

New Baden-Württemberg network to reduce animal experiments

A new network has been set up in Baden-Württemberg aimed at reducing animal experiments as well as further improving animal welfare. It combines new approaches and measures at the state's biomedical research locations, which are expected to limit stress in laboratory animals and steadily reduce the number of animals used in research in line with the 3R principles of Replacement, Reduction, and Refinement.

Heidelberg University, the Medical Faculties Heidelberg and Mannheim, and the Central Institute of Mental Health in Mannheim are actively involved in the BW 3R Network with three projects. The Baden-Württemberg Ministry of Science, Research and Arts is financing nearly 70 percent of the total cost of all selected projects with just under 3.8 million euros, with the universities each contributing 30 percent. Heidelberg and Mannheim are receiving approximately 1.3 million euros. The basic framework of the network is made up of five centres, including the Rhine-Neckar 3R Centre and the Interdisciplinary Centre for Gut Health Research in Heidelberg.

One important task of the Rhine-Neckar 3R Centre located in Heidelberg and Mannheim is to better coordinate animal experiments in the region in future. A database is expected to simplify shared exchange between laboratories. The centre will also serve as a permanent point of contact when new experiments are being designed. Researchers will receive support in the selection of meaningful animal models as well as training on the 3R principles and special seminars on animal welfare. Free access to research results based on the principles of Open Science will also be promoted. To further reduce animal experiments, the Rhine-Neckar 3R Centre supports research projects that collect data by means of alternative methods. These include laboratory tests on cell systems and organoids, experiments using computer models and computer simulations as well as Big Data approaches that analyse large amounts of data. Sharing responsibility for the centre are Prof. Dr Rainer Spanagel and Dr Marcus Meinhardt from the Institute for Psychopharmacology at the Central Institute of Mental Health in Mannheim, PD Dr Sabine Chourbaji from the Interfaculty Biomedical Research Facility of Heidelberg University, and Dr Bettina Kränzlin from the Core Facility Preclinical Models of the Medical Faculty Mannheim. The ministry is providing 500,000 euros in funding until November 2025.

The Interdisciplinary Centre for Gut Health Research (ICGH) is being established at Heidelberg University Hospital to study complex bowel diseases. One of the key players in regulating bowel function is the enteric nervous system. To study functional disturbances of the intestinal nervous system on an individualised basis, patient-related and molecular data as well as corresponding individual cell models will be analysed. These in-vitro models resembling the enteric nervous system will be generated in a Petri dish. The long-term goal is to include intestinal epithelial, immune, and neural cells in patient-specific three-dimensional cell models. These so-called organoids can be used to replicate organ functions – an approach that is also important in 3R activities to reduce and replace animal research, according to ICGH director Prof. Dr Beate Niesler from the Institute of Human Genetics. The ministry will fund the interdisciplinary centre with approximately 500,000 euros until May 2026.

Researchers at the Medical Faculty Mannheim are focussed on a project that would allow scientists in future to forgo the use of so-called xenograft models to study malignant diseases of the head and neck. Laboratory animals in which patient tumour material has been transplanted help in tumour biology research as well as preclinical research to predict the efficacy of drugs for the individual patient. The researchers hope to replace experiments on animals with three-dimensional cell cultures known as spheroids. In the project entitled "Characterisation and further development of heterotypic 3D spheroids from squamous cell carcinomas of the head and neck", otorhinolaryngologists under the direction of Prof. Dr Nicole Rotter and researchers from the Institute of Transfusion Medicine and Immunology led by Prof. Dr Karen Bieback are collaborating to create a stable and reproducible test platform. The ministry is funding their work with approximately 300,000 euros until December 2023.

Press release

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Further information

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