Russia: Update on Animal Experiments and Alternatives in Education

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Summary
Progress continues in Russia with growing awareness and implementation of alternatives in education. Further outreach visits and negotiations for replacement have been made by InterNICHE campaigners. Russian language information resources have been complemented by the distribution of translated freeware physiology and pharmacology alternatives; and the InterNICHE Alternatives Loan Systems continue to provide valuable hands-on access to a range of learning tools. Donations of computers and alternatives have established exemplary multimedia laboratories, with software having directly replaced the annual use of several thousand animals. New agreements have been made with institutes to abandon animal experiments for teaching purposes. Work to consolidate the successes is being done, and Russian teachers have begun to present at conferences to share their experiences of implementation. Further development and implementation of alternatives is being achieved through grant funding from the InterNICHE Humane Education Award. Using a different approach, cases of determined conscientious objection have included a campaign against the use of stolen companion animals for surgery practice in the Russian Far East, and a continuing legal challenge to experiments at Moscow State University. This multi-pronged, decentralised and culturally appropriate campaigning strategy has proved to be an effective approach to achieving sustainable change in Russia.

Keywords: Russia, animal experiment, education, replacement, InterNICHE

Tools of the trade: Surgery scandal in Russia’s Far East

In the Russian Far East, 8,000 km from Moscow and on the border with China, is the city of Blagoveschensk. In 2006, the Institute of Veterinary Medicine and Zootechnics at the Far-East State University of Agriculture in this “city of students” became the focus of a major scandal about animal use in surgery, leading to the end of animal experiments but also the expulsion of a conscientiously objecting student in 2007.

The dumping near Blagoveschensk of many cadavers of pedigree dogs that had apparently suffered serious wounds before dying exposed the reality that veterinary students were practicing surgery on stolen companion animals and strays. Some residents of the city had at other times found their companion animals alive but with wounds; and even in some cases with surgical equipment left in their bodies. The local media covered the story, with graphic photos. They linked the animals and the university, and quoted the surgery department who confirmed that the dogs had originated there, but that “they are animal patients from the clinic that were euthanised due to illness.”

As has been reported before, concerning student use of healthy animals for surgery practice in Russia (1), students in Blagoveschensk had been encouraged and coerced into catching animals. As the
academic year began in September 2006, the veterinary students were told to begin catching animals. One caught a cat and asked her colleague Yulia Ananyeva to look after it at home until the surgery class. Refusing to do this, and shocked by the demand to catch animals and use them for surgery practice, the latter contacted philosophy teacher Natalya Kalinina. Along with another concerned student, Elena Kocherga, the three began a campaign. Searching for information, they found the websites of InterNICHE and the Russian animal rights group VITA. These provided the campaigners with evidence of the existence, implementation and efficacy of alternatives, including news about replacement in Russia and abroad. Importantly, it confirmed to them that the situation in Blagoveschensk was not normal and could be changed. A petition was launched, which many students signed. Representatives of ecological and political bodies joined others in complaining about the animal abuse and the treatment of the campaigners. InterNICHE also expressed its concern and offered support and resources to the university, as well as to the campaigners. An important press conference was organised for September 2006, where the cruelties in the Department of Surgery were publicly denounced and the city was reminded of the dumping of cadavers earlier in the year.

**Clash of cultures**

The pro-active approach taken by organising the press conference brought immediate attention to the cruelty and thefts. The university faced media exposure and an investigation by prosecutors in which the other students denied what was happening, and although Natalya Kalinina’s claims that the cadavers were from clinical patients who needed to be euthanised, and they were fined for “inappropriate disposal methods” only. A lack of documentary evidence, for example about ‘ownership’ of a companion animal, and the unwillingness of witnesses to speak out, means that any investigation would bring little progress. “Most people in Russia are passive and believe they can’t change anything,” says Lena Maroueva. “So many animals are killed ‘legally’ that action can seem pointless. In the smaller cities and towns, dog catchers sometimes even capture and kill dogs being walked with their guardians because they are temporarily off their leashes.” Such practice, and the lack of appropriate and effective laws, no doubt contributes to the lack of action from companion animal guardians, whose animals were killed for surgery practice in Blagoveschensk.

