Animal testing under REACH: bringing numbers into the debate

So far, 4.2 million animal tests under the REACH chemical regulation: A study from Konstanz and Baltimore quantifies the number of animals that died for the hazard assessment of chemicals in the chemical industry.

Sixteen years ago, the REACH chemical regulation came into force across Europe. REACH obliges the chemical industry to identify the health risks of all chemicals used in their products. The downside of REACH is that this hazard assessment requires a large number of animal tests. Just how many was not clear until now.

The "Center for Alternatives to Animal Testing" (CAAT) based in Baltimore and at the University of Konstanz now wants to bring numbers into the REACH debate. In a current study, based on data from the European Chemicals Agency (ECHA), the researchers show that so far around 4.2 million animals have been used for hazard assessment under REACH (of which 1.3 million animals are in ongoing studies). An additional 3.5 to 6.9 million animal tests are expected due to the revision of REACH in 2022.

Animal-free, alternative test methods were relatively rarely used. What is known as read-across methods (prediction of toxicity from comparison with structurally similar, already tested chemicals) were rejected in 75 percent of cases.

Animal-free alternative methods

The researchers from Konstanz and Baltimore advocate the use of animal-free alternative methods (New Approach Methodologies, NAMs). "Some of these new methods are not only suitable for large-scale chemical screenings, but also provide more meaningful results than animal testing, as the chemicals are tested on human cells – naturally in a petri dish", explains Thomas Hartung, Director of the Center for Alternatives to Animal Testing (CAAT) and professor at the University of Konstanz.

"Animal-free alternative methods are available for an increasing range of test purposes. The goal must be to adapt the legislation to the current state of scientific knowledge", demands Marcel Leist, professor of in-vitro-toxicology at the University of Konstanz and co-director of the Center for Alternatives to Animal Testing Europe. The CAAT researchers emphasize the importance of bringing scientists, authorities and industry to the same table to advance the introduction of alternative methods.

About CAAT-Europe

The Center for Alternatives to Animal Testing Europe (CAAT-Europe) based in Konstanz was founded by Thomas Hartung and Marcel Leist. It is committed to reducing animal testing worldwide through the development and introduction of alternative methods. It combines research and information work, and creates exchange between scientists, authorities and industry. The CAAT scientists are also directly involved in the development of animal-free alternative methods. The 3R network Baden-Württemberg, Germany, as well as the Swiss Doerenkamp-Zbinden Foundation support their efforts. With the professorship of Marcel Leist, the University of Konstanz established the first professorship for alternative methods to animal testing in 2006. Among other achievements, the research team developed the world's first in vitro toxicity test for the peripheral nervous system.

Publications:

Rovida, C., Busquet, F., Leist, M. and Hartung, T. (2023) “REACH out-numbered! The future of REACH and animal numbers”, ALTEX - Alternatives to animal experimentation, 40(3), pp. 367–388. doi: 10.14573/altex.2307121.

Knight, J., Hartung, T. and Rovida, C. (2023) “4.2 million and counting… The animal toll for REACH systemic toxicity studies”, ALTEX - Alternatives to animal experimentation, 40(3), pp. 389–407. doi: 10.14573/altex.2303201.

Press release

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Further information

- University of Konstanz
- Center for Alternatives to Animal Testing - Europe (CAAT-EU), University of Konstanz
- Verordnung (EG) Nr. 1907/2006 zur Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe (REACH)