



Advancing 3Rs in Switzerland
through quality science & education

Chantra Eskes, PhD Eng.

Director 3RCC


Genova, 21 June 2019



Non-for-profit association established on 27 March 2018

EPFL

ETH zürich

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

n|w University of Applied Sciences and Arts Northwestern Switzerland
School of Life Sciences

Federal Food Safety and
Veterinary Office FSVO

interpharma**ph**



 University
of Basel

Founding members

u^b

**UNIVERSITÄT
BERN**

**UNI
FR**
UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

 **UNIVERSITÉ
DE GENÈVE**

Unil
UNIL | Université de Lausanne

 **University of
Zurich** UZH

 **Università
della
Svizzera
italiana**

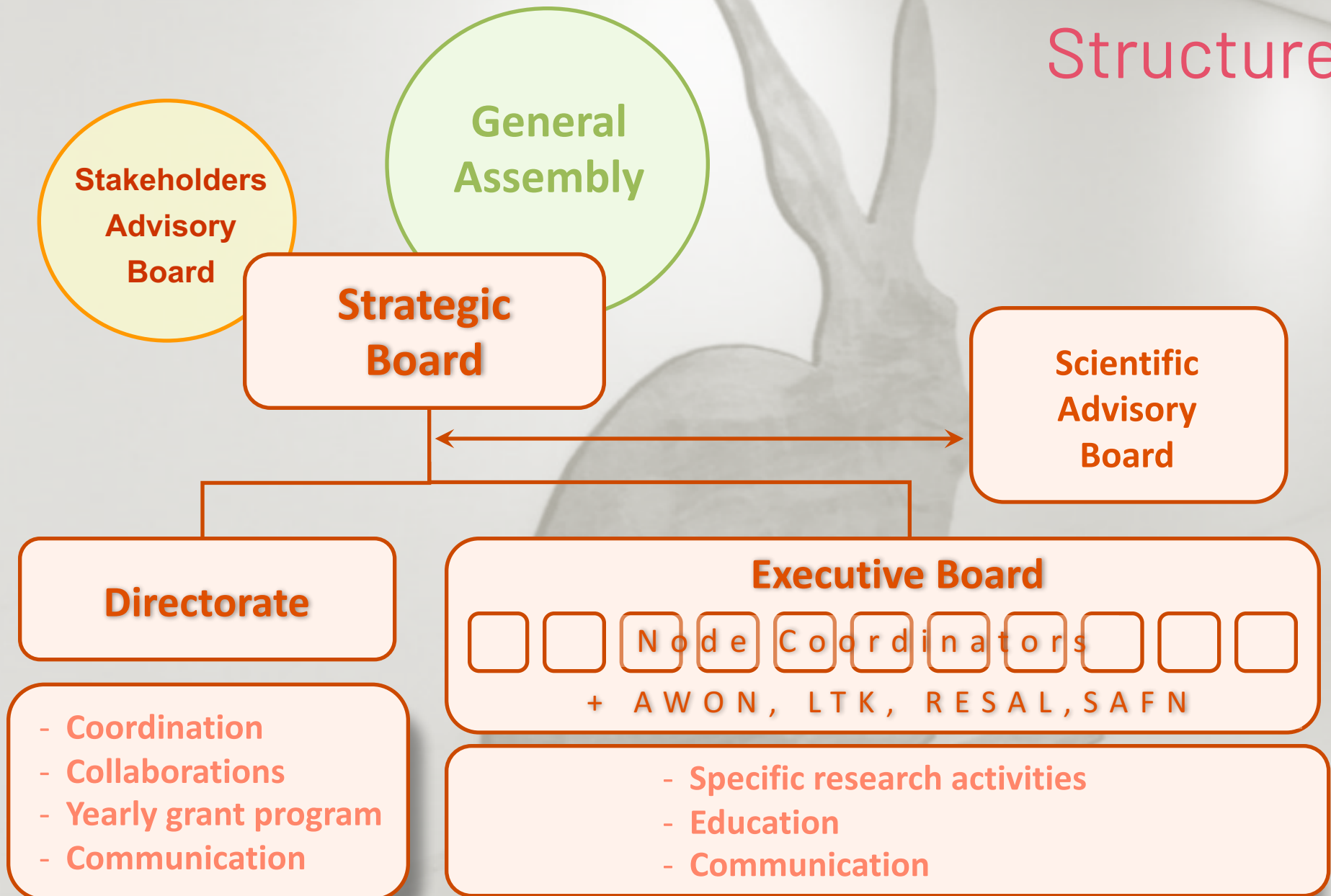
Zurich University
of Applied Sciences

zhaw

- Scientific centre of national importance (Art. 15 of the Federal Act on the Promotion of Research and Innovation, RIPA), which benefits of support from the Swiss State Secretariat for Education, Research and Innovation (SERI)
- Two observer members: SERI & Swiss Federal Office of Public Health (FOPH)

- ✓ Promote **high quality research** and care for animals.
- ✓ Develop a **3R education strategy** targeted at different educational programs.
