

# ALTEX

## ALTERNATIVES TO ANIMAL EXPERIMENTATION

### Food for thought ...

Francois Busquet  
and Thomas Hartung  
**The need for strategic  
development  
of safety sciences**

### Research Article

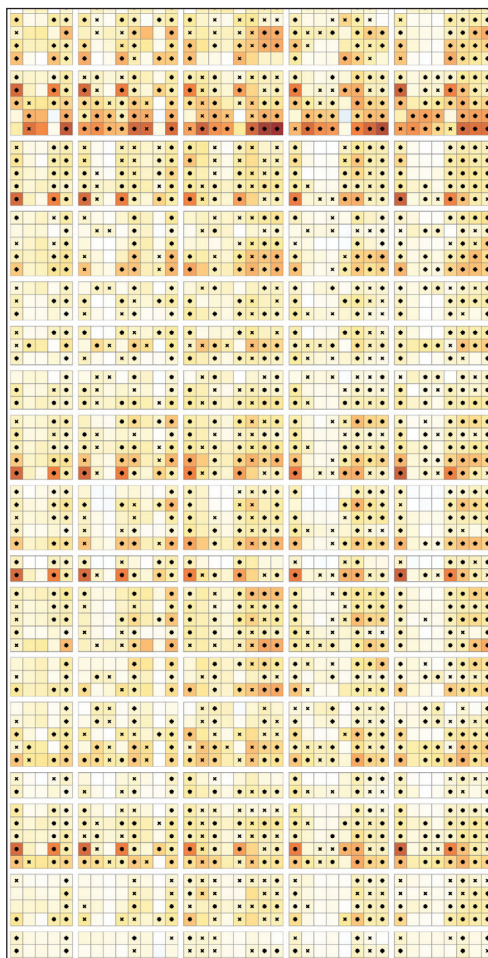
Anita R. Iskandar et al.  
**3-D nasal cultures:  
Systems toxicological  
assessment of a  
candidate modified-risk  
tobacco product**

### t4 Workshop Report

Michael Aschner et al.  
**Reference compounds for  
alternative test methods  
to indicate developmental  
neurotoxicity (DNT)  
potential of chemicals:  
Example lists and  
criteria for their  
selection and use**

### Research Article

Joakim Ringblom et al.  
**Assigning ethical weights to  
clinical signs observed  
during toxicity testing**



### Research Article

Johanna Nyffeler et al.  
**Design of a high-throughput  
human neural crest cell  
migration assay to indicate  
potential developmental  
toxicants**

### t4 Workshop Report

David Pamies et al.  
**Good Cell Culture Practice  
for stem cells and  
stem-cell-derived models**

### Research Article

Dorothea Döring et al.  
**Behavior of laboratory  
dogs before and after  
rehoming in private homes**

### Review Article

Rachel Tanner and  
Helen McShane  
**Replacing, reducing and  
refining the use of  
animals in tuberculosis  
vaccine research**

Meeting report  
Calendar  
Corners  
News





## Dear readers,

In the past year, the number of submissions to ALTEX has increased further and with it the number of positively reviewed manuscripts. Although we have increased the number of pages of ALTEX to allow publication of more articles, we have not increased subscription rates. We were delighted to be commended for our work by the LUSH Prize in November and take this as great motivation for the year ahead.

In this issue's Food for Thought ... contribution, Francois Busquet and Thomas Hartung argue for the establishment of a European institute devoted to safety sciences. This expedient suggestion comes at an ideal time where alternative methods are gaining ever greater acceptance, having moved out of niche science into cutting edge, high-tech and high-quality science. An institute tasked with being the European authority on safety science could develop and coordinate overarching European strategies towards improving safety science and channel the developments in this field more effectively while providing continuity in expertise.

Anita Iskandar and colleagues present their work on organotypic, three-dimensional cultures of the nasal lining challenged with different tobacco aerosols. Their systems toxicological approach combines computational biology analyses with a set of functional assays to provide a detailed assessment of the effects of the aerosols on the nasal cells. The work includes careful quality controls, such as extensive repetitions of the experiments to determine the robustness of the method and analysis of the actual exposure achieved via the system.