**Law and disempowerment**

The investigators from the local prosecutor’s office saw no proof of cruelty, no experiments and no cadavers. The other students denied what was happening, and although Natalya Kalinina’s university colleagues “secretly admire” her, they won’t speak out. The prosecutors therefore accepted the university’s claim: that the cadavers were from clinical patients who needed to be euthanised, and they were fined for “inappropriate disposal methods” only. A lack of documentary evidence, for example about ‘ownership’ of a companion animal, and the unwillingness of witnesses to speak out, means that any investigation would bring little progress. “Most people in Russia are passive and believe they can’t change anything,” says Lena Maroueva. “So many animals are killed ‘legally’ that action can seem pointless. In the smaller cities and towns, dog catchers sometimes even capture and kill dogs being walked with their guardians because they are temporarily off their leashes.” Such practice, and the lack of appropriate and effective laws, no doubt contributes to the lack of action from companion animal guardians, whose animals were killed for surgery practice in Blagoveschensk.
tice education in Russia and beyond, is a reflection of a movement that is becoming stronger.

**Zoology replacement at Moscow State Agricultural Academy**

Progress in the replacement of animals used for anatomy classes is being made at the Moscow State Agricultural Academy. The Russian micro-Loan System of alternatives from InterNICHE has played a major role in supporting this collaboration. Video and software alternatives of dogfish, frog and invertebrate dissection were borrowed by the Academy. One-to-one communication between InterNICHE-Russia and the relevant individuals at the Academy facilitated the loan of the most appropriate learning tools. A pigeon dissection alternative was also rushed to the Department of Zoology when it was discovered that the killing of birds for a practical was imminent. With just a few days’ notice, the killing was avoided through the provision of the alternatives.

Teachers and students have been happy with the quality of the learning tools, despite that they are currently not available in the Russian language. A meeting with the Dean showed that he too is supportive of replacement, criticising in particular the “stupid Pavlov experiments” (his words) in physiology. It was confirmed that in 2007 the alternatives – loaned for several months – directly replaced much of the killing of animals for students in the Department of Zoology. The Academy is now applying to InterNICHE for funds to purchase the alternatives from the producers. This curricular transformation is important because it involves the use of existing alternatives rather than a request to make new alternatives or a refusal to use any because of the language barrier.

**Feeling the pain**

However, there are reports that alcohol is being used to anaesthetise animals before experiments in physiology practicals at the Academy. Availability of drugs for anaesthesia of animals continues to be a major issue in Russia. VITA led the fight in 2003-2004 against the actions of the government’s Drug Enforcement Agency (DAE) concerning the anaesthetic ketamine (2). The drug became illegal in 1998 through an oversight at the Ministry of Agriculture, but veterinarians continued to use it because there were few other anaesthetic drugs practically available. The DAE began aggressively prosecuting veterinarians, and VITA actively defended them. As well as helping to cement links between VITA and the profession, the campaign met with some degree of success: no further prosecutions and a formal legalisation of the use of ketamine – though with very strict conditions that only rich veterinarians could meet.

The “ketamine scandal”, therefore, has still not been fully resolved, though some clinics continue to use it. Universities are unlikely to take the risk of using the ketamine, and the use of alcohol – even vodka – at the Academy and other establishments is within the realms of possibility. Certainly vodka is sometimes used as an anaesthetic for farm animals. The drug is of course popular with people too, and over 3500 Russians are reported to die every month from drinking counterfeit vodka as they anaesthetise themselves against Russia’s social and economic problems.

**Award and Annual Humane Education Day launched**

A new award that recognises the most progressive Russian universities was launched in 2007. It brings together a number of organisations: the Association of Practicing Veterinarians, the Human-Animal Relationship Ethics Commission of the Russian Academy of Sciences, the International Association Against Painful Experiments on Animals (IAAPEA), InterNICHE and VITA. Lena Maroueva announced the launch at a press conference and at the opening of the Veterinary Congress in Moscow. Co-organiser of the congress and Head of the Association, Sergei Sereda, has frequently spoken out against animal experiments in education, describing them as “unnecessary and cruel”. He promotes alternatives and asserts the need for improvement in the quality of education. Ministry of Agriculture officials usually open the congress.

The recipients of the award for 2007 were named as the St Petersburg State Academy of Veterinary Sciences and Velikie Luki Agricultural Academy. At a ceremony in Moscow, representatives from the universities were presented with hand-made bronze sculptures of a frog, specially commissioned for the purpose. The artwork is by renowned sculptor Aleksandr Tsigal, who has created work for the Kremlin and a major Moscow cathedral, as well as the world’s first monument to stray animals, a famous bronze sculpture titled “Compassion” that was unveiled in a Moscow metro station after the killing of a dog there.

