Moving away from the use of two species in toxicity testing

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About Cruelty Free International

The leading organization working solely to end animal testing worldwide.

Formerly known as:

British Union for the Abolition of Vivisection
1898-2015

Award-winning campaigning, political lobbying, pioneering undercover investigations, scientific & legal expertise

Working with governments, regulators, companies and partner organisations worldwide

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Cruelty Free EUROPE

ICAPO International Council on Animal Protection in OECD Programmes

ICAPPP pharmaceutical programmes

Drug testing – current paradigm

It is generally assumed that testing new pharmaceuticals on animals helps to ensure human safety and efficacy

Regulatory agencies worldwide require tests in at least two species – typically one rodent and one non-rodent species.

The expectation is that additional data from the non-rodent will detect adverse effects not detected by rodent tests. However, there is little evidence to support this.

Dogs and primates are used in significant numbers in science – we estimate that over 205,000 dogs and 150,000 primates are used worldwide each year*.

At least 50% of this use is likely to be as the non-rodent species in the evaluation of pharmaceutical safety and efficacy.

*Taylor & Rego Alvarez. (2019). An estimate of the number of animals used for scientific purposes worldwide in 2015. ATLA; 47 (5-6): 196-213

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Is the current paradigm working?

Currently 90% of drugs fail in human clinical trials despite extensive animal tests suggesting that these medicines were safe and effective.

Only a handful (approximately 20) of novel medicines are released onto the market every year and withdrawals and warnings of adverse effects commonly follow.

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Drug testing – our study

In 2013, Cruelty Free International began a ground-breaking analysis of the use of animals in drug safety testing. This has resulted in the publication of three peer-reviewed papers:

ATLA 41, 335–350, 2013 335

An Analysis of the Use of Dogs in Predicting Human Toxicology and Drug Safety

Jarrod Bailey,[1] Michelle Thew[1] and Michael Balls[2]

[1]British Union for the Abolition of Vivisection (BUAV), London, UK; [2]c/o Fund for the Replacement of Animals in Medical Experiments (FRAME), Nottingham, UK

ATLA 42, 181–199, 2014 181

An Analysis of the Use of Animal Models in Predicting Human Toxicology and Drug Safety

Jarrod Bailey,[1] Michelle Thew[1] and Michael Balls[2]

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ATLA 43, 393–403, 2015 393

Predicting Human Drug Toxicity and Safety via Animal Tests: Can *Any* One Species Predict Drug Toxicity in Any Other, and Do Monkeys Help?

Jarrod Bailey,[1] Michelle Thew[1] and Michael Balls[2]

[1]Cruelty Free International, London, UK; [2]c/o Fund for the Replacement of Animals in Medical Experiments (FRAME), Nottingham, UK

To download these papers, please visit:

http://www.crueltyfreeinternational.org/SciencePublications

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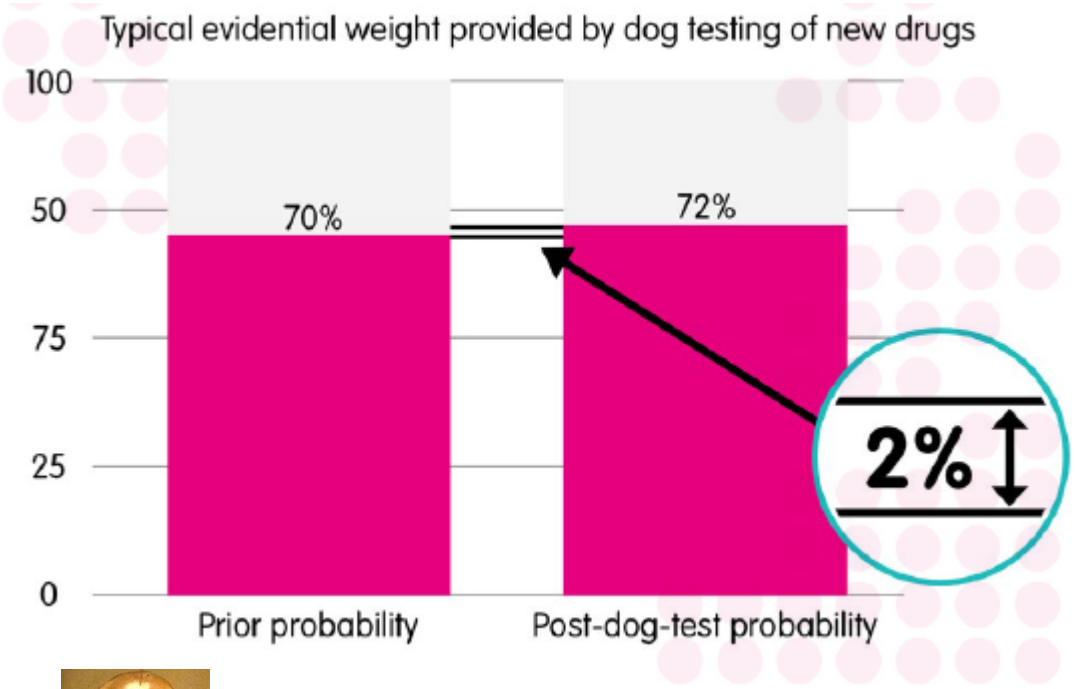
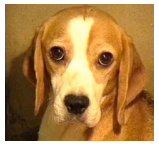
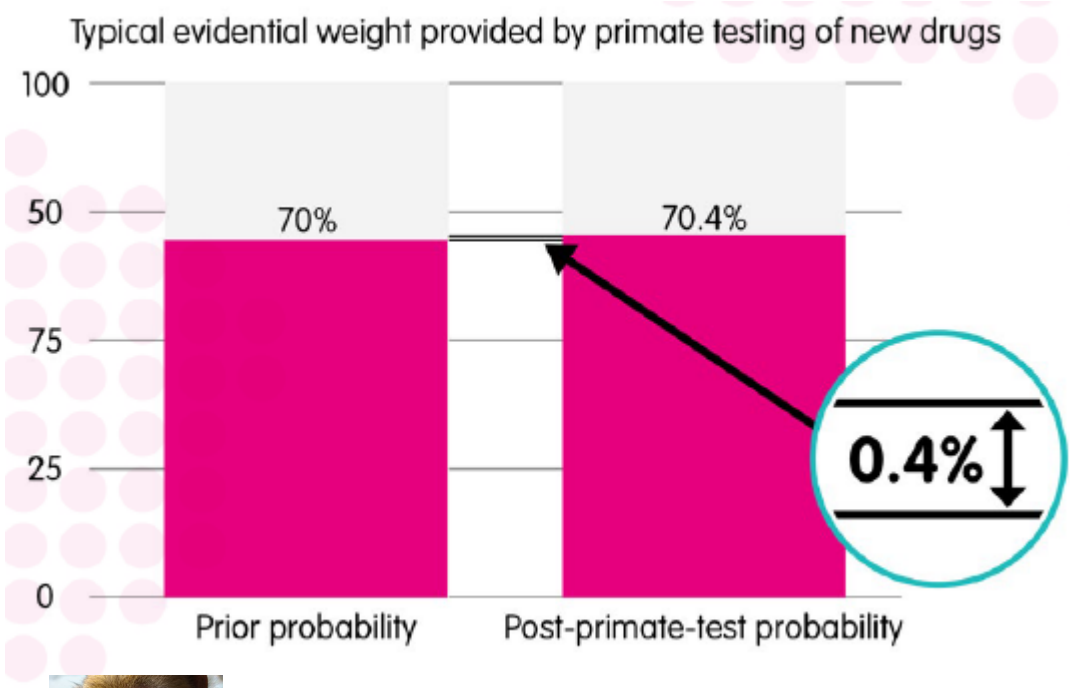
Summary of our findings

