Swiss 3R Competence Centre

3RCC Annual Report Activities and Achievements

2022

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Table of Contents

President's Report		**4**
Executive Summary		**5**
1.	**Swiss 3R Competence Centre: Who We Are**	**6**
1.1.	Organization	7
1.2.	Vision, Mission and Strategy	8
1.3.	Finances and Funding	10
1.3.1.	Funding	10
1.3.2.	Budget Allocation and Expenses 2022	11
2.	**Communication**	**12**
2.1.	Visibility	13
2.2.	Networking	15
2.3.	Featuring the Swiss 3Rs Day Congress	17
3.	**3RCC Projects and Initiatives**	**19**
3.1.	Changing Mindsets by …	20
3.2.	Building Good 3Rs Practice by …	21
3.3.	Building Networks for Science by …	21
3.4.	Featured Achievements in 2022	22
4.	**Research Funding Scheme and Funded Projects**	**24**
4.1.	Funding Scheme 2021–2024	25
4.2.	Achievements in 2022	26
4.3.	Ongoing Projects and Outlook 2023	27
4.4.	Funding Calls – Schedule 2023–2024	29
5.	**Monitoring 3Rs Advancement within the 3RCC HEI Members**	**30**
5.1.	3Rs Advancement in Research	32
5.2.	Spotlight on 3Rs Advancement in Research	34
5.3.	3Rs Advancements in Education	35
5.4.	3Rs Advancements in Communication	35
5.5.	Spotlight on a 3Rs Communication Initiative	36
Table of Abbreviations		**37**
3RCC's Board and Directorate Composition in 2022		**38**

President's Report

It is with pleasure that we present the 2022 Annual Report of the Swiss 3R Competence Centre (3RCC). This report highlights the remarkable progress made by the Centre in the past year towards its vision of driving 3Rs advancement for improved animal welfare and better science in Switzerland. It is with great honour that I take over the presidency and recognise the significant efforts made by my predecessor, Katharina Riklin, in supporting the 3RCC through the Centre's formative period. I would also like to acknowledge the confidence 3RCC's members have placed in me to champion the interests of the 3Rs. With my long-standing experience in communication and insight into life sciences, I'm excited to support the organization in its future development.

The past year represented a leap forward in the Centre's work in fostering innovative research, facilitating knowledge exchange, and promoting the implementation of the 3Rs in animal research with the launch of three new grants that opens further opportunities for researchers and 3Rs implementers to advance their practice. The Centre also expanded its activities in education and communication, with various training events for professionals, that attracted several hundred attendees in total, as well as outreach to teachers and school children featuring renowned international experts and prominent articles on the 3Rs. This report showcases some of these achievements and provides insights into the ongoing efforts to promote the multifaceted aspects of 3Rs research and implementation.

The 3RCC is committed to fostering collaboration between academia, industry, regulatory bodies and animal welfare organisations to promote the implementation of the 3Rs. This report provides an overview of the Centre's efforts in creating partnerships and networks, with both national efforts, such as the Swiss Transparency Agreement on Animal Research, and international networks, such as the European Cooperation in Science and Technology (COST) Action funding with the aim of creating a research network with 27 other European 3Rs organizations. The 3RCC continues to fund high-quality 3Rs research, develop education and training measures with and for its stakeholders, and monitor the positive outcomes that have been achieved within its HEI (Higher Education Institutes).

Looking forward, we recognise the importance of continuing to advocate for the implementation of the 3Rs in animal research. The 3RCC remains committed to promoting scientific progress while minimising the use of animals and ensuring the highest standards of animal welfare. We are proud to present this report as a testament to the dedication, hard work, and collaboration of the Centre's members and stakeholders.

I would like to express my sincere appreciation to all the members of the 3RCC for their outstanding contributions and commitment to this important cause. I hope that this report inspires continued support and engagement from all our stakeholders as we work together to drive the advancement of the 3Rs in Switzerland.

Simone de Montmollin
3RCC President

Executive Summary

The 3RCC promotes the 3Rs principle of replace, reduce, and refine animal experimentation in Switzerland through research, education, monitoring, and communication. It works closely with universities, industry, authorities, and animal welfare organizations. The four mandated service areas of the 3RCC are **research, education** and training, **communication** and networking, and **monitoring.**

The 2021–2024 **Funding Scheme** includes research funding opportunities for **Targeted 3Rs Research Projects** and a **3Rs Doctoral Programme,** to a total value of CHF 4.7 Mio. over the four years. In 2021, the first Targeted Call project was launched, aiming to replace one specific high-severity degree model. The 2022 Targeted Call, aiming to fund projects that will put 3Rs methods into effective practice, is under evaluation. The four projects and PhD candidates that will form part of the first round of the 3RCC's Doctoral Programme were chosen in late 2022 and research will commence in early 2023.

Further to this, 2022 marked an important milestone in the 3RCC provisions for funding, addressing the strategic objective of **advancing 3Rs implementation,** the Centre now provide **other funding for applied research on implementation** of refinement methods (Refinement Grant), **Knowledge Transfer,** and promotion of **open sharing of 3Rs knowledge** to a total value of CHF 0.376 Mio. over the full period. 2022 was the year that both the Knowledge Transfer and the Refinement Grants were launched, with a scheduled start in early 2023.

The education and training mandate involves collaboration with members to map existing educational activities and develop training and education based on the needs. Together with members, the 3RCC provided **accredited, continued professional training** in three different events for **over 300 participants.**

In 2022, the 3RCC engaged in a **public outreach** effort in the form of a table discussion of 3Rs experts, laying out the limitations and opportunities of replacing animals to a lay audience ahead of the popular vote on banning human and animal experimentation. Another public outreach activity of the Centre in 2022 was the **Introducing 3Rs to Young Minds,** which not only entailed broad successful collaboration across Europe and Switzerland, but also a first pilot for how to approach the 3Rs in a young audience.

The 3RCC furthermore continued to build on its national and international **network** by joining the Swiss Transparency Agreement on Animal Research, as well as through regular meetings with peer organizations. The 3RCC collaborated with five other 3Rs Centres to **elaborate a joint CPE** with a symposium series on the Culture of Care scheduled for 2023. The Centre also contributed to the successful **European Cooperation in Science and Technology (COST) Action initiative IMPROVE** that is funded to establish a network, which will work to refine, harmonize and promote 3Rs concepts, data and documents, in order to improve the quality of biomedical science. Last but not least, the **3Rs Day Congress** was finally back after the two-year break due to the pandemic. A spotlight on this follows below.

The 3RCC achieved a significant milestone in 2022 in monitoring progress and advancement of 3Rs implementation in member institutes. The Centre now utilises in-kind contribution metrics to track success indicators through 3Rs investments and advancement across its HEI members. The trends of reported 3Rs investments are shown under section 7 of this report.

We move into 2023 with a comprehensive program of activities complementary to our strategic framework and are looking forward to continue serving our members with attractive funding opportunities, progressive 3Rs training and dissemination of topical 3Rs content.

1

Swiss 3R Competence Centre: Who we are

1.1. Organization

The Swiss 3R Competence Centre is a non-profit scientific centre of national importance that promotes the replacement, reduction and refinement of animal experimentation in Switzerland, namely the 3Rs principle, and facilitate its implementation in life sciences. The 3RCC focuses on research, education, monitoring and communication. The 3RCC is as a joint initiative of academia, industry, regulators, government and an animal welfare organisation and its members constitutes:

- Eleven universities and higher education institutions from Switzerland;
- The Swiss association of research-based pharmaceutical companies (Interpharma);
- The Swiss Federal Food Safety and Veterinary Office (FSVO); and
- The Swiss Animal Protection (SAP) organisation.

1.2. Vision, Mission and Strategy

Vision – The 3RCC drives the advancement of the 3Rs Principle in Switzerland through activities that improve welfare for animals in research and that promote better science. The 3RCC envisions a new era in which replacement, reduction and refinement are consistently implemented to minimize the use of animals and the harm imposed on them, thereby promoting scientifically valid and ethically responsible research. The Centre aspires to be the leading source for information on the 3Rs in all its implementation areas.

Mission – Effective implementation of the 3Rs depends on the **recognition** of its utility and **knowledge** in how to translate theory into action. Knowledge should inspire the scientific community to achieve more for improved animal welfare and better science. Providing 3Rs knowledge to the public increases transparency on how methods are implemented and how this impacts animal welfare. Furthermore, to realize the full potential in application of the 3Rs Principle, there is a need to continuously challenge the status quo of the rapidly changing research landscape and to pursue the implementation of effective 3Rs methods wherever possible. Additionally, where science is pushing the boundaries for the possibilities in replacing the use of animals, the 3RCC will catalyse this innovation and its application to the benefit of 3Rs advancement.