- ✓ Build a professional **communication** capacity available for all stakeholders interested in animal experimentation and 3Rs.

3RCC Structure



2018 - 2020

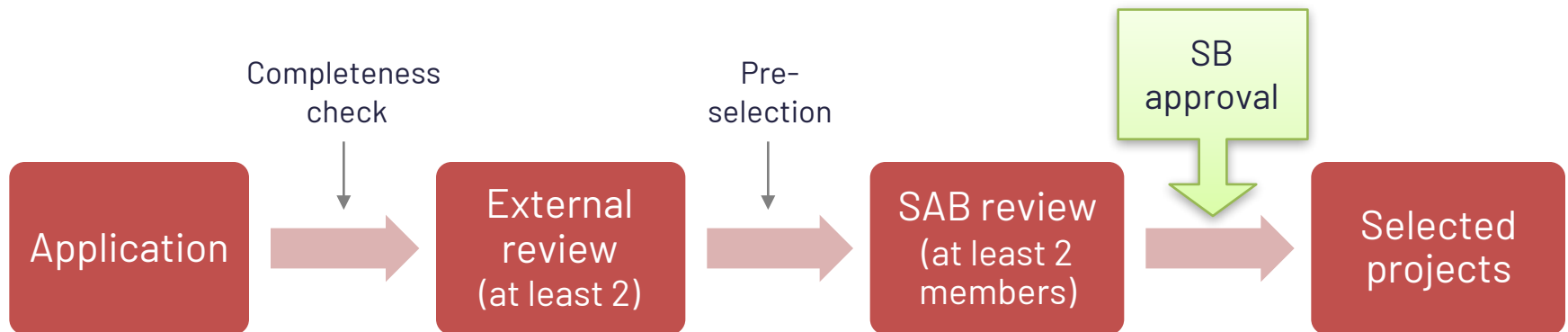
Higher Education Institutions Node Coordinators (in-kind)	1'000'000 CHF / year
State Secretariat for Education, Research and Innovation (SERI)	970'200 CHF / year
Interpharma	500'000 CHF / year
Federal Food Safety and Veterinary Office	365'000 CHF / year
Total	2'835'200 CHF / per year

➞ Major part dedicated to 3RCC funding program

3RCC Research Programme

- Regular open calls & targeted calls i.e., addressing specific challenges for the advancement of 3R principles in Switzerland
- Each of the three Rs subsidised
- Projects with high impact on development / implementation of 3Rs
- Applied and/or basic research
- Projects that bring benefits as compared to existing methodologies regarding e.g. relevance, reliability, animal welfare, feasibility
- Maximum project duration: 3 years
- Collaboration between institutions and between public & private sector are encouraged however lead organization should be Swiss-based public research institution
- The necessary ethical approvals (authorisation for animal testing, embryonic stem cells, clinical studies, etc.) need to be in place for funds to be released

