"We are creating more transparency in animal experiments"

A focus on animal welfare: Professor Dr. Gilbert Schönfelder heads the German Centre for the Protection of Laboratory Animals at the BfR. In this interview, he reports on the duties of the centre and the search for alternative methods.

Professor Schönfelder, how did you became interested on the topic "Protection of laboratory animals" and the development of alternative methods to animal experiments?
It is our ethical obligation to avoid unnecessary experiments and spare animals from suffering. On the other hand, we still need animal experiments to achieve medical progress and cure sick people. Working within this field of conflict is a tremendous challenge from both a scientific and a social point of view.

Critics say that the results of animal experiments cannot be translated to humans.
Reality isn't only black and white. It's true that the results of some animal experiments can only be translated to humans with difficulty, but this can't be generalised. There are some animal experiments which most certainly do permit conclusions with regard to humans. There wouldn't be any medicine without animal experiments!

One of your main aims is the development of alternative methods – is this a way towards fewer animal experiments?
In the long term, definitely. The guiding principle for us is still the 3R principle put forward by William Russell and Rex Burch in 1959, which states that animal experiments should be replaced, reduced and refined. The latter means that the suffering of the animals should be alleviated. The 3R principle also forms the basis of the European Directive 2010/63/EU on the protection of animals used for scientific purposes. It was implemented into German law in 2013 with the amendment of the Animal Welfare Act.

What does that mean for the Centre for the Protection of Laboratory Animals, which was founded in 2015 and of which you are the head?
The range of our tasks has expanded considerably. The Centre for Documentation and Evaluation of Alternative Methods to Animal Experiments, ZEBET, was already established at the BfR. It exists since 1987. What's new is that we now inform the public about every authorised animal experiment in generally understandable form. Four areas of competence have been added to it with the aim of reducing the stress on laboratory animals, identifying alternative methods for toxicological testing and coordinating research funding for alternative methods. The National Committee for the Protection of Animals Used for Scientific Purposes is also located at our Centre. It advises the responsible German authorities and animal welfare bodies at the research institutions.

Many legal tasks have been transferred to you, but you conduct also research at your Centre. How do you manage this balancing act?
One of the essential strengths of departmental research is that it promotes important areas of science which may have been neglected up to now. We have benefited from this too. We were able to acquire outstanding researchers and build up the necessary infrastructure at the Centre, such as modern technology.

A centre where alternative methods to animal experiments are developed – that awakens great expectations among the general public.
We have to be honest here – it is not possible to replace all animal experiments within five years. It's simply unrealistic. I hope that in 10 to 20 years the new methods are so good that a measurable decline in animal experiments results.

Which approaches are particularly promising?
Animal experiments for the development of cosmetics are already prohibited in the cosmetics industry. That's why skin tissue tests have already been introduced to test products for their health safety with regard to skin irritation or corrosion, for instance. Another example are three-dimensional cell culture models which are used more and more in basic research.

You mean "miniature versions" of organs like the stomach?
For example. Cell cultures are also becoming more important in brain research. To study the development of the nervous system, it can be more beneficial to observe the processes on cells in detail in a Petri dish. You can't simply look inside an animal's skull, on the other hand. There's also a lot of discussions at the moment about

"human" or "organ-on-the-chip" technology. Miniaturised organ systems, such as the liver and brain, are connected on a plastic chip via a kind of blood flow. The interactions between organ systems can be better understood in this way. But the same thing applies here: these methods are not currently capable of completely replacing animal experiments.

What special impulses can emanate from your Centre?

It is important to increase transparency about research conducted on animals, which is of concern. Our database AnimalTestInfo can provide this important information. As we reported in the journal "Plos Biology", for the first time we were able to provide a more detailed overview about the use of six million animals in experiments. It is important to better understand the purpose why so many animals are used in the research of cancer, disorders of the vascular and immune system? Detailed information can help to make research more efficient. Thereby, we hope to make an important contribution where alternative methods are needed to reduce the suffering of animals. We hope to inspire scientists to dedicate their research efforts more to this subject.

Many thanks for the interview, Mr. Schönfelder. ◘

Professor Dr. Gilbert Schönfelder is a physician, full-professor at the Institute for Clinical Pharmacology and Toxicology at the Charité Universitätsmedizin Berlin and head of the department Experimental Toxicology and ZEBET, as well as of the German Centre for the Protection of Laboratory Animals (Bf3R) at the BfR. The main focus of Schönfelder's research lies in the field of experimental toxicology, the further development of alternative methods to experiments with animals, and in reproductive and developmental toxicology. He studied Human Medicine at the Freie Universität Berlin, was appointed junior professor at the Charité in 2003, moved to the University of Würzburg in 2007 and returned to the Charité in 2010. Schönfelder has been with the BfR since 2012.