Values – The 3RCC will tackle its mission in a **proactive** manner, committed to effectively addressing gaps in knowledge and to anticipate and respond to trends that influence animal use. The broad stakeholder representation requires an inclusive and respectful discourse that always seeks **collaborative** solutions across different fields and views. The Centre seeks to build trust through a **transparent** working manner, but also to promote transparency in research involving animals, through efficient monitoring and communication. **Compassion** is intrinsic to the 3Rs principles and a reference frame for 3RCC's working manner, which is rooted in a scientific perspective and strictly follows **evidence-based** practice.

To achieve the full potential of the 3Rs Principle, the direction of the 3RCC is driven by three complementary strategic goals:

1 **Changing Mindsets –** altering attitudes and behaviors through information, education, and targeted research funding.

2 **Good 3Rs Practice –** improving implementation, animal welfare, and scientific quality through responsibility, reliability, and transparency.

3 **Networks for science –** expanding the organization's reach and impact by connecting researchers, facilitating outreach, and promoting communication with communities.

Spanning both the strategic goals and mandates of the Centre are seven key areas of activity, underpinned by 37 individual objectives. These objectives set a broad range on the scope of the Centre and cover a time frame of four to eight years. A number of these objectives were identified as high priority and form the basis of the 2021–2024 implementation plan.

Strategic framework

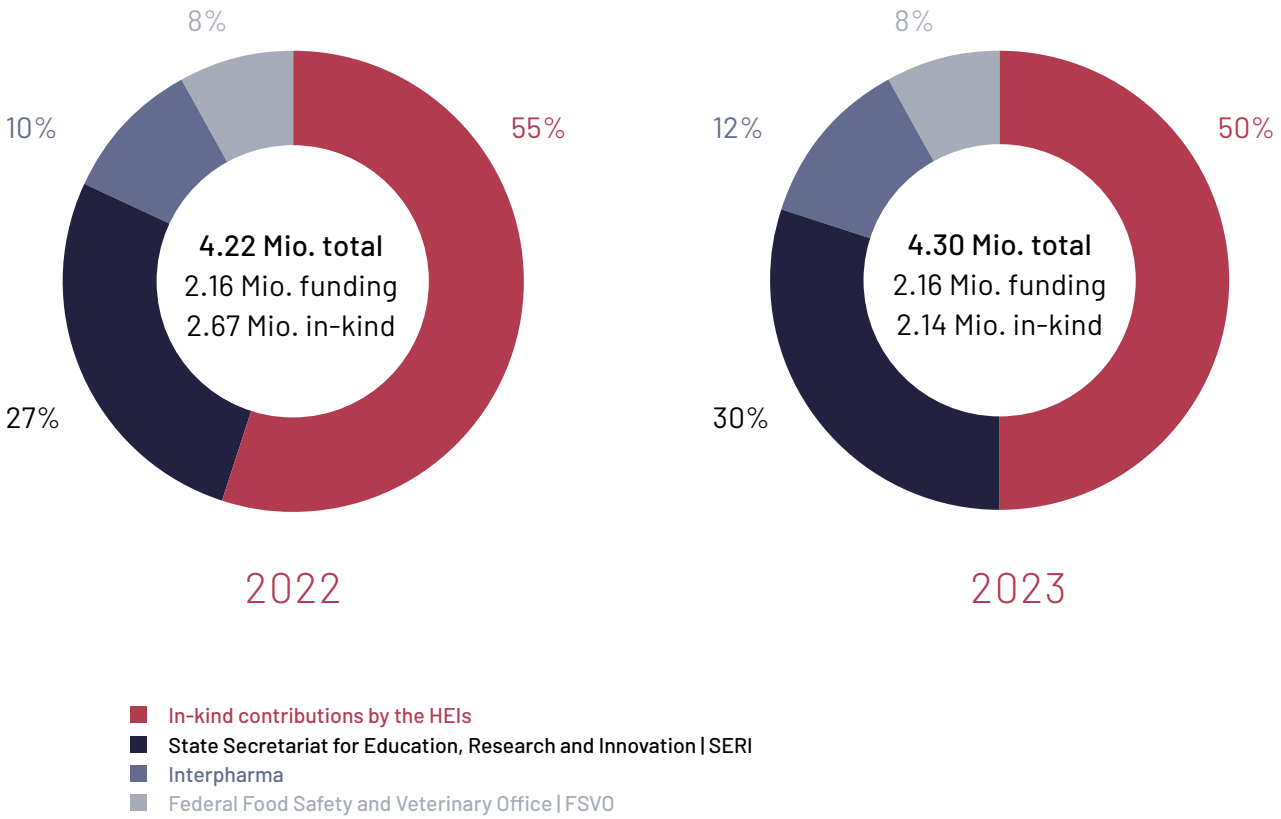
1.3. Finances and Funding

1.3.1. Funding

The 3RCC benefits from the direct financial support of SERI, FSVO and Interpharma. In addition, 3RCC's HEI members contribute to the 3RCC activities with in-kind contributions in the form of services or other investments to advance the 3Rs implementation within the member institutions (the so-called Nodes).

Annual funding of the 3RCC in 2022 totalled CHF 4.83 Mio., CHF 2.16 Mio. of operating income and CHF 2.67 Mio. of in-kind contributions by the member organisations. Consistent with the funding agreements under the current period 2021–2024, federal and sponsor funding remains constant. In-kind contributions (actual and forecast) vary and are reported by the member institutions to the 3RCC on an annual basis.

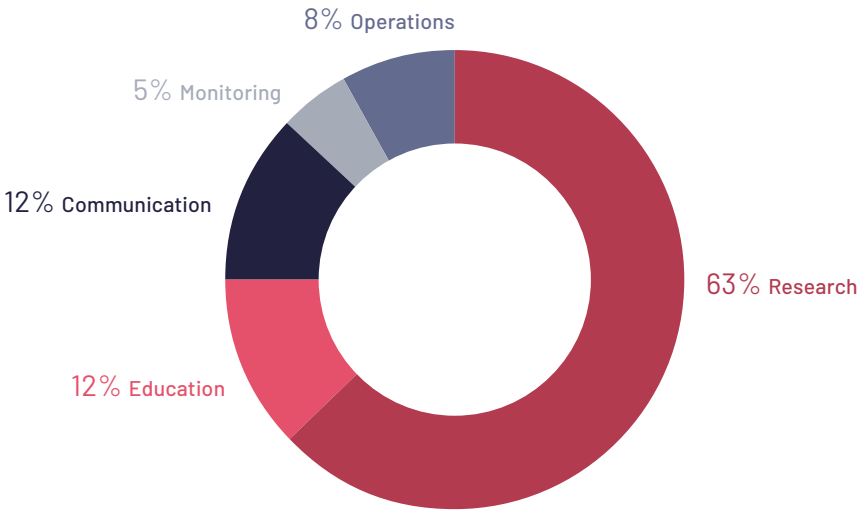
3RCC's funding and in-kind support in 2022 and projection for 2023



1.3.2. Budget Allocation and Expenses 2022

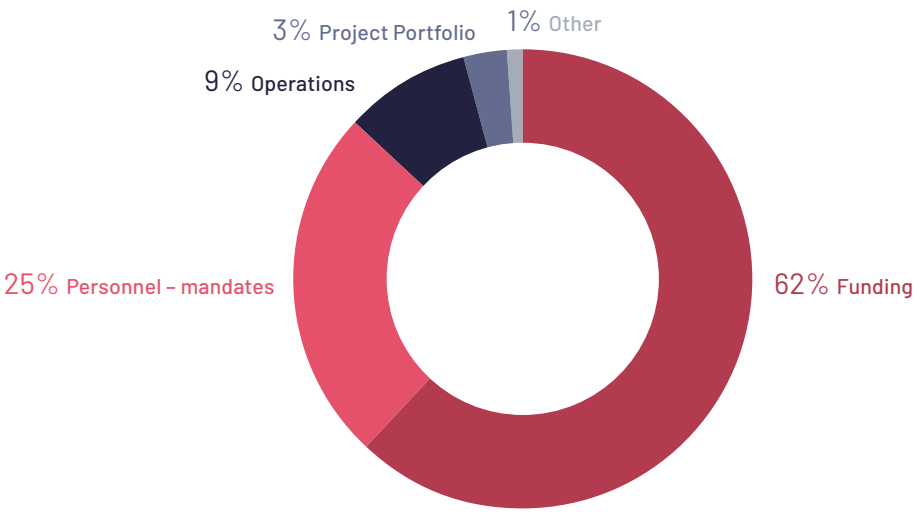
Under the 2021–2024 performance agreements, the resource distribution across the four mandated strategic service areas are allocated 63%, 12%, 12%, and 5% for research, education, communication and monitoring respectively. The operative costs of the Centre account for 9% of the budget.