- **Funds available:** CHF 1'265'000 to cover all 3Rs
- **Opening:** 22 November 2018
- **Closure:** 21 January 2019
- **54 applications received:** ~50% replacement, ~30% reduction, ~20% refinement
- **Total budget request ca.:** CHF 15'500'000 (possible funding rate of only 8.2%)
- **Two steps selection process:**



- 45 of 54 applications were complete & had no major drawbacks
 - Selection & contact of external reviewers
 - Chosen on account of their specialized knowledge: be abreast of the latest international developments regarding the relevant field of research and/or the 3Rs principle.
 - Before starting to review an application, external reviewers were required to:
 - Indicate if the topic of the project did not fall into their discipline or area of specialization.
 - Declare any potential conflict of interest and/or bias that may exist.
 - Furthermore, external reviewers commit to :
 - Treat all the information provided in a strictly confidential manner.
 - Not make use of any of the information provided in confidence to their own personal benefit and/or to the benefit of close relatives and/or colleagues.
- 70% of complete applications (33/47) were considered of good to excellent quality by external reviewers

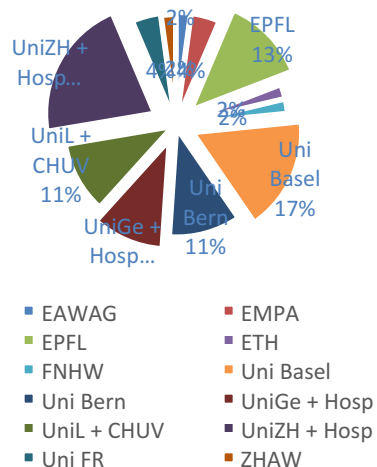
➤ **SAB review & comparison of top quality projects:**

6 research projects selected out of 47 (13% success rate) covering each of the 3Rs

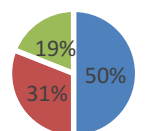
Before selection

(*n=47 complete applications; ** over all 56 received applications)

Host institution*

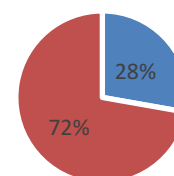


3Rs distribution**



■ Replacement
 ■ Reduction
 ■ Refinement

Gender distribution**

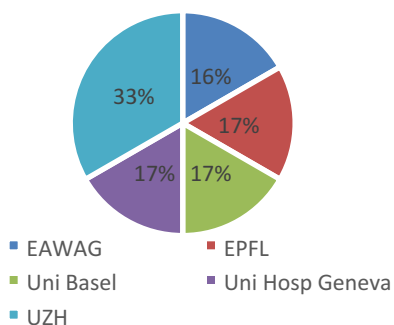


■ Female ■ Male

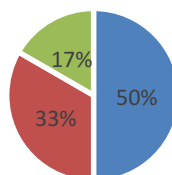
After selection

(n=6 selected applications)