**Focus on replacement**

A new Humane Education Day on 24th October each year has been launched by InterNICHE, IAAPEA and VITA. It is used as a focus for the growing number of formal signed agreements between universities and InterNICHE in the region. On the 24th October 2005, the Department of Pharmacology at the St Petersburg State Academy of Veterinary Sciences signed a contract to end all animal use for students. The significance is illustrated by the fact that the founder of the department was a student of Ivan Pavlov himself. The establishment of a multimedia laboratory, funded by IAAPEA, now provides access to advanced software for students. On 24th October 2006, InterNICHE and the Faculty of Animal Production Technology at Velikie Luki Agricultural Academy also signed a contract confirming it has ended harmful animal use and acknowledging the on-going collaboration. This ground-breaking agreement is the first in Russia at the level of a faculty, and illustrates a genuine commitment from teachers to the use of modern learning tools and to humanity in science. And on 24th October 2007, an Agreement with the Kemerovo State Agricultural Institute in Siberia was signed.

An earlier contract with the Departments of Physiology and Pharmacology at Kazan State Veterinary Academy had ended all harmful experiments for stu-
students there. And on World Day for Laboratory Animals in 2007, a new agreement was made with the Sakharov Medical and Ecological University in Minsk, Belarus. This confirmed the ending of harmful animal use in the Faculty of Ecological Medicine and Radiobiology, and acknowledged on-going collaboration. The Faculty incorporates the discipline of pathophysiology, which has historically involved many severe experiments on animals and which is now taught humanely by teacher Inna Merkulova. The document was signed by the vice-rector, and is the first agreement made with pathophysiologists.

The growing momentum for humane education and the growing number of contacts being made are the results of a diversity of resources and projects. These include the provision of printed and online information resources, many of which are translated; outreach visits and demonstrations of alternatives; postal outreach of over 1,000 letters sent directly to teachers; the micro-Loan System and translated freeware alternatives; grant funding for teachers’ own initiatives; media coverage; support from funders; and the campaigners’ group identity, vision and commitment. In a press release, Lena Maroueva acknowledged the importance of student access to modern learning tools, and stated: “Increasingly in Russia, Ukraine and elsewhere, progressive institutes are demonstrating that alternatives are ideal for the region and can help guarantee a better quality life science education in difficult economic circumstances.”

**Conscientious objector in court cases**

Russian conscientious objector Roman Beloysyov, a biology student from Moscow State University (MSU), is continuing a legal battle concerning his right to alternatives (1). The first court case was initiated by Roman against the Russian government’s Federal Body for Control in Education and Science, which is responsible for the country’s academic institutions. Roman argued that it had failed to meet its responsibilities by letting MSU abuse his rights. In October 2006 he won the case. The court ordered the Federal Body to answer the questions Roman had asked of them a year ago concerning alternatives and the request to adapt the study program. And it wrote to the Faculty of Biology with a recommendation to replace some of the animal experiments with alternatives. However, Roman is unable to achieve his diploma without passing the physiology practicals, access to ethical versions of which are still denied to him.

The previous Head of the Department of Physiology, Igor Ashmarin, has always been intransigent, but his successor Andrej Kamenskij is even more inflexible and conformist. He refuses to even talk about the issue and to accept by hand the letters from Roman stating his conscientious objection. The psychology of the teachers is illustrated by Igor Ashmarin’s claim that putting frogs into a refrigerator constitutes anaesthesia.

A change in the attitude of the Faculty of Biology towards Roman is, however, apparent. MSU now realises that “higher levels” are involved and that the battle is not just between a monolith and a mouse, albeit one that roars. The Faculty now gives considered responses immediately to all Roman’s communications. The Federal Body can theoretically take away MSU’s official status, providing even more reasons for the latter to “behave”. The Federal Body is also “polite and careful”, with an official specially assigned to Roman’s case. It is recognised that Roman knows his rights, which is something very unusual for Russia.

