**Submission No 285**

# INQUIRY INTO USE OF PRIMATES AND OTHER ANIMALS IN MEDICAL RESEARCH IN NEW SOUTH WALES

**Name:** Ms Petra Jones

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Dear Committee Members,

RE: Inquiry into the use of primates and other animals in medical research in NSW

Thank you for the opportunity to provide my views regarding this very important issue. The review of animal testing for medical research is long overdue noting the last review was a Commonwealth Enquiry into animal testing conducted in 1989. Appallingly, neither of the two recommendations of providing yearly statistics and information of the number and forms of animal testing by jurisdiction and to establish a fund to research alternative methods to animal testing. As you will be already aware, there are many new initiatives that have been developed and implemented in a number of countries.

The statistics regarding the 'success' of animal testing to predict a humans' response to drugs/prescription show that 90 to 95% of drugs that pass animal trial fail as the human clinical trial stage. It should be noted that the failure rate for drugs developed via animal testing for Alzheimer's cancer have a failure rate 99% and97% respectively.

There has never been a better time to eliminate animal testing.

The Centre for Humane Economy is supportive of FDA Modernization Act, (S. 2952 and H.R. 2565) currently being considered by the United States Congress. They provide the following information:

### *Alternative Methods Hold Promise*

*There are currently non-animal methods for testing skin irritation, eye irritation, phototoxicity, skin sensitization, reproductive and developmental toxicity, mutagenicity, and other endpoints. Innovation in the years ahead will almost certainly produce superior methods to animal testing in nearly all cases. The intent of the FDA Modernization Act is to open the door to the use of human-relevant test methods to improve the success rate in human clinical trials.*

*Here are some examples:*

### *A) Organs on Chips and Computer Modeling*

*In a recent study, researchers assessed the performance of 780 human Liver-Chips across a set of 27 known hepatotoxic and non-toxic drugs.* Importantly, *the study demonstrated* that the Emulate Liver-Chip was able to correctly identify 87 percent of the tested drugs that caused drug-induced liver injury in patients despite passing through animal testing. *At the same time, the Liver-Chip did not falsely flag any drugs as toxic, supporting its use in toxicology screening workflows.*

*The biotech company Quris uses Artificial Intelligence-powered miniaturized "patients-on-a-chip" to avoid the tremendous risks and costs of failed clinical trials and eliminate the reliance on ineffective animal testing.*

### *B) Disease-Specific Models*

***Cystic Fibrosis*** *- Microfluidic organ-on-a-chip preclinical models of the cystic fibrosis lung airway could help bring new and much-needed drugs, and personalized medicine approaches to patients. Studies using organs-on-a-chip models have been funded by the Cystic Fibrosis Foundation.*

***ALS*** *- Lab on a chip can make a major contribution as a biomimetic micro-physiological system in the treatment of neurodegenerative disorders such as ALS.*

***Alzheimer's Disease****- Preclinical stages of Alzheimer's disease (AD) and mild cognitive impairment have been modeled with a Human-On-A-Chip SYSTEM. To date, more than 100 potential therapeutics in development for AD have been abandoned or failed during clinical trials. These therapeutics relied on research conducted in preclinical animal studies, which often are unable to accurately capture the full spectrum of the human disease.*

***Parkinson's Disease****- Scientists have designed an "organ-on-a-chip" device that can grow the brain cells most affected in people with Parkinson's Disease. The Michael J. Fox Foundation has funded studies using organs on chips using the Lung-Chip device, to determine exactly how safe are specific Parkinson's drugs and to try to understand why they have a negative effect on the lungs.*

### *C) Cancer*

- *Organ-on-a-Chip technology allows researchers to recreate the human tumor microenvironment in vitro, enabling mechanistic studies of cancer cell behavior and drug efficacy and safety.*
- *Organ-Chips and Omics Advance Cancer Research – ground breaking research is being performed as a Cancer Grand Challenges research project, namely, STrOmal ReprograMming Cancer—or STORMing Cancer.*

### *D) SARS-CoV-2*

- *The Biomedical Advanced Research and Development Authority (BARDA) awarded Harvard's Wyss Institute funding to develop to study vaccine responses. "The ongoing COVID-19 pandemic has made clear the need for rapid vaccine development, and this can be hampered by the lack of animal models that faithfully replicate human vaccination responses," said Donald E. Ingber, M.D., Ph.D., Founding Director of the Wyss Institute for Biologically Inspired Engineering at Harvard University.*
- *The Chemical Biological Center at the U.S. Army Combat Capabilities Development Command (CCDC) is working to better understand how COVID-19 attacks lung cells using the Emulate Alveolus Lung-Chip that recreates human biological systems. "In the past, the closest researchers could get to something like this was by introducing a virus into animals and then dissecting them," according to Dan Angelini, Ph.D., a Center research biologist. "With this, there is no need for animals in performing toxicological research."*

In silico (or computer) modelling enables the simulation of behaviours on a computer screen that accurately simulate the developments of a disease and predicts the impact of compounds and

treatments. It provides a significant reduction in both timeliness and cost and can expand 'testing' beyond the usual baseline testing by simply adding additional scenarios and inputs.

Two animal experiments conducted in NSW should be withdrawn immediately due to animal welfare and poor scientific outcomes. The first is the Forced Inhalation Research Inhalation (conducted by the University of Newcastle and the Centennial Institute). This can be easily replaced by the use of lungon-a-chip and modelling.

The second is the forced swim test (conducted by Macquarie University and the University of Wollongong). The results of this test are so poor that an increasing number of pharmaceutical companies such as Pfizer and Johnson & Johnson, have ceased all funding and commissioning of the test.

Australians are a nation of animal lovers. Animal Medicines Australia reports in 'Pets and the Pandemic A social research snapshot of pets and people in the COVID-19 era', there is approximately 30.4 million pets in Australia. This equates to an ownership rate of 69% with dog ownership at 57% and cat owner ship at 30%. Australians would be horrified by the nature and number of painful tests being conducted, especially when the scientific data is to little or no relevance to development for human use.

There should be a maximum period that dogs and cats are subjected to testing before being able to be released to a loving home. There should also be a strong commitment and published timeframe to phase testing altogether.

Another issue is the use of primates. The issue of primate testing was highlighted by the escape of primates at the RPA in Sydney. I for one was appalled that this revealed that testing was in fact undertaken and was cloaked in secrecy in terms of the number and experiments conducted. Again, there are a plethora of alternative tests that produce more reliable findings for a fraction without the suffering and at a fraction of the price. Primate testing should be banned immediately.

The species and number of animals tested on, the cost of testing including funding, the results, the name of the testing laboratories, the numbers of animals bred and the death rate should be publically available information, published contemporaneously. Finally, there should be cameras in all testing facilities to ensure proper treatment of animals is ensured.

I thank you for the opportunity to provide comment.

Regards

Petra Jones