**Non-Human Primate Experimentation Briefing February 2023**

**Why the focus on primates?**

Non-human primates (hereafter primates) are genetically the closest living creatures to humans. Their sentient ability is thought to be very similar to ours, as primates have complex social interactions. In contrast, a laboratory setting is far removed from the natural habitat. The average laboratory cage of the rhesus macaque is 7 million- fold smaller than their natural home range (1).

HRA is opposed to all animal experimentation. **However, primate research is particularly contentious, presenting a clear ethical dilemma of using animals with high cognitive abilities, a long lifespan, and well-developed social structures as mere ‘tools for research’**. The animal welfare impacts associated with their advanced abilities are profound in a research setting, where they may associate previous negative experiences such as invasive procedures with future occurrences.

The use of great apes (chimpanzees, orangutans, bonobos and gorillas) for biomedical research is not permitted in Australia. **The special status granted to great apes on the grounds of moral reasoning should not exclude other primates from the same protection.**

The Australian public is concerned about the use of primates in research, with a 2018 opinion poll (2) revealing that 63% of those polled oppose the use of monkeys. In 2022, a petition calling for a ban on primate experimentation with over 100,000 signatures with tabled in the Australian Senate (3).

**Primate experimentation in Australia**

The most recent estimate of the number of primates used in research in Australia date back to 2018 at 277 (4).

The annual expenditure for animal experimentation using primates in Australia is unreported.

Macaques, marmosets and baboons are used in Australia– sourced from three government-funded, research-specific breeding colonies located within Australia. Since 2000, despite this “ready supply”, eleven permits have been granted to import primates into Australia for research, as there is no ban on the importation of primates for research**.**

A monkey sitting on a tree branch

Description automatically generated Macaque  Marmoset  Baboon

**Macaques and marmosets are commonly used for research in the fields of neurological, cognition, vision research or HIV research. Baboons are used for diabetes, pregnancy hypertension, cardiovascular disease and kidney disease research. The NHMRC has recently funded three grants involving some animal- to animal xenotransplantation, using baboons.**

Non-human primates have not been proposed for use in any COVID-19 research funded by NHMRC or the Medical Research Future Fund. The TGA has not received to date any applications for the registration of COVID-19 related medicines that have included data from primate studies undertaken in Australia.

All research conducted in Australia that is funded by the National Health and Medical Research Council (NHMRC) must comply with the [Australian Code for the Care and Use of Animals for Scientific Purposes](https://www.nhmrc.gov.au/about-us/publications/australian-code-care-and-use-animals-scientific-purposes). If the research involves the use of non-human primates, the [NHMRC Policy on the Care and Use of Non-Human Primates for Scientific Purposes](https://www.nhmrc.gov.au/about-us/publications/principles-and-guidelines-care-and-use-non-human-primates-scientific-purposes) also applies. According, primates must not be used for scientific purposes except when: i) no alternative to the use of non-human primates is suitable to achieve the stated aims of the project, and ii) the potential effects on the non-human primates are justified by the potential benefits. **Yet it doesn’t provide guidance on how to do this, so it’s up to researchers and local animal ethics committees to determine what procedures are justified.**

HRA affirms that the current system of self-regulation is ineffective. Without independent oversight nor reporting mechanisms in place, it is unfeasible to evaluate all the primate experimentation that is occurring. The [case studies](https://www.humaneresearch.org.au/casestudies/primates/) we have compiled, however, lead us to question that the cost-benefit assessments are adequate.

Additionally, we lack confidence in animal welfare assurances, given that Freedom of Information requests lodged by HRA have revealed that:

* A female macaque was found in a barrel outside dead in a pool of blood.
* A female macaque was found in her cage barely able to move. Staff attempted to recover her with fluids and warmth, but she died about 1.5 hours later.
* A female marmoset was found listless and bleeding from her bowel. After being treated and placed in a humidicrib she began gasping for breath and died.
* A male marmoset was found listless with shallow breathing and vomiting clear foamy liquid. The vet was called for treatment, but the marmoset died 30 minutes later.
* A female macaque aged 5.8 years was found on the floor unconscious and not breathing.
* A juvenile female macaque was found dead. An unexplained death but suspected she was subjected to extreme bullying by other macaques.
* A female Macaque, a failed breeder being assessed for a research project, failed to recover from anaesthesia.
* An aged female macaque used in obesity studies was found to be dead when placed on the surgery table.
* A male macaque died under anaesthesia due to human error.

