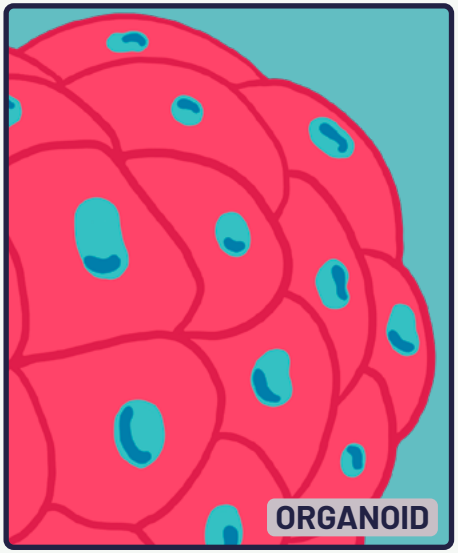
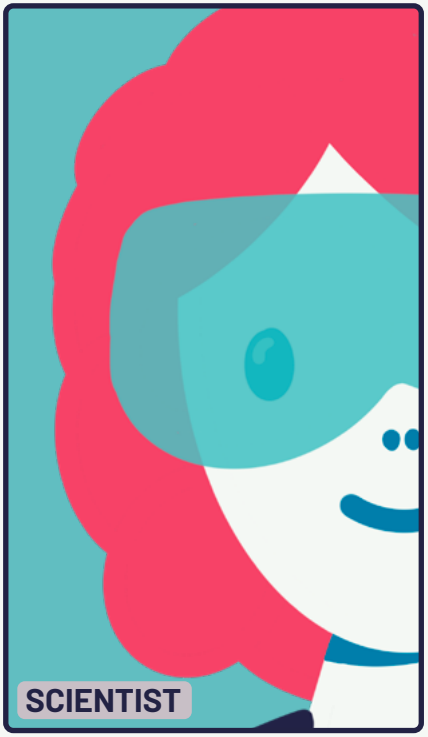
# 3RCC ACTIVITY REPORT 2024

Driving 3Rs advancement for improved animal welfare and better science in Switzerland





3 R
C C
Swiss 3R Competence Centre

## A WORD FROM THE PRESIDENT

# Simone De Montmollin

In 2018, academic, industry, regulatory and animal welfare partners came together around an ambitious and shared mission: to take a more comprehensive approach to 3Rs implementation in Switzerland through research, education and supporting informed discussion. The approach of the 3RCC remains a key factor in shifting mindsets and fostering a culture of responsible research where replacement, reduction and refinement is at the core of scientific progress.

The Centre has established its role in advancing the 3Rs in Switzerland by supporting high-quality research, fostering education and strengthening 3Rs networks. We are encouraged by the active participation of Swiss scientists—39 of whom received research funding—as well as by the strong engagement in our professional training and public outreach initiatives. Through collaboration, transparency and scientific excellence, the 3RCC remains equally committed to replacing animals, as to reducing their numbers and improving the conditions for those that still have to be used.

Simone De Montmollin

27.05.2025

As we look ahead to continued progress in the implementation of the 3Rs in Switzerland, I would like to extend my thanks to the partners of the 3RCC. These collaborations provide a strong foundation for progress, and I look forward to continuing our shared efforts to advance the 3Rs in Switzerland.

## A WORD FROM THE EXECUTIVE DIRECTOR

# Jenny Sandström

As 2024 marks the close of the 3RCC's second federal funding period, we reflect on a phase of notable progress across our core mandates. In research, we funded 39 scientists who are actively advancing or applying 3Rs methods in Swiss laboratories.

Through 21 events—including symposia and workshops—we helped foster a growing community of researchers committed to advancing the 3Rs. Our education efforts reached a broad professional audience across academia, industry, authorities and animal welfare organisations. On-site courses are complemented by online materials tailored for both students and professionals.

Public engagement was strengthened through three outreach events, nine articles and 23 explanatory videos that helped bring the 3Rs into broader awareness. Our monitoring efforts also laid the groundwork for assessing 3Rs uptake across different sectors.

We thank all partners for their continued commitment and look forward to building on this foundation and provide scientists with skills to replace, reduce and refine animal use for better science and improved animal welfare in Switzerland.

**Dr. Jenny Strandström**

**27.05.2025**

# Animal use for scientific purposes

In Switzerland, animals are used for basic research, which focuses on understanding how life and biology work, and applied research that directly impacts patients' lives, such as the development of new treatments for diseases. By studying animals, researchers can better understand how a drug or procedure might help people suffering from illness. Most of this research takes place in universities and the pharmaceutical industry. Animals are primarily used to study human diseases and to assess whether a treatment is safe and effective for humans.

The use of animals in research is strictly regulated. In Switzerland, researchers must follow the 3R Principle, a legal and ethical framework that guides the responsible use of animals in science. Each project involving animals must obtain a government-approved license, and researchers must demonstrate appropriate training and qualifications to work with animals.

# The 3R Principle: Replace, Reduce, Refine

The 3Rs stand for three key ideas that help minimise the impact of research on animals:

**Replacement** – Using alternatives to live animals, such as cells, tissues or organs grown in a lab.

**Reduction** – Using fewer animals while obtaining the same amount of data, or maximising the data collected from the same number of animals.

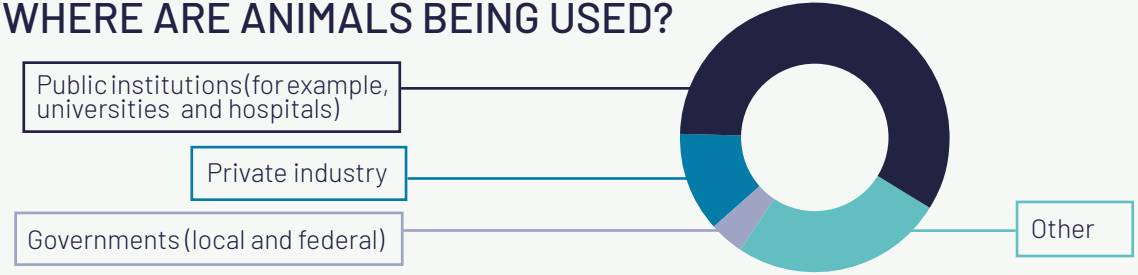
**Refinement** – Minimising or eliminating pain, suffering and distress in animals by improving their housing, monitoring and overall care.

This principle is at the core of ethical animal research in Switzerland, ensuring that animals are only used when absolutely necessary and under the best possible conditions.

# Research using Animals in Switzerland:

Average number of animal uses per year between 2020 and 2023

## WHERE ARE ANIMALS BEING USED?




## WHAT ARE ANIMALS BEING USED FOR?


Animals are mostly used for fundamental research (63%), followed by applied research (20%) and toxicity testing (5%). Smaller proportions are used for education and training, disease diagnosis and other purposes.

