

“Evidence Base in Physics for Homeopathic Products and Services”

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Executive Summary

1. Homeopathy involves frequencies and their effects on living systems.
2. Clinical evidence comes from hypersensitive patients whose reactions can be treated with specially prepared homeopathic potencies.
3. Homeopathic potencies involve the memory of water for frequencies.
4. A theory based in quantum physics is supported by experimental evidence.

1. Introduction

Homeopathy is one of the branches of Complementary and Alternative Medicine which involves the therapeutic use of frequency. For at least the past 60 years, the promulgated and accepted wisdom is that the only biological effects of non-ionising electromagnetic fields are thermal and as such can be reliably predicted from “Classical Physics”. One must conjecture that the motives for this have been military, commercial and legal. The majority of healthy persons have regulatory systems well able to cope with the natural and man-made electromagnetic environment as with other environmental stresses so, any frequency effects are not apparent.

Since the 1970’s the writer (Smith, 2008) has been involved with research into the ways that living systems make use of electric and magnetic fields and frequencies and has over 100 publications in this area. In 1982, he commenced an involvement with the problems of chemically sensitive patients who had become hypersensitive to their electrical environment. This work quickly showed that once a threshold of intensity had been exceeded, the relevant factor was frequency. Initially, patients were challenged with frequencies from an oscillator at environmental field strengths. Their reactions to specific frequencies were the same as their reactions to the chemicals, volatiles or particulates to which they happened to be sensitive.

The ‘Miller Technique’ used in the treatment of such patients involves successive serial dilutions of the allergen until one is found which turns-off the patient’s reaction. This needs to be more precise than the standard homeopathic potencies. Here, succussion takes place by vortexing in the syringe. For the treatment of electrical sensitivities a therapeutic frequency could be found, imprinted into water and used in the same way as an allergen dilution even though there was no chemical component present. This fitted conveniently into the existing facilities and practice of the hospital involved (Breakspear Hospital, Hemel Hempstead) and did not require an electrical oscillator for each patient. Rea et al. carried out a double-blind trial at the Environmental Health Centre, Dallas, Texas. Selected patients with electrically sensitivity could respond to a frequency to which they happened to be sensitive with 100% success and 0% response to placebos.

Examination of frequencies which had a clinical effect showed a correlation with the endogenous frequencies on the acupuncture meridians. When an acupuncture point is stressed either by pressure or with a needle, its endogenous frequency spreads throughout the body. Appropriate choice of meridians and points enables the acupuncturist to create a therapeutic frequency pattern from the patients own body fields. Dr. Reinhardt Voll showed that certain acupuncture meridians were linked to the autonomic nervous system (ANS). Homeopathic potencies can be selected to stimulate specific acupuncture meridians and thence specific parts of the ANS.

2. The Physics of Homeopathy

2.1 Frequency, Coherence and Fractality

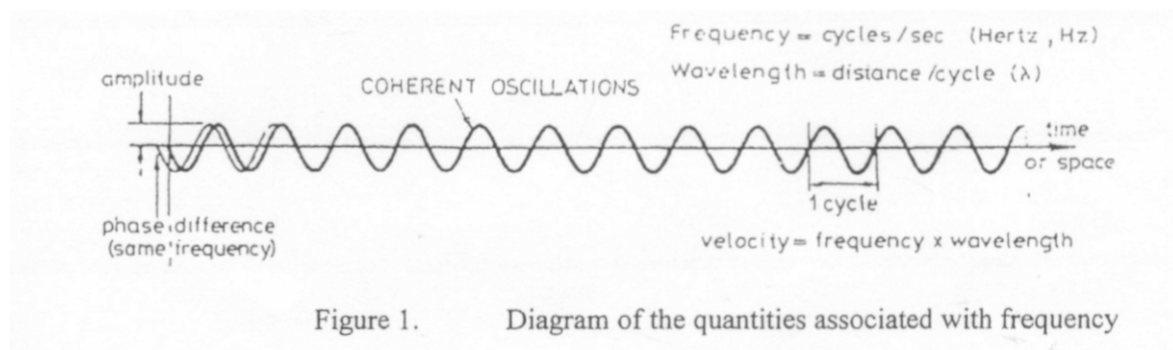


Figure 1 shows the quantities associated with frequency irrespective of what is oscillating. If a frequency is propagating through space, there is a velocity and an associated wavelength.

