

ALTEX

ALTERNATIVES TO ANIMAL EXPERIMENTATION

Food for thought ...

Melvin E. Andersen et al.

Developing context appropriate toxicity testing approaches using new alternative methods (NAMs)

Research Article

Kris A. Descovich et al.

Opportunities for refinement in neuroscience: Indicators of wellness and post-operative pain in laboratory macaques

Research Article

Jie Mei et al.

Refining humane endpoints in mouse models of disease by systematic review and machine learning-based endpoint definition

Research Article

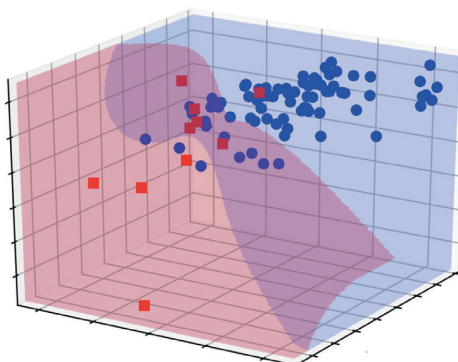
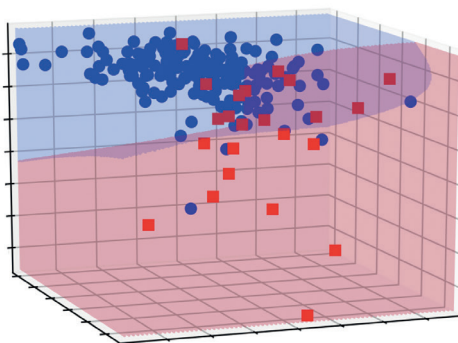
Jeanelle M. Martinez and Thomas E. Eling

Activation of TRPA1 by volatile organic chemicals leading to sensory irritation

Research Article

Thao A. Tran et al.

Assessment of iron oxide nanoparticle ecotoxicity on regeneration and homeostasis in the replacement model system *Schmidtea mediterranea*



Research Article

James C. Y. Chan et al.

Bottom-up physiologically-based biokinetic modelling as an alternative to animal testing

Research Article

Chantra Eskes et al.

The HaCaT/THP-1 cocultured activation test (COCAT) for skin sensitization: A study of intra-laboratory reproducibility and predictivity

Research Article

Stefania Serra et al.

Hazard assessment of air pollutants: The transforming ability of complex pollutant mixtures in the Bhas 42 cell model

Research Article

Jon P. Joelsson et al.

Innovative *in vitro* method to study ventilator induced lung injury

BenchMarks

Alice Krebs et al.

Template for the description of cell-based toxicological test methods to allow evaluation and regulatory use of the data

Short Communication
Meeting Reports
Corners





Dear readers,

The last page of this last issue of ALTEX for 2019 displays the number 700. ALTEX has almost doubled the number of pages printed per year since I started out as editor in 2011. This is possible thanks to the fivefold increase of submissions in the same time period, from which it is an enjoyable challenge to select the best for publication. Scientists are increasingly comfortable with publishing in and identifying with a journal that carries the name Alternatives to Animal Experimentation. This exemplifies the changing perception of the entire 3Rs field, firmly based on the excellent and innovative scientific work that is being carried out in it. Putting together 700 pages in a year is a big job for a small team, and I am deeply grateful for the enthusiastic cooperation and meticulous work of my colleagues that goes into this publication.

Considering the increasing number of new alternative or non-animal methods (NAMs), it is now timely to think about how we can best employ them to make decisions on the safety or activity of different classes of substances to minimize the use of animals without compromising on human health and safety. We do not want to use these methods only to prioritize which chemicals are tested first in animal tests and which sometime later. But when do we have enough information to declare that a substance is harmless or decide that it should be dropped from further development owing to possible toxicity? Melvin Andersen and colleagues provide some Food for thought ... on these questions.

Without speech communication, we can often not judge whether a fellow human is experiencing pain or feeling unwell, but we do know that individuals deal differently with a painful or distressing experience. Kris Descovich et al. assess the behavior and facial expressions of macaques undergoing biomedical procedures to identify strong indicators of pain or of wellness that show when best to employ analgesics or can be used to refine procedures. In a second refinement article, Jie Mei et al. report that there are different definitions of humane endpoints, i.e. changes in body weight, temperature or sickness scores that trigger euthanasia of the experimental animal to limit its suffering, in the literature. They then use a machine learning approach to optimize the early prediction of a high risk of death for use in different mouse models.

