonance Effect Technology (MRET, US Patent # 6022479). We suggest that MRET water consumption by human subjects can lead to physiologically favorable modification of dielectric permittivity and hydrogen bonding of water –based medium in the human body tissues. It can provide the initial human body natural defence against intervention and spread of pathogenic microorganisms

Keywords: Coronavirus; Dielectric permittivity; *E. coli* K-12; HIV-1; MRET water; Protein spike; *Staphylococcus aureus* 46

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Introduction

Recent genetic studies of different cell lines and primary cells provide convincing evidence of the bio-regulatory capabilities of magnetic and electromagnetic fields. Distinct changes in gene expression have been detected in cells after exposure to either radio-frequency EMF, Extremely Low Frequency (ELF) and static fields. Thus, the most important and certainly the most universal are non-thermal interactions of electromagnetic fields with cellular systems. In our view, most genetic and other bio-regulatory effects of weak magnetic fields (including geomagnetic field) can be achieved *via* the pair-radical mechanism of biological magnetoreception, first proposed by Schulten and coauthors [1].

Previous research revealed that coronaviruses invade cells through so-called "spike" proteins, but those proteins take on different shapes in different coronaviruses. Figuring out the shape of the spike protein in SARS-Cov-2 is the key to figuring out how to target the virus, said Jason McLellan, senior author of the study and an associate professor of molecular biosciences at the University of Texas at Austin. Though the coronavirus uses many different proteins to replicate and invade cells, the spike protein is the major surface protein that it uses to bind to a receptor - another protein that acts like a doorway into a human cell. After the spike protein binds to the human cell receptor, the viral membrane fuses with the human cell membrane, allowing the genome of the virus to enter human cells and begin infection. So "if you can prevent attachment and fusion, you will prevent entry," McLellan told Live Science [2].

The scientists found that the protein-cleaving part of ACE2 binds the spike through polar interactions formed from a bridge-like

structure on the enzyme. Both ends of the receptor binding domain stick to ACE2 through hydrogen bonding and weak electromagnetic van der

Waals forces. Zhou's research shows the subtle amino acid changes that create salt bridges and improve van der Waals interactions that might underlie this stronger interaction, he says [3].

Hypothesis

Water is the natural background in the scope of which all biochemical processes are running. In nature, only four types of interactions (strong, weak, electromagnetic, and gravitational) are known. Two of the interactions are purely nuclear, and the gravitational one reveals itself only on the cosmic scale. Therefore, it is clear that only the electromagnetic interaction is essential in the scope of any biological system. For the sake of simplicity, we notice that the whole specificity of any biological process is eventually reduced to certain electromagnetic interactions. Just for this reason, the electromagnetic properties of water, which play the decisive role in its self-organization and in its influence on other objects, must be comprehensively investigated. These properties are revealed in all, without exception, biochemical and biophysical processes.

Specific features of the electrodynamic characteristics of water [first of all, a very great value of its dielectric permittivity $\varepsilon(\omega)$] are the reason for the natural dissociation of molecules of many chemical compounds and the formation of the necessary ion composition of vitally important microelements. Otherwise, the normal operation of many systems of a living organism (in particular, the operation of selective membranes) would be impossible.

The change in the dispersive properties of water can render very strong influence (by means of modification of the electrostatic forces between separated charges and forces of the van der Waals type defining the interaction of the systems of neutral atoms and molecules) on the long range interaction of basic elements of living systems such as cells, viruses, biological macromolecules, enzymes, etc [4].

Though the coronavirus uses many different proteins to replicate and invade cells, the spike protein is the major surface protein that it uses to bind to a receptor - another protein that acts like a doorway into a human cell. After the spike protein binds to the human cell receptor, the viral membrane fuses with the human cell membrane, allowing the genome of the virus to enter human cells and begin infection.

The stability of spike protein structure is based on the overall interactions of van der Walls weak electrodynamic forces and hydrogen bonding. The pre-fusion spike protein stability needs certain medium that supports required van der Walls interactions and hydrogen bonding to form the protein spike chain by coronavirus. It is obvious, that such medium is a water-based one, since all biochemical formations of proteins requires presence of water molecules in biological systems. The following transition of pre-fusion spike protein to post-fusion protein also requires specific water-based medium to support correct transition and formation of the bridges to help coronavirus fuse with the human cell membrane.

