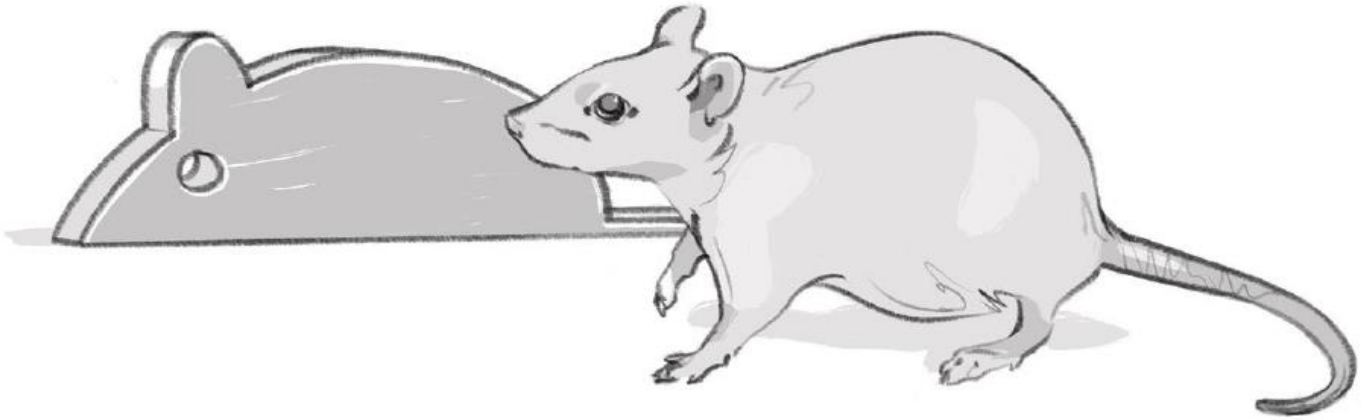
Presentations of the 12th Conference
on Animal Testing

3R and Replacement Methods – Better Research, Less Animal Harm



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Speakers at the 12th SAP Conference on Animal Testing
"3R and Replacement Methods – Better Research, Less Animal Harm"
held at Hotel Arte, Olten, Switzerland, on 20 June 2019

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Introduction

Dr. Julika Fitzi-Rathgen MLaw, Specialist unit animal experiments, Swiss Animal Protection SAP

There are only a few countries in Europe that have not yet established a 3R Center. Some countries even have several institutions supporting the promotion, development and use of alternative methods and the 3R principles (Replace, Reduce, Refine). Many transnational and internationally-networked 3R organizations and platforms are already active. And yet the number of animal experiments and laboratory animals have remained high or even increased.

In Switzerland, just under 615,000 animals were used in animal experiments in 2017 - just 15,000 fewer than in 2016. In Germany, the number even increased by 50,000 compared to the previous year, for a total of 2.8 million animals. In Austria, too, since 2013, the numbers have risen continuously by 15% to almost 240,000 animals in 2016. Worldwide, well over 100 million animals are used annually for animal experiments. The trend is rising, partly because basic research with genetically modified animals is booming and because animal experiments are still the "gold standard" for many researchers.

In many places, therefore, the expectations of the 3R competence centers are high. They are also responsible for demonstrating greater transparency, e.g., in the implementation of the 3R principles, the reduction and replacement of animal experiments. To date, for example, it is hardly possible to find out how many animals have been saved by the 3R principles implemented to date, or how animals suffer less in terms of husbandry, handling and testing. The rehoming of laboratory animals has also risen in importance in terms of a "culture of care" for animals used in research, and a possible second chance at a life after animal testing. A first successful implementation example is available.

We would like to cordially invite you to follow with us the developments and improvements in the 3R field and alternative methods, and below present concrete research projects in the area of alternative methods.

Towards Innovation in Life Sciences: Are EU scientific policies aligned with scientific evidence?

