

# ALTEX

## ALTERNATIVES TO ANIMAL EXPERIMENTATION

### Food for thought ...

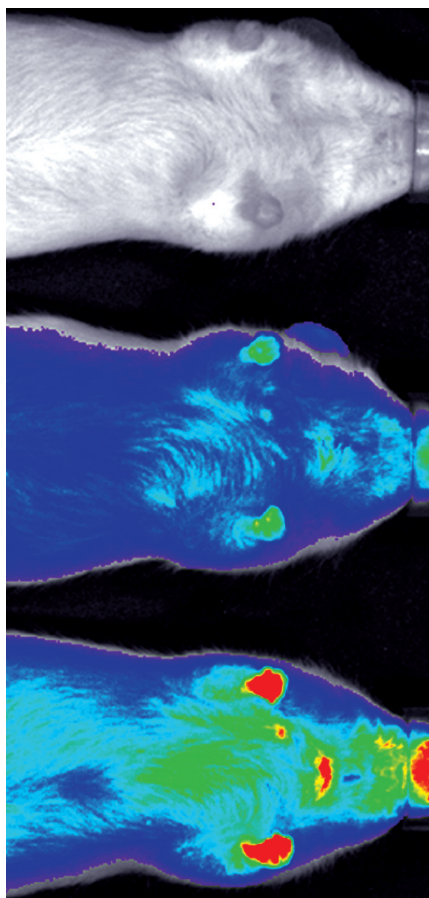
Costanza Rovida, Shoji Asakura,  
Mardas Daneshian,  
Hana Hofman-Huether,  
Marcel Leist, Leo Meunier,  
David Reif, Anna Rossi,  
Markus Schmutz, Jean-Pierre  
Valentin, Joanne Zurlo  
and Thomas Hartung  
**Toxicity testing in the 21<sup>st</sup>  
century beyond  
environmental chemicals**

### Research Article

Sarah Mundt, Marcus Groettrup  
and Michael Basler  
**Analgesia in mice with  
experimental meningitis  
reduces pain  
without altering  
immune parameters**

### Research Article

Barae Jomaa, Laura H. J. de  
Haan, Ad A. C. M. Peijnenburg,  
Toine F. H. Bovee,  
Jac M. M. J. G. Aarts and  
Ivonne M. C. M. Rietjens  
**Simple and rapid  
in vitro assay for  
detecting human thyroid  
peroxidase disruption**



### Research Article

Christina Spohr, Eva Kaufmann,  
Sibylle Battenfeld, Karin Duchow,  
Klaus Cussler, Elisabeth Balks  
and Max Bastian  
**A new lymphocyte  
proliferation assay for  
potency determination  
of bovine tuberculin PPDs**

### Review Article

Marie-Jeanne W. A. Schiffelers,  
Bas J. Blaauboer,  
Wieger E. Bakker and  
Coenraad F. M. Hendriksen  
**Regulatory acceptance and  
use of serology for  
inactivated veterinary  
rabies vaccines**

### Short Communication

Dieter Fink, Tien Yin Yau,  
Thomas Kolbe  
and Thomas Rülcke  
**Non-invasive instant  
genotyping of fluorescently  
labeled transgenic mice**

Workshop Report  
Calendar  
Corners  
News



**Dear readers,**

Yes, ALTEX' impact factor has risen further: This means that work on alternatives to animal experiments is being noticed and discussed more, hopefully leading to better implementation of the 3Rs.

A large part of the citations of ALTEX articles in 2014 were attributed to the Food for Thought ... contributions and the t<sup>4</sup> workshop reports. A column organized by Thomas Hartung, Food for Thought ... has been in ALTEX consistently since issue 2/2007, offering analyses of challenges in many different fields that feed into alternative methods as well as visions of the way forward. ALTEX would like to thank the authors and co-authors of the Food for Thought ... articles for the quality of this unique and well recognized column; we look forward to the next installments. The t<sup>4</sup> workshop reports are key deliverables of workshops organized by the transatlantic think tank for toxicology (t<sup>4</sup>) via CAAT/CAAT-Europe that truly live up to the meaning of the word "workshop": presentations are kept very brief and the invitees have to knuckle down to find consensus and solutions, and to produce an insightful report out of the arising synergies. We hope that these reports will continue to be submitted to ALTEX despite that sponsorship of this project by the Doerenkamp-Zbinden Foundation has run out.

Many original research papers and reviews have also been highly cited. We hope this will lead to greater use of alternative methods in all fields of research, especially in basic research where finding out about existing alternative models can quickly lead to their implementation. As ever, the decision of which papers to accept for publication in ALTEX is driven by the 3R relevance of the paper and the potential impact of the results on the welfare of laboratory animals.