The van der Waals forces among atoms and molecules generally act over relatively short distances, and are proportional to the inverse of the seventh power of the intermolecular distances for molecules and atoms. For two spheres of the same radius R, the interaction energy, W, as a function of the particle separation distance, D, is:

$$W(D) = -\frac{A_{131} R}{12 D} \qquad (1)$$

Where the Hamaker constant, A_{131}, depends on the relative dielectric constants of the material 1 and medium 3.

The equation (1) yields for the significant role of the medium relative dielectric constant for the value of van der Waals interaction energy.

The interaction between the same objects (molecules) is determined by the dispersion van der Waals forces. The interaction energy, in the case of extended bodies including a great number of atoms and molecules, can be written as:

$$V_{jk}^{vdw}(r) \approx -\frac{27\hbar}{16\pi^3}\frac{V_k V_j}{r^6}\int_0^{\infty} \times \frac{\left(\varepsilon_j(iw)-\varepsilon_w(iw)\right)\left(\varepsilon_k(iw)-\varepsilon_w(iw)\right)}{\left(\varepsilon_j(iw)+2\varepsilon_w(iw)\right)\left(\varepsilon_k(iw)+2\varepsilon_w(iw)\right)} dw \qquad (2)$$

The quantity (r) depends on the distance r between the surfaces of these objects (molecules), the spectrum of the total dielectric permittivity of water $\varepsilon_w(\omega)$, and the corresponding spectra of the dielectric permittivity $\varepsilon_j(\omega)$ and $\varepsilon_k(\omega)$ of the interacting objects (molecules). Here, = $2\pi c/r$ is the maximum frequency of the fluctuating electromagnetic field which should be accounted in the calculation of the van der Waals interaction energy between two bodies (objects) with volumes Vk and Vj.

It is seen from equation (2) that the final character of the interaction between any bodies (molecules), its sign, and the intensity depend on the spectrum of the dielectric permittivity of these bodies and the water-salt medium in the region between them. They also depend on the distance between bodies. Typical, for example, is the situation where $\varepsilon_j(\omega) > \varepsilon_w(\omega)$ and $\varepsilon_k(\omega) > \varepsilon_w(\omega)$ in some part of the spectrum; and $\varepsilon_j(\omega) > \varepsilon_w(\omega)$ and $\varepsilon_k(\omega) < \varepsilon_w(\omega)$ or $\varepsilon_j(\omega) < \varepsilon_w(\omega)$ and $\varepsilon_k(\omega) > \varepsilon_w(\omega)$ in other parts. This indicates that the integrand in equation (2) becomes an alternating function of the frequency. This allows us to conclude that the controlled change in the dispersion characteristics of the water-salt medium separating the interacting objects gives the possibility to influence the sign and the intensity of the interaction between bodies. In particular, a change of the dielectric permittivity of water can stimulate the mutual attraction of, for example, viruses and cells, but can also favor their mutual repulsion at large distances [4].

The equation (2) indicates that weak electromagnetic van der Walls interactions in aqueous liquids directly depend on relative dielectric permittivity of water. The formation of any protein structures in the human body strictly depends on specific balance of dielectric property of protein molecules and water since it provide certain parameters of van der Walls forces to build such proteins. Dielectric property of water in its turn depends on temperature. We know from medicine that normal homeostasis of the human body is allowed at the precise physiological temperature parameters of the body: 35° C - 41° C on general basis. The drop of the body temperature below 35°C as well as the rise of the body temperature above 41° C leads to the inability to sustain life. There are research data indicating relation between dielectric constant of the human body tissue (TDC) and temperature: 35° C - 74.9 F/m (TDC) and 40° C - 73.2 F/m (TDC) (Figure 1). It shows that normal homeostasis of the human body is allowed at

certain range of electodynamic van der Walls interactions following the small range of tissue dielectric property about 75 - 73 F/m. It is well correlated since we know from physics that relative dielectric permittivity of water is 80 F/m at room temperature (20° C).