Host institution

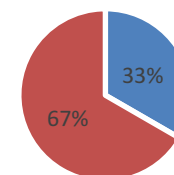


3Rs distribution



■ Replacement
 ■ Reduction
 ■ Refinement

Gender distribution



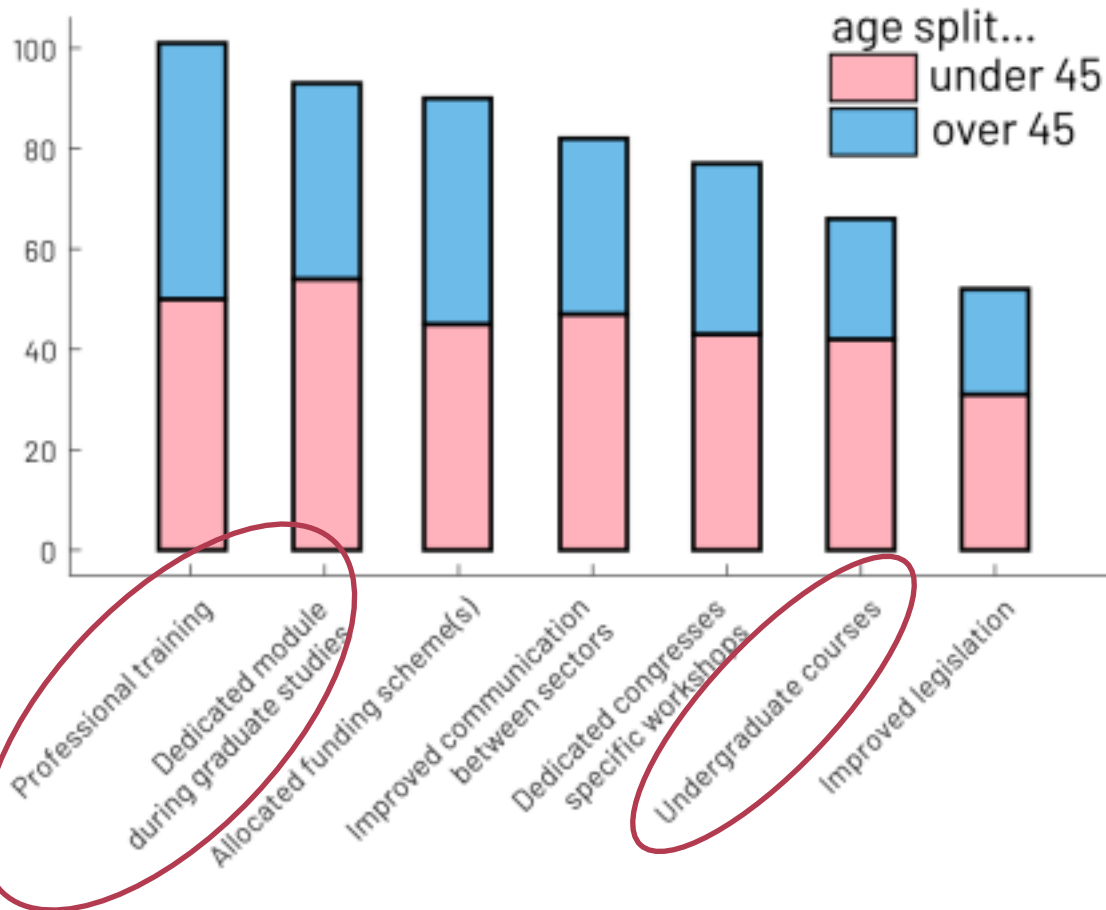
■ Female ■ Male

➤ 2019 Open Call for grants

- **Launch:** September 2019
- **Budget:** CHF 1'375'000
- **Two-step application procedure:**
 - 1) Submission of a one page outline (Oct. 2019)
 - 2) Submission of full application (March 2020)
- **Announcement at the Swiss 3Rs Day, 2 September 2019, Bern**