Funding allocation across the four strategic service mandates



In 2022, 61.4% of total expenses (CHF 1.260 Mio.) were allocated to funding in the form of a targeted call and several smaller grants. Personnel costs servicing the four strategic mandates of research, communication, education and monitoring were 25%, while operative costs were 8.9% of total expenses.

Expenditures



2

Communication

2.1. Visibility

The 3RCC's website keeps up to date on 3RCC news, funding and events. It serves as an educational platform, offering information on the 3Rs and access to related resources and awards. It also provides information on 3RCC funded projects, working groups, education and training and reports.

On **social media,** the 3RCC actively follows and promotes 3R-related funding, events, publications and relevant information and news via Twitter and LinkedIn. Twitter followers increased by more than 400 followers in 2022. The LinkedIn followers doubled in 2022, to 361 followers.

The 3RCC also hosts a **YouTube channel,** where educational and informative videos about the application of the 3Rs principle and animal research are featured. Recipients of 3RCC awards are interviewed on their research for short videos, which are featured on YouTube as well as disseminated on our website and social media. The 3RCC YouTube channel had 17 subscribers in 2022.

A **newsletter** was sent to subscribers in March and September of 2022 informing on funding calls, events, changes in the directorate.

The 3RCC actively participates in open days to the **public** such as the "Research Night" at the University of Bern (10. September, 2022) and has organised a public panel discussion on current 3R-related issues as well as given several interviews (see below).

The annual **Swiss 3Rs Day Conference** organised by the 3RCC highlights 3R-related research and innovation being done in Switzerland and the world, bringing professionals together to foster discussions and networking and honour the 3RCC's 3Rs award and 3Rs Young Investigator award recipients. The outcome of the 3Rs Day is featured below.

In 2022, the **Culture of Care (CoC) Award** was also awarded for the first time to recognize an individual or a group of people for their accomplishment to promote and implement a good Culture of Care within a research institution that uses animals for research. The award for contribution to the CoC in 2022 was presented to Dr. Julie Parchet-Piccand from EPFL for her project on improving the knowledge of experimental licenses and research projects for animal caretakers. The annual 3R award and Young Investigator Award winners for 2022 will be announced in 2023.

Dr. Julie Parchet-Piccand and Dr. Paulin Jirkof

Interviews given by the 3RCC in 2022

16 | 31.1.2022 | VOTATION

Vers une science sans cobayes?

Le 13 février, les Suisses diront s'ils souhaitent **interdire l'expérimentation animale**. *Mais la médecine humaine et vétérinaire peut-elle vraiment s'affranchir totalement de cette pratique controversée?*

Texte: Christine Wenk

Que dit la loi en Suisse?

La législation suisse en matière d'expérimentation animale est l'une des plus strictes du monde. Toute recherche utilisant des animaux est conduite dans le cadre imposé par la loi fédérale sur la protection des animaux (LPA) et sous le contrôle des autorités cantonales et fédérales. Les chercheurs sont tenus de réduire à un minimum le nombre d'expériences et de contraintes infligées aux animaux. En outre, les méthodes de substitution doivent être utilisées quand cela est possible. Cette approche responsable de l'expérimentation animale se base sur une norme internationale qu'on appelle le principe des 3R (Remplacer, Réduire, Raffiner).

Quelles méthodes de substitution à l'expérimentation animale sont développées actuellement?

De nombreux modèles de remplacement sont actuellement utilisés dans tous les domaines de recherche en Suisse: les modèles informatiques (in silico), les cultures cellulaires (in vitro), qui vont de la simple culture de cellules à des modèles plus sophistiqués, comme les organoïdes (*lire ci-contre*), ou les organes sur puce qui permettent d'étudier des processus plus complexes semblables à ceux des organes, et le remplacement de vertébrés par des espèces ne nécessitant pas de permis d'expérimentation (comme des insectes). Ces types de modèles ont tous une certaine capacité à modéliser certains mécanismes d'une maladie ou l'effet d'une substance sur le corps, et ils sont souvent utilisés de manière complémentaire.

Existe-t-il des modèles alternatifs humains?

Les organoïdes. Il s'agit d'organes artificiels en miniature (poumons, cerveau, foie, etc.) cultivés en laboratoire à partir de cellules prélevées sur des humains présentant des maladies spécifiques. Plusieurs sociétés de biotechnologie en Suisse travaillent sur cette approche. À Genève, Epithelix développe des modèles de tissus humains in vitro pour tester l'efficacité ou l'innocuité de médicaments soignant les maladies respiratoires (asthme, BPCO, mucoviscidose, infections bactériennes ou virales comme le Covid-19 par exemple). Également à Genève, la société Neurir SA s'applique à recréer du tissu cérébral humain, sous forme de mini-cerveaux, poussant par la suite servir de base de tests à des médicaments. «L'expérimentation animale a ses limites: il arrive souvent que des médicaments testés sur des souris n'aient pas le même effet sur les humains, d'où l'intérêt de nos recherches», expose Marianna Silvano et Mathieu Nigolle, scientifiques chez Neurir SA, qui développent des outils permettant de minimiser l'utilisation des animaux de laboratoire.

VOTATION | 31.1.2022 | 17

Par quelles espèces les mammifères peuvent-ils être remplacés en laboratoire?

Par la mouche du vinaigre, la fourmi, le poisson-zèbre et le poisson killi. «Plus de 60% des gènes responsables des maladies héréditaires chez l'homme se retrouvent dans la mouche et les poissons», relève Claudia Bagni, professeure à la Faculté de biologie et de médecine de l'Université de Lausanne (UNIL). «Ces animaux nous aident à élaborer des stratégies thérapeutiques pour les humains, par exemple pour l'autisme, la maladie d'Alzheimer, et même pour les cancers», détaille-t-elle. En outre, les mouches du vinaigre et les fourmis sont fondamentales pour étudier les interactions sociales et le vieillissement chez l'homme. «L'utilisation de grands animaux tels que les veaux, lapins, porcs et moutons a largement diminué, de même que l'utilisation de rats. Mais je tiens à souligner que l'UNIL et la Faculté de biologie et de médecine s'engagent fortement à veiller au bien-être de ces animaux et à l'améliorer», ajoute la scientifique.

Peut-on se passer de tests sur les animaux grâce à ces méthodes alternatives?

Pour un nouveau médicament ou un nouveau traitement, les effets spécifiques dans un tissu peuvent, dans une certaine mesure, être étudiés in vitro. «Par exemple, les nouveaux traitements contre le Covid-19 sont initialement étudiés in vitro sur des cellules en culture. Cependant, les effets du traitement doivent être évalués dans un organisme entier, d'abord sur des animaux, puis chez l'homme», explique Jenny Sandström, directrice du Centre de compétence suisse 3R (3RCC) à Berne, qui vise à promouvoir les méthodes de substitution à l'expérimentation animale. Précisément, les effets de tout médicament dépendent d'interactions systémiques complexes dans l'organisme, comme la quantité de médicament absorbée, la quantité qui atteint le tissu ou l'organe cible, les effets secondaires indésirables potentiels, etc. «Ces processus sont trop complexes pour être modélisés dans un ordinateur ou in vitro», conclut Jenny Sandström.

Depuis 2015, l'utilisation d'animaux d'expérience a diminué de près de **18%**, selon un rapport de l'Office fédéral de la sécurité alimentaire et des affaires vétérinaires (OSAV). En 2020, **556 107 animaux** ont été utilisés dans des expériences, contre **572 069** l'année précédente, ce qui correspond à une diminution de **2,8%**.

Existe-t-il un domaine de la recherche où l'expérimentation animale est interdite?

Aucune expérimentation animale n'a lieu aujourd'hui en Suisse pour les cosmétiques. Mais cela ne veut pas dire pour autant que les tests sur animaux sont interdits dans ce domaine. «Les expériences relatives aux cosmétiques ne sont certes pas expressément interdites en Suisse, mais elles pourraient ne pas être autorisées, car la passé des intérêts montre que la contrainte subie par les animaux dans le cadre d'une expérience sur les cosmétiques est toujours plus importante que le bénéfice pour l'homme», explique Karoline Arn, porte-parole de l'Office fédéral de la sécurité alimentaire et des affaires vétérinaires. À noter aussi que l'importation de produits cosmétiques de l'étranger est en principe autorisée, même si ils ont été testés sur des animaux.

«Episode #7»,
Altertox Academy Podcast in EN and FR.
24/01/2022.

