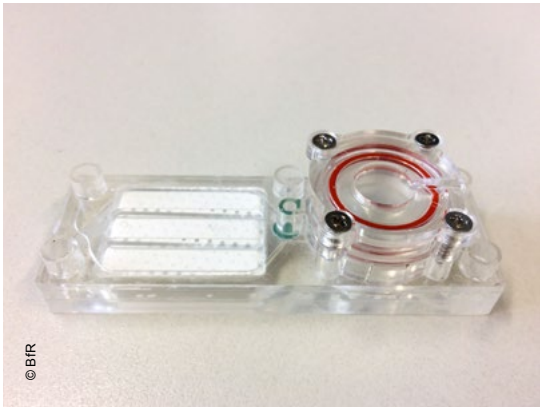
SPECTRUM

Bones on a small scale

Bones not only provide mechanical support and thereby shape our body, they can be considered a dynamic and vital tissue. Blood is produced in the bone marrow, while bone diseases such as osteoporosis can considerably restrict movement and quality of life. Researchers at the BfR are now developing a "bone on a chip". The model contains the most important cell types of bone, cultivated on a very small scale under physiologic conditions. "Organ-on-a-chip" technology makes it possible to investigate diseases, test potentially toxic substances and reduce the number of animal testing. The research team at the German Centre for the Protection of Laboratory Animals at the BfR is part of "EUROoC", a recently founded European research network which trains up-and-coming scientific talents and further develops organ chips.

More information:
www.eurooc.eu



Science also learns from its mistakes

Scientific studies should always be published, irrespective of their results. This is one of the conclusions of a research project conducted by the German Centre for the Protection of Laboratory Animals at the BfR. In this project, it was examined on the basis of a mathematical model what influence individual criteria of study design and publishing have on further research. One outcome was that even studies without results confirming the original hypothesis speed up the gain in knowledge. If results are reasonable and repeatable, this helps to prevent unnecessary follow-on experiments (and additional animal experiments) which would not stand up to further examination. False conclusions of studies can be easily refuted in this way. That published studies are repeatable cannot be taken for granted: depending on the survey, 51 to 89 percent of the results published in bioscientific studies cannot be reproduced by other researchers.

More information:
Steinfath et al. 2018. Simple changes of individual studies can improve the reproducibility of the biomedical scientific process as a whole. PLOS One 13(9): e0202762 (Open Access)

Pharmacologically effective substances in animal experiments

Laboratory animals are administered pharmacologically effective substances such as tamoxifen und tetracycline in order to inactivate specific genes in various tissues at defined times. Animal models for the examination of certain diseases and underlying mechanisms are produced in this way. The legal classification of this procedure is problematical, as tamoxifen is also approved for the treatment of hormone-active tumours in humans, and its use is strictly regulated by the German Medicines Act. If its provisions applied, it would not be allowed to use tamoxifen for gene knockout in animal experiments. The National Committee for the Protection of Animals used for Scientific Purposes has now assessed the legitimacy of the use of tamoxifen in animal experimentation. The result: tamoxifen is permissible as a genetic tool and, in this case, its use is subject to the Animal Welfare and not the Medicines Act.

More information:
Chmielewska et al. 2019. Legal aspects of the application of the pharmacologically effective substance tamoxifen in the conditional gene knockout in the experimental animal mouse [Rechtliche Aspekte der Anwendung des pharmakologisch wirksamen Stoffs Tamoxifen bei der konditionellen Genausschaltung im Versuchstier Maus]. Natur und Recht. 41: 26–32 (Open Access, in German)