Educational strategy

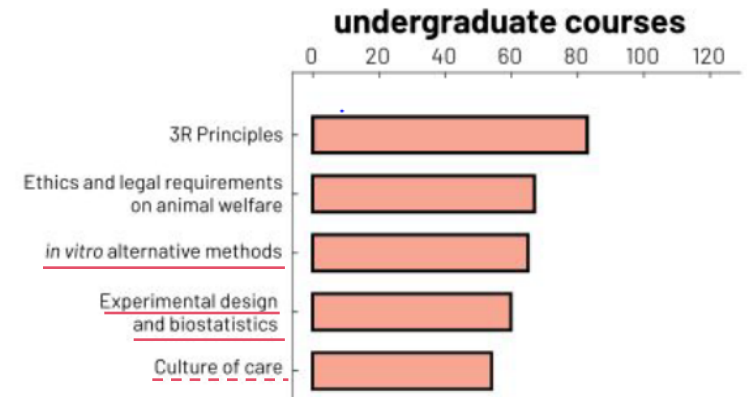
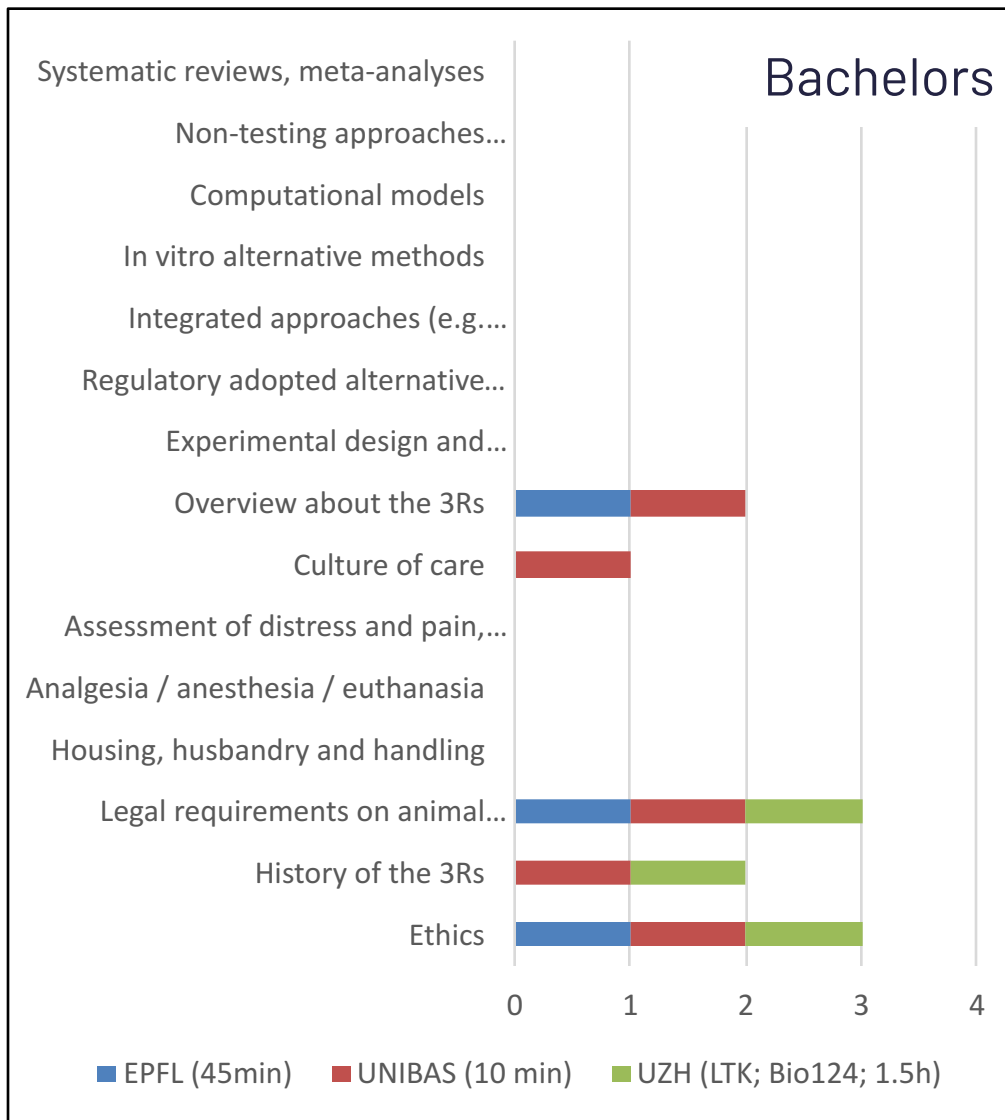
- How do you believe the use of the 3R methods could be further promoted?