«Contro la sperimentazione animale e umana – Focus sulla prima iniziativa sottoposta al popolo per le votazioni federali del prossimo 13 febbraio»,
Radio Svizzera Italiana, 21/05/2022.

2.2. Networking

Cross-European 3Rs Centre collaboration on education

The Swiss 3RCC has again collaborated with the UK (NC3R), Danish, Dutch, Swedish 3Rs Centres and Charité 3R Germany to develop the third symposium series offering continuing education of a specific topic of 3Rs, this time focused on the culture of care. The series is scheduled for June 2023 and the new feature is that interpretation to German will be offered in addition to English.

In addition to this, the 3RCC collaborated with the NC3Rs to translate one of their Tech3Rs newsletters from English to French and German in December 2022. The Tech3Rs is a regular newsletter from the NC3Rs providing animal technicians with updates on recent advances in the 3Rs and highlighting new resources, research and events that the NC3Rs think will be of interest to animal technicians. The newsletter is available in the 3RCC website in German and French and printed versions will be distributed to the 13 animal facilities in Switzerland. These translations will also be shared with the EU 3R centres for their distribution in Germany, France and Italy.

EU3Rnet and COST Action IMPROVE

EU3Rnet, a network of 3Rs organizations in Europe, was created in 2021 via a collaborative proposal for a COST Action, which offers funding for European research and innovation networks. This particular network CA21139 - 3Rs concepts to improve the quality of biomedical science (IMPROVE) was launched in 2022 and is dedicated to promoting the 3Rs and includes several working groups focused on training, implementation, and information dissemination over the next four years. Thirty-two countries from Europe are participating. Since its inception, the 3RCC contributed with two articles describing the union of 3R centers across Europe, and will contribute to specific educational work packages.

- Neuhaus et al. The Rise of Three Rs Centres and Platforms in Europe. Altern Lab Anim. 2022 Mar;50(2):90–120.
- Neuhaus et al. The Current Status and Work of Three Rs Centres and Platforms in Europe. Altern Lab Anim. 2022 Nov;50(6):381–413.

NA3RC Board of Directors and Finance Committee

In support of the strategic area of building and enabling collaborations and in the spirit of sharing expertise, information and knowledge between international 3Rs centres, the Swiss 3RCC has two sitting members on the Finance Committee and Board of Directors of the NA3RC North America.

NRP79 collaboration

The 3RCC is represented on the NRP79 "Advancing 3R – Research, Animals and Society" Steering Committee as a non-voting member. The Directorate furthermore has regular exchange, in particular with regards to communication education, with the NRP79 programme management and knowledge transfer partners. Joint activites are planned for 2023, particularly on the side of conferences and meetings for the scientific audience.

Norecopa mandate

Efforts to improve monitoring and reporting on animal use is core to the 3RCC and in 2022 a mandate project with Norecopa to develop an extended analysis and linked tool for the Norwegian experimental animal statistics. The report and online tool produced leverage the details on purposes severities and species which had not been made publicly available previously. This project has allowed the 3RCC insight on EU reporting standards and the outcome is at the forefront of monitoring and statistical reporting efforts in Europe in the context of the expansion of the ALURES database. In addition to the programing scripts for analysis and infographics of animal use data acquired by the 3RCC during the project, the strengthened collaboration with a 3R institution provides a valuable opportunity to share experiences in monitoring in another European country.

Reporting In Vitro Experiments Responsibly (RIVER) Working Group

The proper documentation of in vitro experiments holds significant importance for various reasons. These experiments have a direct effect on the use of animals, as they often utilize animal-based reagents or can lead to animal experiments in the future. Additionally, in vitro models offer a valuable replacement option for certain animal studies. Despite this, there are currently no global standards for reporting on in vitro experiments. To address this issue, 3RCC joined the group of experts led by the NC3Rs with the aim to create a concise set of reporting guidelines for in vitro experiments. These guidelines are expected to be released in 2023.

Swiss Transparency Agreement on Animal Research (STAAR)

In 2022, the 3RCC became signatories of the **Swiss Transparency Agreement on Animal Research (STAAR)**, which aim to improve communication and transparency regarding the use of animals in research. STAAR includes both public and private organizations that conduct, support and/or fund animal experiments, and institutions that breed and provide animals. The 3RCC contributes to the STAAR's working group and its yearly surveys.

2.3. Featuring the Swiss 3Rs Day Congress

Fully booked with 150 participants.

13 speakers (11 from academia and 3 from industry/pharma).

After two years pause due to Covid-related issues, the **3Rs Day** was finally back in full motion. The congress featured three sessions covering aspects of **3Rs implementation in practice, innovation and research**, as well as a full session dedicated to the 2020 and 2021 3Rs, and Young 3Rs Investigator awardees. The filled venue was, among other topics, presented **refinement strategies for zebra fish experiments** by Lynne Sneddon (University of Gothenburg, Sweden), **true home-cage monitoring technologies**, by Raphael Doenlen (EPFL, Switzerland), as well a lecture on **embryo freezing reduction strategies** in use of transgenic mouse models for developmental biology research by Guillaume Audrey (University of Geneva, Switzerland). Three speakers from biotechnology- and pharmaceutical industry presented advancements in **the newest technologies in alternatives to animal testing** with advancements in multi-organoid, organotypic and microphysiological human cell-derived models for drug discovery and translational pharmacology (Remi Villenave, F. Hoffmann-La Roche Ltd, Switzerland; Volker Lauschke, KI, Sweden; and Gregory Segala, Fluosphera SA, Switzerland).

In addition, the small laboratory animal rehoming programme in collaboration with Swiss Animal Protection and University of Zürich and EPFL was featured, giving inspiration to the 3RCC stakeholders to develop this at their organization.

Our distinguished awardees of 2020 and 2021 presented their fascinating work that span multiple aspects of 3Rs implementation. Have a look at their interviews, where they describe their work on our website: Video Release

3R Award Winner 2020
Prof. Ronald Dijkman

3R Award Winner 2021
Dr. Bernhard Voelkl

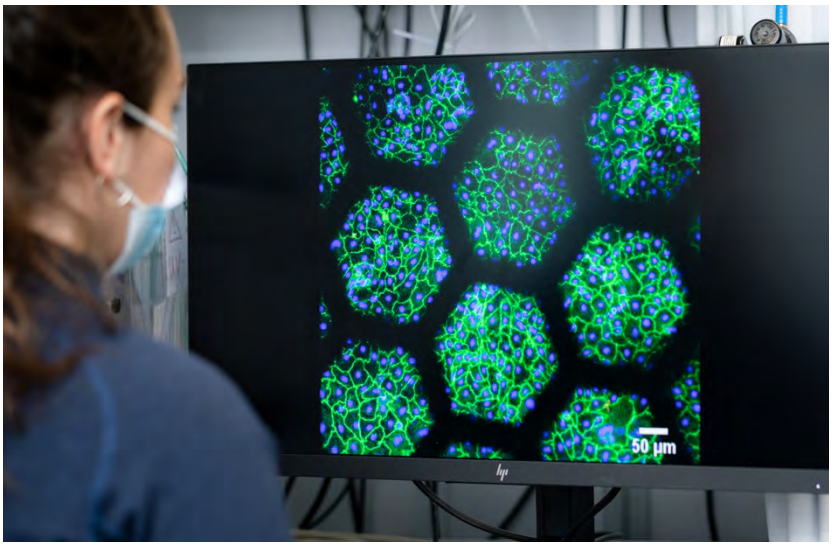
Young Investigator
Award Winner 2020
Dr. Joseph Scarborough
represented by Prof. Urs Meyer

Young Investigator
Award Winner 2021
Dr. Pauline Zamprogno

Poster prize – The jury of 3Rs experts acknowledged the innovative work of Adrian Roux from HES-SO Geneva on an in vitro model to replace in vivo traumatic brain injury rodent models. The jury recognized the importance in developing performant replacements of these high-severity degree animal models to advance knowledge on traumatic brain injury without using animals.

The venue at Hotel Kreuz

Poster prize winner, Prof. Adrian Roux



Looking over Dr. Pauline Zamprogno's shoulder

3

3RCC Projects and Initiatives

In alignment with the strategic goals of the Centre, this section describes the internally driven projects conducted by the Swiss 3RCC in collaboration with its Member Institutes.

