EU funded research on alternatives to animal experimentation: stock-taking from FP6 and views for the future

Workshop 13/14 June 2006

RETHINK Project
Minipigs as models for toxicity testing of new medicines and chemicals: impact assessment

EU Sixth Framework Programme,
Contract PL 018776
Minipigs?

- Minipigs are strains of domestic pigs that are markedly smaller than farmyard varieties, and thus better adapted to laboratory housing.
Objectives

- Assessment of the minipig as an alternative in toxicity testing and the potential contribution of the minipig to the 3R’s

- The **RETHINK** project is an SSA (Scientific Support Action)
Why pigs?

- The pig closely resembles man in many features of its anatomy, physiology, biochemistry and lifestyle. In particular, the cardio-vascular system, skin and digestive tract are considered to be very good models for man. Because of these similarities the toxic effects of chemicals and drugs in pigs may resemble the effects in man more closely than do some other commonly used laboratory animals. The pig also has some features that make it a very practical model. Finally, being a food animal, testing in the minipig may be more acceptable to the public than the use of dogs or monkeys.
Organisation

- We have assembled groups of experts from around Europe to participate in expert study groups.
- These study groups will review the available knowledge base on pigs and minipigs and comment on the utility, validity, added value, ethics and impact for 3R’s of minipigs in toxicity testing.
Tasks of Invited Experts

- Review available information on their topics, summarise the relevant knowledge-base and draw conclusions with regard to the objectives of the project.
- Identify gaps in knowledge where further research is required, and technical gaps (e.g. availability of porcine reagents) presenting obstacles to the use of mini-pigs.
- Comment on any specific issues that are raised and identify the advantages and disadvantages of the mini-pig.
- Formulate recommendations regarding the use of mini-pigs in toxicity testing of new medicines and chemicals and their contribution to the replacement, refinement and reduction of animal experimentation.
Topic areas

The WG’s will review the impact of testing in minipigs in five different areas:

- Animal welfare
- Ethical issues
- New medicines and chemicals development
- Issues in safety testing
- Genomics and emerging technologies
**STEERING GROUP**
Preparation of WG composition, contract, WG reporting format and organisation of WG meetings

**Working Group MEETINGS**
Review information, summarise knowledge base, prepare conclusions on issues. Draft outline impact statement. Interleaved periods for follow-up, documentation & reflection

**WG MEETINGS**
Prepare Draft final impact statement for plenary meeting.

**PLENARY MEETING**
Cross-talk and consolidation
Finalise impact statements

**STEERING GROUP**
Collate, edit and finalise impact report. Dissemination of report and mini-symposium
Steering Group

- Gerd Bode
- Lars Ellegaard
- Roy Forster (co-ordinator)
- Jan Willem van der Laan
The Impact Assessment Report

The final report will provide concrete indications on questions such as:

- Welfare needs of minipigs
- Scope for application of 3Rs in minipigs
- Role of minipigs in toxicology testing strategies
- Proposals for initiatives to fill gaps in knowledge or “technical gaps”
- Implications for development of new medicines and chemicals
So what? Doesn’t it just mean more animal testing?

- Not actually. If the pig is really a good model of man, then pig and minipig cells and tissues could be especially useful for *in vitro* tests and *alternative* methods.
- There is potential for the replacement of higher animals and scope for the use of an animal species with greater social acceptance.
- And if the minipig provides a better predictive model of toxicities to humans than traditionally used animal models, then there could be a significant public health benefit.
THANK YOU

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• Visit the project website at:
  www.rethink-eu.dk