**Setting a precedent**

This success of the first court case was not enough to resolve the problems in physiology and to provide Roman with a humane education. Supported by his mother, he embarked on two further court cases, this time against the university. One is to achieve the right to his “own plan of study”, in which it will be guaranteed that he will be able to use only alternatives throughout his degree. Legal action was initiated against MSU at the end of 2006 at a regional court for part of Moscow, with a primary focus on Russian law and regulations.

The first hearings addressed whether alternatives constitute “advanced” teaching methods, considering that MSU’s own charter states that it is “obliged to organise... the introduction of advanced methods of study”. They investigated the nature of dissection and definition of standards in education, with Roman reporting: “We found out that there are no educational standards which say that procedures (including dissection) must be carried out on animals”. The federal component of the published “Standards of Education” from the Ministry of Education does state that dissection is necessary, but animals are not specifically mentioned. Roman therefore argues that dissection of killed animals is not required; and he wants to prove that dissection is possible in “alternative” ways.

In the latter hearings, Roman invited Lena Maroueva to speak to the court and to demonstrate alternatives. Despite compelling arguments in favour of Roman’s position, he was not successful. The judge refused to take into account Lena Maroueva’s testimony and demonstrations, nor letters of support from other Russian teachers. Although experiments are regulated by the government, the judge ruled that MSU is responsible for the specific procedures performed. As MSU disagreed with Roman’s claims, and as its policies are written by “scientists”, the judge denied that there could be cruelty and saw no reason to question the university’s position and practice. After all, MSU “collaborates internationally”, and some experiments are also performed abroad. Finally, the judge ruled that students have a responsibility to learn microbiology as taught by MSU, despite their right to an individual plan of study.

Roman now plans to appeal and to take the case to the Moscow City Court. In a separate action he asked the court to demand that the Dean of MSU, Mikhail Krpichnikov, formally answers his questions, just as the Federal Body was required to earlier. Another case being considered by Roman is to claim that MSU caused him “moral damage”. He is as keen to set precedents as MSU is to avoid them. He is also willing to take new court action to try to modify the Ministry of Education’s standards, and is
investigating further action at the European level.

**Action potential**

Progressive teacher Anatoly Lukianov, who teaches bioethics at MSU and who knows Roman, has himself faced discrimination within the Department of Higher Nervous Activity. The teachers consider him as having "taught Roman to be difficult" and being morally responsible for several Animal Liberation Front (ALF) actions at the Faculty of Biology. In the standard, 5-yearly assessment he was accused by colleagues of not being "scientific", but he prevailed – albeit for a year only. With increasing personal abuse and vindictiveness, however, he chose to move departments. Personal squabbles and rivalries are not uncommon in academia, more so when positions of power within universities are so influenced by privilege, corruption and conformity. At MSU the level of higher nervous activity and respect leaves something to be desired. Anatoly Lukianov’s story now has parallels with that of Roman, who would be happy to see further court cases against the university.

Roman has called for international organisations dealing with animal protection, alternatives and civil rights to contact the Rector, whom he considers the only person in the administration who can force the Department of Physiology to change. Never shy of stressing the priority his activism should be given, Roman correctly asserts the significance of his case for Russia and beyond: “It is especially important because the issue is human rights as they apply to ethics and animal protection.” In full illustration of this, Roman was expelled from MSU at the end of 2007.

**St Petersburg: no more power failures**

The multimedia laboratory at the Department of Pharmacology at the St Petersburg State Academy of Veterinary Sciences, which has replaced the annual use of over 1,000 animals, is now fully working. It had been discovered that the use of the computers cut power to the rest of the building, so the old electrical circuitry had to be replaced. With direct appeals to the Rector from the department and from InterNICHE, the work was completed quickly, to everyone’s surprise and satisfaction. The computers donated by IAA-PEA could then be used fully for the new academic year.

Teacher Tatyana Novosaduk and new Head of Department Nadezhda Lukianova have been assessing the software donated by InterNICHE to choose the most relevant parts for the practical classes. The freeware Microlabs and ExPharm have proved very popular. Support material has been produced for each lesson, both for the students and for the teachers; some students have also been asking for copies of the CDs for home use and asked that alternatives are spread to other departments. The Russian version of ExPharm was launched in April 2007, programmed by Alexey Skrobanskiy from InterNICHE-Russia. Moscovsky Komsoslets, a major newspaper, had positive coverage of the launch, which replaced its previous cynicism about alternatives in education. A Russian version of physiology freeware had been launched some months earlier.