Luísa Bastos, Animals in Science Programme Leader, Eurogroup for Animals, Brussels

Every year, more than 12 million animals are used in research, testing and education in the EU.[1] The number of animals used for this purpose is still not decreasing despite the steady EU investment on alternatives to animals in science and the EU commitment to fully replace the use of animals in these areas.[2]

The growing scientific evidence showing the need for more human-relevant science to significantly improve healthcare is also not producing an impact on the reported numbers. In the past decades, systematic reviews of animal studies have consistently shown the poor scientific value of this practice.[3-11] Today we know that animal experimentation has failed to contribute to the development of new treatments for diseases like cancer[12] and alzheimer.[13] It has failed to predict toxicity of substances in humans,[14] and even understand crucial properties of drugs.[15] A new Directive for the protection of animals used for scientific purposes was adopted in 2010, but the conformity checks of the national transpositions are still taking place. The first review of this Directive showed that one possible consequence of its implementation may be that those using animals feel increasingly justified in doing so. Additionally, the concept and practice of the 3Rs - replacement, reduction and refinement – seems stagnated.[16,17]

One aspect of the Directive 2010/63/EU on the protection of animals used for scientific purposes is that it gives the minimum standards that need to be adopted by animal breeders, sellers and users when keeping or using animals for scientific purposes. Although the goal of this Directive is the harmonisation of the internal market, it does provide some flexibility on how Member States implement it.

For example, Member States have implemented project evaluation and authorisation processes in diverse ways. In two extremes, some center the processes in a national competent authority, others leave the responsibilities to the institutions proposing the project. However, looking deeper into who are the people responsible for evaluating project applications, it is clear that, in the majority of cases, the evaluation of the animal-based project is conducted mainly by individuals with a link to animal experimentation.

The probable partiality of project evaluators may be one element that is hindering innovation in life sciences. Without a comprehensive assessment of applications by experts in other scientific practices, the evaluation is not fully addressing the first R of the 3Rs - replacement; Without the assessment by target professionals as clinicians, the evaluation is not addressing the feasibility of a potential benefit of the project results. Besides guaranteeing a project evaluation based on the best application of historical knowledge of scientific impact and the 3R principles, a holistic scientific policy needs to guarantee the education and resources to empower scientists to move towards non-animal science. EU and national scientific policies need to take into consideration scientific evidence, political goals, and the current paradigm.

Innovation-leading scientists have a recurrent complaint: they have limited support to continue their research. However, under the EU Directive 2010/63, the European Commission and Member States have the responsibility to foster the development, validation and uptake of alternative approaches (article 47). Scientific policies can channel their support to prioritise a shift towards human-relevant and non-animal science, while at the same time discouraging animal-based research. Priority areas include fields where other methods either exist (e.g. medical and veterinary education and training), are being explored in parallel (e.g. orga transplantation), or can be developed without major technological challenges (e.g. education and training in laboratory animal science).

Progress in other areas where the contribution of animal studies has not been assessed can be initially tackled by Thematic Reviews as foreseen in article 58 of Directive 2010/63/EU. Besides analysing the applicability, stage of development, and potential of non-animal approaches in a specific scientific area, an independent and consensual Thematic Review should ideally lead to a strategy to phase out the use of animals in the specified area of research, education or testing.

In conclusion, although the political commitment and scientific innovation have been showing the possibilities to move towards non-animal science, concrete policies that can effectively shift scientific development into a different direction are still too slim to hold visible results for science, human health, and animal welfare.

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Notes

Advancing 3Rs in Switzerland

Chantra Eskes, PhD, Eng., Director 3RCC, Bern

The Swiss 3R Competence Centre (3RCC) was founded in March 2018 as a non-profit association that promotes the Replacement, Reduction and Refinement of animal experimentation (3Rs principle) in Switzerland and facilitates its implementation in life sciences, with a major focus on high quality research, education and communication.

The 3RCC is a scientific centre of national importance formed as a joint initiative of academia, the industry, regulators, the government and animal welfare association (www.swiss3rcc.org). During its first months, the structure of the centre has been established, including its Executive Board, Scientific Advisory Board and Directorate. Furthermore, a survey was sent to 183 research groups identified to work on the 3Rs in Switzerland, to enquire about current gaps and opportunities for implementing the 3Rs in Switzerland. The survey outcome helped identifying priority needs regarding funding, educational programmes and communication.

The 3RCC has been very active during this first year in establishing its **research funding programme**. A first open call for proposals was launched in November 2018 and closed in January 2019 with CHF 1'265'000 funds available for all of the 3Rs. The selection process resulted in 6 research projects selected out of the 47 complete applications received. The centre has also launched a call for nominations for a **3Rs award,** the winner of which will be announced during the 3Rs Day it is organizing in September 2019.

