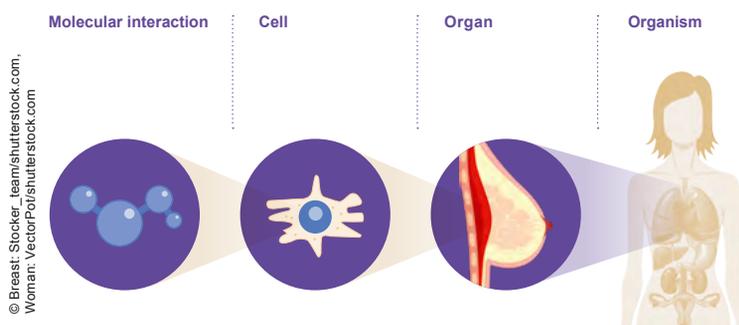


Understanding health hazards without animal experiments

How can hazards and the effects of environmental chemicals be observed without the necessity of animal experiments? Adverse Outcome Pathways (AOPs) were conceived in recent years in order to gain a better understanding of the toxic effects of chemicals on organs and use this knowledge for the development of new, animal-free test methods. AOPs describe on a molecular level how a human or animal body might react to environmental chemicals to cause serious harm to human health. Above all high throughput methods and systems biological approaches are best suited for the implementation of the AOP concept in the risk assessment of chemicals and to target research of alternative methods. The combination of these technologies permits the comprehensive analysis of a large number of chemicals within a short period of time. BfR is now also using these methods to an increasing extent.

More information:

Burgdorf et al. 2017. The AOP Concept: How novel technologies can support development of adverse outcome pathways. *Appl In Vitro Toxicol.* 3: 271–277



Adverse Outcome Pathways depict diseases in detail right down to the level of molecular processes. The AOP of breast cancer looks like this, for instance: bonding to the estrogen receptor activates gene expression, stimulates cell proliferation and cell migration, thus contributing to the occurrence of breast cancer.



Commitment to the systematisation of animal data

What chances and what limits are there for the use of laboratory animals to research diseases? Neurologist Malcolm Macleod of the University of Edinburgh has dedicated himself to this topic. This spring he was awarded the Maria Sibylla Merian Fellowship by the BfR for his interdisciplinary research achievements and contribution towards improving animal welfare. In the field of stroke research, Malcolm Macleod's systematic studies will enhance the reliability of animal experiments and evidence-based transferability to humans. In this way, unnecessary animal experiments can be avoided in future and new, innovative therapy approaches found. Bf3R will collaborate scientifically with Malcolm Macleod in order to advance research in the field of meta-analysis. With the fellowship programme, awarded for the first time, the BfR honours researchers who have excelled themselves through their extraordinary scientific achievements.

More information:

www.bfr.bund.de/en > Research > Fellowship-Programmes

Bf3R research funding 2017: Sponsored projects have been selected

The BfR included eight external work groups in its current Bf3R research funding programme for the development of innovative alternative methods. Among other projects, the scientists are developing training models for use in animal experimentation courses, as well as improved, cell-based skin models for research on the healing of wounds. The individual projects are scheduled to run for up to three years and are each being sponsored with an average sum of 35,000 euros per annum. The BfR invites bids for the Bf3R research funding every two years. Universities, non-university research institutions and companies with research and development capacity in Germany are all entitled to apply. A high priority is given to methods to substitute or reduce animal experiments in basic biomedical research, as well as research approaches to recognise and alleviate the suffering of laboratory animals. Eight of the 47 applications submitted achieved this priority in 2017. The next invitation for bids for Bf3R research funding will be in spring 2019.

More information:

www.bfr.bund.de/en > German Centre for the Protection of Laboratory Animals (Bf3R) > Bf3R Research Funding