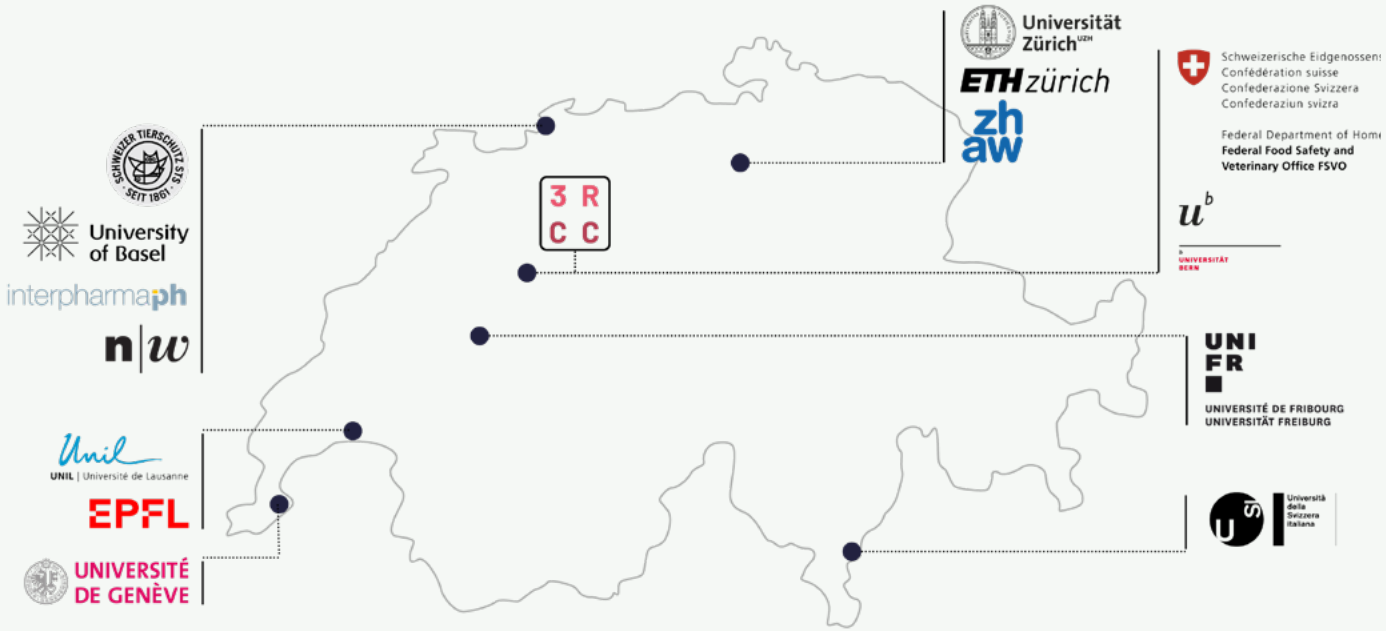
## WHAT SPECIES OF ANIMALS ARE BEING USED?

The majority of animals used are rodents, which account for 70.7% of all reported uses. This reflects their widespread use in biomedical research due to their genetic similarities to humans and well-characterised physiology. Birds (11.7%) and fish, amphibians, reptiles and invertebrates (11.1%) are used at comparable levels, often in studies related to ecology, behaviour or environmental toxicology. Other mammals, including farm animals, represent 5.8% of total use. The use of cats and dogs (0.6%) and primates (0.04%) remains limited and typically relates to specific regulatory or translational research purposes where no alternative exists.

# The Swiss 3RCC – who we are

Founded in 2018, the Swiss 3Rs Competence Centre is a scientific centre of national importance dedicated to advancing the 3R Principle in Switzerland. It is a joint initiative bringing together academia, the pharmaceutical industry, regulators, the government and animal welfare organisations. By working with representatives from each of these fields, the 3RCC ensures a balanced and collaborative approach to improving animal research practices.

3RCC STRATEGIC BOARD, EXECUTIVE BOARD AND DIRECTORATE


Universität Zürich
ETH zürich
zh aw
Schweizerische Eidgenossens
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Federal Department of Hom
Federal Food Safety and Veterinary Office FSVO
3 R C C
University of Basel
interpharmaph
n|w
UNI FR
UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG
UNIL | Université de Lausanne
EPFL
UNIVERSITÉ DE GENÈVE
Università della Svizzera italiana

# The Swiss 3RCC – what we do

Our work focuses on our four mandates:

**Funding research:** We fund research projects that develop and implement 3R methods, driving applied research and technology implementation for the replacement, reduction and refinement of animal use in science.

**Education and training:** We provide training, resources and support to researchers and other professionals, ensuring that the 3R Principle is embedded in practice.

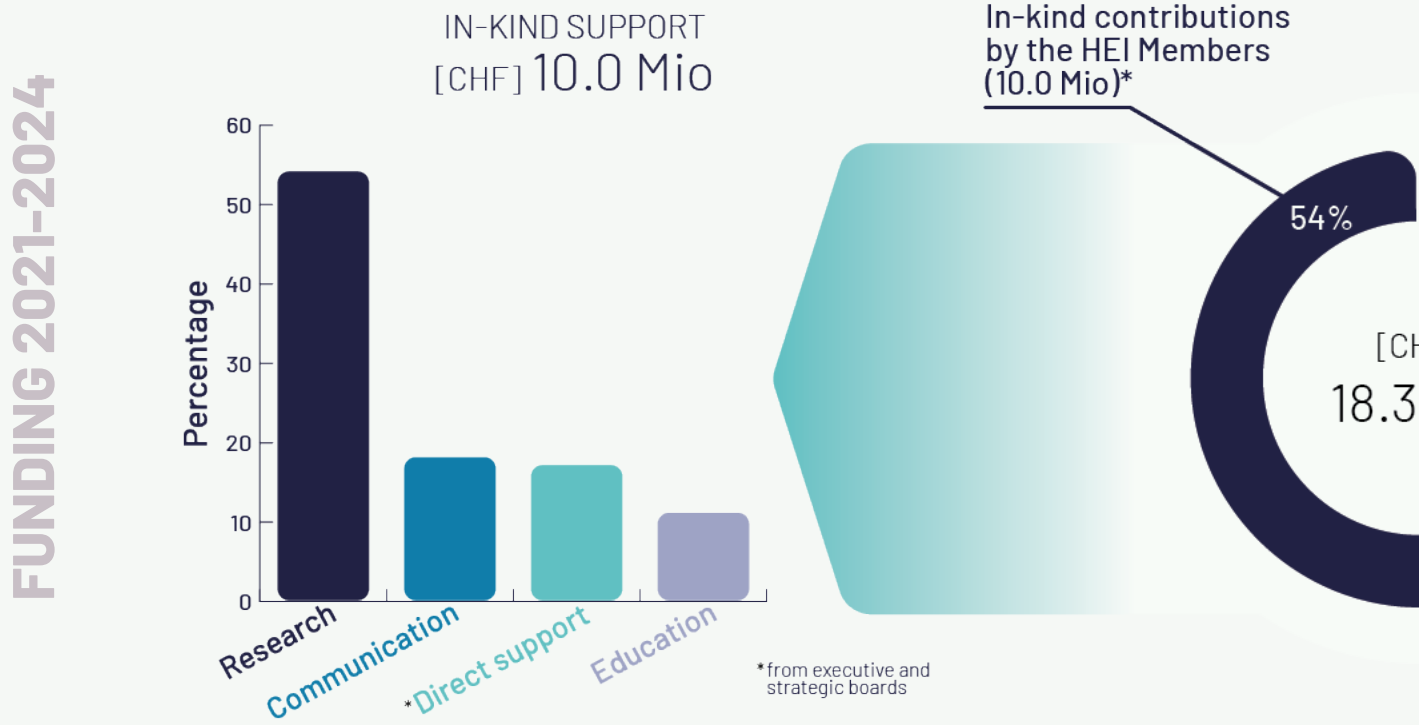
**Communication - engaging the public:** The use of animals in research is an important topic for society. We strive to empower all our stakeholders by sharing accessible information, thereby fostering informed discussions.

**Monitoring animal use in Switzerland:** To effectively advance the 3Rs we need to understand the currents status of implementation. We analyse animal use data to assess our impact and to plan for a future with improved animal welfare.