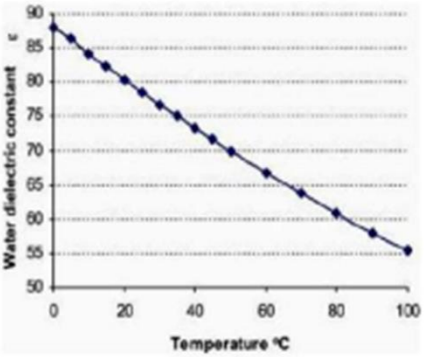
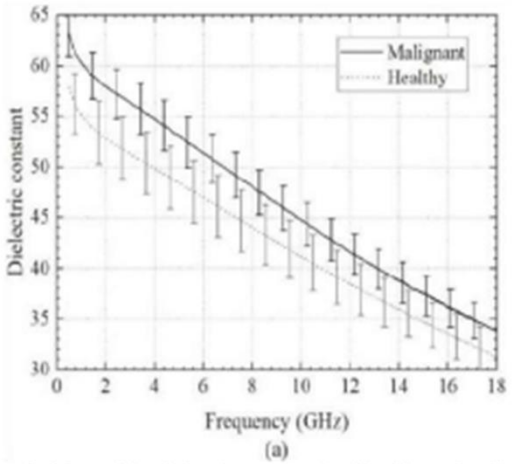


Figure 1: Water dielectric constant dependence on temperature.

It allows us to suggest that dielectric property of human body tissue is very important physiological parameter. For example, for the full band of frequencies analyzed, the dielectric constant of malignant colon tissue is on average 8.8% higher (Figure 2) than the dielectric constant of healthy one ($p = 0.002$). This difference is even higher at frequencies below 4 GHz [5].



(a)

Figure 2: Mean of the dielectric constant (a) of healthy and malignant colon tissue, along with their standard deviation in error bar format [5].

It is remarkable that, while the enthalpy of protein unfolding, $\Delta H(T)$ is a linear function of temperature, the entropy factor, $T\Delta S(T)$, is not quite linear. Therefore, these two functions change with temperature in an almost parallel fashion, but at temperatures close to physiological the enthalpy function slightly prevails over the entropy factor; however, at higher and lower temperatures the entropy factor starts to prevail. Their difference:

$$\Delta H(T) - T\Delta S(T) = \Delta G(T) \qquad (2)$$

$\Delta G(T)$ is the Gibbs energy, which represents the work required to transfer protein from the folded to the unfolded state. This Gibbs energy is, therefore, usually regarded as *a measure of protein structure stability*. It appears then that at physiological temperatures protein structure is stable: however, on temperature increase or decrease the difference between the enthalpy and entropy factor reduces and then changes sign. Thus, the native protein structure becomes unstable both above and below this optimal temperature, which is in the physiological range. Specifically, the stability of myoglobin at physiological temperatures amounts to about 30 kJ/mol. At this temperature the energy of thermal motion reaches the value:

$$RT = 8.3 \text{ J/K mol} \times (37 + 273)\ \text{K} = 2.5 \text{ kJ/mol}$$

i.e., the protein stability at this physiological temperature is one order of magnitude higher than the energy of thermal motion. This is enough for the protein to withstand the disruptive action of thermal motion. It is notable, however, that the stability of protein structure is not too high. It appears that globular proteins just do not need an excessive stability, but some flexibility of structure is required, perhaps for proper functioning. Hydrogen exchange studies of such proteins indeed show that their structure fluctuates at physiological temperatures, but these are just independent micro-unfolding of its structure. The most surprising result of this thermodynamic analysis is that protein stability decreases not only upon heating, but also upon cooling from physiological temperatures, and thus one should expect proteins to denature not only on heating, but also on cooling [6,7].

Thus, normal healthy homeostasis of the human body directly depends on physiological temperatures "window", and subsequently relative dielectric permittivity of the body liquids should be kept in the physiological range "window" of about 75 -73 F/m. Any type of shifting from this range may lead to development of diseases including body infection with pathogenic microorganisms. Considering mentioned above ideas, it allows us to hypothesize that most of biochemical proteins building mechanisms in a healthy human body require certain physiological range "window" of van der Waals interactions and hydrogen bonding between proteins molecules and water - salt medium. In theory, this physiological "window" of van der Waals weak electromagnetic forces may be significantly different from the range of electrodynamic van der Waals interactions required for life sustains formations of DNA/RNA proteins of viruses, bacteria and other pathogenic microorganisms. The same type of general mechanism can be adopted for other lines of bacteria and viruses as well.

