

Use of Non-human Primates (NHPs) in the Discovery and Development of Medicines and Vaccines

The Issue

GSK's aim is to discover and develop medicines and vaccines that will prevent, treat and help alleviate the suffering caused by disease. Animal research forms a small but essential part of this discovery and development process. Scientific principles and our processes ensure that we adhere to the 3Rs of replacement, reduction and refinement in the design of these studies. Replacement is the use of non-animal alternatives or lower order species. Reduction is obtaining the same information yet decreasing the numbers of animals per experiment. Refinement is experimental design that minimises pain and distress and improves animal welfare.

There are aspects of our work that cannot be fulfilled without animal studies. Animals are used in the medicine and vaccine discovery and development process to understand disease mechanisms, discover novel ways to treat disease, and evaluate the efficacy and safety of potential new medicines and vaccines before they are tested in clinical studies and approved for marketing.

For some diseases, the evaluation of potential new medicines can only be achieved in certain species of non-human primates; such as macaques. Examples include HIV/AIDS, Alzheimer's Disease, Parkinson's Disease and certain forms of viral hepatitis. Non-human primates may also be needed to evaluate how potential new medicines are absorbed, distributed, metabolised and excreted. Additionally they may be required for safety testing and quality testing of some vaccines.

GSK's Position

- GSK has voluntarily decided to end the use of great apes (i.e. chimpanzees) in research. We will no longer initiate or initiate funding of studies using great apes as part of our voluntary decision.
- Non-human primates for example, marmosets and macaques, are only used in GSK research projects if no lower order species is appropriate for the purposes of the programme.
- The testing GSK conducts using non-human primates is kept to an absolute minimum. Of the animal research that we carry out, less than 0.5% involves non-human primates.
- Non-human primates used by GSK are specifically-bred for research. GSK would only use wild caught primates under exceptional circumstances and only with specific authorisations by appropriate authorities.
- GSK does not support proposals to ban or limit the use of non-human primates to research specifically related to the development of treatments for life-threatening or debilitating diseases in humans. Such a restriction would exclude much academic research, as well as basic research not yet linked to a specific disease. Also, any limitation to "life-threatening or debilitating diseases" may exclude several serious conditions that severely impact patients' quality of life.

BACKGROUND

The role of Non-Human Primates in Medical Research

As part of our efforts to discover and develop new medicines, GSK may need information about the efficacy, metabolism and safety of potential medicines and vaccines from research in non-human primates.

GSK's strong commitment to the 3Rs ensures that the lowest possible order (phylogenetically) of animal appropriate for research studies are used. Non-human primates are only used in research projects if no lower order species is appropriate for the purposes of the programme.

Examples where non-human primates may be the most appropriate species for a research programme include where:

- the experimental medicine to be studied is active *in vivo* on receptors or enzymes that only occur in primates, both human and non-human primates.
- the experimental medicine would be destroyed by the immune system of other species, but would be biologically active in both human and non-human primates (e.g. monoclonal antibodies).
- the anatomy and/or physiology of a disease or pathway are similar in humans and non-human primates, but different in other species.
- the experimental medicine or vehicle used to administer the medicine is only tolerated in humans and non-human primates, but not other animal species.
- the assessment for a disease process can only be studied in primates. Such testing includes the assessment of certain cognitive abilities and behaviours that are only exhibited in non-human primates and humans.
- the pharmacokinetic characteristics are inadequate in other species to the extent that the preclinical assessment of human safety would be compromised without studies in non-human primates; specifically macaque species.

Great Apes in Research

At the end of October 2008, GSK introduced a new policy that we would not initiate or initiate funding of studies using great apes. This is a voluntary decision and provides a tangible demonstration of our commitment to the 3Rs of animal research.

Great apes are gorillas, chimpanzees, orangutans and bonobos. The common chimpanzee (*Pan troglodytes*) has been involved in biomedical research for over three decades. The other great apes – gorillas, orangutans and bonobos - have not been used in such research.

Chimpanzees have played a role in the understanding of many diseases that affect humans; specifically infectious diseases, such as hepatitis C and HIV/AIDS. While GSK recognises the importance of scientific knowledge tied to work with chimpanzees in the past, we also recognise that - in part thanks to new directions and advancement of animal models and other techniques in biomedical research - the case for using great apes in the future is less clear than it may have been previously.