Email submission to laura.ward@dhhs.vic.gov.au

Dear Ms Ward,

Victorian health and medical research strategy

Humane Research Australia is a not for profit organisation that challenges the use of animal experiments and promotes more humane and scientifically valid non-animal methods of research. We welcome this opportunity to comment on the above review.

Whilst much of the content of your discussion paper is beyond the scope of HRA, we wish to comment on an area of concern that is covered by questions 4-8 on the paper.

HRA recognises that Victoria is committed to building a world class health and medical research workforce and agrees that such initiatives as the Australian Syncrotron, the Victorian Life Sciences Computation Initiative and the Victorian Cancer Biobank will go far to progress medical research in this state. Where we believe Victoria (and indeed Australia) is failing however, is at the pre-clinical stage and this is noted on page 9 of the discussion paper – namely the "twin valleys of death." As the paper mentions, these early-phase trials are high risk, and this is largely due to the reliance on animal models.

Species Differences

Humans differ from other animals anatomically, genetically and metabolically, meaning data derived from animals cannot be extrapolated to humans with sufficient accuracy.

The Food and Drugs Administration (FDA), U.S. confirms that nine out of ten drugs 'proven' successful in animal tests fail in human trials.[1] This not only questions the efficacy and very base argument for using animals, but critically raises the question about all the drugs that failed in animals which might have worked in humans. How many discarded cures for cancer?

Understandably, when a drug or other medical treatment is developed it must be tested in an entire living system. Using another species is using the wrong system. Considering the differences that occur on the metabolic, genetic and molecular levels, when applied to an entire biological system those intricate differences become exponential. Pre-clinical testing needs to be conducted in such a way that eliminates the risk of species differences and is instead directly applicable to humans.

Even when genetically modified, there is no single animal model that can accurately mimic the complex human situation. There are far too many unknown variables that cannot all be accounted for. Instead, we now have scientific technologies such as microfluidic chips and microdosing. Not only do these techniques analyse the effects of drugs on an entire living system, they analyse a human living system, eliminating error caused by species differences and resulting in data that is relevant to humans.

A battery of human-specific methodologies in pre clinical testing is far more predictive than depending on data from another species.

There are also cases of safe and efficacious human pharmaceuticals that would not pass rigorous animal testing because of severe or lethal toxicity in some lab animal species. The

[1] ***FDA Issues Advice to Make Earliest Stages Of Clinical Drug Development More Efficient. Press release / FDA 12jan2006***

common cancer drug Tamoxifen, for example, has the opposite effect on several species by promoting oestrogen rather than blocking it, as it does in humans.

Today, science is studying diseases and drug responses on a very different level than in the 1800s and early 1900s. In the past, science was looking at traits and functions that were largely shared among species thus animals were used as surrogate humans. Science is currently studying disease and drug response at the level where the differences between individual humans are of critical significance.

Systematic reviews

There will continue to be claims, touting specific experiments, that some animal research has contributed to human clinical knowledge, however this is based on anecdotal evidence and unsupported claims. It may also be argued however that the same might apply to our own arguments AGAINST animal experiments. It is therefore necessary to consider systematic reviews and meta-analyses if we are to determine the human clinical utility of animal experiments.

The widespread use of animals in medical research is based on the premise that laboratory animals are reasonably predictive of human outcomes. Systematic reviews **do not** support this assumption. There have, in fact, been several systematic reviews conducted in the areas of toxicity testing and biomedical research and the alternatives have been shown to be more predictive of human outcomes.

It's therefore logical that on both ethical and scientific grounds, there are sufficient grounds for a shift toward more humane, non-animal and species-specific methodologies.

The need for Alternatives Research.

Page 17 of the discussion paper recognises the challenges of "PhD students and scientists confronted by issues related to career progression, security and remuneration." Often they resort to animal use simply in order to obtain funding and to enable publication of their work. Page 19 of the discussion paper states that "Australia punches far above its weight by producing 3 per cent of global research publications with only 0.3 per cent of the world's population. However, compared with international standards, Australia has a poor record of commercial translation…" Consider too, Australia's rate of animal use in research. We are the fourth highest user of animals behind only China, Japan and the United States. According to the latest statistics, Australia uses over 6.7 million animals each year, with Victoria accounting for over a million of these.[2] A high rate of publication has little value when the subject matter is based on animal experiments and is therefore unlikely to translate to genuine medical progress.

Instead, Australia needs to provide more incentive for the development and validation of non-animal methods of testing. This would eliminate the wastage of precious resources as it would focus on research that is directly applicable to the human species.

Around the world, a number of government-funded initiatives are acknowledging the need to further develop and validate non-animal methods of research:

NC3Rs - The National Centre for the Replacement, Refinement and Reduction of Animals in Research is an independent UK organisation established in 2004.

[2] http://www.humaneresearch.org.au/statistics/statistics_2013

ECVAM - The European Centre for the Validation of Alternative Methods (ECVAM) was established 1991.

ICCVAM - In the U.S., the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) was established in 1997.

ZEBET - established in 1989, is the Centre for Documentation and Evaluation of Alternatives to Animal Experiments, which forms part of the German Federal Institute for Risk Management, Berlin.

While other nations forge ahead in the area of alternatives research, Australia is missing an opportunity to excel in clinical translation and this is an issue that needs urgent addressing.

Summary

In conclusion, HRA acknowledges the importance of medical research, but considers that the health of Australians would be dramatically improved if greater resources were put into health education to reduce the incidence of illness, and also into our healthcare system to ensure that sufficient hospital beds, medical and nursing staff are available to enable the treatment of disease and illness which we already have the knowledge and capacity to treat. Only then will sufficient financial resources be available for further research – which must then be species-specific.

Additionally, as part of the review, HRA would like to see included:

- A commitment by the Victorian government to invest higher resources into the development and validation of alternative methodologies (to using animals).
- Greater transparency and accountability of all research by institutes using animals by making publicly available all annual reports and summaries of external reviews.
- Establishment of an independent body which would enable the oversight, consistency and regulation of all aspects of animal research

Thank you again for the opportunity to comment on this review. Should you require any further information on any issue raised in this submission please do not hesitate to contact the undersigned. In addition we would be more than happy to meet to discuss this review and our response in further detail.

Yours sincerely,

Helen Marston
Chief Executive Officer