Thus, modification of water - based medium electrodynamic parameters of the human tissues that are favorable for the homeostasis of the body (in the range of physiological "window") can lead to significant change of van der Walls interactions and hydrogen bonding that may result in the inhibition and interruption of proper formation of spike proteins chains. Such scenario obviously disables coronavirus life sequence of attachment and fusion with human cell membranes.

We suggest such agent which can interrupt pathogenic microorganism's life sequence is MRET water with anomalous electrodynamic characteristics. MRET water can be consumed on the regular basis by human subjects to prevent infections of pathogenic microorganisms.

The studies conducted at AltheaDx Technology, USA confirm that MRET activated water based medium did not affect the morphology of normal PBMC cells on genetic level; it affected the morphology of normal PBMC cells in a positive way increasing their viability [8].

A number of studies *in vivo and in vitro* regarding MRET activated water effects confirm that it does not affect the genetic characteristics of living organisms. In all the analyzed cases, no reliable case of a change in specific characteristics of organisms was registered. That is, MRET Activated water is safe for the action on the genetic apparatus. MRET water effects concern only the quantitative characteristics of the development of biological systems (the acceleration or inhibition of the growth of cells and biomass).

MRET Activated Water is produced with the help of patented in the USA Molecular Resonance Effect Technology (MRET, US Patent # 6022479). MRET water activator is the stationary source of subtle, low-frequency, resonant electromagnetic field with composite structure. The origin of the low-frequency composite electromagnetic field is the intensive electrical activity inside the nano-circles formed by linear molecular groups of MRET polymer compound (volumetric fractal geometry matrix) when polymeric body is exposed to the external electromagnetic fields of specific frequency and wavelength. The significant reduction of values of electrical conductivity and dielectric permittivity confirms the relatively high, long-range dynamic structuring of water molecules in activated water produced with the help of MRET activation process. The long-term storage of activated water (up to 5 hours at 20˚C) did not significantly affect its modified electrodynamic characteristics, thus confirming the ability of MRET activated water to keep its anomalous properties for rather long period of time in case of 30 minutes activation, and even higher level of "long-term water memory" phenomenon in case of 60 minutes activation. The significant level of reduction of dielectric permittivity and electrical conductivity kept by MRET water activated for 30 minutes after it was heated to 72˚C confirms its stability to thermal effects. It demonstrates the anomalous behavior of electrodynamic characteristics (dielectric permittivity and electrical conductivity) of MRET water subject to applied EMF (electromagnetic field) in the area of very low range of frequencies in order to provide some evidence regarding polarized-oriented multilayer structuring of MRET activated water and the possible effect of MRET water on the proper function of cells in biological systems.

Proof of Hypothesis

(I). The research was conducted under supervision of Prof. Vladimir I. Vysotskii and Prof. Lydia S. Kholodna, at Faculty of Microbiology and Immunology, Biological Department of Kyiv National Shevchenko University, Ukraine in 2004.

The significant protective properties of MRET water were confirmed by substantial decrease of *Staphylococcus* CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice following the intra-peritoneal staphylococcal infection after the first 24 h. For this purpose the kidneys of animals were dealt individually. The analysis of data in the beginning of experiments leads to the conclusion that significant decrease of pathogen's colonies in homogenate of kidneys of mice on MRET water begins only after 24 h following the inoculation of *S. aureus*. The significant protective properties of MRET water were confirmed by substantial decrease of *Staphylococcus* CFU (colony forming units) in homogenate of kidneys of mice on MRET water compared to control group of mice following the intra-peritoneal staphylococcal infection after the first 24 h. For this purpose the kidneys of animals were dealt individually. The analysis of data in the beginning of experiments leads to the conclusion that significant decrease of pathogen's colonies in homogenate of kidneys of mice on MRET water begins only after 24 h following the inoculation of *S. aureus*. The consumption of MRET water reduced the death rate from 30% (control group) to 0% (MRET groups) during the first 9 days of experiment. There was no case of animal death in all investigated groups within the first 24 h after intra-peritoneal inoculation of *Staphylococcus* culture, which is a pretty standard result. During the next 8 days 30% of animals died in control group which is an expected result for such experimental procedure. There was no death case in both groups of mice that ingested MRET activated water and it is a very unusual result. Nevertheless, the main consequences of *Staphylococcus* infection do not manifest in death of animals as in case of oncology diseases. *Staphylococcus* bacteria affect the live systems and organs of the body. These pathogenic microorganisms cause inflammations, suppurations, abscesses, furuncles, quinsy, cepsical conditions, etc. That's why a detailed investigation of the process of stimulation by MRET water of phagocytes and of lymphoid organs of immune system of mice infected with *S.aureus* culture was conducted and is presented in this report.

