**UNIVERSITY OF BRISTOL**

The types of animal research carried out at the university range from:

1. Fundamental biology

Fundamental biological and medical research helps us to identify key physiological mechanisms that control how our bodies work, effect health and disease and that could lead to medical breakthroughs in the future

2. Veterinary

To identify and develop ways of assessing welfare in order to influence standards of care in farms and improve care of sick animals, such as developing better pain relief in pet dogs with arthritis.

3. Translational

To develop better treatments for sick people or animals, such as implanting and testing new medical devices in farm species.

The types of studies our animals may be involved in include blood tests, behavioural studies and imaging. Other studies might involve surgery to implant monitoring devices that measure changes in the body, or new medical devices that could help save human lives.

Animals used in research

In 2021, the University carried out 27,437 scientific procedures using animals in research regulated by the Animals (Scientific Procedures) Act 1986. The vast majority of these involved rodents (41.1%) and fish (57.2%)

| Species | Procedures | Percentage | Use |
| --- | --- | --- | --- |
| Mouse  Rat | 9679  1691 | 41.1% | Rodents play a vital role in helping us to answer a wide range of questions, including understanding fundamental aspects of our physiology, our genetic pathways and the mechanisms of disease that support the development of future medicines and treatments for both humans and animals. |
| Zebrafish | 15707 | 57,2% | Zebrafish allow us to model the effects of cardiovascular disease, cancer and osteoarthritis as well as to study the genetic changes that can contribute to these debilitating diseases. They are incredibly good at regenerating cells, tissues and organs, something that we cannot do. By studying how they are able to do this we hope to find better ways of treating people in the future |
| Bat\* | 215 | 0.8% | We study bats to assist with their conservation. Understanding their genetics could help us work out how we can protect them from the effects of global warming. |
| Pig  Sheep | 118  25 | 0.4%  0.1% | Pigs and sheep can help us develop new treatments and devices to benefit both human and animal health. Pigs are also used in studies of infectious disease to develop new vaccines for humans and better medicines for farm species in the future. |
| Guinea  Pig | 52 | 0.2% | Guinea pigs are used as a source of tissues for the study of aspects of physiology that are important for improving patient treatment. |
| Rabbit | 40 | 0.2% | Rabbits are the most suitable species for our researchers to study important aspects of cardiac physiology that are key to improving our understanding and in the long-term patient treatment. |

 \* These procedures involved either client owned or wild caught animals which were then released at the end of the study.

Understanding our zebrafish and mice numbers

In 2021, the breeding of genetically altered (GA) animals accounted for 93% of our scientific procedures using zebrafish and 57% using mice. Breeding of GA animals is regulated under UK law and is therefore counted like a scientific procedure.

* GA animals are important because specific changes in their genetic make-up enable researchers to discover and understand relationships between genes, physiology, and disease.
* Some of our research that benefits from the breeding of GA animals includes cancer, immunology, cardiology, osteoarthritis and human genetic disorders.
* Complex breeding cycles across multiple generations are essential to create these new GA animals before they can be used in a scientific study.

Procedures on zebrafish - Breeding 93%. Experimental 7%

Procedures on Mice - Breeding 57%. Experimental 43%

**Forced SwIm test**

What has also emerged over the last decade is that the forced swim test is a valid model to understand stress coping ([Commons](https://pubs.acs.org/doi/10.1021/acschemneuro.7b00042) et al., 2017). Stress is known to contribute to depression but also many other illnesses and so understanding the biology of stress can help in the treatment of stress-related illnesses. As we emerge from the global COVID-19 pandemic, this is likely to become an even more important research area.

Following concerns about the FST, project licence applications (PPLs) using this procedure were reviewed and planned research using this model was discussed at the Animal Services Unit Management Board. The Board concluded that current or planned research using the FST were appropriate and justified by the scientific objectives and the University would continue to support research projects which included this method for appropriate studies.

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