A mapping of existing **educational programmes** on 3Rs was conducted at the under-graduate, graduate, professional and continuing education levels. Based on the outcome of this mapping as well as on the outcome of the above-mentioned survey, recommendations were made for the implementation of a 3Rs educational program at bachelor level including a list of recommended topics to be addressed. Furthermore, the centre is working in developing an e-Learning module to promote the implementation of alternatives to animal testing, and is collecting information about the use of alternative methods for educational purposes in Switzerland. Finally, the centre has established a biostatistics task force to help fostering good experimental design and biostatistics practices and support.

The centre publishes since its creation, regular newsletters and has been active through its website and social media in providing **regular news on the 3Rs and on 3RCC activities**. The 3RCC also promotes the 3Rs principle by organizing and participating to scientific sessions and events within and outside Switzerland. Finally, the centre provides support to the Federal Office of Public Health regarding the development of guidance documents on alternatives to animal testing as well as supporting the international **regulatory implementation** of test guidelines based on alternative methods to animal experimentation.

Notes

3R-Networks in Europe – an Update

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The purpose of this network is to bring European 3R centres and societies together to share best practices, enhance communication, support the exchange of information and prepare the ground for common initiatives.

After the initial meeting of representatives of 3Rs centres and societies at the EUSAAT conference in September 2018 in Linz (Austria), the first follow-up meeting was hosted by the Freie Universität Berlin and took place on 14th and 15th March 2019.

Major common aims were identified: to further advance the 3Rs, to help implement the aims of Directive 2010/63/EU locally, and to develop strategies and methods to reach out and connect with scientists in basic research. The network could also be used as a platform to exchange experiences on a variety of topics, for example: how the various 3R centres and societies have been built up, how they organize events, how they secure funding etc. In addition, it can also be used for e.g. sharing teaching strategies and resources to implement the 3Rs in the education.

The meeting began with an introduction of the representatives about their aims, institutional or societal structure, their tools and their competencies. During the discussions it became clear that the diversity of the members could be the strength of the network, since they cover many different topics and have experts on Refinement, Reduction and Replacement of animal experiments.

Topics with an urgent need were identified and working groups for these topics have been defined. The progress of these working groups was presented at the third meeting during the FELASA conference in June 2019.

So far, members from Austria, the Czech Republic, Denmark, Germany, Hungary, Italy, Luxembourg, the Netherlands, Norway, Portugal, Slovakia, Sweden, Switzerland and the United Kingdom have participated and the network is growing. Institutions from several other countries are in contact with the network and have expressed their wish to join the network.

The network is a completely independent, open and free community, which is very much dependent upon initiatives of its protagonists and personal efforts. It is based upon a bottom-up approach, and every 3R centre or society is welcome to join.

Current coordinator: Winfried Neuhaus (winfried.neuhaus@ait.ac.at)

Notes

Animal Experimentation: Working Towards a Paradigm Change

Dr. Kathrin Herrmann, Assistant Scientist, Johns Hopkins University, Bloomberg School of Public Health, Center for Alternatives to Animal Testing (CAAT)

Legal reforms around the world frequently do not provide sufficient tools to protect even basic animal needs, let alone animal well-being. However, compared to other legislation, Directive 2010/63/EU of the European Parliament on the protection of animals used for scientific purposes appears radical with its statement that the final goal is the replacement of procedures on live animals as soon as it is scientifically feasible (European Parliament, 2010, recital 10).

Unfortunately, the Directive does not provide a plan of action on how to achieve this long-awaited goal. Nonetheless, it is not unrealistic that this crucial shift can be accomplished since we have the necessary arguments against the flawed, misleading and unethical use of animals in science (Archibald, 2018; Archibald et al., 2018; Herrmann and Jayne, in press; Pound and Ritskes-Hoitinga, 2018). These limitations are not yet widely known by the general public, and there is evidence that they are not appreciated or simply ignored by experimenters who base their work on animal use (e.g., Fitzpatrick et al., 2018; Franco et al., 2018). Thus, informing the public about the biomedical industrial complex and its practices in an unbiased way is crucial to enable and foster the much-needed paradigm change in biomedical research, testing and education.