The importance of frequency in biological systems was recognised by Herbert Fröhlich FRS (Smith, 2008) who in the 1930's when told that the cell membrane potential was a fraction of a volt and existed across an extremely thin cell wall realised it represented an enormous electric field, strong enough to align molecules for assembly and resonating at about 100 GHz. By 1967, he had applied the theory of coherent modes of oscillation in non-linear systems and long-range phase correlations to biological order. The subsequent development of his ideas and the work of his worldwide circle of collaborators were edited by him into two "*Green Books*": "Coherent Excitations in Biological Systems" and "Biological Coherence and Response to External Stimuli".

In 1995, Preparata with Del Giudice and co-workers showed through quantum electrodynamics (QED) theory that water had phase coherence as a fundamental property arising from the exchange of radiation at the natural resonant frequencies of the water molecule. In a coherent system, the distance over which frequency coherence persists (*coherence length*) replaces velocity as the constant quantity making frequency proportional to velocity (see Figure 1) and a fractal quantity. Fractality enables the chemical, technological and biological frequency bands to interact. Table 1 shows the frequency fractals for light from a mercury discharge lamp imprinted into water. If the chemical bond was not associated with frequency, spectroscopic analysis would be impossible. Chemistry cannot be described by "Classical Physics".

Table 1. Multiple Frequencies Fractal Effect for the Mercury (Hg) Optical Spectrum Imprinted into Water.

Hg lines	Optical		Microwave		ELF
nm	Hz		Hz		Hz
	$\times 10^{15}$	$\times 10^6$	$\times 10^6$	$\times 10^6$	$\times 1$
185	1.62		935		19.31
254	1.18		680		14.38
365/6	0.820		472		9.843
405	0.740		425		8.925
436	0.688		396		8.358
492/6	0.607		347		7.235
546	0.549		315		6.633
577/9	0.519		298		6.262
615	0.488		280		5.832
623	0.482		276		5.832
Ratio		1.7340		47.70	
Std. Dev.		$\pm 0.34\%$		$\pm 0.75\%$	

2.2 Fields

In mathematics, a *field* is a region of space containing mathematical objects, rather like the ‘field of view’ seen with binoculars. In physics, a *field* is a region in which a mechanical force acts, for example the gravitational field.

The “Classical Electromagnetic Field” is the basis of electronics and radio. “Classical Physics” describes a system for which the phase is well defined and the number of particles (quanta) is too large to matter. In contrast, a “Quantum Field” involves fewer particles and has a fundamental uncertainty described by the Heisenberg Relation (Smith, 2008).

These fields can be electric or magnetic. The magnetic field only exists in closed loops and a mathematical consequence is the magnetic vector potential explained theoretically by Aharonov and Bohm and later found experimentally. This generates an electric field proportional to its frequency and in a coherent region this gives an oscillating potential which can be measured.

3. The Physics of Water Memory

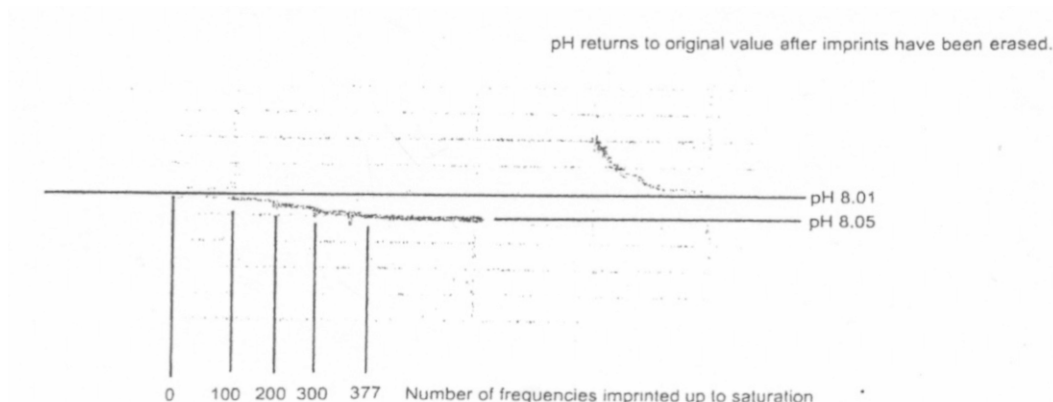
One important result from our clinical work was finding that the reactions of patients to environmental electromagnetic fields, chemicals, or potencies could be reproduced with frequency imprinted water. Water in flame-sealed glass ampoules could be imprinted with frequencies through the glass and no possibility of any chemical contact. This confirmed the basis of homeopathy as frequencies in water.