Furthering **education** on 3R methods generally thought of as the most sought way to promote the topic

- In both short-term courses (professional) and graduate studies
- Under-graduate courses: particularly answered by young respondents

* others: pressure on journals and information newsletters



**Educational Program at Bachelor Level on
Replacement, Reduction and Refinement (3Rs principle)**

3RCC Recommendations – 17th of May 2019

The Swiss 3RCC recommends that a first course dedicated to the replacement, reduction and refinement of animal experimentation (the 3Rs principle) should be part of the core courses at the Bachelor level in the following degrees: life sciences, bioengineering, medical, veterinary, environment, agricultural sciences and pharmacy and any other potential degree of relevance.

A 3Rs principle dedicated course shall help students to e.g.:

- i) Gain an overview of the concept and examples of implementation of the 3Rs in animal experimentation.
- ii) Get awareness of the Swiss animal welfare legislation.

The recommended course duration should consist of a minimum of 5-10 hours, including preferentially both a theoretical part, and a practical part based e.g., on case-studies and/or articles to be discussed.

Below is a list of the recommended learning objectives to be achieved with the course. A learning catalogue with a list of topics and teaching means will be developed.

Learning outcomes

1. Introduction

- Promoting alternatives to animal testing through the development of eLearning tools to facilitate uptake of non-animal alternatives
 - **Module 1:** Searching for, and identification of, existing alternative non-animal methods and approaches
 - **Module 2:** Developing Reliable and Relevant *In Vitro* Methods and Approaches for Scientific Purposes and Regulatory Use
 - 2.1. Context & needs for reliable and relevant *in vitro* methods
 - 2.2. Method development and implementation based on Good *In Vitro* Method Practices
 - 2.3. Method validation and regulatory testing
- Survey on use of 3Rs for educational purposes at Swiss academic institutions
3RCC to collect information from Higher Education Institutions & get overview of the outcome by fall 2019

Communication

➤ 3Rs 2019 Award

- **Nominees:** scientists, having their main activities conducted in Switzerland, who have significantly contributed to the advancement of Replacement, Reduction, Refinement of animal experimentation in the area of life sciences
- **Award:** CHF 5'000.- (4'000 CHF for group + 1'000 CHF for the individual)
- **Criteria:** quality of the contributions & impact in advancing the principles of the 3Rs in either a scientific context, regulatory context, industrial context or educational context
- Possibility to have a short video made about his/her activities contributing to the implementation of the 3Rs principle
- **Deadline:** 17 June 2019

➤ Poster Award @ LS² Annual Meeting, Zürich, 14-15 Feb. 2019

- **Selection:** Innovative contributions to the 3Rs
- **Criteria:** Quality of research, Impact on 3Rs, Clarity of poster
- **Two awards:** 2x CHF 300.- granted on 15 Feb. 2019 at LS2 closing ceremony

Refinement: Katrin Wendrich, University of Fribourg: "*Sleep characteristics and glymphatic system changes driven by circadian clock gene Per2*"

Replacement: Tijmen Booij, ETH Zürich: "*High-throughput drug screening with advanced cell-based assays*"

Swiss 3Rs Day

2 September 2019

Hotel Kreuz, Bern

www.swiss3rcc.org



3 R
C C

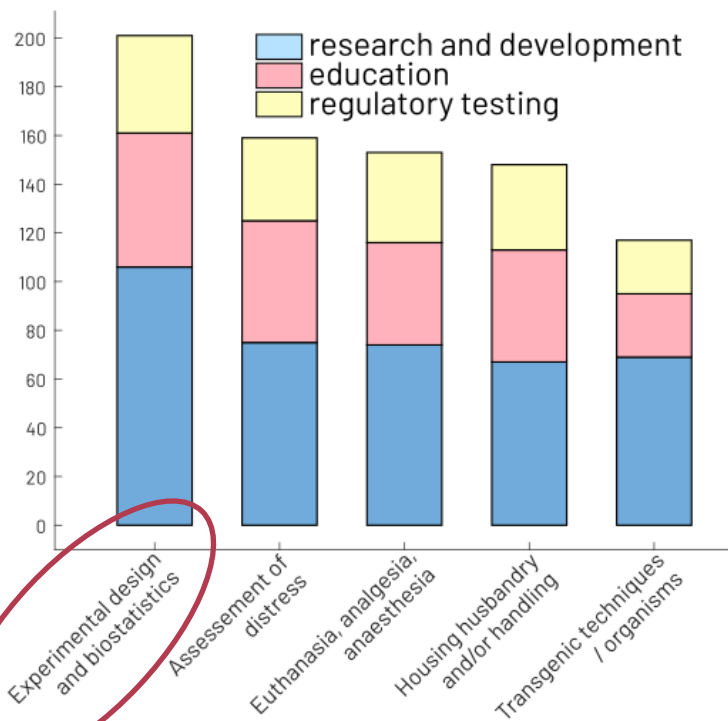
3Rs Swiss Day: 60 years of Russel & Burch's 3Rs principle