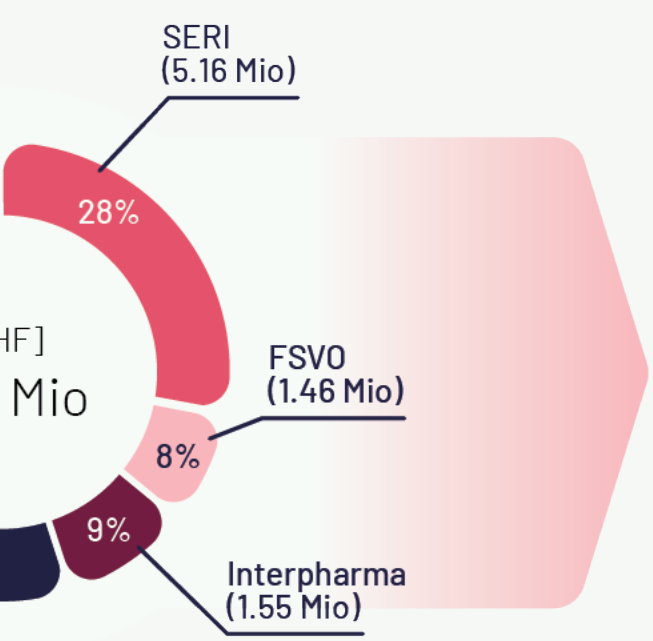

A SCIENTIST PRACTICES GENTLE HANDLING TECHNIQUE USING A TUNNEL

# How the 3RCC is Funded

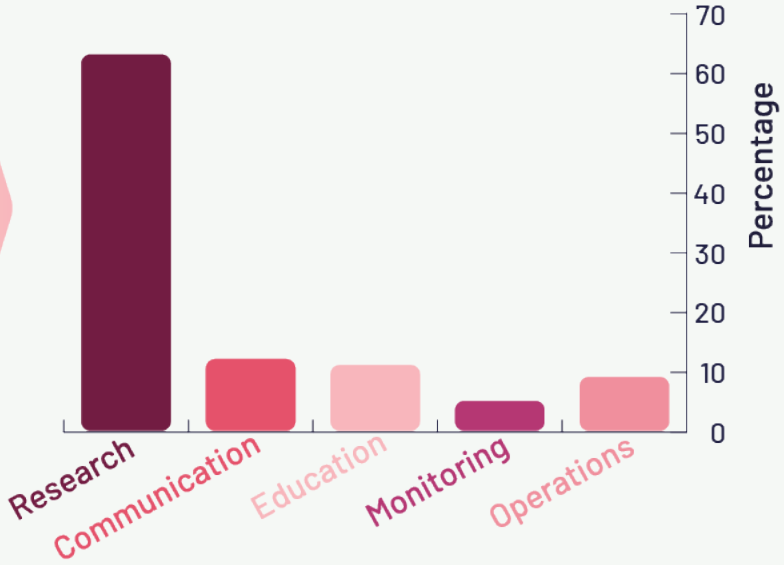
The 3RCC's resources come from in-kind contributions (in-kind funding refers to r
which must match the cash funding according to Swiss regulations) and financia
Federal Food Safety and Veterinary Office and Interpharma.



non-cash contributions like staff time, facilities and equipment from universities,
l support from the State Secretariat for Education, Research and Innovation, the




FINANCIAL SUPPORT
[CHF] 8.73 Mio



# Funding Research

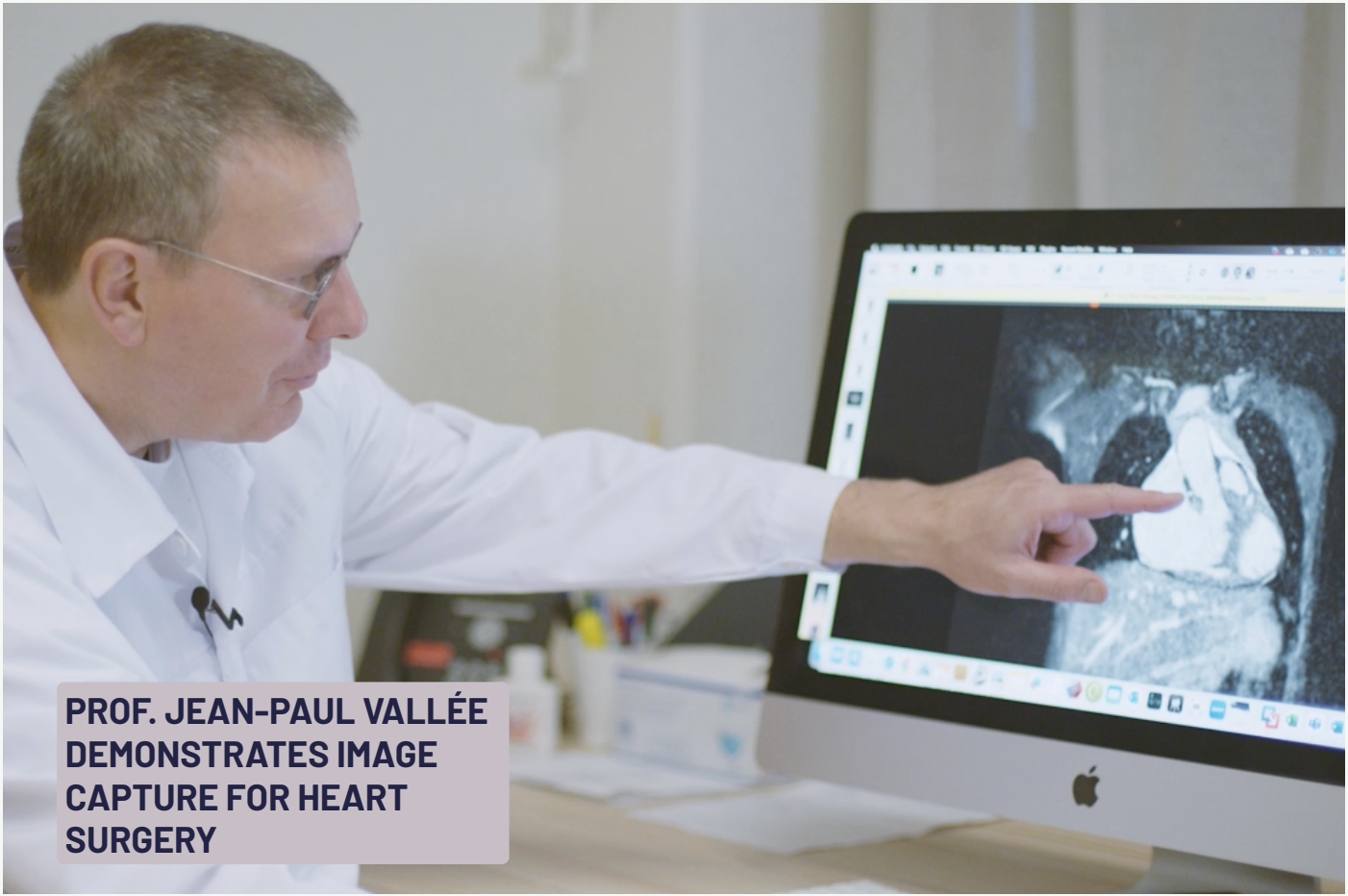
By funding 3Rs research, **we drive innovation and progress in the implementation of the 3R Principle in Switzerland**. Our annual funding calls are designed to support projects that can make the most significant impact in refining, reducing and replacing animal use in research.

We are incredibly proud of the researchers and research that we fund. These scientists devote their careers to improving animal welfare and developing new methods that can replace and reduce our reliance on animals.