These incidents occurred at Monash University’s National Non-Human Primate Breeding and Research Facility in Gippsland.

**Translation of primate research**

It has been argued that primate research is essential to advance human health. Indeed, this is a common assumption due to their close genetic relationship to humans. Yet, we are separated by 25 million years of evolution. There are major anatomical, genetic, dietetic, environmental, toxic, and immune differences**.** Additionally, laboratory condition impact on the brain and immune system, which effects the reliability of data(5). **Systematic reviews of primate research indicate that the perceived benefits to humans are overstated and that NHP models have provided disappointing contributions toward human medical advancements (6)**.

**For example, in the field of depression, primate studies were mainly cited by other papers on animal experimentation, which suggests they are mainly contributing to subsequent animal research rather than advances to human healthcare’ depressive research (7**). The results of this study suggest that studies based on in silico and in vitro approaches are taken into account by medical researchers more often than are NHP-based approaches. In addition, these human-based approaches are usually cheaper and less ethically contentious than NHP studies.

Primates are often used in HIV research but based on the primate version of the disease, simian immunodeficiency virus (SIV). This research does not equate to studying an illness in humans; but studying a different illness in primates. Because HIV and simian immunodeficiency virus (SIV) are closely related viruses, researchers study SIV as a way to learn more about HIV. In fact, SIV differs from the genetics of HIV by a staggering 50% (8). **This is illustrated by the failing of 100 different types of HIV vaccines tested in monkeys with positive results, none of which provided protection or therapeutic benefit in humans, due to major differences in SIV-infected macaques compared to HIV-infected humans (9).**

**Examples of misleading research using primates include (10)**

1. The campaign to prescribe hormone replacement therapy in women to prevent cardiovascular disease was based in large part on experiments in primates. HRT is now known to increase the risk of these diseases in women

2. The HIV vaccine gp120 failed in clinical trials, despite positive outcomes in chimpanzees. The failure was predictive by the fact gp120 failed to neutralise HIV grown and tested in cell culture.

3. Six human volunteers were injected with the immunomodulatory drug TGN 1412 after it was deemed safe in primates who underwent repeat-dose toxicity tests at 500 times the human dose. Within minutes of receiving the drug, all volunteers suffered severe reactions including organ failure.

**Non-animal research**

**Given the failure of primate research to translate to human conditions, human-relevant approaches are required.** Human cells and tissues can be used, as well as more sophisticated methods such as genetic engineering techniques and reconstituted human tissue models, 3D printing and 3D cell culture, human imaging, and computer aided technology.

The publication ‘Replacing Primates in Medical Research’ cited under additional resources provides a detailed analysis of the extent to which experiments on primates have been replaced by advanced non-animal alternatives. The report includes five case studies that demonstrate the need and potential for replacing non-human primates in medical research.

**What is HRA calling for?**

* The replacement of primate experiments with humane and scientifically-valid (non-animal) methods of research
* A ban on the importation of primates for research
* Establishment of a primate sanctuary for ex-laboratory animals. Such facilities exist internationally, such as the [Pacific Primate Sanctuary](https://sites.google.com/view/pacific-primate-sanctuary).

In the short term, the following measures are recommended to increase scrutiny of primate experimentation:

* Pre-registration of all primate research to avoid duplication
* Retrospective assessments of all primate research (to be made publically available)
* Increased funding for the development and validation of non-animal research methods
* Greater transparency and accountability from research institutes including publication of non-technical summaries of all animal research projects
* A nationally consistent and reliable procedure for reporting and publishing animal use in research and education annual statistics

**Additional materials:**

<https://www.humaneresearch.org.au/ban-primate-experiments/>

<https://www.humaneresearch.org.au/casestudies/primates/>

<https://www.podomatic.com/podcasts/humaneresearchaustralia/episodes/2021-02-22T22_11_56-08_00>

<https://www.humaneresearch.org.au/better-ways-to-do-research-an-overview-of-methods-and-technologies-that-can-replace-animals/>

<https://www.humaneresearch.org.au/primate-experiment-resources/>

Replacing Primates in Medical Research (2012) Dr Hadwen Trust / FRAME / St Andrew Animal Fund <https://faunalytics.org/wp-content/uploads/2015/05/Citation979.pdf>

Should we experiment on primates? University of Winchester (2021) https://youtu.be/Z8FmP7psINQ

<https://www.humaneresearch.org.au/primate-experiment-resources/>

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  3. www.change.org/p/the-hon-greg-hunt-mp-ban-primate-experiments
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