Update on the Swiss 3R Competence Centre: Executive Board's activities

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The Swiss 3R Competence Centre (3RCC) promotes the 3Rs principle (**r**eplacement, **r**eduction and **r**efinement of animal experimentation) in Switzerland and facilitates its implementation in the life sciences, with a focus on research, monitoring, communication and education.

The Centre promotes developments in 3R research and in the area of animal welfare through financial support for outstanding scientific projects. One of its primary goals is the development of a 3R education strategy, adapted to different educational levels and occupational categories. It offers a network and communication platform to provide stakeholders and interested parties with the latest information on the 3R principles and alternative methods to animal experimentation. The 3RCC also monitors progress achieved in implementation of the 3R principles and in the development of alternative methods in Switzerland.

The 3RCC Executive Board is made up of the 3R coordinators from the eleven member universities and affiliated university hospitals, participating universities of applied sciences, and representatives of the Swiss Animal Welfare Officer Network (AWON), Swiss Animal Facilities Network (SAFN) and the two largest providers of basic and further training courses on laboratory animal science in Switzerland (LTK-UZH, RESAL). In future, representatives of the research-based pharmaceutical industry will also participate in the 3RCC Executive Board.

The university 3R coordinators in particular ensure broad, interdisciplinary networking between the Centre and Swiss universities that conduct research. This network promotes cooperation on joint projects and is therefore essential to the practical implementation of new 3R approaches at universities, which is where the majority of animal experiments in Switzerland are carried out. It is important that universities in particular continue to engage with the 3R principle as they are responsible for educating the researchers and teachers of tomorrow.
The university 3R coordinators supply the 3RCC with relevant information on animal experiments, animal welfare and 3R initiatives at the universities and universities of applied sciences and support it in carrying out its monitoring mandate. They are actively involved in 3RCC projects, provide key expertise and in-kind contributions and thus enable implementation of the 3RCC projects. Another important role is the effective implementation of initiatives decided by the 3RCC and the dissemination of 3R-related information to universities and universities of applied sciences. In this talk, we will present a few selected examples of the work of the Executive Council.

Research

- Research projects: Some members of the Executive Board work on their own 3R research projects at their respective institutions. These research projects range from the development of replacement methods in the area of toxicology and drug development, the creation of mathematical models to optimise breeding plans for genetically modified animals (and therefore to reduce the number of laboratory animals), to improvement of husbandry conditions and pain management for laboratory animals.
- Advice for researchers: The 3R coordinators advise researchers at their universities on the use of 3R methods, the planning of 3R research projects and on applying for research funding from the 3RCC. In 2018, 54 funding applications were submitted to the 3RCC by Swiss universities and universities of applied sciences that conduct research. In 2019 that figure had already risen to 96.

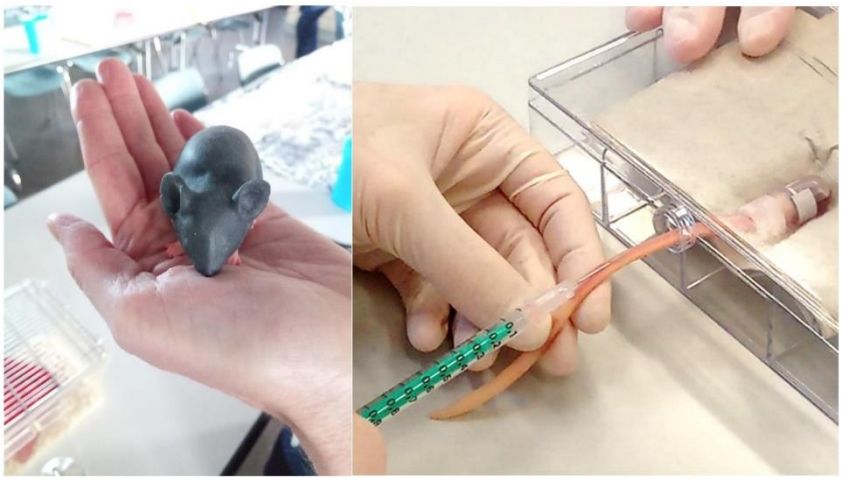
Communication

- Information material: Collaboration in translations of materials on 3R into Switzerland's official languages, such as the German translation and dissemination of the German and French NC3Rs posters on mouse handling methods (Image 1) and translation of the new ARRIVE guidelines into German and French. These translations mean that important resources to improve animal experiments through refinement and better reproducibility are now also available for researchers and animal keepers in two of Switzerland's official languages. The poster and guidelines are available free of charge from the 3RCC.

Image 1: English version of the mouse handling poster

- Information on animal experiments: The members of the Executive Board provide the 3RCC with the latest information on the use of animals at universities. One example of this work is the report on the use of animals in academic settings. The report describes the use of animals in education and training at Swiss member institutions and their replacement with alternative methods, such as simulators (Image 2) and webinars. The report is set to be published on the 3RCC website before the end of 2020.

Image 2: Simulator to learn routine procedures in laboratory animal science training (Mimicky Mouse).



(Source: Left: UZH. Right: UZH & FU Berlin)

Monitoring

- Information on 3R expertise: Monitoring of 3R research in Switzerland is a key task of the 3RCC. At the same time, one of the greatest challenges facing researchers is finding relevant information on 3R methods. This project therefore aims to collect research-related data on the expertise of individual research groups from all over Switzerland. For all relevant research fields (e.g. oncology, neurosciences), different competencies from basic and applied research are listed with details on procedures with animals, *in silico* and *in vitro* technologies and other, specific 3R-relevant expertise (e.g. training, biostatistics or ethics). Researchers who are developing new strategies or research projects, as well as trainees or other stakeholders will be able to use this public, searchable database in order to contact other groups that already have expertise in specific areas. The 3RCC will also use the database to monitor the status of 3R expertise in Switzerland. At present, there are more than 90 groups at a total of seven universities recorded in the database.

Education

- 3R content in bachelor's programmes: The promotion of 3R education and training in Switzerland is another core task of the 3RCC. The project aims to develop a Switzerland-wide training programme on the 3R principle (replacement, reduction and refinement) at bachelor's level as part of the core programmes in life sciences, medicine, veterinary medicine, environmental and agricultural sciences, pharmacy and other relevant fields if necessary, and to make it available to the relevant institutions. Recommendations on the content and scope of a special 3R course at bachelor's level were already drawn up in 2019 and distributed to all Swiss higher education institutions that conduct research. An Executive Board project group is continually developing freely-accessible teaching materials for university professors in collaboration with the Directorate. A bibliography is also being compiled on the various topics. Since the 3RCC was set up, a total of five new courses focussing on 3R methods have been introduced for bachelor's students at member universities.

- 3R training courses: To train animal handlers and keepers, the Executive Board organises courses on new refinement methods in English, German and French at four different universities. The courses aim to promote the implementation of modern refinement methods, such as tunnel handling (Image 3) at higher education institutions in Switzerland.

Image 3: Course participants learn correct and gentle handling of laboratory animals (here: tunnel handling with mice).

(Source: LTK/ETHZ)