**35**
ongoing projects

**18**
approved for funding

CHF **1.1** Mio
commited in 2024

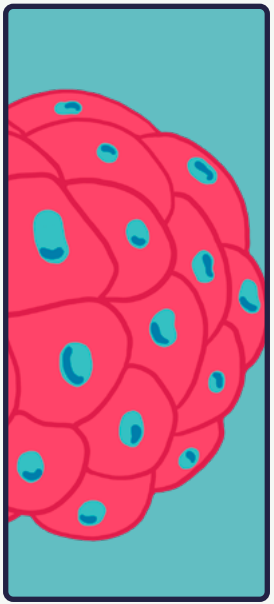


PROF. JEAN-PAUL VALLÉE DEMONSTRATES IMAGE CAPTURE FOR HEART SURGERY

FUNDING

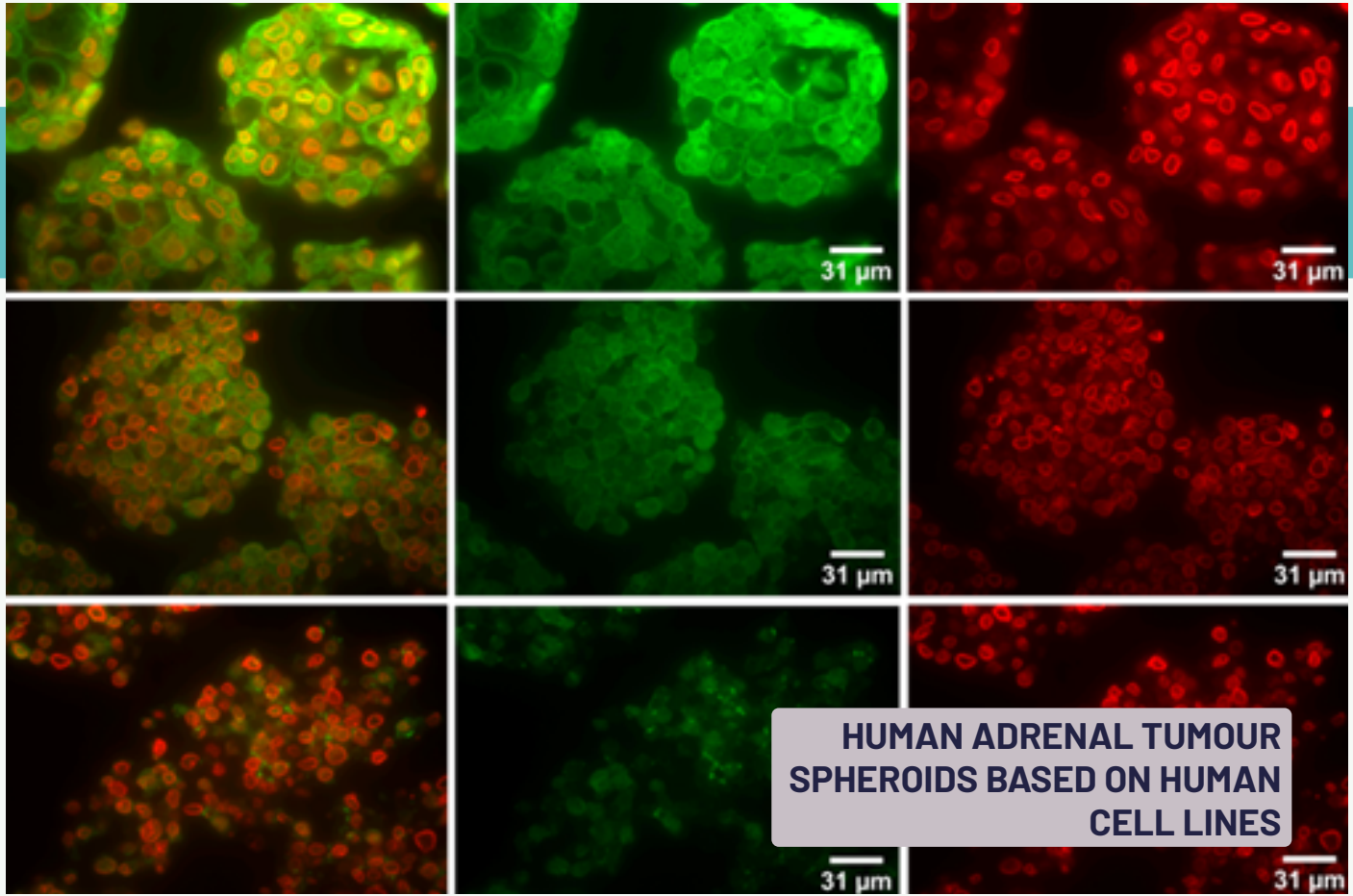
# Project Grant

The 3Rs Project Grant is awarded to ambitious projects, the majority of which aim to implement new technology to break ground and establish new 3Rs methods. In 2024, we launched seven 3Rs Project Grants.



One of the 2024 projects that was launched was that of Dr. Constanze Hantel and her team at the University Hospital Zurich. Their study focused on endocrine disrupting chemicals (EDCs). These chemicals are found in everyday products like plastics, detergents and food. They interfere with hormones, contributing to health issues like diabetes and infertility.

The project develops lab-based (in vitro) models of the adrenal and pancreas to study EDC effects. Using human cell lines they create 2D and 3D models that better reflect key biological processes. The system generates over 9'000 mini-organs (spheroids) per experiment. This approach is more ethical and efficient for studying the impact of EDCs.




HUMAN ADRENAL TUMOUR SPHEROIDS BASED ON HUMAN CELL LINES

FUNDING

# Refinement Grant

The Refinement Grant is awarded to initiatives that directly improve conditions for animals that cannot yet be replaced, underscoring our commitment to animal welfare. In 2024 we launched ten Refinement Grants in five higher education institutions.

In 2024, Davide Manfredi, from the Institute for Research in Biomedicine, began his Refinement Grant to evaluate environmental enrichments for laboratory mice, such as bedding, nesting materials and refuge areas. This study assesses three enrichments through behavioral observations, focusing on how practical enrichments are, how appropriate they are for the species and if the enrichments are used in the long-term. The most effective enrichments will be implemented routinely to enhance animal welfare.


CARDBOARD IS USED AS ENRICHMENT FOR MICE. ITS FOLDED, SHREDDED DESIGN GIVES MICE SOMETHING TO HIDE IN AND SOMETHING WITH WHICH THEY CAN BUILD NESTS

FUNDING

# Doctorate Programme

The Doctorate Programme aims to foster the next generation of researchers who are committed to developing new 3Rs methods and putting them into practice. In 2022 we granted funding to four young researchers who will begin their doctoral studies .

In 2024, Alicia Pliego Mendieta continued developing lab-based models to study how certain chemicals affect our hormones. She's also working on ways to treat cancer more effectively by finding drug combinations that work well together. Using computer models, her research helps avoid testing harmful or ineffective combinations on animals - a step toward replacing animal use in this kind of research.