3.1. Changing Mindsets by ...

Project	Mandate	Aim	Achievements
Inform the broader public and decision-makers on the 3Rs			
3Rs Panel Discussion		To strengthen the awareness of the 3Rs principle and increase visibility of progress in 3Rs implementation, explain opportunities and limitations of alternative methods to a lay audience. Online panel discussion in DE and FR	Over 100 participants. 8 public media journalists present (e.g., SRF, Swissinfo, CH Media) Video recording released on the 3RCC YouTube channel.
Public Outreach Measures		To inform and engage the public on 3R related topics	3RCC presence at the University of Bern Nacht der Forschung. Two posters presented in German.
Frontiers Young Minds		To increase awareness of the 3Rs in young minds through lectures, labs and a critical review of lay articles	Online teaching seminar. 3 lay articles – The articles have been clicked on 85,000 times. A promotional video, with 13,000 views
Project Videos		To highlight the research of awardees in short videos for dissemination on youtube and social media	Four videos released on the 3RCC YouTube channel
3Rs Day 2022		To highlight 3R-related research and innovation being done in Switzerland and the world and foster insightful discussions and networking on 3R topics	Fully booked with 150 participants. 13 Speakers (11 from academia and 2 from industry/pharma) 87 CPE Certificates issued
Animals in Education Update		Investigate the use of animals in higher education using text mining on licenses from cantonal authorities	Data sharing process established with FSVO. Identification of key fields and patterns in licence approval for education uses
Improve animal welfare and animal research quality			
Multi centre tunnel handling		To better understand the barriers in the implementation of tunnel handling in Swiss animal facilities	An executive board approved recommendation based on semi-structured interviews of Swiss facilities and survey of animal technicians
Convince the scientific community of the benefits of 3Rs implementation			
3Rs Center Webinar – CoC		To increase awareness on the most recent advancement on 3Rs	Organization of a lunch seminar series (4 sessions) on culture of care scheduled in June 2023
Educate on 3Rs across all academic levels (BSc, MSc, PhD)			
Integration of 3Rs Courses		To promote the education related to 3Rs in all Swiss HEIs across all educational levels	A new PhD elective course on 3Rs at UniGe with lectures open to local scientists (near 100 researchers attending)
Disseminate scientific 3Rs progress (research output)			
Frontiers Research Topic		To provide a comprehensive overview on 3Rs research into a e-book that could serve as a reference for future research	31 published articles, 5 in review, 3 rejected. Pending: final publication of these articles and editorial scheduled to Q3 2023

communications project educations project Monitoring projects ongoing project completed project

3.2. Building Good 3Rs Practise by ...

Project	Mandate	Aim	Achievements
Convince the scientific community of the benefits of 3Rs implementation			
Refinement Workshops		To implement theoretical or practical refinement workshops on 3 burdening techniques for scientists working with animals	Two workshops in 2022: • on-site training in good practice of rodent surgery • 22 participants (full) • online and on-site workshop on refinement of neurosurgery, 210 CPE certificates issued.
Promote advancement and implementation of reduction and refinement methods			
Tech 3Rs Newsletter		Promotion of a culture of care environment within animal facilities through the editing, translation and distribution of the NC3Rs newsletter, aimed at informing animal technicians abou thte latest advancements in the 3Rs	Two translated newsletters (French and German) of the latest Tech3Rs newsletters distributed in Swiss animal facilities
Promote advancement and implementation of reduction and refinement methods			
Refinement SOPs		To advance best practises on animal procedures by establishing SOPs for refinement and reduction procedures in rodents	Currently used (and committee accepted) exemplar SOPs collected from various member organisations. SOP on blood collection sampling standardised. Further standardised SOPs and general template in progress
Improve animal welfare and animal research quality			
Tunnel handling videos		To provide two videos tailored to a lay audience and scientific audience to introduce tunnel handling, its benefits and practical tips that can help individuals when practising it	Two videos released on the 3RCC YouTube channel, over 700 views

3.3. Building Networks for Science by...

Project	Mandate	Aim	Achievements
Monitor 3Rs research competences in Switzerland			
Map of Competences		To facilitate skill sharing between research groups, trainers and stakeholders through the creation of an online searchable database of the 3Rs related skills and expertise of individual research groups within Switzerland. This database has a dual purpose of monitoring 3Rs competencies in Switzerland.	Database has been created. Terms for use and release is being clarified.
Build a 3Rs PhD Network			
Early Career Researcher Network		To set up a network of young scientists interested in 3Rs, to promote exchange and collaborations	Early career researchers funded by the 3RCC, the NRP79 and other funders were invited to a kick-off meeting scheduled in Q2 of 2023.

communications project educations project Monitoring projects ongoing project completed project

3.4. Featured Achievements in 2022

Introducing the 3Rs to Young Minds

Status: Completed | October 2021 – September 2022
Goal: Changing Mindsets **Mandate:**

With a rising political debate on animal experimentation, the 3RCC aimed to increase awareness of the 3Rs in a younger audience. For this, the 3RCC teamed up with several partners from the University of Lausanne, the journal Frontiers Young Minds, and AlterTox Academy and the EPFL to run an outreach event for three middle-school classes from the International School of Lausanne. The event featured lectures by two international, and one Swiss 3Rs experts on the 3Rs principle, interactive labs, games and critical review of lay articles produced by the speakers themselves. Read more about the project here.

1

Online teach-the-teacher workshop by the European Commission Joint Research Commission, EU SchoolNet, University of Lausanne and the 3RCC **26 participants – 18 from EU, 6 from Switzerland and 1 from Canada**

2

Outreach event for three school classes of 11-12-year olds **Positive feedback from teachers and pupils.**

3

Three articles by two international-, and one Swiss 3Rs experts. **Total views 85k**

- Hartung T (2022) Replacing Animal Testing: How and When? Front. Young Minds. 10:959496. **23k clicks**
- Tremoleda J (2022) Reducing the Number of Research Animals: How Imaging Technologies Can Help. Front. Young Minds. 10:953662. **22k clicks**
- Jirkof P (2022) Refining Research to Improve the Lives of Laboratory Mice. Front. Young Minds. 10:954413. **26k clicks**

4

Promotional video **German, French and Italian translations available 13k views on YouTube, Twitter and Facebook**

Workshop on Good Surgical Practice for Rodent Surgery

22 participants 1 Day Continuing Education Accreditation.
Status: Completed | September 27, 2022
GOAL: Good 3Rs practice **Mandate:**

Surgery is an integral part of many experimental studies using mice or rats. Minimally invasive and aseptic surgical technique are prerequisites to achieve surgical success and animal welfare outcomes. Additionally, good surgical practice not only improves the animal's post-operative recovery, but also the outcome and validity of a study by eliminating factors causing bias and increased variability.

Implementation of the diverse aspects of good surgical practice in rodent surgery is challenging due to the (micro)surgical setting and limited assistance. Further considerations such as batch surgeries or the use of genetically modified or immunocompromised animals are taken into account.

This one-day course taking place at the University of Zurich, Irchel Campus, aimed to provide step by step guidance on the key principles of good surgical practice and how to implement them into surgical routines. Diverse techniques were introduced and demonstrated – followed by hands-on training at different skill-stations.

Workshops in 2023

February 27
Supportive Care Measures (online)

May 15
Supportive Care Measures 2 (online)

July 14
Tunnel Handling (on-site UZH)

July 20
Industry Standards of Animal Welfare (online)

September 18
Good Practice for Rodent Surgery 2 (on-site USI)

Planned – December
Good Practice for Rodent Surgery 3 (on-site UniGe)
More information

4

Research Funding Scheme and Funded Projects

4.1. Funding Scheme 2021–2024

The Funding Scheme of the 3RCC has been diversified in this funding period, to include not only **research funding,** but also **other funding opportunities** to advance the 3Rs. The descriptions of the different grants are in the table below.

3Rs Doctorate Programme (once / funding period) CHF 1'120'000	Changing mindsets remains a key strategy of the 3RCC, and a critical component to the implementation of the 3Rs. Encouraging 3Rs themes in the next generation of scientists, whether they continue in academia or move to a career in industry, is an integral path to long-term change in the 3Rs landscape. Maximum of CHF 70'000.- per year for a possible 4-year PhD candidature.
Targeted Calls CHF 3'680'000	The primary funding scheme directed at the best 3Rs projects based on scientific quality and 3Rs impact. The specific remits of the call are re-evaluated on an annual basis to ensure that the most critical topics of the time are targeted. In the 2022 call the maximum suggested budget was CHF 460'000.- to ensure that at least two projects could be funded.
Knowledge Transfer CHF 100'000	One of the hurdles to the implementation of established 3Rs approaches is the practical issues of establishing a new method or approach. Providing resources for educating and transferring knowledge between labs will facilitate implementation. Maximum of CHF 10'000.- per project.
Refinement Grant CHF 256'396	This grant fills an important gap in funding ongoing research and implementation activities within for instance animal facilities or boosts 3Rs research activities conducted within other research projects. A suggested maximum of CHF 20'000.- per project, but more could be allocated, if justified.
Open 3Rs Science CHF 20'000	This grant supports open access as well as increasing the visibility of 3Rs research, supporting efforts in communication of successful 3Rs research outcomes to attract attention of a scientific audience and fund targeted communication initiatives for the public. Maximum of CHF 5'000.- per project.
Total 2021–2024 CHF 5.18 Mio.	

