



Corners



The American Society for Cellular and Computational Toxicology held its 4th annual meeting on October 1-2, 2015 in Durham, North Carolina at the Environmental Protection Agency. ASCCT president David Allen introduced the meeting theme of IATA: “Integrated Approaches to Testing and Assessment: Promises and Challenges of a More Flexible Approach to Toxicology Testing”, and plenary lectures were given by Warren Casey, Director of NICEATM and Craig Rowlands from the Dow Chemical Company. Dr Casey presented “Moving beyond one test: Leveraging the whole toolbox for integrated decision strategies” and on the morning of the second day Dr Rowlands discussed “Chemicals and risk: New approaches to current practices.”

The meeting also featured invited case study presentations by Grace Patlewicz

from the US EPA, Joanna Matheson from the Consumer Product Safety Commission, Miyoung Yoon from the Hamner Institutes for Health Sciences, and David Dix from US EPA. A robust and diverse poster session, a panel discussion on the assessment and application of IATA, and ten oral presentations chosen from a very competitive field of abstracts rounded out the meeting. The program committee also awarded the first Edward Carney Predictive Toxicology Award to a poster titled “Identifying reference chemicals for androgen receptor activity” and authored by Nicole Kleinstreuer, Patricia Ceger, Patience Brown, Dave Allen, Jon Hamm, and Warren Casey. This yearly award aims to recognize outstanding contributions to the field of predictive toxicology and comes with a \$500 sum to be used for research or travel support.

Members elected two new members to the Board of Directors: Gertrude-Emilia Costin and Shaun McCullough. A formal write-up of the meeting is planned, and speaker slides will be posted on the members-access section of the ASCCT web site. Join now at <http://www.ascctox.org> to learn more and participate in planning the next meeting. Thank you to all our meeting participants, speakers, sponsors, and organizers!

Kristie Sullivan
ASCCT Secretary



CAATfeed

“Flagship” Program Driving Mechanism-based Toxicity Testing and Risk Assessment for the 21st Century

The Centers for Animal Testing at the Johns Hopkins Bloomberg School of Public Health and the University of Konstanz have joined an international consortium of 39 partner organizations that will be funded by the European Commission to work on the integration of new concepts for regulatory chemical safety assessment. These new concepts involve cutting-edge human-relevant *in vitro* non-animal methods and *in silico* computational technologies to translate molecular mechanistic understanding of toxicity into safety testing strategies with the ultimate goal of delivering reliable, animal-free hazard and risk assessment of chemicals.

Coordinated by Bob van de Water, Professor of Toxicology at the University Leiden (The Netherlands), EU-ToxRisk has the ambition to become the flagship in Europe for animal-free chemical safety assessment. The project will integrate advancements in cell biology, *omics* technologies, systems biology, and computational modelling to define the complex chains of events that link chemical exposure to toxic outcome. The consortium will provide proof of concept for a new mechanism-based chemical safety testing strategy with a focus on repeated-dose systemic toxicity as well as developmental and reproductive toxicity. Importantly, novel mechanism-based test methods will be integrated in fit-for-purpose testing batteries that are in line with the regulatory framework and will meet industrial implementation. EU-

ToxRisk will develop new *ab initio* quantitative risk assessment approaches based on understanding of so-called “Adverse Outcome Pathways” (AOPs) incorporating all mechanistic toxicity data available in the public domain. It will also achieve a rapid improvement of so-called “read-across” approaches as the most important data-gap filling and hence animal-saving alternative method at present. Thus, the project strives towards faster safety evaluation of the many chemicals used by industry and the society.

Katya Tsaïoun Replaces Martin Stephens as Secretariat of the Evidence-based Toxicology Collaboration (EBTC)

The Evidence-based Toxicology Collaboration (EBTC) is excited to announce the appointment of Dr Katya Tsaïoun as new EBTC Director. Dr Tsaïoun brings expertise from the non-profit charity sector and the pharmaceutical industry. Prior to joining EBTC, she was a Scientific Director of Safer Medicines Trust (SMT), a UK patient safety charity with the mission of improving drug safety by advancing new *in vitro* and *in silico* tests into regulatory use. She established SMT’s presence in the U.S., and formed collaborations with the US Environmental Protection Agency (EPA) and Food and Drug Administration (FDA), built a scientific advisory panel with cross-Atlantic stakeholders consisting of academic groups, regulatory authorities, technology companies, industry representatives, and NGOs. Prior to that, Dr Tsaïoun started a contract research

organization, Apredica, which specialized in *in vitro* pharmacology and early safety assessment for pharmaceutical, agrochemical, and cosmetic industries. She led the company into becoming a leader in early safety assessment and to expanding into Europe via merger with a UK competitor. Prior to founding Apredica, Dr Tsaïoun managed ADME and early safety assessment programs in pharmaceutical companies.