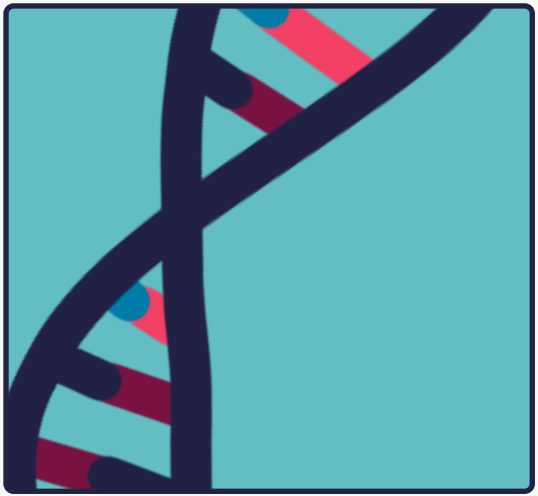

THE PREDICTIONS MADE BY THE DEEP LEARNING MODEL HAVE BEEN VALIDATED WITH PATIENT-DERIVED TUMOR ORGANOIDS. THIS ENABLES SAFER TREATMENTS WHILE MINIMIZING ANIMAL TESTING
ALICIA PLIEGO MENDIETA FROM THE UNIVERSITY HOSPITAL ZURICH

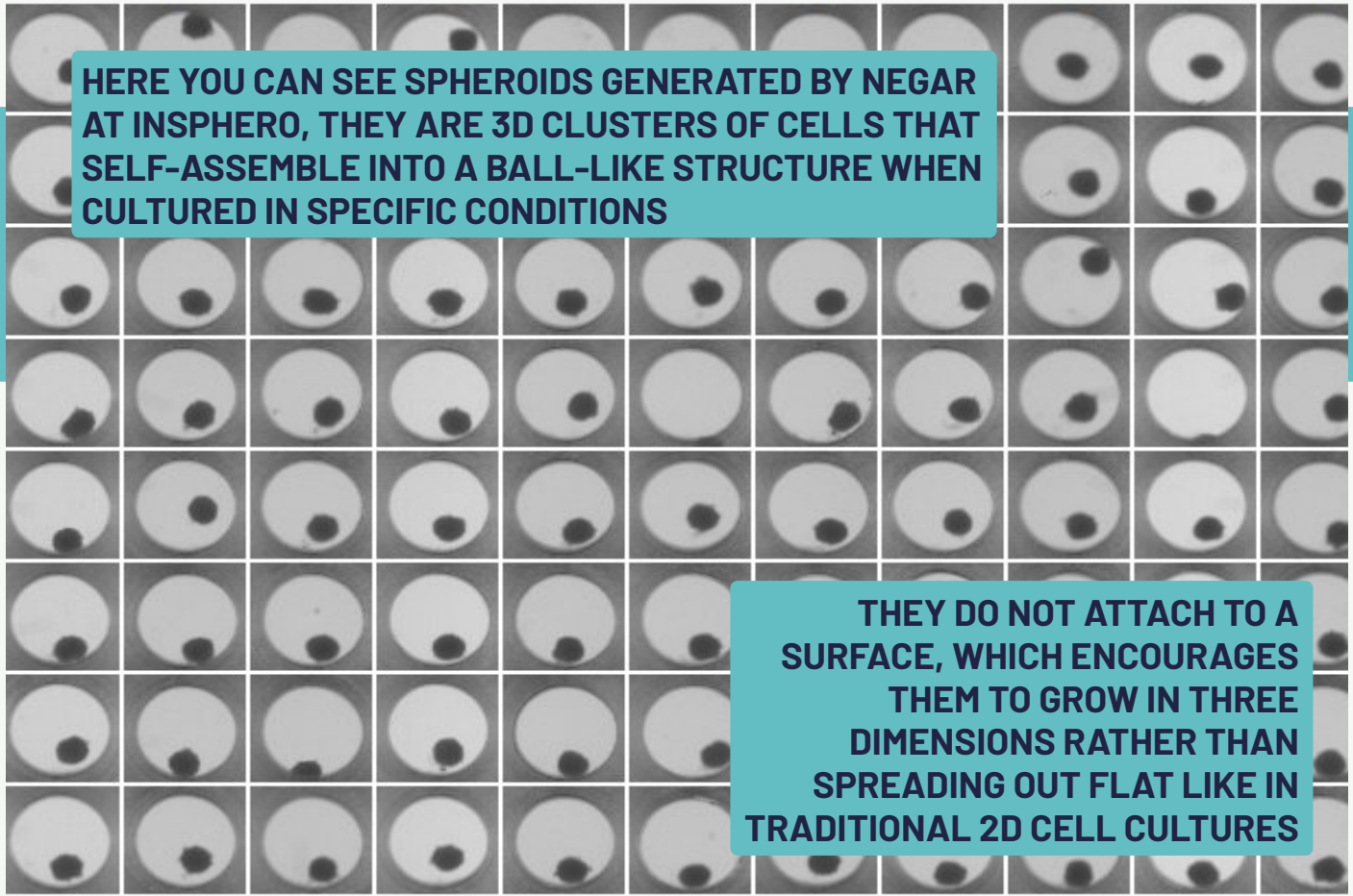
FUNDING

# Knowledge Transfer

The Knowledge Transfer Grant offers grantees the opportunity to learn a new technique that can be implemented in a 3Rs context and bring this knowledge back to their home institution in Switzerland. In 2024 we enabled 10 researchers to engage in this exchange, building collaborations across the globe while advancing the 3Rs in Switzerland.

In 2024, thanks to a Knowledge Transfer Grant, Negar Vahdani from the University of Bern trained at InSphero AG, a company that specialises in lab-grown 3D liver models. During the training, she learned new techniques to grow liver cells, study their genetic activity, and test how toxic substances affect them. This experience is helping improve research back in Bern and supports the development of alternatives to animal testing.





HERE YOU CAN SEE SPHEROIDS GENERATED BY NEGAR AT INSPHERO, THEY ARE 3D CLUSTERS OF CELLS THAT SELF-ASSEMBLE INTO A BALL-LIKE STRUCTURE WHEN CULTURED IN SPECIFIC CONDITIONS

THEY DO NOT ATTACH TO A SURFACE, WHICH ENCOURAGES THEM TO GROW IN THREE DIMENSIONS RATHER THAN SPREADING OUT FLAT LIKE IN TRADITIONAL 2D CELL CULTURES

# Education and Training

Advancing the 3Rs requires continuous learning and skill development. We support professionals by providing education and training opportunities that promote best practices in the 3Rs. Through **workshops we equip researchers with practical skills** on how to implement 3Rs.

We also provide scientists in different sectors, from academics and industry to regulators, with **the knowledge needed to push replacement, reduction and refinement in practice.** By fostering a culture of responsible science, we help ensure that 3Rs principles are not just understood but actively applied by professionals across Switzerland.

**8**
education and training events

**1405**
attendees

**1160**
certificates issued

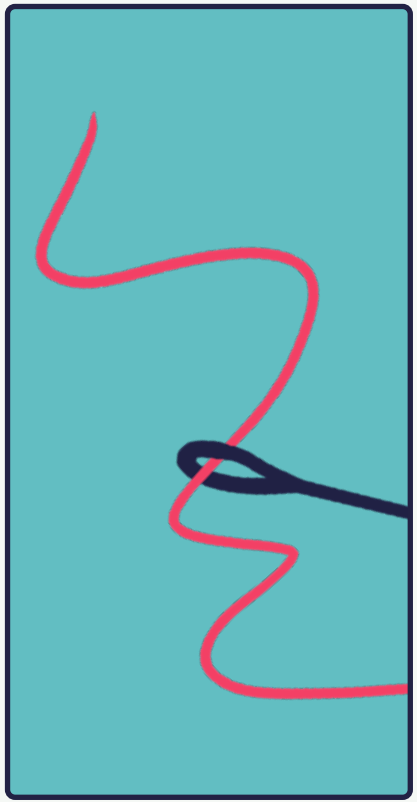

# CHRISTIAN SCHNELL FROM NOVARTIS TALKS ABOUT CHALLENGES OF USING TUMOUR MODELS WHEN DEVELOPING CANCER THERAPIES

EDUCATION & TRAINING

# Rodent Surgery Workshops

When working with animals, good training plays a central role in securing animal wellbeing as well as a reliable study validity. In this iterative workshop, we have trained close to 200 researchers in five different cities across the country in how to practice the best possible surgery on rodents.