In 1983, my laboratory (Smith, 2008) showed that living systems could respond to magnetic resonance conditions at geomagnetic field strengths. This is a quantum effect but following its publication a cyclotron theory attempted to keep the effects within “Classical Physics”.

Later this suggested that a frequency might be retained in water if the precession of proton spin could be synchronised to an applied frequency to generate an internal magnetic field which exactly satisfied the proton magnetic resonance conditions locally within a coherence domain. This condition turned out to be independent of the frequency to be remembered and would be stable unless the domain is thermally broken up by removing the stabilising geomagnetic field. The critical field for this is about 340 nT making the coherence domain 53 μm in diameter. The statistical fluctuation in the number of protons involved determines the bandwidth of the frequency imprint which can be parts per million in agreement with experiment.

Imprinting a frequency into water immobilises free protons increasing the pH value. Figure 2 shows the pH of a solution of sodium hydroxide at pH 8.01 had increased to pH 8.05 at memory saturation after 377 separate frequencies had been imprinted. On erasure the pH returned to its initial value.

Figure 2. Changes of pH on Imprinting and Erasing Frequencies.



3.1 Writing Frequencies into Water

Frequency information can be imprinted into a glass vial of water by succussion. This is what creates homeopathic potency. Frequency information from a patient's body also can be imprinted if the vial is held in a clenched fist while succussing the protruding end.

Imprinting can take place through the glass of a vial containing water by immersing it in frequency imprinted water. Water placed near to a source of frequencies such as an oscillator and coil, a chemical or homeopathic potency can be imprinted by succussion or, with a strong permanent magnet or, by succussing a toroid (ring) of ferrite material. A frequency of 7-voltage pulses will affect an imprint; imprinting can also be done chemically.

3.2 Erasing Water Memory

A homeopathic potency or a water imprint will be erased if the geomagnetic field is shielded by placing it briefly in a heel box. Erasure occurs when thermal energy becomes greater than the internal magnetic energy. This threshold, at about 1% of the Earth's magnetic field, is independent of the imprinted frequency over at least the 13-decades from 10^{-4} Hz to 10^{+9} Hz. Heating imprinted water alters the imprint so that it becomes "hidden" and living systems do not recognize it. It can be recovered by the application of certain frequencies including that of the heart acupuncture meridian. Certain combinations of frequencies will self-erase, that is they are 'nilpotent'.

3.3 Reading Water Memory

Frequencies in water and living systems present a great measurement problem. Clinically, they may be anywhere in the electromagnetic spectrum from milliHertz to GigaHertz and the bio-information is carried on the magnetic vector potential component of the field.

Several techniques have been applied to the objective measurement of frequencies in water and homeopathic potencies. They can be made to work over a limited range of frequencies (Smith, 2008).

1. Electrodes immersed in water or potency and connected to a low-noise high-gain amplifier have been used by the writer and Dr. Wolfgang Ludwig.
2. Dr. Peter Gariaev has used a special 2-beam laser interacting with potency; these results in the emission of a radiofrequency modulated with the signature of the potency.
3. Professor Vittorio Elia has used microcalorimetry to show a difference in heats of mixing between control water and potency and in cooperation with Professor Claudio Cardella has shown the same effect with water imprinted by placing in a microwave resonator.
4. Dr. Karen Langer has used both delayed luminescence and also the coupling between Tesla coils to demonstrate effects from potencies.
5. Dr. Louis Rey has irradiated samples with high energy ionising radiation after freezing and on warming found differences in the thermoluminescence between potencies and controls.
6. Professor Luc Montagnier has shown that some DNA sequences in pathogenic bacteria and viruses have a characteristic frequency signature even at high dilutions of agitated aqueous solutions.