In this issue, Food for Thought ... is provided by Costanza Rovida and colleagues on whether and how the Tox21c approach, i.e., toxicity testing in the 21<sup>st</sup> century, the concept of changing from an animal-based approach to a mechanistic-based *in vitro* approach to toxicity testing, is also applicable to the drug and the food industry with their unique challenges and requirements. In contrast to chemicals, here the compounds are designed to enter the human body, so safety concerns are even higher.

Two papers on refinement promise to improve the lot of laboratory animals. Sarah Mundt and colleagues investigate the feasibility of employing implanted osmotic drug pumps to control pain in mice used for intracranial infection studies. They find effective pain control without immunological parameters being affected and indicate that this approach may also be applicable to other experimental settings. Fluorescent tagging of the gene sequence introduced to transgenic mice allows fast genotyping of intact mice as described by Dieter Fink et al. This method could replace genotyping of tail samples by PCR, also saving time and costs.

Barae Jomaa et al. continue their interesting series of papers published in ALTEX, this time introducing a novel *in vitro* assay to identify disruptors of thyroid peroxidase activity using a human thyroid cell line. Christina Spohr and colleagues present an *in vitro* assay developed to quantify bovine tuberculin PPDs. These are used in a skin test to control livestock for tuberculosis. The test could replace a potency test in mycobacteria-sensitized guinea pigs.

Marie-Jeanne Schiffelers et al. analyze the obstacles and challenges to the acceptance and implementation of alternative methods based on the example of the serum neutralization test (SNT), which has replaced the mouse test to determine the potency of veterinary rabies vaccines in the European Pharmacopoeia. Understanding this process raises consciousness that even when an alternative method is formally accepted, the job is not yet done and that the path to implementation also requires considerable effort and dedication.

The Corners and News provide an overview of current developments in the field of alternative methods.

ALTEX is currently compiling the Abstract Book for the EUSAAT/LINZ Congress this September where we also look forward to presenting the ALTEX Award for the best paper published in ALTEX during 2014.

Enjoy reading this exciting compilation of 3Rs articles,

Sonja von Aulock  
Editor in chief, ALTEX



# ALTEX

## ALTERNATIVES TO ANIMAL EXPERIMENTATION

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CAAT – Center for Alternatives to Animal Testing, Johns Hopkins University, Baltimore, MD, USA

CAAT-Europe – University of Konstanz, Konstanz, Germany

Doerenkamp-Zbinden Chairs in Germany, India and USA

ecopa – European consensus-platform for alternatives, Brussels, Belgium

EUSAAT – European Society for Alternatives to Animal Testing, Vienna, Austria

IUF – Leibniz Research Institute for Environmental Medicine (IUF – Leibniz-Institut für umweltmedizinische Forschung), Düsseldorf, Germany

t4 – transatlantic think tank for toxicology, Baltimore, USA, Konstanz, Germany, Utrecht, The Netherlands

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#### Address

Society ALTEX Edition, Weinmangasse 86  
8700 Kuesnacht ZH, Switzerland  
Phone: +41 44 380 0830, Fax: +41 44 380 0832  
e-mail: [editor@altex.ch](mailto:editor@altex.ch)

### ALTEX Edition Editorial Office USA

Joanne Zurlo (North American Editor)  
Thomas Hartung  
Michael M. Hughes

#### Address

Johns Hopkins University Baltimore  
615 N Wolfe Street  
W7032 Baltimore, MD 21020, USA  
Phone: +1 443 287 2515, Fax: +1 410 614 2871  
e-mail: [jjzurlo@jhsph.edu](mailto:jjzurlo@jhsph.edu)

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Fax: +41 44 380 0832  
e-mail: [subs@altex.ch](mailto:subs@altex.ch)

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Follow instructions for authors posted on the ALTEX website.

### Cover Picture

Genotyping of fluorescently labeled transgenic mice: ventral view of albino CAG-tdTomato wildtype (upper), heterozygous (middle) and homozygous (lower) transgenic mice. Excerpt of Fig. 1a from Fink et al., 222-227.

### Aims and Scope

ALTEX is devoted to the open access publication of scholarly articles on alternatives to the use of animals for scientific purposes according to the 3R concept of Russell and Burch: Replace, Reduce and Refine. Articles describing experiments involving the use of animals for scientific purposes must attest that experiments were performed according to the ethical standards set in the instructions to authors and must be described in detail in accordance with the ARRIVE or GSPC guidelines.

ALTEX publishes research articles, short communications, reviews, as well as comments, corners, news and meeting reports.

Manuscripts submitted to ALTEX are evaluated by two expert reviewers. The evaluation takes into account the scientific merit of a manuscript and its contribution to animal welfare and the 3R principle.

ALTEX Proceedings publishes Abstract Books and Proceedings of scientific conferences. TIERethik is a German-language journal devoted to the bioethics of the relationship between animals and humans.

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