- Opening session & lecture from 3R award
- **Session I: Replacement**
Matthias Lutolf (EPFL) & Thomas Singer (Roche)
- **Debate session:** Usefulness of nonanimal-derived antibodies
Pierre Cosson (UniGe) vs. Andreas Plückthun (UniZH)
- **Session II: Reduction**
Hanno Würbel (UniBe) & Daniel Razansky (UZH & ETH)
- **Plenary lecture:** Alternatives for educational purposes
Nick Jukes, InterNICHE, UK
- **Session III: Refinement**
Paulin Jircof (UZH) & Viktoria Schreiner (Uni Basel) + presentation on FSV0 symposium on alternatives to CO2
- Closure & awards announcement

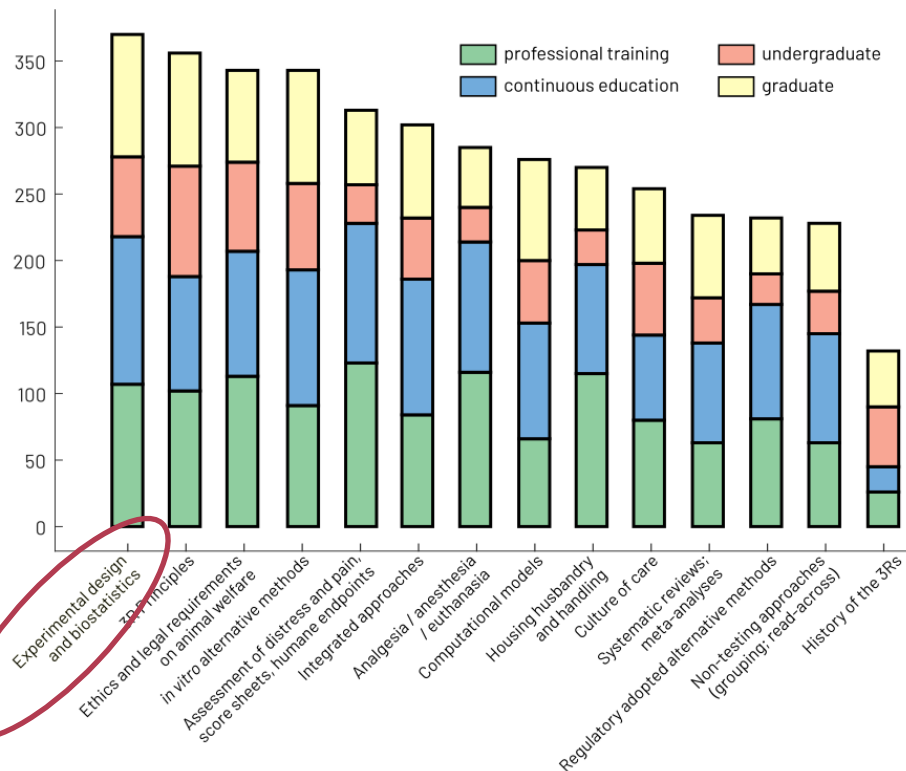
Other activities

- Assistance and education on **experimental design and biostatistics** was highly indicated in our September 2018 survey