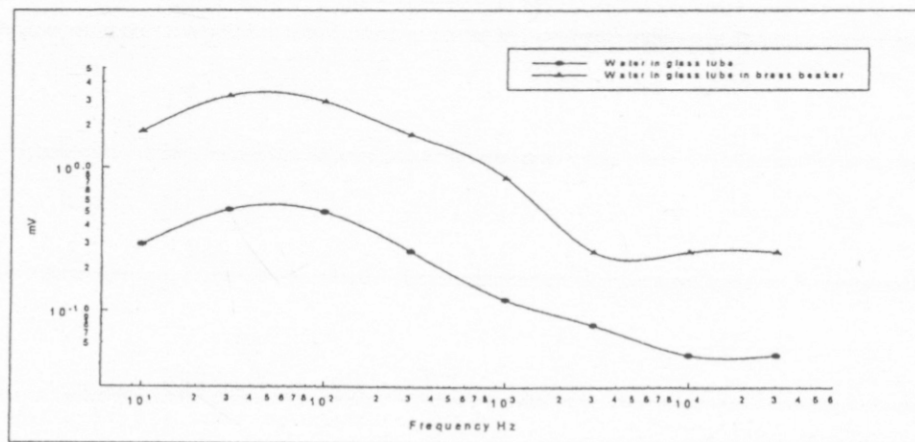


Figure3. Measurement of Frequencies Imprinted into Water - using a low-noise amplifier and phase-sensitive detector (Brookdeal Electronics Ltd. LA350). Lower curve: single electrode in water; upper curve: water in electroacupuncture beaker.

The magnetic vector potential (A-field) component is in the direction of a current i.e. the proton precession and since $dA/dt = -\underline{E}$ an alternating A-field will generate an alternating E-field proportional to the frequency and an alternating potential in a coherent system. This is not a potential difference. It is in effect what electroacupuncture apparatus does without explaining the physics involved.

Table 2. Frequency Pattern of Homeopathic Phosphorous C6 Tablets

Phosphorous C6 Hz
2.113×10^{-1}
5.003×10^0
$5.000 \times 10^{+1}$
$3.003 \times 10^{+2}$
$6.005 \times 10^{+3}$ (± 1 Hz)

The frequency pattern of homeopathic phosphorous C6 tablets is shown in Table 2. Figure 4 shows this resonance measured with a low noise amplifier and phase sensitive detector (Brookdeal Electronics Ltd. LA350). The tablets were placed in an electroacupuncture brass beaker. The frequency was stepped manually in 1 Hz intervals to show the beats between the potency resonance and the reference frequency. The chart speed was 20mm/min.

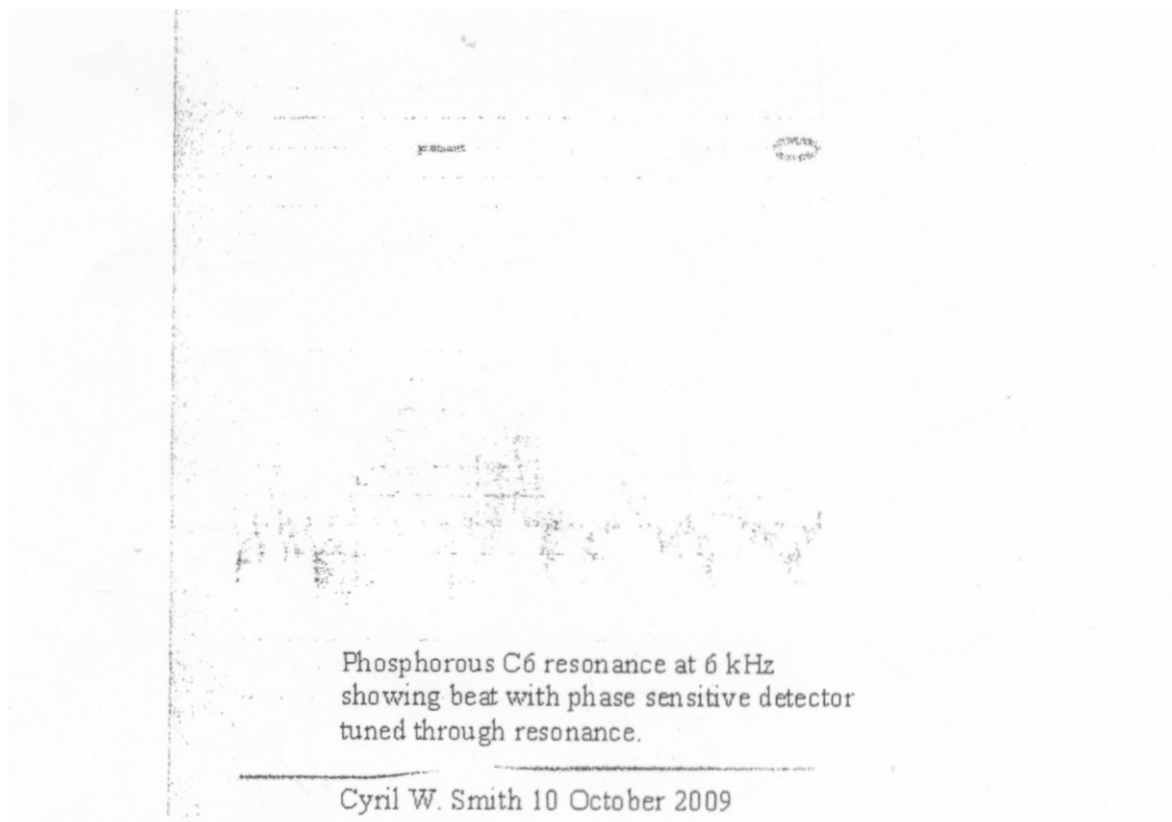


Figure 4. Measurement of a Frequency Resonance in Phosphorous C6.