Using a second species in toxicity testing gives no additional insight into whether a new medicine is safe for humans.

Drug tests on monkeys – the ‘least different’ species to humans – are just as poor as those using any other species in predicting the effects on humans.







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NC3Rs study

In 2016, the UK National Centre for the Replacement, Refinement, and Reduction of Animals in Research (NC3Rs), announced a project with industry to look at the use of dogs and primates in drug testing. The report was finally published in March 2020.

ELSEVIER

Regulatory Toxicology and Pharmacology

Volume 113, June 2020, 104624

Opportunities for use of one species for longer-term toxicology testing during drug development: A cross-industry evaluation

Helen Prior [a], Paul Baldrick [b], Sonja Beken [c], Helen Booler [d], Nancy Bower [e], Paul Brooker [f], Paul Brown [g], Brian Burlinson [h], Leigh Ann Burns-Naas [i], Warren Casey [j], Melissa Chapman [k], David Clarke [l], Lolke de Haan [m], Olaf Doehr [n], Noel Downes [o], Meghan Flaherty [p], Nichola Gellatly [a], Sophia Gry Moesgaard [q] ... Ian Kimber [al]

The study's key finding, based on an evaluation of 172 drug candidates, was that two-thirds of drugs could have been progressed to human clinical trials using just one, instead of two, animal species in longer-term toxicity tests.

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Other important conclusions from the NC3Rs study

Some sponsors use two species to avoid regulatory risk and potential delays in development timelines.

Single species toxicity programmes could be considered more widely, without being detrimental to human safety.

A wider number of drug modalities could potentially reduce to a single species for longer-term post-FIH studies.

Where there was an absence of toxicities in one species but presence of toxicities in the other, the most-sensitive species could be the single species to progress.

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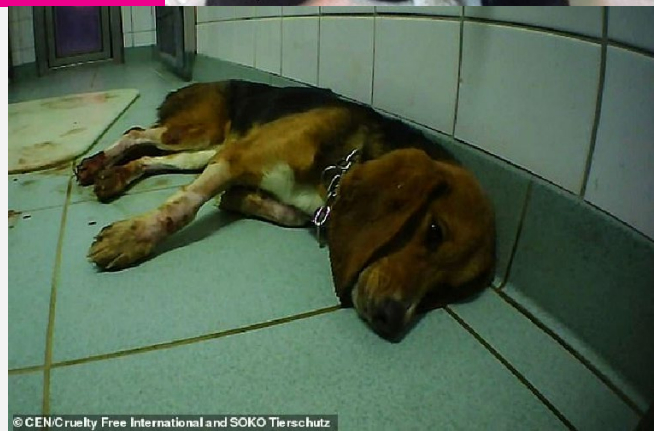
We call on regulators to take action

We have written to regulatory bodies all around the world to draw their attention to this report and urge them to take decisive action.

We believe, that with significant attention and resources, the use of a second animal species to test human pharmaceuticals can be phased out, leading to a substantial reduction in unnecessary animal suffering in the near future.



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