The participants learned to perform surgical disinfection steps, to use the adequate sterile equipment, and to properly prepare the rodent before surgery. They also gain tips on how to implement these practices in their daily surgical routine. This will directly improve the way rodents are handled and cared during surgery, for where no replacement is possible at this stage.

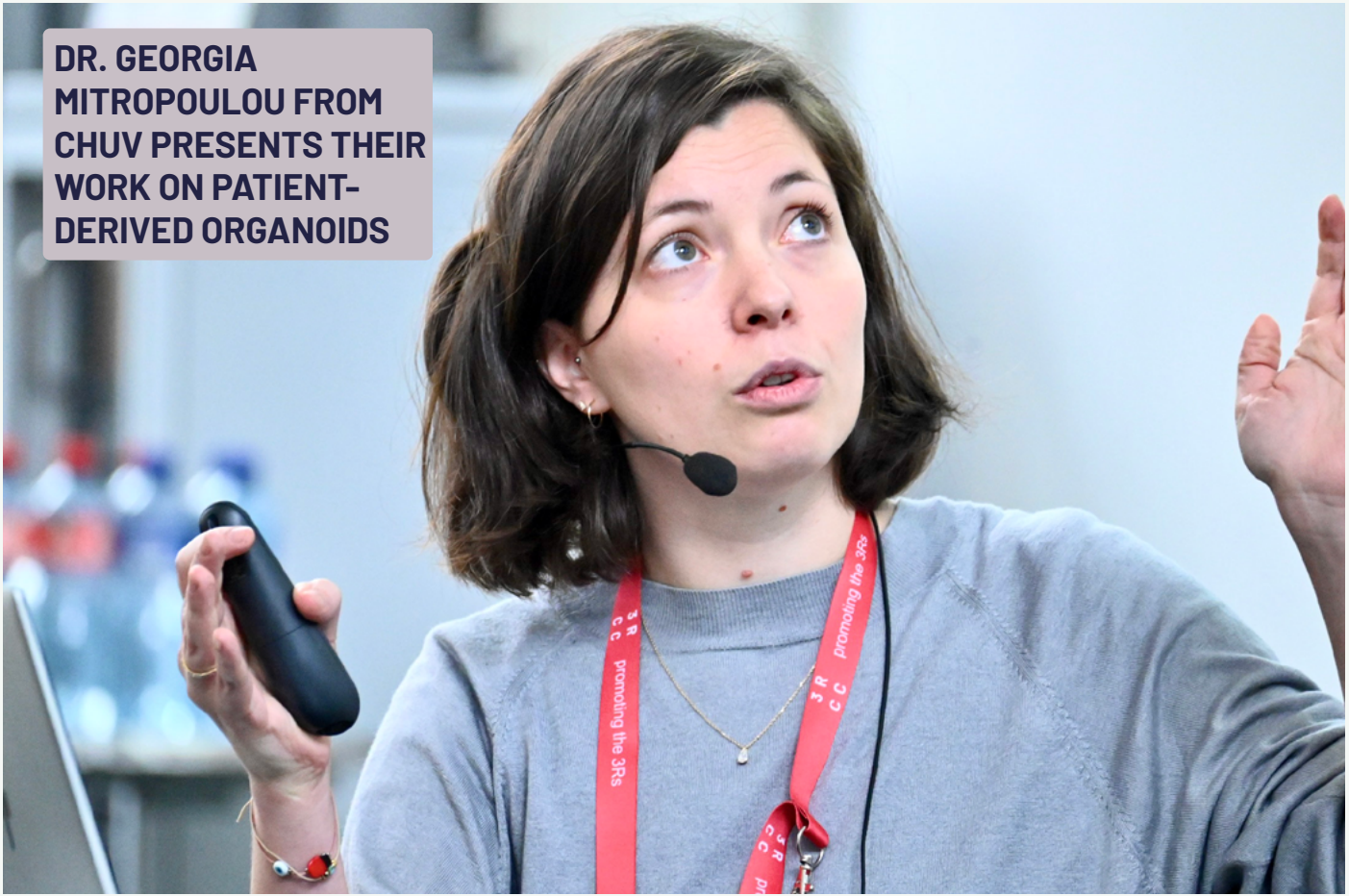



RESEARCHERS ARE
GUIDED IN SKILLS FOR
RODENT SURGERY

EDUCATION & TRAINING

# New Approach Methodologies (NAMs) Symposium

Engaging all stakeholders involved in the implementation of NAMs is one important step in addressing hurdles and ensuring that new methods are more effectively implemented. This symposium gathered 100 participants from diverse backgrounds, including model developers, industry partners, regulators, federal authorities and animal welfare representatives, in an active dialogue on how to streamline the adoption of these advanced methodologies that provide alternatives to animal-based research. Five case studies were presented and featured how NAMs have been successfully integrated in the drug discovery pipelines of pharmaceutical industries, and within clinics for diagnostics and personalised medicine.




DR. GEORGIA MITROPOULOU FROM CHUV PRESENTS THEIR WORK ON PATIENT-DERIVED ORGANOIDS

**COMMUNICATION**

# Engaging our stakeholders

Who are the stakeholders of the 3RCC? Everyone plays a role, from politicians and regulators who propose new laws to the public who vote on them, and the university researchers and industry professionals who both advance the 3Rs and adapt to legislative changes.

Our communication is therefore essential to the 3R Principle and the responsible use of animals in scientific research.

**9**

articles published for the public

**23**

information videos published

continued growth in our national networks

**Culture of Care Network**

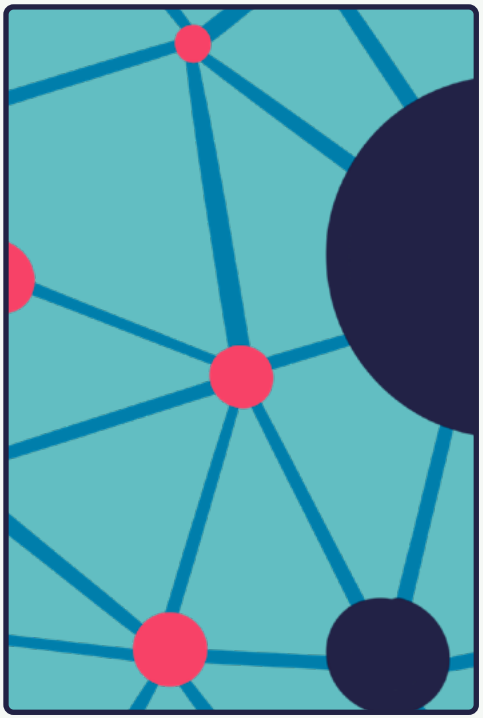
**Early Career Researchers Network**

SCIENTISTS LEARNING ABOUT NEW APPROACH METHODOLOGIES AT THE NAMS SYMPOSIUM

COMMUNICATION

# The 3Rs Day: uniting Swiss researchers on 3Rs advancement

Scientific research thrives on collaboration and open exchange. Our annual 3Rs Day brings together researchers from across Switzerland to share successes and challenges, fostering a stronger community and driving progress in the 3Rs.



In 2024 the day centred around oncology, the research field with the highest use of animals in Switzerland. The symposium brought over 170 researchers together from every higher education institution in Switzerland and private industry, as well as international researchers.


THE SWISS 3RS DAY BRINGS
TOGETHER RESEARCHERS
FROM ACROSS THE COUNTRY

COMMUNICATION

# Awards: recognising excellence in 3Rs advancement

Disseminating research advancements in the 3Rs to the public is crucial for raising awareness and understanding for humane experimental practices. We recognise excellence in 3Rs research and implementation through our awards. Awarded work is disseminated through short videos that engage both professional and lay audiences, making complex scientific concepts more accessible and impactful.