3.4 Chemical Frequency Signatures

Homeopathic potencies start from a “Mother Tincture” which is usually of chemical or biological origin. **Its chemical frequency signature is all that is needed for potentising.** A homeopathic repertory shows the wide range of frequency templates available for potentisation.

Experiments with n-hexane showed that only 14 ppm of water is needed for a frequency signature to develop. Since the n-hexane spectrum is in the far-infra-red (FIR), water can only interact here. Of the many FIR water lines a few (357 cm^{-1} , 213 cm^{-1} and 128 cm^{-1}) are coherent enough for a water vapour laser and for “water memory”. The chemical frequency signatures calculated for n-hexane were as measured. The same calculation applied to pairs of FIR water lines gave the measured frequency signatures of water. When a frequency is imprinted into water, the FIR frequencies develop two sidebands proportional to the imprinted frequency with corresponding fractal sidebands in other parts of the electromagnetic spectrum.

4. Homeopathic Potencies

When a single frequency is imprinted into water which is then serially diluted, the original frequency disappears to be replaced by the original frequency multiplied by the dilution ratio. Not all dilution ratios do this, some have no effect, and others erase everything. Patterns developed from frequency signatures may be more complicated.

Figure 5 shows the frequency pattern for a set of potencies of thyroxine. It demonstrates the frequency basis for potentisation of homeopathic remedies. Frequency erased water was imprinted with the complete pattern of frequencies previously determined for thyroxine of potency D15. This was then potentised by conventional dilution and succussion. The frequencies measured for each synthesized potency were exactly the same as those for the potencies prepared from the “Mother Tincture” chemical thyroxine. Yet, the synthesized potencies had started from nothing but water. There is no discontinuity at potency D24 the dilution at which no molecule of an original substance should remain (Avogadro’s number).

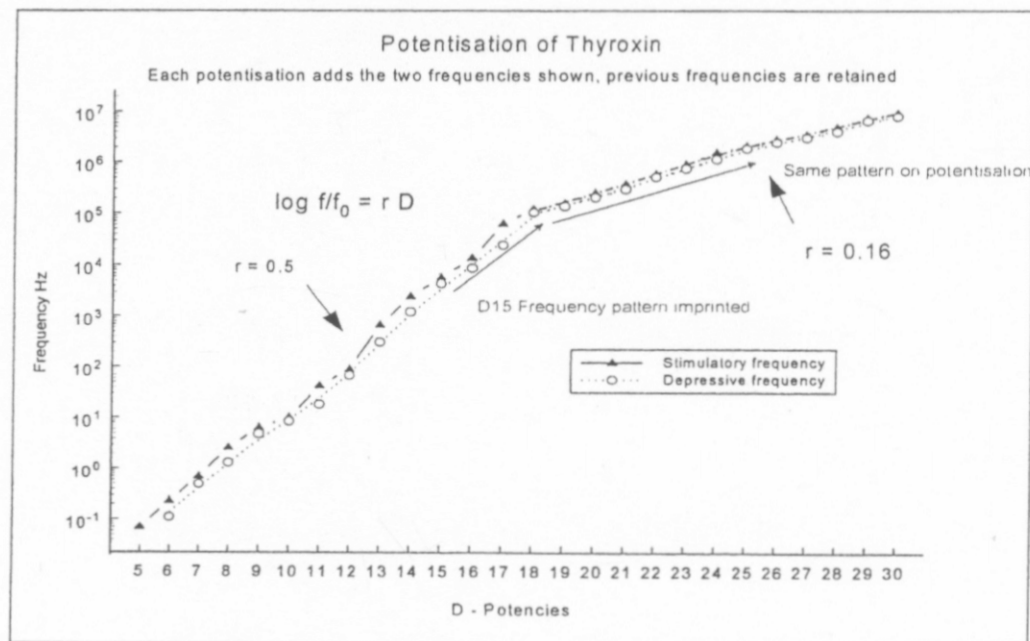


Figure 5. Frequency Pattern for Potencies of Thyroxine. The potency D15 was synthesised from all constituent frequencies. On dilution and succussion this gave the frequencies as measured in potencies coming from the “Mother Tincture”.

