

## EDITORIAL

# More biological models and randomised clinical trials

This issue of Homeopathy concludes our special issue on biological models. Because of the gratifying surfeit of high-quality contributions, we have had to spread the material over two issues; this issue features a further five articles. Some of them focus on less obvious, yet important issues.

## Similitude

The controversial aspect of homeopathy, and the main reason it has been on the receiving end of many attacks, especially in the UK in recent years, is the use of high, ‘ultramolecular’ dilutions. But it is important to remember that the use of ultramolecular dilutions is not a defining characteristic of homeopathy. Many homeopathic medicines are not in ultramolecular dilutions. Fred Wiegant’s team at the University of Utrecht in the Netherlands has conducted a research program on similarity, rather than ultramolecular dilution effects, which they summarise in this special issue.<sup>1</sup>

Their model is based on Reuber H35 rat hepatoma cells subjected to heat stress, followed by a low dose, but non-ultramolecular, stimulatory treatment. They conducted both homologous, where the initial harmful and the secondary stimulatory treatment are the same, differing only in scale, (equivalent to isopathy in clinical homeopathy); and heterologous experiments where the two treatments differ in nature. The heterologous treatments were chemical toxins including arsenite and cadmium. They show effects in terms of cell survival and production of stress proteins. They define objectively the degree of similarity between the two stimuli (in terms of the pattern of stress protein response) and show that the strength of the effect correlates with the degree of similarity. They also demonstrate that the pattern of the response is determined by the second, low dose stimulus.

## Concepts and reproducibility

Leoni Bonamin and Christian Endler critically examine the concepts underlying the design of animal experiments in their systematic review covering the last decade. They identified 33 experiments, most of them randomised, investigating the similia principle. They classify them as based on behaviour, intoxication, inflammation, carcinogenesis, tissue growth and differentiation, and experimental infection. No relationship was found between blindness or kind of control and positive or negative results. The authors note several instances of convergence of results between different models and with clinical homeopathy. They highlight a number of emerging concepts including

mathematical modelling of the restoration of sensitised living systems to a stable state and modification of host-parasite relationships.<sup>2</sup>

The replicability of experiments is a crucial criterion for their credibility. The multinational group led by Christian Endler and involving coauthors from Austria, Switzerland and Brazil address this issue in their bibliometric study of repetitions of fundamental research models. They found that 24 experimental models have been repeatedly investigated, 22 with similar inter-experiment results. They classify repetitions according to whether they came from the same group as the original report, or multicentre or independent work; and results as positive and similar, positive but qualitative different or negative.<sup>3</sup>

The most frequently and consistently replicable model is inhibition of basophil activation by high dilutions of histamine. Its originators, Jean Sainte Laudy and Philippe Belon gave a comprehensive account of this work in our last issue.<sup>4</sup> But as Madeleine Ennis shows in her sceptical view of such models, significant methodological issues remain. Methods vary between laboratories, although the same can be said of conventional studies. Several different laboratories have found effects of high dilutions using flow cytometric methods. She suggests that following standardisation another multicentre experiment be performed.<sup>5</sup>

## The missing link?

John Ives and colleagues provide what is, to my knowledge, the first empirical evidence in closing an important missing link in the understanding of the biological action of what they call serially succussed and diluted (SSD) solutions. There is now a substantial body of evidence that such solutions have biological effects, much of it summarised in this and the previous issue of Homeopathy. There is also a significant body of evidence which indicates that the process of production of SSDs induces stable mesoscale structural or coherence effects in liquid water. Colloquially referred to as ‘Memory of Water’ effects, these were reviewed in a previous special issue of Homeopathy. But there is a vital link missing between the presence of structural or coherence effects in water and any biological effects of such preparations.

David Anick and John Ives contributed a theoretical paper to our ‘Memory of Water’ special issue outlining the ‘Silica Hypothesis’ for the action of SSDs; prerequisites are the thermodynamic stability of a large number of distinct structures, pattern initiation at low potencies, and maintenance or evolution of these patterns at higher

dilutions.<sup>6</sup> They proposed laboratory experiments that might confirm or refute this hypothesis, and in this issue report the results of several such experiments. They show that the stability of enzymes is enhanced in SSD solutions prepared in glass, compared to plastic. Analysis of SSD water prepared in glass detected boron, silicon, and sodium at micromolar concentrations. Silicates have biological activity, but the concentrations in these SSDs were too low to account for any in vivo effects, but the enzyme-stabilising effect may be relevant to in-vitro biological assays reporting homeopathic effects.<sup>7</sup>

### ...and randomised clinical trials

Also in this issue, we report two randomised clinical trials reflecting widely divergent prescribing strategies and clinical applications of homeopathy. Irene Camerlink and colleagues from the Biological Farming Systems Group, Wageningen University in the Netherlands compared the effects of a standard homeopathic nosode/biotherapy on diarrhoea in over 500 piglets. Piglets of the homeopathic group had highly significantly less *E. coli* diarrhoea than those receiving placebo.<sup>8</sup>

In another trial featuring in this issue, by David Naude and collaborators of Durban University of Technology, South Africa is also of randomised placebo-controlled design. But it contrasts in most other respects: prescribing strategy (individualised), pathology (chronic primary insomnia), scale (30 subjects) and indeed species (human). Again the results, as measured standard instruments, are positive.<sup>9</sup> Both of these trials represent important findings and should be repeated.

All in all, these are exciting times for research in homeopathy!

## References

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