The local inflammation was induced with the help of the inoculation of *S. aureus* culture into the hind left paw. The ordinary inflammatory reaction was observed in the group of mice on non-activated water: the intensive reddening of the hind left paw (Figure 3). Both groups of mice on MRET water did not develop any reddening of the hind left paw inoculated with *S. aureus* culture (Figure 4). The results of this experiment confirm the fact of the substantial inhibition of inflammatory infection in case of the regular consumption of MRET water.

Figure 3: The view of paws of a mouse on non-activated water (reddening of the injected paw) in 24 hours after the injection of *Staphylococcus* culture.

Phagocytosis is the main mechanism of natural resistance especially at the first stage of contagious process; it is a regular part of formation of the specific immune response. The most common methodology applied in the studies of the functional activity of phagocytes is the examination of their phagocytic (engulfing of alien cells) and oxygen dependent bactericidal activity. Phagocytic activity of neutrophils and macrophages is estimated based on Phagocytic Index (percentage of phagocytes which engulfed test-bacteria) and on Phagocytic Number (average number of test-bacteria engulfed by one phagocyte).

Figure 4: The view of paws of a mouse on MRET activated water (no reddening of the injected paw) in 24 hours after the injection of *Staphylococcus* culture.

The cultures of *S. aureus* and Latex are usually used as test-bacteria. The oxygen-dependent bactericidal activity of phagocytes is studied with the help of NBT-test: an oxygen-dependent reduction of Nitro Blue Tetrazolium into an insoluble Diformazan of Nitro Blue Tetrazolium derivative by phagocytes. With the help of NBT-test it is possible to distinguish the activated phagocytes from the non-activated ones. MRET water stimulated the phagocytic capacities of neutrophils of a peripheral blood and peritoneal macrophages increasing their phagocytic activity, particularly Phagocytic Index (Figure 5) and Phagocytic Number (Figure 6).

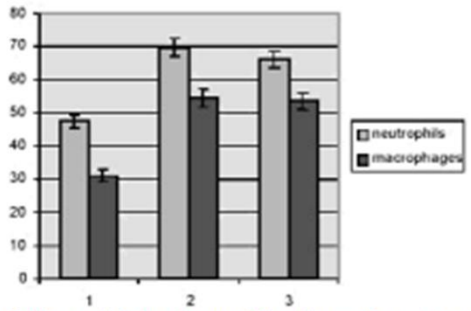


Figure 5: Phagocytic Index of neutrophils and macrophages in two weeks of experiment (object of phagocytosis - *Staphylococcus aureus*): 1 - Control group; 2 - Mice on MRET water (preventive for 4 weeks); 3 - Mice on MRET water (preventive for 2 weeks).

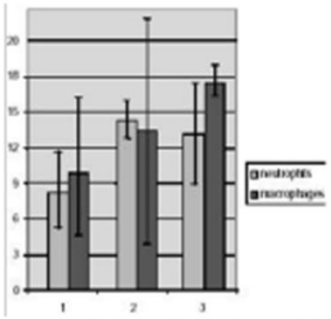


Figure 6: Phagocytic Number of neutrophils and macrophages in two weeks of experiment (object of phagocytosis - *Staphylococcus aureus*) : 1 - Control group; 2 - Mice on MRET water (preventive for 4 weeks); 3 - Mice on MRET water (preventive for 2 weeks).