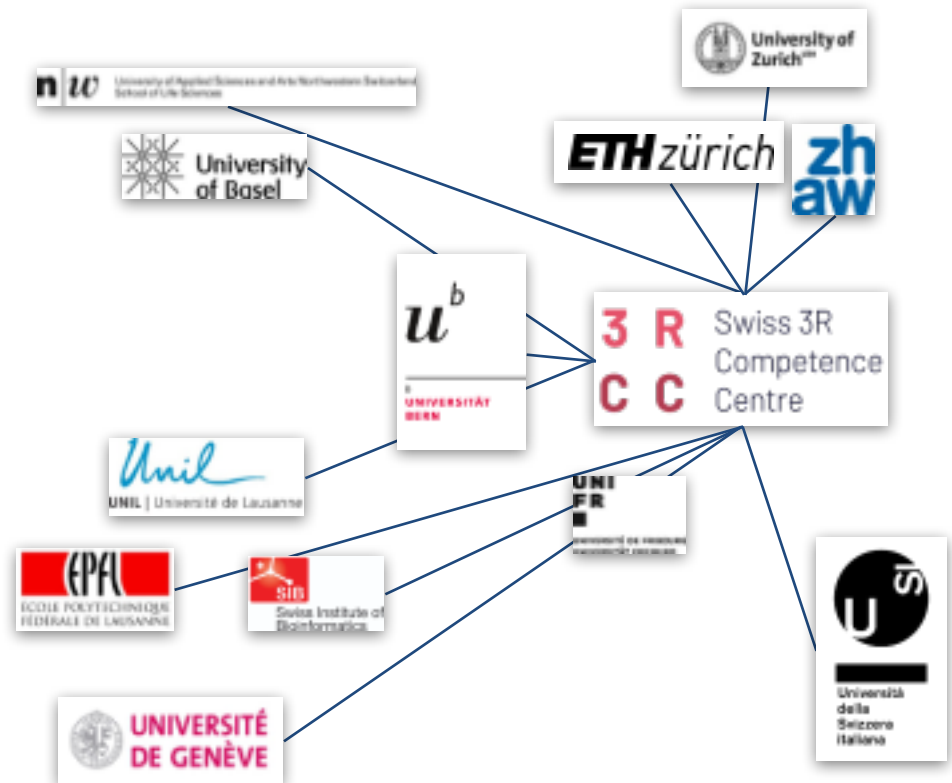
With regard to animal testing procedures, which aspects do you believe 3R methods could be most improved?



Which themes do you believe are important to be covered in an education program on the 3Rs



- **Kick-off meeting, June 3rd**
- 10 **biostatisticians** already committed, representing different major research institutions in Switzerland
- **Collaborate** on statistical consulting for individual researchers needing help with:
 - **experimental design**
 - **statistical analysis**
 - **reporting of results**
- Collaborate on **meta-research** in the field of animal experimentation (and alternatives) to **monitor** the current state of biostatistics in Switzerland (e.g. check adherence to publishing guidelines).
- Organise **working groups** and practical courses for younger researchers to address the most commonly found issues
- **Promote** the use of statistical consulting for researchers in animal experimentation (and alternatives)
- Create a group of **statistical expertise** and promote for membership/consulting on ethical boards, grant evaluation panels and journal reviewers.





Analysis of 3R related publications in Switzerland

- ❖ Services & mandates to authorities, teaching bodies and any other interested parties willing to gain additional information on the principles of 3Rs and on alternative methods to animal experimentation
- ❖ Promotion of 3R related initiatives and resources e.g., sharing of animal tissues and organs (AniMatch), culture of care, empathy for animals and humans, database on serum-free media
- ❖ Collaboration with national and international partners



The Swiss 3R Competence Centre (3RCC) promotes research, education and communication regarding the **r**eplacement, **r**eduction and **r**efinement of animal experimentation.



Thank you!

www.swiss3rcc.org