Volatile chemicals may cause sensory irritation. Aiming to replace the mouse sensory irritation assay, Jeanelle Martinez and Thomas Eling develop an adverse outcome pathway (AOP) that describes the process and argue that measuring activation of the TRPA1 receptor *in vitro* can predict a chemical's irritation potency.

We need to know how a new drug works but also how often and how much of it to give a patient to achieve the desired effects without causing toxicity. James Chan et al. develop a simulation model to predict this based on *in vitro* and metabolism data for three different statins and compare the results with biokinetic data obtained from humans to show that such predictions can be made without animal testing.

Thao Tran et al. employ a planarian model, which can regenerate severed body parts, to determine whether iron oxide nanoparticles, used in large amounts for a variety of applications in industry, interfere with stem cell functions required for regeneration or with homeostasis regulation.

Although nonanimal skin sensitization assays have been accepted as OECD test guidelines, none of them are stand-alone-methods and none of them subcategorize skin sensitizers into weak and strong sensitizers. Chantra Eskes and colleagues present a test, based on the coculture of two cell lines, that captures two of the four key events and reliably solves the problem of predicting sensitization subcategory.

Once a test has been established, optimized and characterized in detail, it is worthwhile considering potential secondary applications. Stefania Serra et al. report on the use of a cell model for carcinogenicity testing to compare samples of airborne particulate matter collected from an urban site during different seasons. They show that the method can be used to assess biological effects of chemical mixtures, in this case environmental samples. Staying on the subject of air, Joelsson et al. present a novel *in vitro* method to study the detrimental effects that mechanical ventilation can have on the human lung. To achieve this, they have designed a device that allows the application of cyclical pressure to bronchial cells cultured at the air-liquid interphase on flexible membranes and investigate the effects on gene and protein level.

The BenchMarks article in this issue by Alice Krebs and colleagues presents a detailed and annotated template designed to assist in reporting non-guideline studies in accordance with OECD GD 211 in a sufficient level of detail to allow regulators to evaluate the data. This can be a valuable contribution towards a higher level of implementation and acceptance of *in vitro* data for regulatory decision-making.

A short communication on a developmental neurotoxicity test based on the elongation of axons in an insect embryo as well as three Meeting Reports and five Corners complete this issue.

In case you missed the EUSAAT Congress in Linz, the Abstract Book is online as an issue of ALTEX Proceedings to document the topics discussed at the meeting. Please consult our website for current news and upcoming events.

A big thank you to all authors, reviewers, subscribers, readers, members and sponsors for supporting ALTEX during 2019.

Sonja von Aulock and the ALTEX Edition Editorial Office
with Franz P. Gruber and the Board of ALTEX Edition

www.TIERethik.net



TIERethik
kann als Einzel-
exemplar über
<http://www.tierethik.net/>
oder im Buchhandel
für 19,50 € bestellt
werden.

TIERethik

Zeitschrift zur Mensch-Tier-Beziehung

Sie finden in TIERethik

- » einen Themenschwerpunkt mit Beiträgen von Fachautoren
- » Tagungsberichte
- » Nachrichten
- » Interviews, Kommentare, Standpunkte
- » und Buchbesprechungen

Zwei Ausgaben TIERethik kosten 36 € pro Jahr.

Studierende zahlen 26,40 € pro Jahr.

Für Abonnenten von ALTEX und TIERethik gelten Sonderkonditionen.

Preise unter: www.TIERethik.net

Nächstes Heft: 2019/2 "Wölfen begegnen"

ALTEX Edition, Romanshornestrasse 90,

8280 Kreuzlingen, Schweiz

E-Mail: subs@altex.org

Subscribe to ALTEX

Support open access publication of 3Rs research



SUBSCRIPTION SERVICE

ALTEX Edition,
Romanshornestrasse 90,
8280 Kreuzlingen, Switzerland
e-mail: subs@altex.org

First name

Last name

Institute/Library
(if applicable)

Address

State

Zip code

Country

e-mail

Date/signature

Please send completed form to the above address.

ALTEX (four issues):

☐ Individual subscription

102 €

☐ Library

204 €

(companies, institutes, libraries)

☐ Reduced

55 €

(students, animal protection organizations,
selected scientific societies)

Prices include postage for all countries.

The subscription is automatically renewed
unless it is cancelled by the end of the year.

I want to pay by

☐ credit card

☐ check

☐ electronic bank transfer

☐ please send me an invoice

ALTEX is available online:
<http://www.altex.org>