4.2. Achievements in 2022

Publications and other output of the 3RCC funded projects in 2022.

Selected scientific publications

Marks, M., Qiuhan, J., Sturman, O., von Ziegler, L., Kollmorgen, S., von der Behrens, W., Mante, V., Bohacek, J., & Yanik, M. F. (2022). Deep-learning based identification, tracking, pose estimation, and behavior classification of interacting primates and mice in complex environments. Nature machine intelligence, 4(4), 331–340.
Read more

von Ziegler, L.M., Floriou-Servou, A., Waag, R. et al. Multiomic profiling of the acute stress response in the mouse hippocampus. Nat Commun 13, 1824 (2022).
Read more

Chrisnandy, A., Blondel, D., Rezakhani, S. et al. Synthetic dynamic hydrogels promote degradation-independent in vitro organogenesis. Nat. Mater. 21, 479–487 (2022).
Read more

LeSavage, B.L., Suhar, R.A., Broguiere, N. et al. Next-generation cancer organoids. Nat. Mater. 21, 143–159 (2022).
Read more

Feregrino, C., & Tschopp, P. (2022). Assessing evolutionary and developmental transcriptome dynamics in homologous cell types. Developmental dynamics: an official publication of the American Association of Anatomists, 251(9), 1472–1489.
Read more

For more interesting publications on our funded research projects, please visit our website

4.3. Ongoing Projects and Outlook 2023

Between 2018 and 2020, the 3RCC used its Open Call funding programme to provide support for a range of research projects covering all aspects of the 3Rs principle. These projects aimed to advance 3Rs research in fields like oncology, neurology, and infectious diseases, where animal use is common. The Open Call scheme funded 15 projects, providing CHF 3.86 Mio. in total funding. In 2021, the first two projects of the Open Call funding were completed and in 2022, a further two were completed.

Overview of funded research projects – Further information on our website

Project Info	2019	2020	2021	2022	2023	2024
✓ OC-2018-04 Lütolf - EPFL	Recombinant laminin-like proteins for organoid cultures free of animal-derived basement membrane extract					
✓ OC-2018-06 Vallee - UniGe	3D heart models for cardiac surgery training			June-22		
OC-2018-03 Bugnon - UZH	Breeding management software for genetically modified rodents					
✓ OC-2018-05 Tschopp - UniBas	A CRISPR/Cas9-screening platform to decipher conserved cell fate specification networks in vivo				Apr.-23	
OC-2018-01 Schirmer - EAWAG	Nutritional requirements of fish cell lines – development of a serum-free culture medium (L-15Plus).			May-22		
OC-2018-02 Seebeck - UZH	Rodents have a right for best surgical practice					Dec.-23
OC-2019-003 Kruithof - UniBe			Development of a platform for GU cancer patient-derived organoids		Aug.-23	
OC-2019-009 Bohacek - ETHZ			BEHAVE: A toolkit for deep-behavior profiling of laboratory rodents		Aug.-23	
OC-2019-019 Albrecht - UniBe			Engineering a novel cell-based model for assessing materno-fetal drug transfer during pregnancy		May-23	
OC-2019-025 Guenat - UniBe			IPF-on-Chip: Replacing the bleomycin induced lung injury and fibrosis model with lung-on-chip technology			Feb.-24
OC-2020-002 Rust - UZH				Experimental toolkit to evaluate cell-based therapies in the mouse brain		
OC-2020-003 Smidt - UniBe				Reducing the need for lethal health monitoring in trout	June-23	
OC-2020-004 Würbel - UniBe				Best practice guidance for including sex as a biological variable in animal research		June-24
OC-2020-011 Little - UZH				Identifying new regulators of cell invasion in colorectal cancer using the Drosophila adult intestine	Aug.-23	
OC-2020-015 Laugeray - Unil				Refining intracerebral administration of drugs with sonoporation-activated microbubbles		May-24

Projects funded under the 2018 call Projects funded under the 2019 call Projects funded under the 2020 call

✓ completed

Starting in 2021, the 3RCC introduced its Targeted Calls (TC), which focus on a specific 3Rs area each year. The first project funded under the Targeted Call was launched in quarter four of 2022 and aimed to develop an integrated 3Rs-alternative approach for one high-severity animal model. The 2022 Targeted Call aimed to fund projects that take measures to putting 3Rs methods into effective practice. The evaluation of the 2022 full proposals began in March 2023 and the external and Scientific Advisory Board review is scheduled to be completed in June 2023, with an announcement sometime in the third quarter.

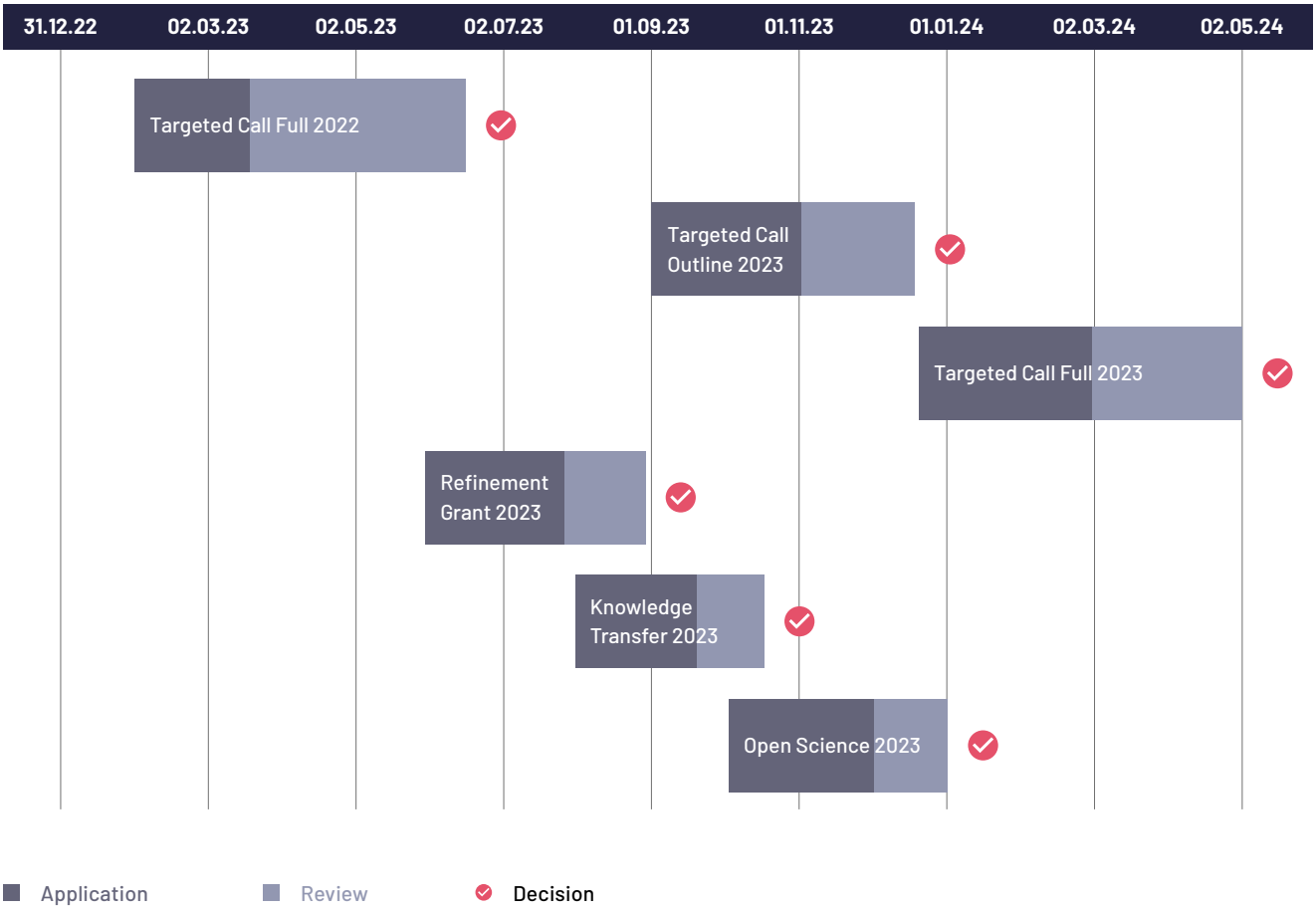
Funded Project overview 2021–2024 – Further information on our website

