

## **Report to House of Commons Select Committee on Homeopathy**

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### **Summary**

- (1) In this report I will focus on the evidence base of the action of homeopathic preparations, more specifically on the evidence coming from clinical trials, animal studies, in-vitro studies and physico-chemical experiments.
- (2) From this evidence several conclusions can be drawn: firstly, the evidence for homeopathy in clinical trials is sufficient to warrant further research; secondly, although the mechanism of action of homeopathy is still unknown experiments on cellular system preclude the hypothesis that placebo effects be solely responsible for the results from clinical trials.
- (3) In conclusion, although the mechanism of action remains elusive, the results of scientific studies indicate that homeopathy shows physical, biochemical and clinical effects sufficient to classify it as a therapeutic agent in its own right, warranting pursued clinical and fundamental research.

### **About the Author**

- (4) The author (Dr A Tournier PhD) is a biophysicist with training in: physics (BSc, Imperial College), theoretical physics (Cambridge, part III), the biophysics of water-protein interactions (PhD, Heidelberg) and homeopathy (Diploma, CHE).
- (5) Dr Tournier is currently actively involved in research as postdoctoral fellow working for Cancer Research UK.
- (6) Dr Tournier is also the founding director of the Homeopathy Research Institute, a charity dedicated to promoting high-quality research in the field of homeopathy.

### **Evidence from clinical trials**

#### ***a) Evidence from Placebo Randomized Controlled Trials (RCTs)***

- (7) With over 150 clinical trials in homeopathy to date, there have been four meta-analyses of RCTs of the field<sup>1-4</sup>. All four conclude that the results of the trials cannot be attributed to placebo alone and recommend further research be undertaken in the field.
- (8) Contrary to this trend, a recent comparative meta-analysis of homeopathic trial vs. equivalent trials from conventional medicine concluded in favor of placebo being the

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likely explanation behind the results<sup>5</sup>. However, its methodology has since then been heavily criticized and its conclusion deemed unreliable<sup>6</sup>.

## **b) Evidence from pathogenetic trial**

- (9) Pathogenetic trials (or provings) lie at the heart of homeopathy practice: they are traditionally used to compile and analyze the symptoms reported by healthy individuals when ingesting a specific homeopathic remedies. These symptoms are then used in practice to cure patients with similar symptoms. This is referred to as the ‘law of similars’.
- (11) Although early pathogenetic trials have been criticized for their lack of scientific rigour<sup>7</sup>, results from recent studies such as Möllinger et al 2009<sup>8</sup> strongly indicate that homeopathic medicines create remedy-specific symptoms in healthy volunteers.
- (12) While such studies are relatively inexpensive to perform, reproducing and extending such trials could conclusively answer the question ‘*do homeopathic remedies have a specific clinical effects beyond placebo?*’.

## **Evidence from animal studies**

### **a) Veterinary research**

- (10) Although homeopathy is widely used to treat animals relatively little veterinary research has been undertaken so far<sup>9</sup>.

### **b) Animal Models**

- (11) Animal models have been used to investigate the effects of homeopathy in the context of immunology<sup>10</sup>. With over 36 publications in this field interesting observations have been made of the way homeopathic remedies affect the immune system. Although encouraging results exist in the field the present state of the research does not lead to any definitive conclusion.
- (12) Researchers in Austria have experimented with homeopathic doses of thyroxin (a thyroid hormone). It was found to have the effect of slowing down their morphogenesis into frogs. The results seem to be reproducible (5 labs), more trials need to be performed<sup>11</sup>.

## **Evidence from in-vitro studies**

- (13) In-vitro studies have been used to look at the effect of homeopathy on certain cell lines and cell types. Overall the evidence strongly suggests that homeopathic preparations have an effect on cell lines and on biochemical reactions<sup>12</sup>.

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## **a) Basophils degranulation experiments**

- (14) The basophil degranulation experiment was originally developed in the lab of the last Prof J. Benvenist. In this experiment human cells (basophils) are subjected to homeopathic dilutions of a specific anti-body, which triggers a phenomenon called degranulation in normal circumstances. These experiments, now widely repeated (11 high-quality publications) have reported that homeopathic preparations trigger the degranulation process although none of the original antibody remains in the preparation<sup>12</sup>.

## **a) Cellular systems**

- (15) In these experiments cells, such as cancer cell lines, and different types of cells are subjected to different homeopathic preparations. Five high-quality publications have reported effects in this field<sup>12</sup>.

## **b) Molecular systems**

- (16) These experiments measure the effect homeopathic preparation have on enzymatic reaction. The majority of high-quality investigations (7 /9) in this field have reported positive results<sup>12</sup>.