Learn more about our 2023 Young 3R Investigator awardee, Duygu Yazici, and her work on replacing animals with organ-on-a-chip technology on our YouTube channel.

3Rs Award awardee

**The STRIDE-Lab led by Benjamin Ineichen**

Young 3Rs Investigator awardees

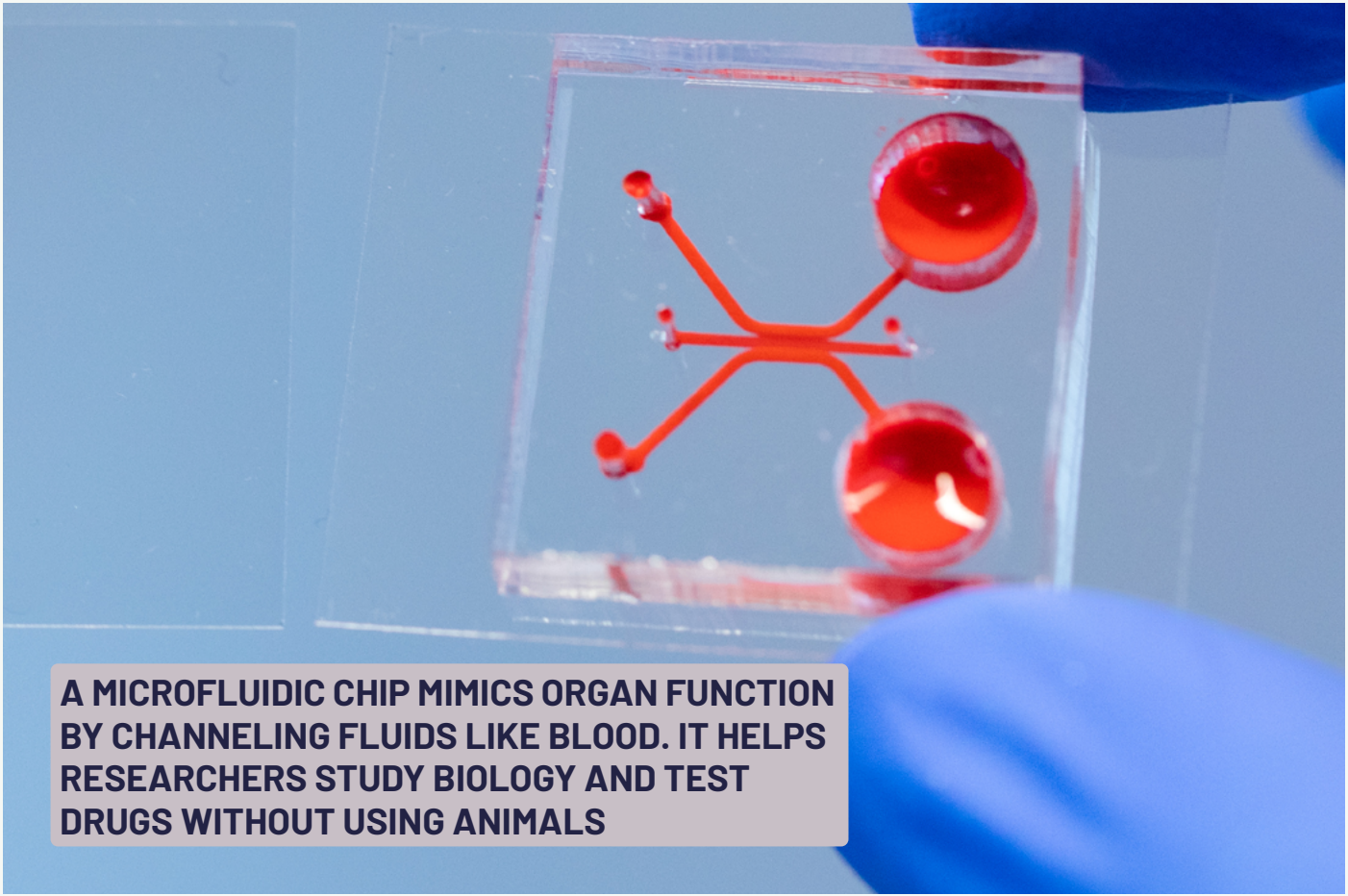
**Viola Bugada and Duygu Yazici**

# DUYGU YAZICI USES ORGAN-ON-A-CHIP TECHNOLOGY TO STUDY THE HAZARDS OF ENVIRONMENTAL TOXICANTS

# Monitoring Animal Use in Switzerland

Our monitoring activities aim to enhance the understanding of the implementation of the 3Rs in Swiss research and education. Through the analysis of public statistics on animal use we can understand trends in animal research and create accessible reports, improving public access to this information. We can also direct the 3RCC's actions towards area in which we will have the greatest impact.

By delivering evidence-based and objective insight on research-use of animals and its replacement in Switzerland, the 3RCC can inform decisionmakers and the public and contribute to a constructive debate on animal use in research.



A MICROFLUIDIC CHIP MIMICS ORGAN FUNCTION BY CHANNELING FLUIDS LIKE BLOOD. IT HELPS RESEARCHERS STUDY BIOLOGY AND TEST DRUGS WITHOUT USING ANIMALS

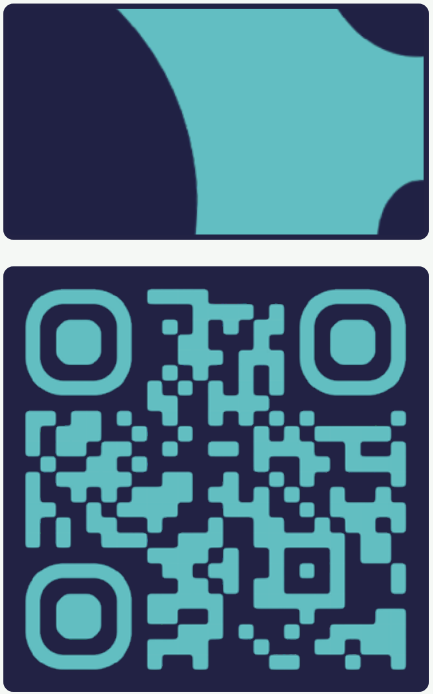
MONITORING

# Understanding burdening use of animals in the past two decades

Understanding how animals are used in Swiss research is crucial for improving animal welfare. By analysing the distribution of animal uses and their severity classification, we can help identify trends and factors that influence the levels of constraint animals face in experiments.

