

## Research involving animals: the case for cutting edge ethics

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Research into homeopathy is undergoing a welcome period of growth driven by the increasing need to provide evidence for the therapy's effectiveness and mode of action.

In mainstream medicine animal-based research has become integral to the development of new drugs and medical procedures, despite only modest success in extrapolating findings in animals to humans. Homeopathy, based on provings conducted on human volunteers and on clinical confirmation of the *similia* principle, is not subject to such shortcomings. Nevertheless animals with artificially induced diseases are being used in homeopathic research in order to supplement existing knowledge and to demonstrate that homeopathy 'works' under laboratory conditions.

To date such research has encompassed a wide range of physical and psychological conditions and involved procedures that have caused suffering – often severe - in experimental animals. Whilst the rights, dignity and welfare of humans participating in homeopathic studies are safeguarded in line with standards laid down in the Declaration of Helsinki, international standards of protection for experimental animals vary widely and are markedly less stringent. Growing interest in homeopathy (and funding for research in this field) could lead to a rise in animal-based studies at a time when public trust in the regulations governing animal use in medical research is falling - and calls for more ethical and scientifically relevant alternatives are on the increase.

This presentation examines some of the scientific, political and legal issues relating to the use of animals in homeopathic research. It addresses the relative value of animal studies in evidence bases; societal drivers in the development of alternatives to animal experiments and the new EU directive on the protection of animals in scientific research. It also considers the implications for homeopathy's reputation as an ethical profession and highlights opportunities to demonstrate cutting edge ethics in the advancement of homeopathic knowledge.

## Pyridinium-N-phenolates as molecular probes of serially diluted and agitated solutions: preliminary results

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A systematic approach to the design of a simple, chemical system for investigating the fundamental nature of homeopathic medicines has led to an experimental protocol for the use of solvatochromic pyridinium-N-phenolate dyes as molecular probes of serially diluted and agitated solutions.

Preliminary results using this molecular probe technology indicate that homeopathic potencies affect the degree of self-association between zwitterionic dye molecules and between dye molecules and a range of cations in solution under non-equilibrium conditions. Reactions have been monitored by following the loss of the characteristic charge transfer band of a representative dye ET30 at 600nm in ethanol using standard quartz or polystyrene cuvettes. The effect of homeopathic potencies is seen with quartz cuvettes, whereas no difference is seen between controls and samples in polystyrene cuvettes. Results are interpreted as indicating

1. A greater level of dynamic ordering occurs in solution in the presence of potencies, favouring both dye-dye and dye-cation interactions.

2. Quartz appears to be essential in propagating and/or amplifying the homeopathic signal- and hence the effects described- whereas polystyrene lacks this ability.

3. High levels of bulk water are not essential for the observed action of potencies. Assays are carried out in ethanol with only low (<0.1%) levels of water. In the assays reported therefore either ethanol is able to substitute for water in any long-range potency induced solvent ordering or the primary focus of ordering lies with quartz itself.

The implications of these results, together with future directions for research in this field, are discussed.

## Use and knowledge of homeopathic drugs by the general population in Spain

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**Introduction:** Homeopathy is already considered as a reality in the daily health practice. More patients and health-care professionals use it on a daily basis as an effective therapeutic alternative. A pioneer investigation, conducted by Boiron in Spain, has developed the 1st Study on Use and Knowledge of Homeopathy in Spain. Further than the academic value of this study, it has proven to be a useful tool for institutional relationships and media awareness purposes.

**Objective:** To show the degree of knowledge, use and satisfaction about the use of the homeopathic medicines in the Spanish population.