

# Understanding Parallels Between Homeopathy and 'Nanomedicine'

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## Short Communication

Nanotechnology employs substances comprising particles of one to 100 nanometres (nm) in size [1,2], in other words, finely powdered 'dusts'. These are generally manufactured, and do not occur in nature, although natural materials of small particle size are included in the definition.

Nanomaterials reputedly display 'unique phenomena', offering economic potential through manipulation of nanoparticles for novel applications [3]. Hence nanotechnology requires study and 'fine-tuning' of atomic, molecular and macro-molecular materials, whose properties may vary from those manifested by materials in 'bulk' dimensions [4]. These aims imply existing (and growing) expertise regarding the required 'fine-tuning' processes and suggest that manipulating nano-dusts will create benefits for society, in technological and, for instance, medical, applications.

Homeopathy is a holistic system of medicine, that uses very small doses of substances, and preserved potentized energy from 'attenuated' versions of those substances, to cure disease and discomforts [5,6]. Homeopathy has occasionally been 'lambasted' in published literature for using dosages considered too small to have an effect. Recent emphasis on nanotechnology therefore presents a window of opportunity to discuss this idea. I will briefly compass here, the question as to whether parallels exist between homeopathy and nanotechnology.

To firstly render the concept of homeopathy more accessible for the general reader, the central idea underlying contemporary medical vaccinations was first derived from homeopathy's theoretical principles. In extensive homeopathic tests, minute

substances that triggered reactions in the 'vital' aspects of the test subjects were shown to cure diseases 'most similar' to the type of disease a select substance had the ability to provoke, or, to state this concisely, 'like may be cured by like' (hence, cowpox prevented smallpox).

It's understood in homeopathy (and, for instance, in vitamin treatments, and use of pharmaceutical medicines) that each substance 'causes' specific responses in living organisms, that are peculiar to itself, including triggering or suppression of various physiological processes, and signs and symptoms of 'health' or 'disease'. Less broadly acknowledged, although explored in recent research about individually tailored treatments, is the idea that each person also reacts uniquely, in a characteristic way, to substances and energies they encounter. Homeopathic effectiveness relies on the 'energy' of substances prescribed, to interact with and stimulate individuals' vital energies, in contrast to material forms of a substance which create a broadly-predictable response. Homeopathy requires only very small quantities of medicine for prescribing, making it an economic therapy choice for low-income communities [7].

As it uses minute, including sub-molecular, 'doses', homeopathy might be perceived as like 'nanomedicine'. However, the philosophy, scientific principles, and terms of homeopathic use are clearly delineated as an established, independent medical science, thoroughly documented and in widespread use in some countries [8].

If the activity of tiny doses seems difficult conceptually, for comparison, in nanotechnology some substances are finely

reduced, to increase their reflective surface area and enhance their potential 'light-harvesting' agency, or to channel light and sound waves for information technology transmission, or to direct light energy for other purposes, such as medical diagnostic imaging [9]. Clearly, finely-powdered substances possess properties we are only beginning to comprehend.

Nanotechnology is not a complete, self-contained science or healing approach, but mainly represents opportunities to improve medical diagnostic techniques. As an experimental field, it creates potential through technology. Finely powdered metals or minerals can coat target substances, permit light-harvesting, or harness reflective, fluorescing or absorptive properties of minutely disintegrated minerals for uses such as detecting metal ions, pH, or cancer biomarkers in vitro, or in living tissue, including within cells [10].

Thus, some nano-possibilities offer exciting medical potential. Thinking creatively, light-harvesting properties of certain nano molecules might usefully direct energy from spectral light to treat depression during prolonged winter seasons. This application would ideally not be used as 'internal medicine', due to nano-minerals' potential toxicity [11-13], accumulation in organs and tissues [14,15], and the body's limited capacity to sufficiently excrete such particles [16]. Nevertheless, suitable preparations of light-harvesting nano minerals could function as something of a personal 'solar panel', worn on the exterior, perhaps the forehead, to direct light energy to vital parts of the higher nervous centre, such as the pineal gland, to assist in recharging the 'vital batteries' and overcoming winter depression.

Obviously, this is a brainstormed idea, and only one of many such unexplored possibilities. A fun process of creative ideas in the design room of techno-pharma organisations springs to mind.

From a holistic perspective, however, production of nano-materials for medical technology applications, like detecting cellular or DNA changes [17,18], thermosensitivity [19], or detection or the (very welcome) adsorbing of radioactive materials [20], thus far appears more dubious for wider medical use (beyond cancer research). This is due to potential mineral toxicity – increased in nano-forms – for living cells, [21], and bio-unavailability, high cost, and potential environmental concerns. I have wondered, are we sufficiently examining the implications of nanomaterials manufacture on a commercial scale, given the extent of existing problems of man-made enviro damage and climate change? Steps to ensure safety are essential, and prioritized [22,23].

The thought of manufacturing fine dusts from metals and minerals, such as by laser torching [24], viewed on an industrial scale, appears to contribute ultimately to building a somewhat Martian environment. Is this really an ideal solution? It may indeed challenge scientists undertaking microscopic investigations, of many kinds, to preserve a truly holistic big-picture sense of the long-term implications of the nature and direction of the

'social momentum' that originates from contemporary science research. Predictably then, we are over-prone to emphasize 'potential benefits' of new manufactured substances, without deep consideration of environmental repercussions (plastics are such a great example).

While nano-medicine is exciting, we've not yet given sufficient credence within conventional scientific circles to the healing potential of homeopathy, and other holistic 'sister' forms of medicine. These healing methods have harnessed energetic properties of sub-molecular constituents already for centuries. Looking to the future, holistic cancer prevention, promoting healthful lifestyles and environments, and use of 'vital' naturally-occurring medicinal substances, may in fact be even more exciting than discovering novel ways to 'track' cancer-affected cells in laboratories and radiology suites.

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