**Learning by example**

The department is proud of its work, showing the laboratory to participants of conferences organised at the Academy. The changes are also “very famous at the Academy, and at other institutes in St Petersburg,” according to Tatyana Novosaduk. Increasingly, faculties across the rest of Russia are becoming aware of the St Petersburg experience and of replacement by multimedia elsewhere. A number of academic journals and conference proceedings have also published papers about the laboratory and use the modern technology, so teachers themselves are now actively involved in the promotion of alternatives. Some healthy competition is just beginning to develop across Russia.

Tatyana Novosaduk commented on the nature of InterNICHE outreach and gave suggestions of how to enhance it. She considers it important to stress the ethical aspect of replacement work – not just for its positive impact on animals, but also for people and society in terms of humanisation of science education and the level of respect within a culture. She also believes that sharing personal experience of ethical commitment and vision, and of taking action to realise that vision, is crucially important for young Russians to hear and understand at this point in time. Disempowerment and fatalism are not uncommon in Russian society today.

Students are still frustrated with the situation of severe experiments performed in physiology practical classes. In pathophysiology, however, the teachers – initially sceptical – have reflected on the use of animals and are now interested in new computers for the department. They report that they have stopped most experiments in education, using clinical cases for non-invasive experiments and observations, and videos produced at Smolensk Medical University. It is difficult, however, to confirm the exact situation.

At the nearby St Petersburg State Medical University, named after Ivan Pavlov, a lecture was given to heads of department and research students. Alternatives had already been borrowed twice, and the software Pictures Instead of Animals, produced by the Doerenkamp-Zbinden Foundation, was donated by InterNICHE. Interest in replacement from participants at the presentation was high, with a statement from the Head of the Faculty of Medicine, Nikolai Petrishev that “we’ve decided to replace all the experiments”. The staff is keen to learn about the experience of others. A small number of new alternatives had been produced at the Institute, but they comprised films of severe experiments with little or no pedagogical value. For example, one of mice in ice – will they or won’t they die? Such “alternatives” may help replace the same experiments done for real, but they perpetuate and do not challenge a mindset in which such cruel experiments are seen as acceptable and valuable.

**Dissecting convention**

As expected, there were a few cynics at the Medical University, including the senior surgery teacher who had been “teaching surgery for 40 years without any problems”. In response to this, others
said privately: “We are working on them.” To deal more effectively and scientifically with comments from those supporting animal experiments, a critical thinking approach can be employed. This can cut through to the real issues and identify the unacknowledged assumptions.

One mistake is the confusion between method and aim. This is often illustrated by attachment to a specific method (animal experimentation, and practical classes using this approach) rather than a primary commitment to effective acquisition of knowledge and skills. Informed curricular design begins with an identification of learning objectives to be achieved (the “real thing”), followed by a review of possible tools and approaches and subsequent implementation of appropriate best practice methods (3, 4). The multiple assumptions state that animal experiments are the “real thing” and everything else is at best a mediocrect attempt to replicate; that if animals are necessary for surgical skills acquisition then animal experiments provide the only option; that alternatives do not provide hands-on learning opportunities; that different or innovative approaches cannot beat the way things have always been done; and that criticism of a method implies rejection of the individual using it.

These expose some of the weaknesses in the defence of harmful animal use in education and training. These include the unnecessary creation of binary opposites, with a demand that we make our choices between them. For example, the “choice” between learning through animal experiments or not learning at all; between separated human and animal interests; between “your child or a rat”. Without taking into account the broader picture, including the power relations that allow harmful animal use and the agenda of those who present the choices, animal experimentation may seem like a common sense option to some. But transcending such binary opposites is valuable, not least for reasons of intellectual integrity. Win-win solutions to the challenges within life science education are eminently possible: animals, students, teachers and the professions can all benefit from investment in humane education and training.

**Seven mile steps: Progress in Velikie Luki**

Collaboration between InterNICHE and the Faculty of Animal Production Technology at Velikie Luki Agricultural Academy is continuing. The agreement made with the Faculty, signed by the rector and by prorector Farhat Suleimanov, confirms the commitment to alternatives and to on-going collaboration. Already in the Faculty teachers have used alternatives from the Russian micro-loan system to teach, and student feedback has been positive. The local edition of the newspaper Pravda also carried an article that was very positive towards alternatives and the Faculty’s progress.