Project Info	2022	2023	2024	2025	2026
TC-2021-008 Buch - UZH	Preventing the use of pregnant horses to produce PMSG by using immortalized chorionic girdle cells for the hormone production				
DP-2022-001 Taggi - UniBas	Establishment and validation of a human in vitro model to investigate uptake transport at the Blood-Brain Barrier.				
DP-2022-003 Dalessi - UZH	Cre-Rux – improving mouse well-being with a refined approach for in vivo genetic manipulation				
DP-2022-005 Mendieta - UZH	AI-Predict: Artificial intelligence-mediated drug synergy prediction and validation in patient-derived ex vivo tumor organoid models				
DP-2022-007 Vidimova - UniL	Molecular and Cellular characterization of developing Fragile X Synapses in human assembloids				
RG-2022-001 Weisskopf - UZH	Need and efficacy of pre-operative fasting in Sheep				
RG-2022-003 Weber - UZH	Refined automated assessment of anhedonia, motivation and attention in mice				
RG-2022-005 Casoni . UniBe	Intraoperative nociception in animals: time to address and manage efficaciously the issue				
RG-2022-010 Sturman - ETHZ	Automation, Optimisation and Dissemination of the Mouse Grimace Scale				
RG-2022-012 Gantenbein - UZH	3D-printed mouse tail models for intravenous injection training				

Targeted Call (TC) 3Rs Doctoral Programme (DP) Refinement Grants (RG)

4.4. Funding Calls – Schedule 2023–2024

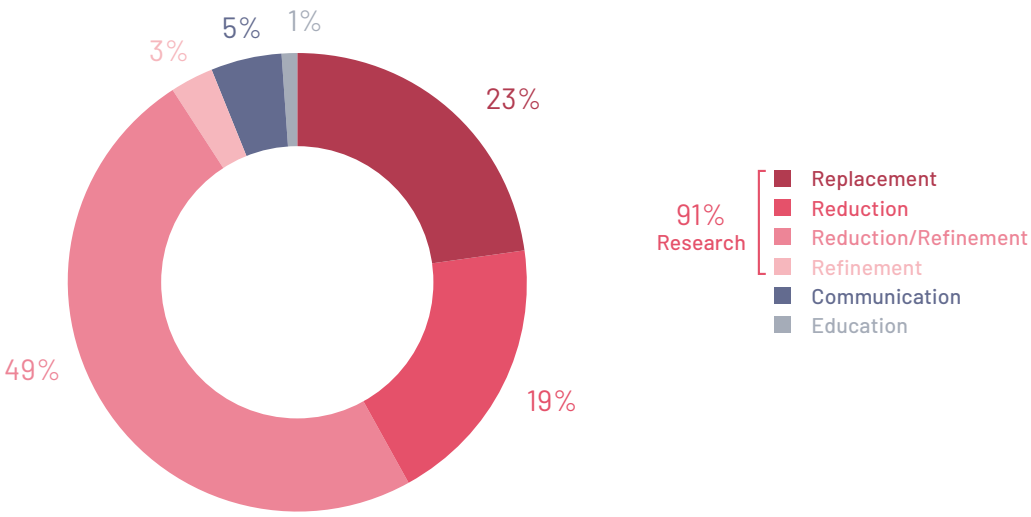
The 3RCC will provide funding for a further two Targeted Research Projects with targeted calls scheduled in Q3 of 2023 and 2024. One further call for the Refinement Grant, as well as the Knowledge Transfer Grant is scheduled in 2023. And 2023 will be the first-time announcement of the Open 3Rs Science Grant. The timelines for application, evaluation and estimate timepoint for decisions of the respective calls can be seen in the schedule below.



5

Monitoring 3Rs Advancement within the 3RCC HEI Members

Since 2021, the 3RCC's HEI members report on their 3Rs investments as part of their in-kind contributions to the 3RCC. These investments contribute to the 3RCC's vision and mission and enables the 3RCC to monitor 3Rs implementation in the Swiss academic landscape. Investments range from infrastructural items, that in most cases link to 3Rs impact on research, to education and communication investments to further the 3Rs within the 3RCC's partner institutions. The chart below shows the total value of the reported investments in 2022 and the mandate areas of the 3RCC that this supports.



Most of the reported investments, 91%, support the advancement of 3Rs implementation in research within the Nodes and is measured through investments in items supporting replacement, reduction- and reduction/refinement, and refinement. Replacement and reduction- and reduction/refinement primarily constitute infrastructure investments, or investments in programmes or services. Investments in refinement accounts for animal facility related measures, like improvements in infrastructure, material or other initiatives having a direct impact on animal welfare.

Investments in education, training and communication primarily account for salaries of staff engaging in various types of initiatives that aim to inform and educate primarily researchers, but also reach out to a broader public in communication on animal use in science and its alternatives.

The tables below, in section 7.1, 7.3 and 7.4, gives a description of the types of items that are being reported and the impact and importance these have for advancing 3Rs implementation across the service mandate areas.

5.1. 3Rs Advancement in Research

3Rs impact through investments in

Research	Examples	Justification
Replacement		
Altervative in vivo model platform	Drosophila Platform	Investments in platforms offering in vivo alternatives to mammalian models is considered of importance to advance the 3Rs in research in reducing and replacing higher life forms.
In silico tools	Data-sharing infrastructure with experimental data for simulation driven research	In specific scenarios may have a high capacity to reduce animal use. Further development of in silico tools may in the future have a greater potential in replacing and reducing animal use.
In vitro culture platform	Organoid Platform Tissue Engineering & Bioprinting Cell Physiology and Cell-Engineering laboratory	It is legally required to explore alternatives to animal use, therefore investments of this kind will stimulate the advancement in replacing animal experiments.
Xeno-free product platform	Recombinant anti body production service facility	Many animal-derived products are used in research and this is considered an ethical problem, as well as of 3Rs relevance. Therefore, investments in platforms offering alternatives to such products are of high relevance to advancing the 3Rs.
Reduction		
Animal Management Improvements	Animal management software extension	Generally various management software is used to control and oversee animal colonies. Investments in extensions to such software that enables more stringent control of specific aspects (e.g., severity degree) may be considered of medium importance to reduction and refinement.
Bio-sharing programme	Animatch tissue sharing programme	Various approaches developed for sharing both whole animals and tissue with the purpose of reducing animal use is in theory of central value to the 3Rs, however, its practical implementation has hitherto proven more difficult. Nonetheless, investments of this kind may play a more central role in the future and should be encouraged.
Biobanking	Digital Biobanking	Currently of lower 3Rs relevance in its capacity to replace or reduce, however a future potential for impacting the 3Rs is seen.
Bioinformatics & biostatistics services	Bioinformatics platforms Statistics consultation for experimental planning	Rigorous experimental planning is central to reducing animals used in experiments and improvements on informatic tools may equally contribute to reduction. Such investments are considered of high relevance and impact.
Cryopreservation	Transgenic Core Facility Cryopreservation Services	The problematic around surplus animals is well known and acknowledged as a 3Rs issue. Cryopreservation is one strategy to reduce surplus and considered of relevance to reduction efforts.
Health & Hygiene monitoring & improvements	Interceptor System Reduction in use of live sentinels	Hygiene monitoring protects animals against infections and thus assures an important aspect of animal welfare. Investments in sophisticated systems that even replace the use of animals in this process has a direct impact on 3Rs advancement.

Research	Examples	Justification
Reduction/Refinement		
Animal Management Improvements	Animal management software extension	Generally various management software is used to control and oversee animal colonies. Investments in extensions to such software that enables more stringent control of specific aspects (e.g. severity degree) may be considered of medium importance to reduction and refinement.
Non-compliance monitoring	Internal Assessment of Animal Welfare Notifications	Non-compliance monitoring goes beyond the legal requirements and may optimisation of "time to effective measures" for reduction of burden with regards to individual animal welfare incidences in experiments, considered a medium impact measure for improving animal welfare.
Physiological measurements	Phenotyping Platforms	Various kinds of technologies and approaches can be used to better monitor the animal's status and ensure animal welfare as well as reduction measures.
Imaging	In vivo imaging facility Imaging Centre Imaging and Microscopy Investments	Various non-invasive in-vivo imaging techniques offer a direct measure to reduce and refine animal procedures in research. Investments in such services is considered of direct and high impact for 3Rs implementation.
Refinement		
Enrichment investments	Running wheels Crinkle nest material	Enrichment allows animals to demonstrate their species-typical behaviour, gives them opportunity to exercise control or choice over their environment and enhances their well-being. Enrichment is essential to advancing the 3Rs and has a direct impact on animal welfare.
Handling material investment	Handling tunnels	Improving animal handling with investments in gentle handling approaches has a direct impact on animal welfare.
Housing Investments	Large cages Partition walls	Improving animal housing with investments in enrichment and larger cages has a direct impact on animal welfare.
Surgery & Euthanasia Improvements	Euthanasia improvement for reduced stress	Technical and methodological improvements in surgery and euthanasia are of great 3Rs relevance and high impact on reduction and refinement.