Hence, this paper starts out with discussing some main shortcomings of animal experimentation. Evidence of the failure of animal models to protect humans and to control many diseases will be given (Kramer and Greek, 2018; Part 5, Herrmann and Jayne, 2019) which also demonstrate the waste of resources for such research (Chapter 10, Herrmann and Jayne, 2019). Furthermore, the harms to both non-human animals and humans caused by the reliance on animal-based research will be reported (Archibald, 2018; Chapter 13, Herrmann and Jayne, 2019).

The second part of the paper focuses on ways to work towards an animal-free world of science. Some main obstacles to overcome are the vague provisions regarding animal replacement (especially in the field of basic and applied research) (Chapters 1 and 6, Herrmann and Jayne, 2019), lack of education on animal-free, human-relevant approaches, insufficient funding for the development of non-animal models (Chapters 1 and 24, Herrmann and Jayne, 2019) and entrenchment in science (Chapter 24, Herrmann and Jayne, 2019).

In addition, there is a demand for societal action on the political level which is central to achieving this imperative scientific revolution (Chapters 5 and 7, Herrmann and Jayne, 2019). The paper closes by showing ways that the general public can contribute to a paradigm change away from animal use in research, testing and education.

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Keywords: biomedical industrial complex; animal experimentation; paradigm change; public engagement

Notes

The Simulated Man

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Currently, experimental animals are primarily used for:

- Gaining scientific knowledge in basic biological research,
- Research into the onset and progression of a disease, and for
- Toxicity testing of new therapeutic strategies.

The development of human models covering these three areas of application will make an important contribution to avoiding and reducing animal experimentation and thus, in this question, insinuates itself into the concept of the State of Berlin.

The knowledge we can gain with the help of new human models can be divided into three subgroups.

1)
The human body consists of **organs and tissues** in which cells interact with each other and with their unique extracellular matrix. This interaction forms the basis for their specific functional capabilities.
The further development of complex 3D cell cultures (using bioprinting and/or microfluidics) enables the creation of that functional unit, the organoid.
These organoids then simulate an aspect of our complex organism and allow us to explore the strictly choreographed interaction of different cell types of a tissue.

2)
Our body consists of more than 300 different **cell** types. The tasks and functions of each one has not yet been sufficiently researched. With the help of current technologies, such as CyTOF (Cytometry Time of Flight), for example, from one single patient biopsy, each individual cell can be examined, in parallel, for approximately 40 characteristics and properties. And this can be done at a speed of 500-1000 cells per second.
In this way, new tumor markers can be identified without the use of a laboratory animal.

3)
Advances in genome sequencing technologies now allow high-throughput analyses within a few days to hours. This makes it possible to analyze large groups of people (of different genders, ages and ethnic origins) and to compare them with the data from an afflicted patient group. A clinical picture can thus be depicted in much more detail and can be a trend-setter for possible therapeutic approaches.
Even if (almost) all cells from a person carry the same genetic information, they differ in the type and quantity of proteins they synthesize in order to be functional in their organ or tissue. With the help of proteomics, this unique **subcellular** profile can be analyzed and compared with databases. This enables the identification of new protein complexes and/or interaction partners.

The research project "**The Simulated Man**" (German: Der Simulierte Mensch, Si-M) was jointly applied for by the Technical University of Berlin (TU Berlin) and the Charité University Medicine Berlin (Charité). The initiators are Prof. Andreas Thiel (Charité) and Prof. Roland Lauster (TU Berlin). Both are experts in their fields of regenerative immunology and technologies for advanced 3D cultivation.
Only with the resources of the Charité and the TU Berlin can this special research project be realized; it stands at the interface of engineering sciences and medicine. In the building, scientists from both institutions will work together to simulate the functions of human cells and tissues with new technologies from 3D cultivation, multi-organ chips or 3D bioprinting.

Figure 1: Animated interior view of the research building "The Simulated Man" from a draft (rights: Architectural office HDR GmbH).

In contrast to already existing collaboration projects, the joint development of the model "side by side" will be practiced in the same laboratory environment of the building.
In this way, both the development of organ models and the technological developments can be adapted and optimized at the same time. Thus, the building is not separated in the middle and half of it is occupied by scientists from the Charité or the TU Berlin. Rather, only those scientists from both institutions will move in who have applied for a joint cooperation project and have financed it with third-party funds. They will work in a laboratory and an office, will be able to use the latest equipment and technologies of the Si-M and thus realize their vision in a goal-directed manner.