At the end of two weeks of experiment the mean values of studied parameters in both groups of mice on MRET water substantially increased compared to the control group. The differences in mean values of the parameters of functional activity of phagocytes of groups of mice consuming MRET water compared to the control group of mice on non-activated water were statistically significant with $p < 0.05$ (for Phagocytic Index and NBT-test). These results confirm the significant intensification of phagocytic and bactericidal activity and of immune system response following the consumption of MRET water [9].

The in *vivo* experiment revealed that the mean values of studied parameters in both groups of mice on MRET water (preventive for 4 and 2 weeks respectively) significantly increased compared to the control group. The differences in mean values of the studied parameters of the groups of mice consuming MRET water compared to the control group of mice on non-activated water were statistically significant with $p < 0.05$ (for most of the parameters). Particularly, the consumption of MRET water reduced the death rate from 30% (control group of mice on non-activated water) to 0% (two groups of mice on MRET water) during the first 9 days of experiment after intra-peritoneal inoculation of *Staphylococcus* culture. The significant bacteriostatic effect of 70 - 100% (depending on initial concentrations of pathogens) was observed *in vitro* for MRET-activated nutrient medium in this investigation. These results confirm the significant intensification of phagocytic activity and of immune system response following the consumption of MRET water.

The clinical observation was performed at Thammarakniwet Foundation, WAT Phrabaat Namphu, Lopburi Province, Thailand. The investigation was conducted under supervision of Dr. Peerayot Trongsawad, MD, Director of AIDS Control Department, Bangkok Metropolis.

The study was conducted on 38 AIDS patients during August, 2004 - August, 2005. All patients were consuming 1.5 liters of MRET activated water per day as a complimentary treatment in addition to the prescribed Anti-HIV medications. During the course of clinical observation all 38 patients were tested on a regular basis for CD4 counts and required to submit weekly reports regarding their health conditions.

There was simultaneous observation of other group of AIDS patients during the same period of time (control group). They were on the same type of prescribed Anti-HIV medication, but without the complimentary consumption of MRET water [10].

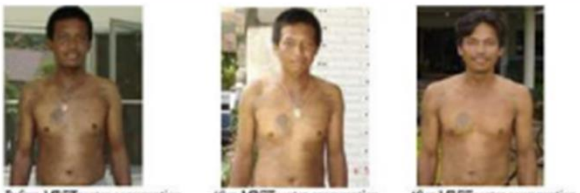
First method: collection and analysis of the weekly health condition reports and CD4 counts reports;

Second method: group interviews and personal interviews with patients which participate in this observation.

38 patients of the age between 19 and 49 years old were selected for the clinical trial. Summarizing the observation results we can indicate that in compliance with the studied gradations of AIDS patients health conditions 36 patients showed significant improvement and 2 patients did not show any improvement of their health condition.

Two patients were selected to undergo two tests at the Bangkok Pathology Laboratories due to budget limitation. One test was the reading of the level of CD4 counts (immune system) and the other was Viral Load (the amount of virus in the body) For CD4 reading, a healthy body should have a range of 800 – 1200 cells / microliter.

For Viral Load, the instrument has the ability to measure from 50 - 5000 copies / ml. The lower the number, the lesser the virus in the body, and subsequently lesser it attacks the patient's body.



Before MRET water consumption August 2004. *After MRET water consumption September 2004.* *After MRET water consumption July 2005.*

1st Patient Mr. Sa-ad: His CD4 counts increased from 2 to 840 within 11 months of consumption of MRET activated water. His Viral Load was less than 50.

2nd Patient Mr. Un-ruang: His CD4 counts increased from 90 to 805 within 3 months of consumption of MRET water. His Viral Load was also less than 50.

Group of patients without MRET water treatment: The simultaneous observation of the patients which did not consume MRET water (control group) provides evidence that these patients did not show any significant improvement of their health condition.