Testing chemicals for their ability to affect our nervous system is highly challenging as the possible adverse outcomes, such as reduced learning ability, are hard to model in cell culture. The t<sup>4</sup> workshop report by Aschner et al. has generated a list of chemicals, for which there is convincing evidence that they cause neurotoxicity in one or multiple forms, that can be used as positive controls in the development of neurotoxicity assays. This is complemented by a list of chemicals, for which there is no evidence of adverse effects on the nervous system, which are suitable for use as negative controls.

Staying on the subject of neurotoxicity, Johanna Nyffeler and colleagues describe major improvements to their neurotoxicity assay, which has recently been recognized with two prizes, see CAATfeed. The assay models migration inhibition of neural crest cells during development, which may be affected by unspecific toxicants or by specific inhibitors. The test, which is based on neural crest cells derived from human pluripotent stem cells, differentiates between these two modes of action.



**Sonja von Aulock and  
Thales Tréz at  
the LUSH Prize ceremony**

Human stem cells have revolutionized the field of alternative methods by providing a source of non-cancer, differentiated human cells to better model the human response to toxicants. A t<sup>4</sup> workshop report authored by Pamies et al. now updates Good Cell Culture Practice guidelines to include also stem cell specific quality controls and to sensitize scientists to the pitfalls and possible consequences of insufficient quality control in the cell culture laboratory.

Rehoming of laboratory dogs saves them from euthanasia once they are no longer needed for experiments.

But how do they adapt to their new homes and can one predict successful rehoming? Dorothea Döring et al. investigated these questions by performing behavioral tests on dogs leaving a research company, and by interviewing the new owners. Their results document the overall successful transition and indicate that prior experience with dogs or young dog age are not prerequisites for a favorable outcome as formerly supposed.

How many animals suffering milder clinical symptoms in an experiment offset fewer animals suffering more severe symptoms? In their study, Joakim Ringblom and colleagues explore the possibility of assigning ethical weights to various clinical symptoms to measure the ethical cost of an animal experiment and to find the trade-off point between refinement and reduction.

The world's most deadly disease, tuberculosis, is a field of intense animal research. Rachel Tanner and Helen McShane review 3R opportunities and successes in tuberculosis research, informing scientists in this field of promising alternative approaches.

A meeting report, corners and news bring you up to speed with recent developments and the calendar gives you an overview of events that are coming up this year, including the 10<sup>th</sup> World Congress on Animal Use and Alternatives in the Life Sciences in Seattle.

Wishing you success in tackling further challenges and opportunities in the 3Rs field in 2017.

**Sonja von Aulock**  
Editor in chief, ALTEX



**SAVE THE DATE**

**SEATTLE, WA, USA**

**AUGUST 20-24, 2017**

ABSTRACT DEADLINE:  
MARCH 31, 2017



**TENTH WORLD CONGRESS  
ALTERNATIVES AND ANIMAL  
USE IN THE LIFE SCIENCES**

**2017**

Line art illustrations of a microscope, a rabbit, a frog, and a mouse integrated into the year 2017.

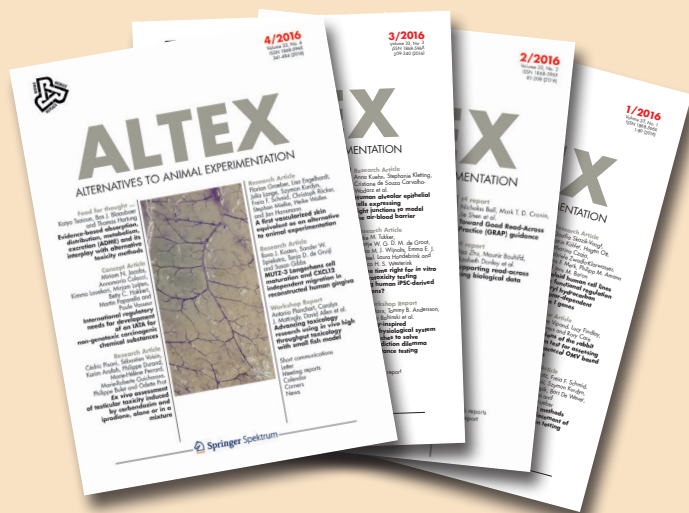
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