At the Institute for Biotechnology of the TU Berlin, new technologies have been established which play a major role in the concept; these are found in the areas of 3D cultivation of human cells, microfluid-coupled systems and bioprinting. In addition, the institute has extensive expertise in the fields of protein- and RNA-technologies.
With the BIH Centre for Regenerative Therapies (BCRT), the Charité has a strong engine for new research priorities. The main focus is on oncological, immunological and regenerative questions.

The coupled simulation of several human tissues opens up completely novel research approaches with high clinical relevance, particularly in the field of new cancer therapies and infections. The two disciplines come together in the field of immunotherapies for cancer in an exemplary fashion.
The new research building will be completed in 2023 and is divided thematically and structurally into three levels: "tissue and organs", "cell" and "subcellular". Each of these floors is equipped with German Research Foundation-funded state-of-the-art equipment.

Young scientists in particular can develop their innovative ideas quickly and efficiently and put them into practice.
Thanks to the flat hierarchies of the Si-M, young working group leaders can exchange ideas and interpret experimental results as equals with luminaries from the Si-M.

The research building "The Simulated Man" can thus act as a driving force for the upcoming paradigm shift in the medical biosciences.

Figure 2: Animated frontal view of the research building, “The Simulated Man“ from the draft (Rights: Architectural office, HDR GmbH)

Notes

Foetal Bovine Serum – A pain in the dish?

Dr. Jan van der Valk, 3Rs-Centre Utrecht Life Sciences, Fac. Veterinary Medicine, Utrecht University

The use of animals for research purposes is nowadays not only a dilemma in research but causes also a strong concern, in particular to the general public. In addition, the European Directive on the protection of animals used for scientific purposes (Dir 2010/63/EU) acknowledges that animals have an intrinsic value and their use in research should be kept to an absolute minimum. Furthermore, we currently face a reproducibility crisis in research, in particular in research using animals and animal-derived products. To answer to both issues, the use of animals and animal-derived products should be avoided wherever possible. The application of cell and tissue culture (*in vitro*) methods is generally thought and accepted as one way of addressing the above-mentioned issues. But, do they?

Foetal Calf Serum (FCS), also known as Foetal Bovine Serum (FBS) is a common and an almost universal supplement of cell culture media. However, FCS is harvested, with a reasonable chance of suffering, by a heart puncture from bovine foetuses discovered in pregnant cows during slaughter. Furthermore, since it is a natural product, the composition of FCS is unknown and varies from batch to batch, which may affect the experiments and impedes the reproducibility of results.

Two workshops in the past focussed on foetal pain and distress during blood harvesting for FBS production[1] and on current *in vitro* methods devoid of FBS or other animal components[2]. Recommendations are provided to avoid foetal bovine suffering during collection of blood to prepare serum from. Also strategies are discussed to develop animal-serum free media, and in particular chemically-defined media.

Recent years showed tremendous efforts in the establishment of human platelet lysates as a valuable alternative to FBS as cell culture supplement, although being undefined. This development, together with successful serum-free applications in microphysiological systems and organ-on-chips technologies, led to a 3rd workshop on FBS, serum alternatives and serum-free media[3]. It was concluded that:

- There is an inconsistency when serum, produced by means that are harmful to animals, is used to establish a method that aims to replace animal experiments.
- The harvesting of FBS from live bovine foetuses in the last third of their development, if it takes place on EU territory, adds a legal issue to the moral one, as it would require regulatory project evaluation including a cost-benefit analysis.
- To be able to work serum-free in daily routine of a cell culture lab, it is desirable to establish (new) *in vitro* methods under serum-free, preferably chemically defined, conditions.
- On-line serum-free databanks, with comprehensive search functions and free access, should be established (See: https://fcs-free.org/).