Severe Acute Respiratory Syndrome (SARS) is a febrile respiratory illness. The disease has been etiologically linked to a novel coronavirus that has been named the SARS-Associated Coronavirus (SARS-CoV), whose genome was recently sequenced. Since it is a member of the Coronaviridae, its spike protein (S2) is believed to play a central role in viral entry by facilitating fusion between the viral and host cell membranes. The protein responsible for viral-induced membrane fusion of HIV-1 (gp41) differs in length, and has no sequence homology with S2. Infection by many enveloped viruses requires fusion of the viral and cellular membranes. A viral envelope protein mediates this membrane fusion process. These proteins are synthesized as precursors (ENV in Retroviridae, and E2 in Coronaviridae) that are later processed into a transmembrane subunit (gp41 in the retrovirus HIV-1, and S2 in the coronavirus SARS-CoV) that is responsible for viral-induced membrane fusion, and a surface subunit that is responsible for the interaction with the cellular receptor/s. This study points to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV [11].

It clearly indicates that MRET activated water consumption may be applicable for prevention and a complimentary treatment of patients suffering from SARS-CoV type of disease as well.

(III) This study relates to a detailed observation of the effect of MRET activated water with the modified molecular structure, physical and electrodynamic characteristics on metabolic activity and growth of conditionally pathogenic microbiological culture *Escherichia coli* K-12 *(E.coli)* and on metabolic activity of microbial associations (similar to microbial associations in the intestine). The research was conducted under supervision of Prof. Vladimir Vysotskii (Kiev State University, Ukraine), Alexander Tashyrev, Ph.D., Anna Tashireva, Ph.D. (Kiev Institute of Microbiology and Virology of Ukrainian Academy of Science), in 2004.

The goal of this investigation was to study the effect of MRET water activated for different periods of time (30 and 60 minutes respectively) on metabolic activity and growth of conditionally pathogenic microbial culture *Escherichia coli* K-12 in aerobic and anaerobic environment and on microbial associations in anaerobic environment. The study revealed the significant inhibition of growth and metabolic activity of *E.coli* bacteria in aerobic environment. It confirms that the process of MRET activation and the sterilization effect of MRET water can be applied in food industry and for water purification.

This investigation revealed the significant inhibition effect of MRET-activated nutrient medium in ***aerobic*** environment on the process of growth and reproduction of *E.coli* microorganisms, their division, the size of colonies and the modification of forms of culture cells. It was observed that at low initial concentration of cells of investigated culture *Escherichia coli* K-12 MRET nutrient medium activated during 30 minutes and 60 minutes inhibited the growth of culture 27 and 303 times respectively during the 25 hours of experiment (Figure 7).

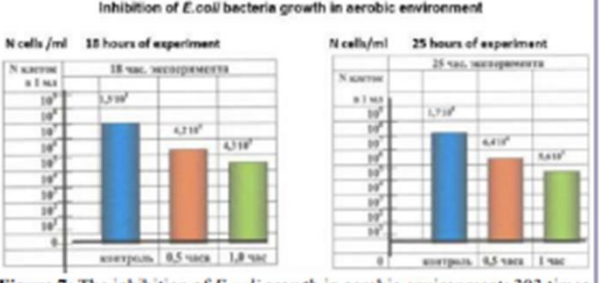


Figure 7: The inhibition of *E.coli* growth in aerobic environment: 303 times (tact=1.0hour) and 27 times (tact=0.5hour) after 25 hours of experiment (blue color - control, red - 30 minutes and green - 60 minutes MRET-activated medium).

It was observed that one of the reasons of abnormally low growth of *E.coli* population was related to the modification of the process of cell division in MRET-activated nutrient medium (Figure 8).

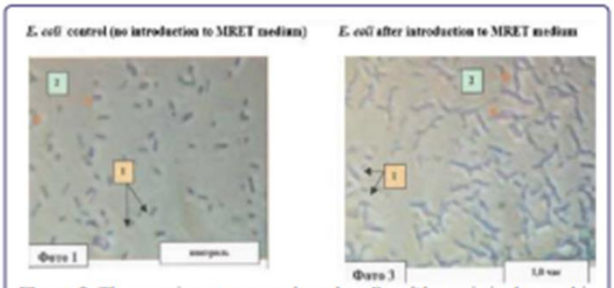
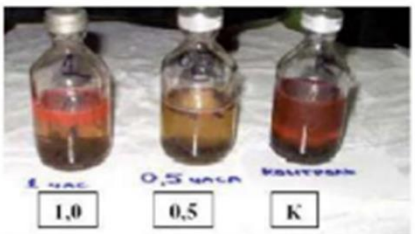


Figure 8: The experiment was conducted on *E. coli* bacteria in the aerobic environment. Picture #1 - control sample after 24 hours of incubation. Picture #3 - activated sample (60 minutes activation) after 24 hours of incubation. I9 - index of abnormal cellular division. Control sample I9 = 4%; 60 minutes activation sample I9 =220%. Activated (MRET) water produces significant changes of *E.coli* morphology: different shape, color and size of cells, disturbance of process of cellular division. . Adaptation mutation of *E.coli* cells. /1/ - normal cellular division; /2/ - abnormal cellular division.

