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German Research Foundation honors researchers for animal testing alternatives

Prof. Dr. Peter Loskill und Dr. Silke Riegger vom 3R-Center Tübingen für In-vitro-Modelle und Tierversuchsalternativen sind mit dem Ursula M. Händel-Tierschutzpreis 2024 ausgezeichnet worden. Der mit 80.000 Euro dotierte Preis wurde ihnen in Würzburg für die Entwicklung von Organ-on-Chip (OoC)-Systemen als Alternative zu Tierversuchen verliehen.

Prof. Dr. Peter Loskill and Dr. Silke Riegger from the 3R Center Tübingen for in-vitro models and animal testing alternatives have been awarded the Ursula M. Händel Animal Welfare Prize 2024. The prize, endowed with 80,000 euros, was awarded to them in Würzburg for the development of organ-on-chip (OoC) systems as an alternative to animal testing.

Organs on a chip: what may sound like science fiction to outsiders is an important and very promising approach to reducing animal testing. As head of the 3R Center in Tübingen and Professor of Organ-on-Chip Systems at the Medical Faculty of the University of Tübingen and the NMI Natural and Medical Sciences Institute in Reutlingen, Peter Loskill has a special role to play in the development of alternative models. Together with Silke Riegger, head of the 3R Center office, they have set themselves the goal of answering scientific questions using modern and complex in-vitro models without the use of animal models - in line with the 3R principle (Replacement, Reduction, Refinement).

Mini-organs as alternative models of the future

In its decision, the jury of the Händel Animal Welfare Prize recognized that the team led by Peter Loskill and Silke Riegger has already developed a large number of organ-on-chip systems as replacement and supplementary methods to animal experiments for various organ systems. The organ-on-chip technology is based on the fact that (stem) cells of certain tissue types are colonized in a cell culture system in a microfluidic platform. The cells develop into various tissues, such as the heart, retina or kidney. A differentiated three-dimensional tissue is created that is much closer to an organ in terms of its function and architecture than a single layer of cells. A blood substitute is flushed through small microchannels, similar to blood vessels.

Integrated sensors make it possible to read out dynamic processes in the mini-organs and thus gain insights into the effect and tolerability of the tested drugs, for example. “There are already individual tissues and organs that we can reproduce very well in the laboratory, such as the retina of the eye,” says Loskill, explaining the application. “For example, we use this to investigate drug candidates for the treatment of eye diseases or causes of undesirable side effects that can lead to blindness,” he continues.

"The award fills us with pride and confirms our conviction that it is of central importance to invest in training and scientific communication in addition to the development of replacement and supplementary methods. Only if the relevant target groups are informed about the new models and equipped with the necessary theoretical and practical skills will it be possible to transfer them into widespread use,” adds Riegger. Even if animal testing will remain an indispensable component in the mix of methods used in biomedical and pharmaceutical research for the foreseeable future, organ-on-chip technology offers great potential to significantly reduce the number of experiments.

3R Network Baden-Württemberg

Since 2020, the Baden-Württemberg Ministry of Science, Research and the Arts has been supporting both Peter Loskill's “Organ-on-a-chip” professorship and the establishment and work of the 3R Center Tübingen for in-vitro models and animal testing alternatives. Both are jointly supported by the Medical Faculty of the University of Tübingen and the NMI. Together with four other centers, Tübingen forms the backbone of the “3R Network Baden-Württemberg”, which plays a pioneering role nationwide.

"Being awarded the Ursula M. Händel Animal Welfare Prize is a great success for Prof. Peter Loskill and Dr. Silke Riegger, and I

would like to congratulate them warmly. The award also confirms the excellence and outstanding development of the Baden-Württemberg 3R network: interdisciplinary research groups at universities and research institutions in the state are pooling their expertise - for animal welfare and progress in biomedicine. However, the 3R network not only develops replacement and supplementary methods for animal experiments, thereby reducing animal experiments overall. The promotion of young scientists is also part of the researchers' mission: Targeted training and further education measures are used to prepare young scientists for innovative biomedical research. In this way, we are also fulfilling our responsibility as a strong research location," explains Minister Petra Olschowski.

About the Ursula M. Händel Animal Welfare Prize

The award of the German Research Foundation (DFG) was presented for the tenth time in 2024 to scientists who improve animal welfare in research in line with the 3Rs principle. The Ursula M. Händel Animal Welfare Prize goes back to the initiative of its eponymous donor.

Ursula M. Händel (1915-2011) from Düsseldorf campaigned for animal welfare in a variety of ways for decades. Among other things, she founded the Bonn Working Group for Animal Protection Law and was involved in the amendment of the Animal Protection Act. Händel was particularly committed to animal protection in science and research and provided the DFG with funds for the Animal Protection Prize. The prize is awarded every two years. It is the most highly endowed research prize of its kind in Germany.

Press release

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Source: NMI Natural and Medical Sciences Institute at the University of Tübingen

Further information

- NMI Natural and Medical Sciences Institute at the University of Tübingen