In contrast to FBS, the preferred chemically-defined media are cell type specific. For several cell types, chemically-defined media have now been developed. To quickly identify whether and/or which medium is available for a specific cell type, the FCS-free database (fcs-free.org) was established. This database provides an overview of commercially available serum-free media for cell and tissue culture, as well as medium formulations for specific cell types obtained from scientific literature. Furthermore, the website serves as a platform to exchange information on the quality and applicability of each product. Since it is not only a database for, but also by scientist, information on missing media is appreciated. The database is offered by the 3Rs-Centre Utrecht Life Sciences in collaboration with Animal Free Research UK.

It should be realised that not only FBS contributes to possible animal harm and irreproducible results from *in vitro* methods. Several other animal-derived products are used in cell and tissue

culture. Therefore, good *in vitro* methods should address many issues to deliver reproducible and reliable results[4,5].

Literature:

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Notes

Alternative methods to the Draize Test for Eye Irritation Testing

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The Draize test for eye irritation testing is used since decades. Here the substance under investigation is applied to the eyes of a rabbit and - depending on the resulting irritation – assigned to one out of three irritation categories. The United Nations Globally Harmonized System (UN GHS) categories are non-irritating or not classified (UN GHS: No category), reversible eye effects (UN GHS: Category 2) and irreversible eye effects (UN GHS: Category 1). Alternative methods exist for identification of no category and category 1 substances [1]. However, there is no validated method available to identify category 2 substances. This lack in methods results in an ongoing use of the Draize test in the European Union. Figure 1 displays data from Germany and the European Union (extended from [2] – updated data from the European Union will be published at the end of 2019).

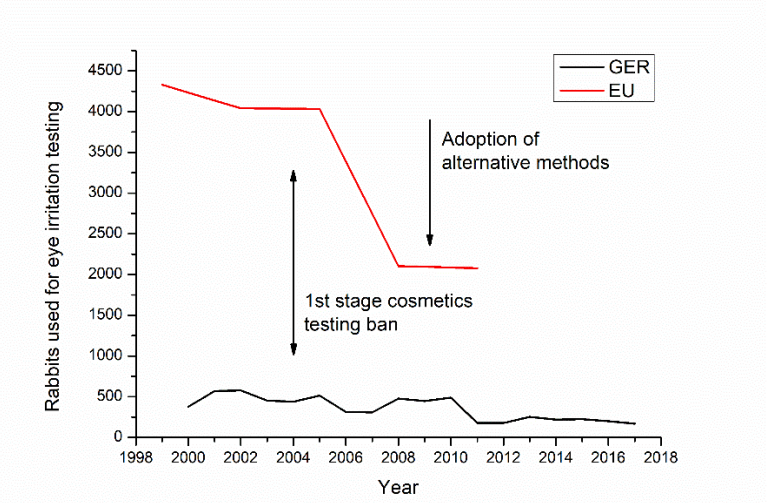

Figure 1. Numbers of rabbits used for eye irritation testing between 1998 and 2017 in Germany and the European Union.

In the presentation an alternative method - based on the intelligent mobile lab for *in-vitro* diagnostic (IMOLA-IVD) (Figure 2) - to determine the eye irritation potential of substances will be described in detail [3] and options to determine also category 2 substances will be discussed [4,5].