These results allow admitting that the process of MRET activation and the sterilization effect of MRET water can be applied in food industry and for water purification. The second stage of investigation revealed that the metabolic (reductant) activity of *E.coli* bacteria reduced up to 3 times in 30 minutes activated water and up to 1.6 times in 60 minutes activated water during the first 6 hours of experiment in aerobic environment.

Another experiment showed that the process of MRET-activation did not affect the reductant activity of *E.coli* bacteria in anaerobic environment and, consequently, should not affect a small population of conditionally pathogenic bacteria, such as *E.coli*, usually presented in microbial associations in the intestine of the body. In order to simulate the environmental conditions similar to the conditions in the intestine of humans and animals the test on metabolic activity of microbial associations was conducted in anaerobic environment. Reductant activity is an integral characteristic of metabolic activity of microorganisms and it is measured with the help of Sodium Resasurine color indicator in the percentage degree of discoloration (purple = 0%, red = 50%, transparent = 100%). It was found that MRET-activated water substantially increased reductant activity of complex microbial associations during the first nine hours of experiment (Figure 9).



1.0 – 1 hour MRET-activated water; 0.5 – 0.5 hour MRET-activated water; K – Control

Figure 9: Comparative test on metabolic (reductant) activity of microbial associations (1.0 hour and 0.5 hour MRET- activated water and K-Control samples) in anaerobic environment.

This experiment revealed that the optimum time of activation for the maximum increase of metabolic activity of microbial associations in anaerobic environment was 30 minutes. The same optimum time of activation was found in the process of inhibition of metabolic activity of *E.coli* in aerobic environment [12].

It could be expected a priori that activated water must have some anomalous chemical properties for the manifestation of such strong influence. However, the comprehensive studies showed that water after the activation has the same chemical composition and almost the same hydrogen index (pH), contains the same small amount of free radicals, and has no induced radioactivity. But some of its physical characteristics have varied after the activation. In particular, the conductivity, dielectric permittivity, density, and viscosity have become different. It is extremely important to determine how such changes can affect the character of the interrelation of water and the elements of a living system, as well as the very functioning of a living organism. The further perspective of the application of activated water as a very powerful tool of life-protecting biotechnologies depends on both the degree of its comprehension and the reliability of its applications.

Conclusion

We observed positive results of MRET water complimentary treatment for HIV patients during the clinical trial conducted at Thammarakniwet Foundation, WAT Phrabaat namphu, Lopburi Province, Thailand in 2004 -2005. The recent research data allows pointing to a similar mode of action for the two viral proteins, suggesting that anti-viral strategy that targets the viral-induced membrane fusion step can be adapted from HIV-1 to SARS-CoV.

We found *in vivo and in vitro* experiments that MRET water consumption can significantly inhibit growth and reproduction cycle of *Staphylococcus* areus -46 culture and *E. coli* culture. It allows us to conclude that consumption of MRET activated water significantly enhances the factors of natural resistance of the body which constitute the first line of protection of an organism against the penetration and reproduction of pathogenic microorganisms.

We propose mechanism that consumption of MRET water by human subjects can lead to the physiologically favourable modification of dielectric permittivity and hydrogen bonding of water-based medium of the human body tissues, keeping the optimum physiological range of tissues dielectric constant. It results in the significant modification of van der Walls interactions and hydrogen bonding of water-based medium. Those leads to the inhibition and interruption of virus spike proteins formation. Such scenario obviously disables virus life sequence of attachment and fusion with human cell membranes. The same type of general mechanism can be adopted for other lines of bacteria and viruses as well. It can provide the initial human body natural defense against intervention and spread of pathogenic microorganisms.

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