

Reducing animal testing through better knowledge sharing

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The Joint Research Centre (JRC), science and knowledge service of the European Commission, has carried out a study of available knowledge on the replacement, reduction and refinement (the 3Rs) of animal procedures used in research and testing to understand how supply of such knowledge can better meet demand. Findings show that although much 3Rs knowledge exists, its sharing can be improved through better coordination, communication and outreach, and by more emphasis on targeted education and training initiatives.

In 2015, the Commission identified four actions to accelerate the development and uptake of non-animal approaches, in response to the European Citizens' Initiative (ECI) "Stop Vivisection". The work undertaken in this study underpins the first action that set out to assess the current situation regarding the sharing of [knowledge](#) relevant to the 3Rs between various sectors and communities with a mind to accelerate the development and uptake of non-animal approaches in research and testing.

Inventory of knowledge sources

In order to map available knowledge, the JRC profiled over 800 knowledge sources relevant for the 3Rs and compiled them into an electronic inventory. The inventory covers different types of knowledge sources both explicit (e.g. websites, publications, databases, etc.) and more tacit (e.g. organisations, events, expert groups, etc.) and identifies

who they typically target and how they share their content. Such a structured inventory has also allowed a comprehensive meta-analysis of potential knowledge gaps and redundancies.

Public survey

The public survey aimed to elicit input from people working in areas related to the 3Rs to understand what knowledge sources they use, how they access them, and how they aid them in their activities to further the 3Rs. The wealth of information provided by the 351 survey respondents, a third of which replied on behalf of their organisations, has been invaluable to identify current practice, preferences and opportunities for enhancing knowledge sharing. Notably, many of the survey respondents stated that the available means of [knowledge exchange](#) are adequate, whilst two thirds stated that knowledge sources are lacking in their area.

Room for improvement

As described in the JRC report "Accelerating progress in the Replacement, Reduction and Refinement of [animal testing](#) through better knowledge sharing", although there are many 3Rs relevant knowledge sources available, their impact could be greater.

There needs to be better awareness and coordination between existing knowledge sources. In addition, much of the vast amount of relevant information needs to be better structured and curated. This could be achieved through the fostering of a network of leading knowledge providers.

The knowledge sources also need to have a greater outreach, to increase the beneficiaries of the knowledge and to bring about more dialogue across sectors and between different groups working with animals and

alternative methods.

Education and training opportunities relating to the 3Rs need to be increased and improved, extending across three levels of learning: professional, undergraduate and school-goers. Educators need more dedicated teaching resources and these should be freely available to them and their students.

What knowledge exists and how it can be best exploited can be better communicated to wider sections of potential users. And although there are many examples of good practice of knowledge exchange, in general people require more guidance and trust in the sources which are available.

Findings will feed strategies to accelerate uptake of 3Rs

The findings provide a strong evidence-base on which to formulate collaborative strategies to accelerate the uptake of the 3Rs and reduce the reliance on animal testing via enhanced [knowledge sharing](#). This is important since most focus and investment until now has been in knowledge generation (e.g. via research programmes) rather than in better exploitation of already existing knowledge.

The results of this study inform knowledge providers on how their knowledge can be shared more effectively to accelerate progress in the 3Rs, as well as knowledge-users on the many existing knowledge sources that they might not be familiar with but which could help them in their daily work.

This report also provides a strong basis for the formulation of further activities underpinning the actions in the Commission Communication in

response to the ECI, some of which may be supported as part of a one million euro EU pilot project adopted by the European Parliament which seeks to promote the use of alternatives to animal testing in the EU through information sharing and education activities.

Background

As defined in Commission Directive 2010/63/EU on the protection of animals used for scientific purposes, an animal 'procedure' means any use, invasive or non-invasive, of an animal for experimental or other scientific purposes, with known or unknown outcome, or educational purposes, which may cause the animal a level of pain, suffering, distress or lasting harm equivalent to, or higher than, that caused by the introduction of a needle in accordance with good veterinary practice.

The Three Rs concept is the requirement to Replace, Reduce and Refine the use of animals wherever possible (Russell and Burch 1959). The Three Rs are firmly anchored in all EU legislations.

The European Citizens' Initiative "Stop Vivisection" was signed by 1.17 million citizens and submitted to the European Commission in March 2015. It called for a new regulatory framework to replace Commission Directive 2010/63/EU and to phase out all use of animal experiments. The initiative also proposed that alternative methods with more relevance to the human species should replace the animal model and be a legal requirement. In its response to "Stop Vivisection", the European Commission emphasised that it shares the ultimate goal of complete replacement of the animal model, but explained that Commission Directive 2010/63/EU is still needed.

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