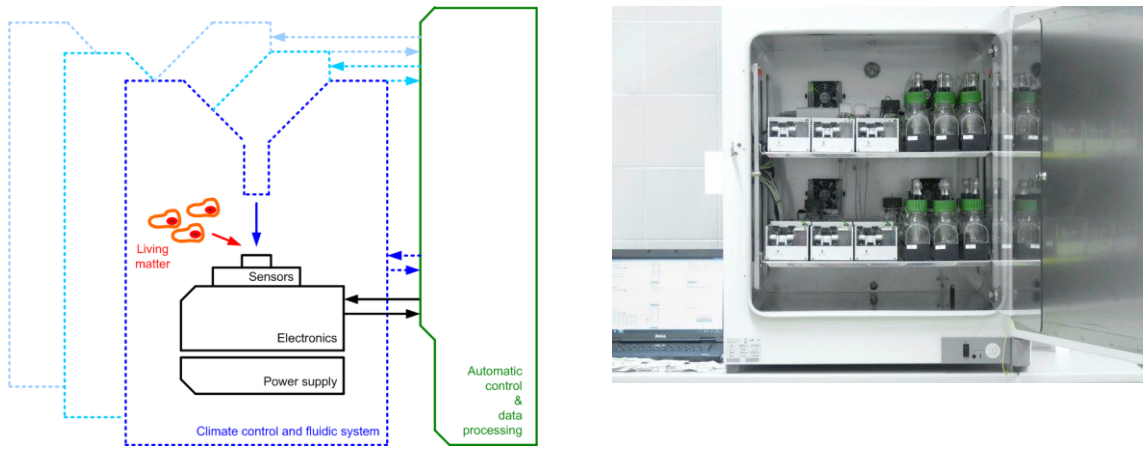

Figure 2. Intelligent mobile lab for in-vitro diagnostic (IMOLA-IVD). Left: principle, right: laboratory system.

References:

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Notes

Rehoming of Laboratory Animals

Dr. Paulin Jirkof, Department of Animal Protection, University of Zurich

For several decades now, research institutions have established projects for the placement of former laboratory animals, such as cats and dogs, with private owners. However, the rehoming of smaller experimental animals, such as rodents, is less well known. In autumn 2018, in a collaboration between the Swiss Animal Protection, SAP (Schweizer Tierschutz, STS) and the University of Zurich, a rehoming project was launched with the aim of enabling suitable rats from animal experiments to lead a new life in private ownership.

Initiatives by the research-based pharmaceutical industry and various university laboratory animal care departments, with and without the support of animal welfare organizations, provide promising examples of the successful placement of former experimental or breeding animals as pets. Studies on the success of the placement of beagles from German research institutions report, for example, that more than 90% of those who adopted a laboratory beagle would again take on a laboratory animal (e.g. Döring et al. 2017).

Rehoming has been practiced in a few laboratories on a voluntary basis for years and there are some national recommendations for the placement of laboratory animals. Nevertheless, the publication of Directive 2010/63/EU of the European Parliament and of the Council for the Protection of Animals Used for Scientific Purposes, which regulates animal testing in the EU member states, has, in recent years, stimulated efforts for the placement of laboratory animals. Two articles from this EU Directive actually describe an obligation by the respective research institutions to develop rehoming programs. In order to support laboratories and institutions in the implementation of this program, various national (e.g. in the Netherlands, by the Netherland National Committee for the Protection of Animals Used for Scientific Purposes) and international recommendations (e.g. Federation for Laboratory Animal Science Associations) have been established. For Switzerland, there is currently no national recommendation on the rehoming of laboratory animals.

The University of Zurich (UZH) is aware of the responsibility that the use of animals in research entails. This includes a responsibility for the welfare of the animals during the research, but also for the fate of the animal after the experiment. While larger laboratory animals, such as cats, have long been successfully placed with private owners by the respective research groups of the UZH, there has, to date, been no formal rehoming project for laboratory rodents at the UZH. In autumn 2018, the STS and the Friends of Rats' Club (Club der Rattenfreunde) worked together with the University of Zurich to set up a rehoming project aimed at enabling rats from animal experiments to lead a new life in private hands.

Due to experimental and legal considerations, not all laboratory animals can be placed privately. Since autumn 2018, however, about 70 rats suitable for placement have been handed over to the Friends of Rats' Club. Experimental rats are kept in groups at the UZH, socialized to humans, and their health is continuously examined. The usual laboratory rat breeds, such as Sprague Dawley, are characterized by their tolerance of same-gender groups and humans, and are therefore well-suited as pets.

The rehoming project is greatly supported by experimental animal care departments and the research groups involved. In particular, researchers, veterinarians and animal caregivers who were entrusted with the care of the placed animals, consider this a positive way to give the animals a new life as pets.

In the future, we would like to continue this project and, if possible, expand it to other small experimental animals, such as rabbits and mice.

Picture: Former laboratory rats (Sprague Dawley breed) on their way to the placement organization (Picture: J. Bernegger, Friend of Rats' Club).

References:

Döring, D., Nick, O., Bauer, A., Küchenhoff, H., & Erhard, M. H. (2017). How do rehomed laboratory beagles behave in everyday situations? Results from an observational test and a survey of new owners. PloS one, 12(7), e0181303.

Notes

Rehoming of Laboratory Animals

Judith Bernegger, President «Club der Rattenfreunde CH»

After the transport: What happens next?

