

## **A Literature Survey Based Cost-benefit Analysis of Animal Experiments in Nanomedicine and Nanotechnology Conducted in Germany, France and the United Kingdom**

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Funded by:

Foundation Animalfree Research, CH-8032 Zurich, Switzerland, [www.animalfree-research.org](http://www.animalfree-research.org)

On the basis of a literature survey funded by the Swiss Foundation Animalfree Research, an overview is provided on animal experiments performed in nanomedicine and for the safety testing of nanomaterials in Germany, France and the United Kingdom. These are the EU Member States with both the highest public expenditure in nanotechnology and the highest numbers of animals used in scientific research as such. In nanomedicine and nanotechnology, animal experiments were performed in pursuance of scientific goals relating, amongst other issues, to targeted drug or gene delivery, magnetic tumour thermotherapy, tissue engineering, and the toxicity of nanomaterials.

The scientific outcome of such experiments shall be evaluated, the harm inflicted upon the animals classified, and a harm-benefit-analysis of the experiments shall be performed. The indispensability and ethical acceptability of animal use in nanomedicine and nanotechnology shall be discussed and main areas of concern from the point of view of animal welfare determined.

Subsequently, concrete recommendations for necessary political action shall be made aiming at avoiding an increase in animal use for nanotechnology and nanomedicine and to achieve a replacement of the animal tests depicted in accordance with the Animal Welfare Protocol of the European Treaty and Directive 86/609/EEC on the protection of laboratory animals.