The frequency signature of chemicals must apply to pharmaceuticals which must also have a homeopathic activity. Table 4 compares aspirin and aconite; combined they would stimulate the Du Mai meridian.

Table 4. Frequency Signatures for Soluble Aspirin and Aconite C6.

↑ = stimulatory (hyperactive); ↓ = depressive and stressful (hypoactive).

Soluble Aspirin	Aconite 6C	Aspirin + Aconite C6
	$\uparrow 4.911 \times 10^{-4}$	
$\uparrow 3.032 \times 10^{-1}$	$\downarrow 3.013 \times 10^{-1}$	
	$\uparrow 7.712 \times 10^0$	$\uparrow 4.133 \times 10^0$
	$\downarrow 5.513 \times 10^{+2}$	
$\downarrow 1.23 \times 10^{+6}$	$\uparrow 1.22 \times 10^{+6}$	
$\uparrow 7.10 \times 10^{+6}$	$\downarrow 7.10 \times 10^{+6}$	
	$\uparrow 3.35 \times 10^{+7}$	

5. Chaos

Between the states of health and disease there may be a state of mathematical chaos (Smith, 2009). Chaos has been demonstrated in respect of the cardiac signal of a healthy human as well as in electroencephalograms, epidemics, fluid flow and oscillatory chemical reactions. A chaotic system eventually settles down to its “attractor” - a stable condition that may be a point focus or a limit-cycle oscillation. From the clinical and homeopathic point of view, any experiment involving a patient in a chaotic domain is **non-repeatable** from the same initial condition. Homeopathy can operate in the chaos region to switch a patient back from chaos to health.

6. Similiters and Provings

Hahnemann wrote, “...that for the totality of symptoms to be cured, one must seek that medicine which has demonstrated the greatest propensity to produce either *similar* or *opposite* symptoms”.

Frequencies patterns are generally biphasic showing alternately stimulation and depression of biological activity. Endogenous frequencies in biological systems fluctuate around their nominal value in a quasi-periodic manner which may be chaotic. Frequencies of acupuncture meridians can be entrained by homeopathic potencies which may stimulate or depress biological activity and hence can be “therapeutic” or “proving”. Chronic exposure to frequencies can result in “proving” symptoms which may become indistinguishable from a disease state.

In Table 5, the frequency pattern from a patient is compared to the frequency pattern of the homeopathic potency Lachesis C200 which may be the patient’s similiter.

Table 5. Frequency Matching Indicates a Possible Similiter

(paired-values correlation coefficient 0.94)

↑ = stimulatory (hyperactive); ↓ = depressive or stressful (hypoactive).

Patient's Frequencies Hz	Nearby Meridians	Lachesis 200C Hz
$\uparrow 1.514 \times 10^{-2}$	Small intestine	$\uparrow 3.112 \times 10^{-2}$
$\downarrow 7.611 \times 10^0$	Heart	$\downarrow 6.142 \times 10^0$
$\uparrow 5.000 \times 10^{+1}$	50 Hz	$\uparrow 5.013 \times 10^{+1}$
$\downarrow 6.006 \times 10^{+1}$	Triple-Warmer (Sanjiao)	$\downarrow 6.114 \times 10^{+1}$
$\uparrow 2.95 \times 10^{+5}$	Skin Degeneration	$\uparrow 2.25 \times 10^{+5}$
$\downarrow 1.23 \times 10^{+6}$	Small intestine	$\downarrow 1.32 \times 10^{+6}$
$\uparrow 3.45 \times 10^{+6}$	Organ Degeneration	$\uparrow 3.15 \times 10^{+6}$
$\downarrow 7.70 \times 10^{+6}$		$\downarrow 7.30 \times 10^{+6}$
$\uparrow 3.18 \times 10^{+7}$	Fatty Degeneration	$\uparrow 2.80 \times 10^{+7}$
$\downarrow 8.40 \times 10^{+7}$	Allergy	
$\uparrow 1.80 \times 10^{+8}$		

7. Conclusion

The theory of homeopathy has implications for both alternative and orthodox medicine and the chemical and electrical environments. It challenges convenient and comfortable paradigms.

References

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Declaration of Interests:

The writer is a scientific consultant for the Breakspear Medical Group Ltd. and does measurements for them and other medical practitioners.