Well bundled for transport with all their needs met, the laboratory rats begin their journey to their foster home. After their arrival, they are first introduced to the care station. Everything is different: the new home, smells, noises, surroundings, even the lights and people are unfamiliar. The furnishings are also unknown. This can be a stress factor for many animals, but not for laboratory animals. It is exciting to watch them excitedly running all around their new domicile and sniffing out everything. No shyness, no fear, just pure curiosity. Running up and down ladders, if they already know about different levels. In the house and then back out. And that? What is that? A bed? Nope, that must be the toilet then.

They adapt quite quickly to the new life. After a few days, the offered pellets are already spurned. Instead, they throw themselves on the grain bowl and await the fresh food bowl with great anticipation. Cucumbers fly away like hot cross buns, carrots too, in the beginning. Cucumber is what they get from day one. During those initial days, the cucumber slices are still counted, as are the carrots. They slowly and gradually become accustomed to the daily fresh food. First they are introduced to various vegetables. Particularly close attention is given to vegetables that are easy on the stomach and also good for digestion. This includes fennel, chicory, zucchini and pumpkin. Lettuce is offered in small portions only after a week, at the earliest. It is fun to prepare the fresh food for the new arrivals, knowing full well that the bowl will be eaten clean. Pickiness only comes later.

The placement of the animals is yet another point on the journey of the rats into domesticated life. Not every inquiry ends with an adoption. Why? Albinos are not necessarily everyone's cup of tea. The red eyes deter some rat lovers. There are questions that abound: "How can I tell the animals apart? They are all white." Yes, they are all white, but if you spend time with the rats, you can quickly note differences. Be it their character, be it the different red of the eyes, or even their ear positioning. Some hold their ears more laterally, while others daunt a jauntier pose. One rat might be more cheeky, the other a little more gentle. Some are slyer, more courageous while others orient themselves to their companions: If they can do that, then so can I. Rats are extremely fascinating animals. Each one has its own personality.

Then there is the crucial question of caretaking: is it suitable for the animals? We are an animal protection organization and adhere strictly to the legal requirements. There is no turning a blind eye. We are also happy to give tips on how to optimize a cage, which might be correct in terms of its basic dimensions, yet still be rather poorly equipped. Many commercially available cages do not consider the rat’s joy in running, but are equipped with small seat shelves that leave hardly any room for playing. If the prospective caregiver blocks here and does not show himself to be cooperative, then that’s it from our side. No placement will be made.

However, I do not want to go into the details of an optimal rat home here; that would go too far. I would just like to point out that the future home of the laboratory rats - and every animal that we are to place – is given a very high priority. Only providing for an animal’s housing is not our target; the new home should be as optimal as possible. Furthermore, experience in keeping rats is also a point that is clarified. This does not mean that a novice rat keeper would not be suitable for laboratory animals. Even beginners can be the right people to adopt. It’s the attitude that is important. There are some rat owners who are not aware of their responsibility towards the animals, but consider rats as disposable items: if it no longer fits, take it away. Unfortunately, we are also confronted with this problem. This is another point that we discuss in great detail beforehand. Rats can become expensive animals. An abscess here, a tumor there. This is not necessarily the case, but it may happen. And if there are no reserves for the

veterinarian, then quite a bit of the budget can be nibbled away. Furthermore, the reaction to our protection contract also plays a role: when hesitancy arises at the mention of our protection contract, then there is no “fit”. And without a protection contract, the animals will not be placed. In this way, we want to prevent the animals from becoming traveling trophies where we lose track of their path. The rats remain the property of the Friend of Rats’ Club CH. If something should change at home, be it through illness or family restructuring, then we take care of finding a new home.

I would like to thank everyone who contributed, and continues to contribute, to the success of the Re-Homing project. When Dr. Julika Fitzi asked me if we, as a section of the SAP, could help with this project, I didn't need a moment to stop and think: Yes! Ever so gladly. The past months have shown that it is worth the effort: all adoptive families are more than happy with their laboratory animals. They are cheerful, gentle, super sweet animals that enchant everyone.

My thanks go to all of you who have changed your thinking. To Dr. Paulin Jirkof from the University of Zurich, who entrusts me with the animals and makes sure that they are always handed over without any problems. And to Dr. Julika Fitzi from SAP, who immediately thought of us when the project was slowly taking shape.

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