## **Evidence from physico-chemical studies**

- (17) A number of experiments have looked at the physical properties of homeopathically prepared samples<sup>13</sup>.
- (18) NMR experiments: 5 high-quality studies reported results in favour of the presence of a homeopathic effect using Nuclear Magnetic Resonance (NMR) measurements<sup>13</sup>.
- (19) More than 10 studies have looked investigated the properties of homeopathic preparations using different types of spectroscopic analysis (UV, Raman, IR). Although some studies have reported interesting observations no definitive conclusion can be drawn from the current studies<sup>13</sup>.
- (20) Another set of experiments investigate the electrical properties of homeopathically prepared samples. Here again, although the interesting results have been reported, due to methodological defect, no definitive conclusion can be drawn<sup>13</sup>.

## **Overall conclusions and Recommendations**

- (21) Of the four areas of research presented above, human clinical trials and studies on cellular system show strong evidence of the presence of a clinically relevant effect of homeopathic preparations.
- (22) Many areas of research in homeopathy are not well developed enough to provide strong evidence. However, it is of the opinion of the author that the existing evidence warrants further research.

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- (23) Most of the current criticism of homeopathy hinges upon the fact that no adequate explanation for the phenomenon currently exists. However, it is of the opinion of the author that the present levels of evidence are sufficient to seriously consider the hypothesis that the effect of homeopathic preparations relies on novel states of matter as yet poorly understood.
- (24) In the present state of ignorance of the physical theory behind the phenomena, the current knowledge is based entirely on meticulously gathered empirical evidence by generations of dedicated homeopaths. Until our theoretical understanding catches up with the empirical knowledge in the field, research in homeopathy will rely heavily on the accumulated knowledge of practising homeopaths.
- (25) My recommendations are the following:
- (26) **To pursue and ensure the adequate funding of clinical research in homeopathy, making sure the practical experience of practising homeopaths is properly taken into account in designing the research protocols.**
- (27) **To foster basic research in homeopathy, recognising homeopathy as a potentially groundbreaking field of research.**

## References

1. Linde, K. et al. Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet* **350**, 834-843 (1997).
2. Boissel, J., Cucherat, M., Haugh, M. & Gauthier, E. *Critical literature review on the effectiveness of homoeopathy: overview of data from homoeopathic medicine trials*. (Medical Research, Brussels, Belgium, 1996).
3. Cucherat, M., Haugh, M.C., Gooch, M. & Boissel, J.P. Evidence of clinical efficacy of homeopathy. A meta-analysis of clinical trials. HMRAG. Homeopathic Medicines Research Advisory Group. *Eur. J. Clin. Pharmacol* **56**, 27-33 (2000).
4. Linde, K. & Melchart, D. Randomized controlled trials of individualized homeopathy: a state-of-the-art review. *J Altern Complement Med* **4**, 371-388 (1998).
5. Shang, A. et al. Are the clinical effects of homoeopathy placebo effects? Comparative study of placebo-controlled trials of homoeopathy and allopathy. *Lancet* **366**, 726-732 (2005).
6. Lüdtke, R. & Rutten, A.L.B. The conclusions on the effectiveness of homeopathy highly depend on the set of analyzed trials. *J Clin Epidemiol* **61**, 1197-1204 (2008).
7. Dantas, F. et al. A systematic review of the quality of homeopathic pathogenetic trials published from 1945 to 1995. *Homeopathy* **96**, 4-16 (2007).
8. Möllinger, H., Schneider, R. & Walach, H. Homeopathic pathogenetic trials produce specific symptoms different from placebo. *Forsch Komplementmed* **16**, 105-110 (2009).
9. Hektoen, L. Review of the current involvement of homeopathy in veterinary practice and research. *Vet. Rec* **157**, 224-229 (2005).
10. Bellavite, P., Ortolani, R. & Conforti, A. Immunology and homeopathy. 3. Experimental

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- studies on animal models. *Evid Based Complement Alternat Med* **3**, 171-186 (2006).
11. Guedes, J.R.P., Ferreira, C.M., Guimarães, H.M.B., Saldiva, P.H.N. & Capelozzi, V.L. Homeopathically prepared dilution of *Rana catesbeiana* thyroid glands modifies its rate of metamorphosis. *Homeopathy* **93**, 132-137 (2004).
  12. Witt, C.M. et al. The in vitro evidence for an effect of high homeopathic potencies--a systematic review of the literature. *Complement Ther Med* **15**, 128-138 (2007).
  13. Becker-Witt, C., Weisshuhn, T.E.R., Lütke, R. & Willich, S.N. Quality assessment of physical research in homeopathy. *J Altern Complement Med* **9**, 113-132 (2003).