The Academy plans to develop into a full university, and modernisation is part of this process. An important development is the arrival of the first year of students at the Faculty’s new Veterinary Department. As discussed previously (1), this department will involve no animal experimentation. InterNICHE is collaborating to help ensure that as students begin courses that have conventionally involved harmful animal use – such as physiology, pharmacology and surgery – they have access to best practice tools for effective and ethical acquisition of knowledge and skills.

**Young and old**

There is significant potential for the wisdom and experience of older teachers schooled in animal experimentation to be used and integrated into the production and implementation of alternative tools and approaches. For example, physiological knowledge can be combined with mathematical modelling, programming and graphic design skills to produce cutting-edge software. However, while the implementation of many of the changes towards humane education at the Faculty has been smooth, in some aspects it has demanded a sharp break with tradition – specifically with those individuals unwilling to accept the new methods such as multimedia. More than one teacher has lost their job because of non-acceptance of the alternatives that are helping to define the direction of education.

More progressive teachers have good prospects. Three research students involved in teaching are involved in taking forward the implementation of alternatives, including the development of new software. The same young teachers have “30-40 years at the institute ahead of them”, according to Farhat Suleimanov, illustrating a long term interest in alternatives. Despite the flattery of the research students towards InterNICHE – “The Faculty will develop in seven mile steps after your visit” – the Faculty’s own initiatives are indeed bringing about true change. Commenting on the commitment to modernisation and the replacement already achieved, the prorector added: “I can guarantee 100% that there will be no going back.”

**Heading south: Meetings in Rostov-on-Don**

Following her attendance at the InterNICHE Regional Meeting for former Soviet countries held in Kyiv in April 2006, campaigner Natasha Antipina invited the small but growing InterNICHE-Russia team to speak and demonstrate alternatives in Rostov-on-Don, the southern Russian city that is “the gateway to the Caucasus”. For the first event, however, Rostov State University cancelled the venue just 1 hour before the start. An alternative venue was arranged, but not without the loss of a significant number of participants. It is believed that the cancellation may have been because it was discovered that Natasha Antipina is involved in campaigning for children’s and students’ rights across the city. The slogan of her organisation, GROZA, is “Not born to crawl”. Supporting democratisation through student access to information, technology and best practice learning tools, and exposing discrimination and abuse, can put one in opposition to the authorities.

The second event was held at the Faculty of Natural Science at Rostov Pedagogical University. Interest in alternatives from teachers and discomfort with experiments from students provided the context, enabling a long and successful presentation to a large number of interested students and teachers. Many re-
sources were distributed. As well as smaller meetings with teachers, an alliance was made with a progressive veterinarian in the city, who had managed to avoid experiments in her own education – and who “for years had been dreaming of what we were talking about.”

As well as providing an opportunity for a meeting of InterNICHE-Russia campaigners, allowing for the development of a group identity for the first time, the visit clearly demonstrated one aspect of the InterNICHE approach: giving a high level of responsibility, with support, to local or national voluntary campaigners. Other meetings in Rostov were also organised, with Natasha Antipina and Alexey Skrobanskij making the presentations alone for the first time – resulting in further positive impact in the region and empowerment of the campaigners.

Notes and references
(2) For details on the evolution of the ketamine crisis, see the archives of VITA newsletters at www.vita.org.ru/english/english.htm

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Ausschreibung für das Jahr 2008

D: Baden Württemberg: Entwicklung von Ersatz- und Ergänzungsmethoden zu Tierversuchen


Derzeit kann auf Tierversuche im Rahmen der in Deutschland bestehenden, strengen tierschutzrechtlichen Vorschriften nicht vollständig verzichtet werden. Insbesondere in der Grundlagen- und der medizinischen Forschung und dort, wo Tierversuche im Rahmen von Zulassungs- und Prüfverfahren verbindlich vorgeschrieben sind, ist ein vollständiger Ersatz auf absehbare Zeit nicht möglich. Gerade deshalb unterstützt die Landesregierung die Entwicklung neuer, tierfreier Methoden sowie Forschungsansätze zur Reduzierung der Belastung von Versuchstieren.


Der vollständige Ausschreibungstext sowie weitere Informationen zum Vergabeverfahren sind den anliegenden Dokumenten zu entnehmen (www.mlrbaden-wuerttemberg.de/mlr/allgemein/Tierversuche_Ausschreibung.pdf).

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