5.2. Spotlight on 3Rs Advancement in Research

iPS Core facility – advancing replacement in research

Stem cells, particularly induced pluripotent stem cells (iPSC), are a promising tool in biomedical research and may offer venues for reducing and replacing animal models. The UZH Induced Pluripotent Cells Core Facility provides hands-on training, biobanking, establishment of cells, and cell reprogramming. By using iPSC from diseased patients, in vitro disease models can be established to test new medicines or understand diseases better. Performant iPSC derived models can offer a complement or an alternative to animal experiments by modelling of complex systems of the human body that are simplified and simulated outside of a living organism in an artificial environment.

Alternative in vivo platform – advancing relative replacement and reduction in research

The fruit fly Drosophila melanogaster is an appealing model organism for a variety of human disorders, from cancer to neurological problems. The UNIGE Faculty of Medicine is home to the HumanaFly facility, which has as its main objective the modeling of diverse human diseases using D. melanogaster, followed by an understanding of the molecular mechanisms of the disease etiology and ultimately early drug discovery for diseases. In accordance with the 3R principles, the HumanaFly facility aspires to develop into a research platform and teaching hub for Swiss scientists looking for a powerful non-vertebrate model to speed up their biomedical, medical, and drug discovery research.

Editing genes in Drosophila is a powerful modern method.
For example, different eye colours are the result of gene editing.

To reduce the number of animals entering experiments on campus, EPFL has setup an internal program called “OptiMice” to promote the sharing of research animals and organs from euthanized animals for preliminary tests and experiments. Through a centralized service, each laboratory can offer or request organs of animals after terminal experiments, to recover organs from animals coming from other experiments, to provide live surplus animals or to request organs from euthanized surplus animals when available. Thanks to “OptiMice”, in 2022, organs from 171 euthanized mice and 20 euthanized rats were shared between groups and 36 live mice and 17 live rats were exchanged.

5.3. 3Rs Advancements in Education

HEI Members invest considerable resources into education and training on the 3Rs that goes over and beyond what is legally required for obtaining an animal experimentation license and the 3RCC monitors the numbers of hours of 3Rs-relevant teaching offered at the HEIs. Offering 3Rs education and training beyond complying with legal requirements is essential not only for improving animal welfare, but also for enhancing scientific validity, further advancing 3Rs implementation and promoting Good 3Rs Practice in the field of scientific research and testing.

Education	Examples	Justification
3Rs Training	Courses on laboratory animal science Specific 3Rs training	All education and training specifically addressing the 3Rs Principle and its implementation is of high relevance and impact.
Improvements in animal welfare	Tunnel Handling implementation Projects Hands on Training programme for experimentation procedures	Any implementation or training programme with the primary purpose of improving animal welfare can be considered of high relevance and impact on the 3Rs advancement.

5.4. 3Rs Advancements in Communication

All HEI members report considerable effort in communication about the 3Rs, including promotional measures and other types of dissemination. The promotion and dissemination of 3Rs within the science community is of crucial importance to improve 3Rs implementation and understanding.

Communication	Examples	Justification
Promotion of 3Rs at Node	3RS Coordinators Time of AWO's spent dedicated to promoting the 3Rs	The role of 3Rs Coordinators and AWOs in promoting visibility and understanding of the 3Rs within the member network and beyond is of crucial importance to advancing the 3Rs within the Swiss research community.
Rehoming programmes	Rehoming of laboratory mice and rats	Reducing euthanasia through rehoming programmes considers the ethically important aspect of dignity and is considered to have a high impact on animal welfare.
3Rs Dissemination	3Rs Publications targeting specific implementation areas	More and more transparent communication around animal experimentation and its alternatives should be promoted. Publications on 3Rs-implementation directed to a scientific community is considered central to advancing implementation.

5.5. Spotlight on a 3Rs Communication initiative

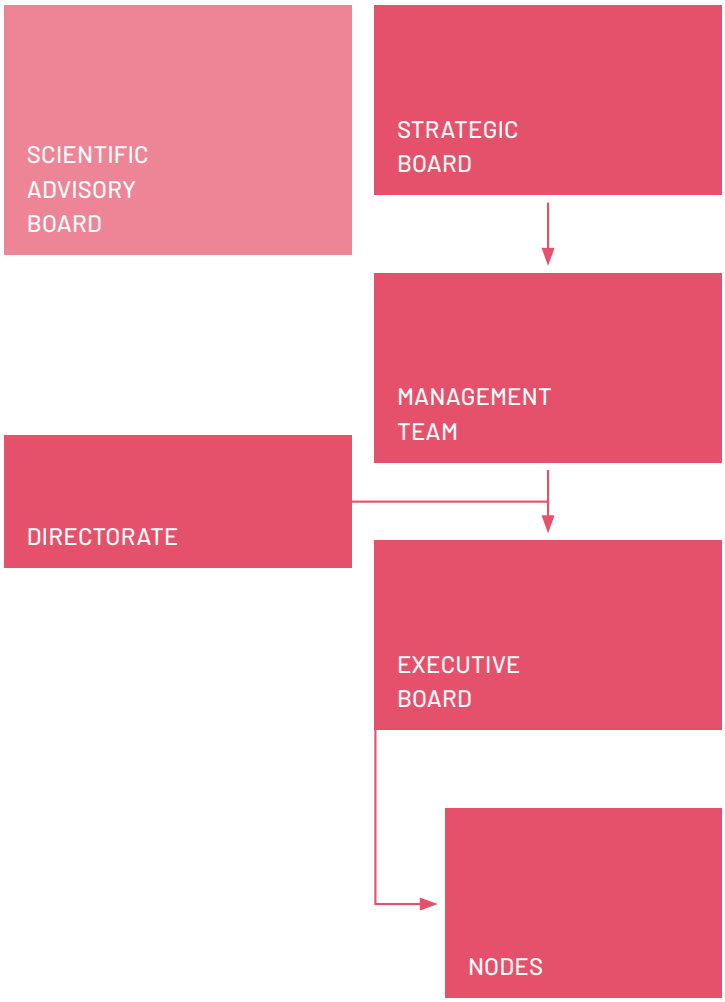
Rehoming programme of laboratory animals – communication for refined treatment of laboratory animals

As of spring 2022, surplus rats that have not been subjected to experiments or only to experiments without constraint can enter the EPFL rehoming programme, in collaboration with the Schweizer Tierschutz (STS). Through this programme 91 rats found new homes with private host families in 2022.

Table of Abbreviations

3RCC	Swiss 3Rs Competence Centre
3Rs Principle	Replacement, Reduction, Refinement of animal experimentation
ATs	Animal Technicians
AWO	Animal Welfare Officers
AWON	Animal Welfare Officers Network
BSc	Bachelor of Science
CHF	Swiss francs
CoC	Culture of Care
CPE	Continued Professional Education
EAWAG	The Swiss Federal Institute of Aquatic Science and Technology
EB	3RCC Executive Board
EPFL	Federal Institute of Technology Lausanne
ETH Zürich	Federal Institute of Technology Zurich
FHNW	University of Applied Sciences and Arts Northwestern Switzerland
FOPH	Federal Office of Public Health
FSVO	Federal Food Safety and Veterinary Office
GA	3RCC General Assembly
HEI	Higher Education Institution
Interpharma	Swiss association of research-based pharmaceutical companies
LAS/LTK	Institute of Laboratory Animal Sciences/ Institut für Labortierkunde
Mio.	Millions
MSc	Master of Science
NC3Rs	The United Kingdom National Centre for 3Rs
OC	Open Call
RESAL	Réseau des animaleries lémaniques (Lemanic Animal Facility Network)
RIPA	Federal Act on the Promotion of Research and Innovation, SR 420.1
SAB	3RCC Scientific Advisory Board
SAFN	Swiss Animal Facilities Network
SAP	Swiss Animal Protection
SB	3RCC Strategic Board
SERI	State Secretariat for Education, Research and Innovation
USI	Università della Svizzera Italiana
ZHAW	Zurich University of Applied Sciences

3RCC's Board and Directorate Composition in 2022



Find more information on our boards and members here.