Website address:
https://www.gesundheitsindustrie-bw.de/en/article/press-release/how-biomedical-innovation-improves-preclinical-research

How biomedical innovation improves preclinical research

3D tumor models, simulations of drug responses or plant stems used for testing heart stents: the 3R-BioMedicUS center at the University of Stuttgart is developing innovative biomedical approaches to improve preclinical studies, to be seen in the new video.

The 3R Principles stand for Replace, Reduce and Refine, and refer to the increase of laboratory animal welfare, as well as finding ways to reduce and when possible, completely replace, animal experiments through alternative methods. The 3R-Network Baden-Württemberg is working towards this goal by bringing together several centers, each with its own unique strengths and research focus, including 3R-BioMedicUS at the University of Stuttgart.

A wide range of innovative research methods

The center's projects include using plant stems to test new heart stents or employing powerful computers to create virtual models of the human body. These models serve to answer questions such as the response to drug treatments, or the recovery of muscles after trauma or surgery. Further projects involve creating tiny 3D-printed tissues as disease models or keeping small tumor pieces alive in the lab to test cancer drugs. "Our innovative non-animal methodologies bridge the gap between traditional cell culture models and animal testing, aiming to enhance the success rates of clinical trials.", explains Prof. Monilola Olayioye, speaker of the 3R-BioMedicUS center and researcher at the Institute of Cell Biology and Immunology (IZI) at the University of Stuttgart.

This impressive range of methods helps to more efficiently predict if new medical solutions might work before testing them in animals or patients. In addition to the research efforts, the 3R-BioMedicUS center emphasizes education by teaching students about state-of-the-art 3R techniques and the ethical considerations in biomedical research.

About the 3R-Network BW and 3R-BioMedicUS

The 3R Center at the University of Stuttgart collaborates with partner centers in Tübingen, Heidelberg, Mannheim, and Konstanz, united within the 3R-Network BW. Supported by Baden-Württemberg's Ministry of Science, Research and Arts (MWK, Ministerium für Wissenschaft, Forschung und Kunst), the network is invaluable for cooperation, scientific exchange and joint teaching opportunities. With ongoing support from the state of Baden-Württemberg, 3R-BioMedicUS is committed to developing patient-predictive models and novel therapeutic strategies and promoting the 3R's in research and education.

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Further information

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