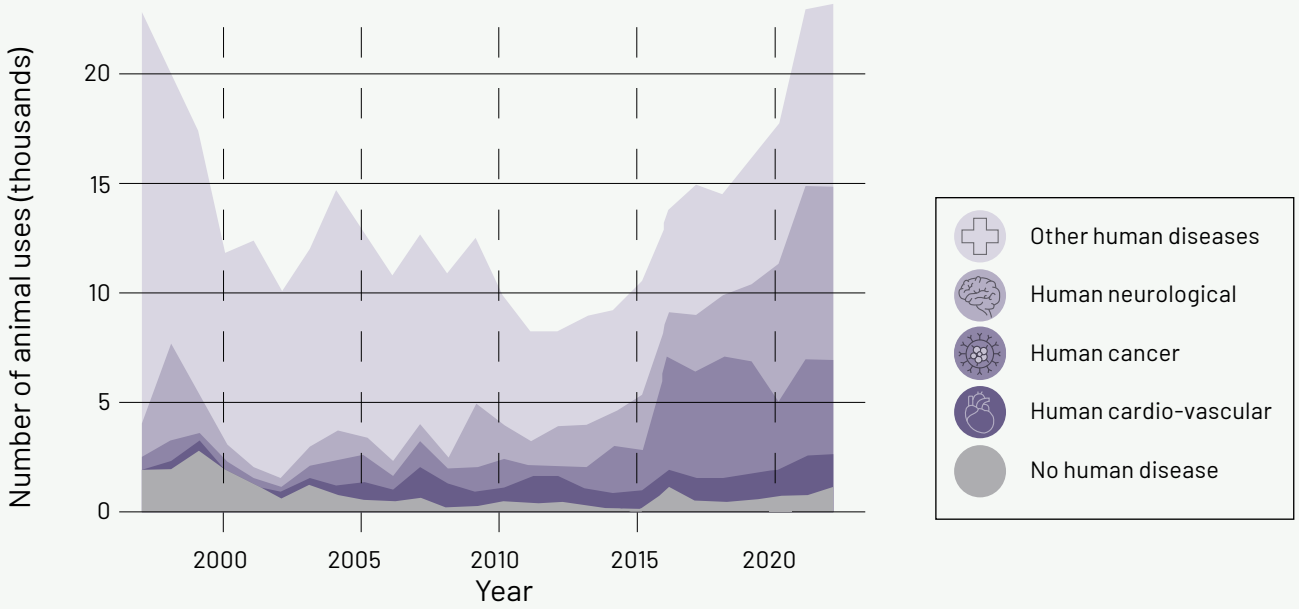
Understanding where and why high severity uses occur is the basis for better and more targeted 3Rs measures that pave the way for more humane research practices.

Scan the QR code to read the complete report on severity degree.



# Increase in more severe experiments on mice due to human disease focused research

The plot below, taken from our report on animal burden, reflects an increase in severity degree 3 in mice, the highest burden that can be placed on an animal, over the last 10 years (90% of animals in SD3 in 2023 were mice). The plot shows that 96.4% of these uses were to study severe human diseases.

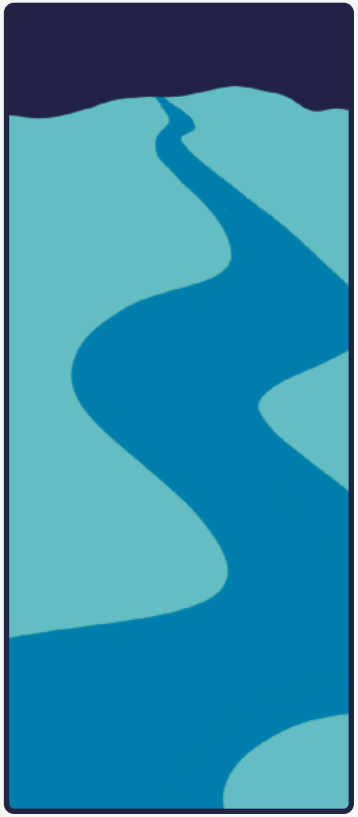


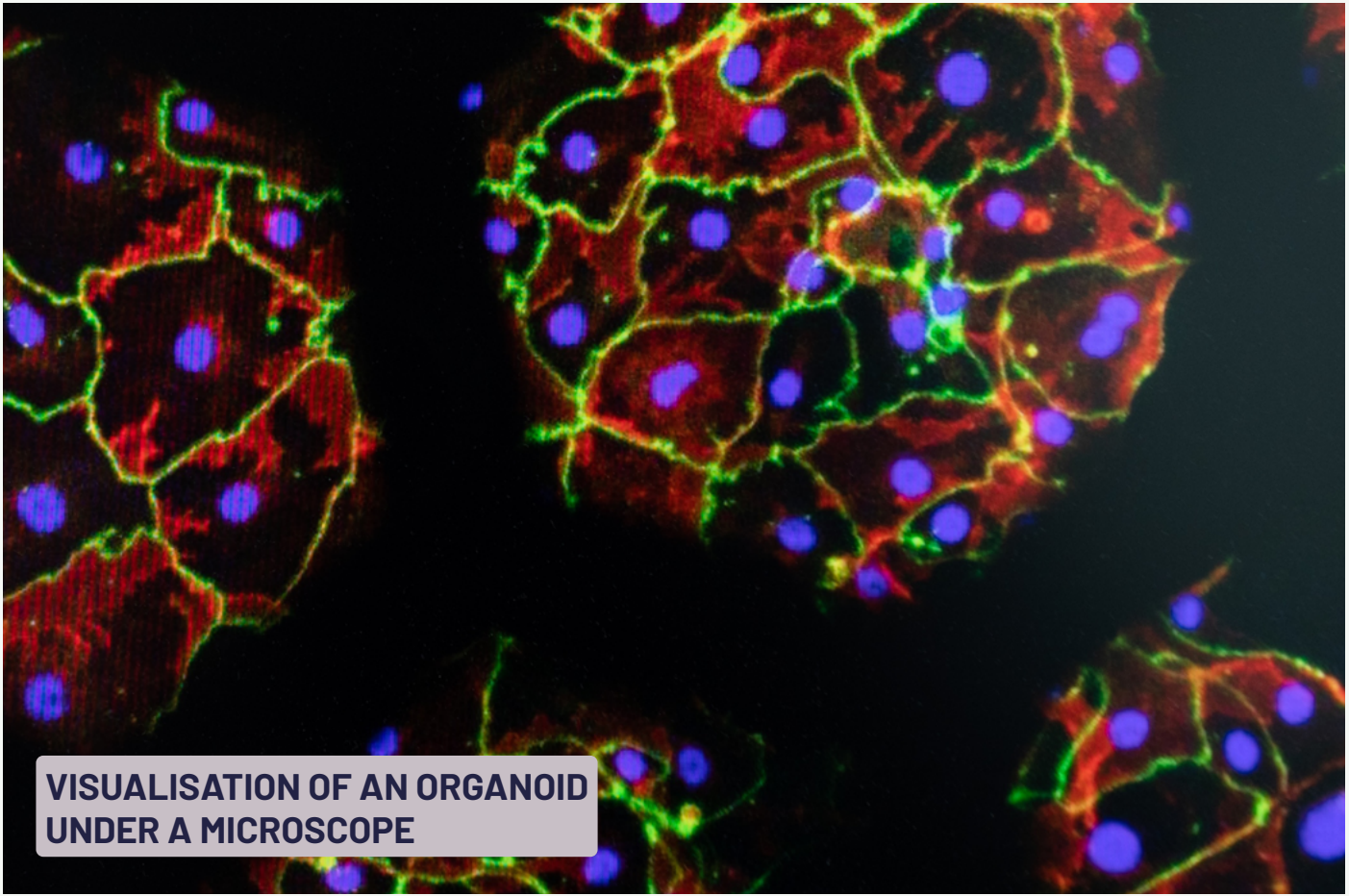
# Take home message

We are seeing tangible advancements in the fields of reduction and refinement, alongside a growing and engaged 3Rs community in Switzerland.

Looking forward, we aim to strengthen our collective focus on replacement, supporting the development and adoption of non-animal methods and closely monitoring their implementation in research practice.

We also see 3Rs education as essential, not only for early-career researchers but across all levels of scientific training. Integrating the principles of the 3Rs into the education and culture of research is key to building a more ethical and innovative scientific future.





VISUALISATION OF AN ORGANOID UNDER A MICROSCOPE

If you would like more information on the 3RCC and its activities, we recommend visiting our public information hub on the swiss3rcc.org website.

If you would like to learn about our activities between 2021 and 2024 in greater detail, use the QR code below to access our in-depth report.

Swiss 3R Competence Centre (3RCC)
c/o University of Bern
Hochschulstrasse 6
CH-3012 Bern
info@swiss3rcc.org

3 R
C C
Swiss 3R Competence Centre

**For a complete breakdown of our financial report in the funding period 2021-2024, scan this code:**