Dr Tsaïoun serves on the scientific review board and study sections of the National Institutes of Health. She is frequently invited to speak at conferences on such topics as early toxicity assessment, building productive R&D teams, and entrepreneurship. She co-edited the book *ADMET for Medicinal Chemists* (Wiley & Sons, 2011).

Dr Tsaïoun replaces Dr Martin Stephens, the Founding Director of the EBTC, who shifted to a part-time position. Dr Stephens will continue to serve as a member of the EBTC staff in an advisory role. The EBTC is grateful to Dr Stephens for his past leadership within the organization and his commitment to the EBTC in his new capacity.

Marcel Leist Receives German Prize

CAAT-Europe’s Marcel Leist received the German prize for “Research in alternative methods to animal testing”, which was awarded on September 25 by federal minister Christian Schmidt on the occasion of the opening of the German Center for 3Rs Methods in Berlin.



Girl Scouts Hold Fundraiser for CAAT

Daisy Girl Scout Troop 14556, based in Atlanta, Georgia, surprised CAAT with an unsolicited donation. After their cookie sale, the girls voted to donate a portion of the proceeds to CAAT because of their desire to support alternatives to the use of animals in testing of cosmetics, medicine, and household products. The staff were so delighted the organization sent each of the girls a special certificate of appreciation.

Hartung Quoted in *Bioworld Today* on Organ-on-a-Chip Technology

Bioworld Today, the Daily Biopharmaceutical News Source, quoted Thomas Hartung extensively in its August 24, 2015 issue in the article "Organ-on-a-chip efforts seek to supplant preclinical animal models." The article may be read here: <http://www.bioworld.com/report/BWT082415Organ.pdf>

European Food Safety Authority (EFSA) @Expo: Shaping the Future of Food Safety, Together

The Italian city of Milan hosted World Expo 2015, a prestigious worldwide event that takes place once every five years, from May to October. As its theme "Feeding the Planet, Energy for Life" is related to EFSA's remit, the Authority decided to hold a three-day Scientific Conference in October 2015 in Milan. The objectives of this conference were to take stock of the challenges and opportunities for risk assessment to contribute to policy development and assessment in the sphere of food safety.

CAAT Director Thomas Hartung gave the keynote address on "Frontiers of Predictive Toxicology" on Friday, October 16.

Meet your Biotech SMEs: SMEs meet MEPs at the European Parliament in Brussels

CAAT-Europe and IVTIP joined efforts to raise awareness of alternatives to animal testing as a source for growth, innovation, and competition – which until now has been neglected in the European Parliament. Following the success of the MEP-3Rs scientists pairing program in January, CAAT teamed up with IVTIP to bring CEOs and representatives of SMEs to the European Parliament in Brussels to present their activities. "MEET Your Biotech SMEs" took place on October 20, 2015.

A History of the Johns Hopkins Center for Alternatives to Animal Testing (CAAT): The First 28 Years (1981-2009)

CAAT's Founding Director (Emeritus) Alan Goldberg has written a history of CAAT from its inception in 1981 until Thomas Hartung took over the directorship in 2009. This engaging look at CAAT's long history of promoting alternatives, and the many people who contributed to the center's success, is published in *Applied In Vitro Toxicology 1*, 2015. <http://online.liebertpub.com/doi/pdfplus/10.1089/aivt.2015.0015>

The Silent Monkey Victims of the War on Terror

From BuzzFeed News:

"Thousands of animals have been exposed to deadly pathogens, chemicals, and radiation so that scientists can develop medicines to protect Americans from weapons of mass destruction. Was all this suffering really necessary?" So begins this widely-read article in which CAAT's Thomas Hartung and Joanne Zurlo are quoted.

Full Article: <http://www.buzzfeed.com/peteraldhous/the-monkey-victims-of-the-war-on-terror>

See also the follow-up response: <http://www.buzzfeed.com/peteraldhous/law-makers-call-for-review-of-painful-monkey-experiments>

Recent Events

12th Annual Animal Law Conference

The 12th Annual Animal Law Conference was held on August 19, 2015 in Philadelphia, PA. Paul Locke of Johns Hopkins Bloomberg School of Public Health discussed "Alternatives to Animal Testing – Changes in Science and Law."

9th Congress of the Turkish Society of Toxicology with the Participation of the Hellenic Society of Toxicology

CAAT Director Thomas Hartung gave the keynote address, *Are our cell cultures good enough for risk assessment?* at the 9th Congress of the Turkish Society of Toxicology, which was held October 21-24, 2015 at Altinyunus Otel, Çeşme, Izmir, Turkey.

Upcoming events

FutureTox III: Transforming 21st Century Science into Risk Assessment and Regulatory Decision-Making

November 19-20, 2015
Arlington, Virginia

Thomas Hartung will chair the plenary session *21st Century Risk Assessment – Program-Specific Considerations on How New Approaches Can Impact Regulatory Decision Making*, held as part of FutureTox III. The session aims to begin the discussion of how Tox21-type approaches can help in regulatory decision-making.

Information Day on Good Cell Culture Practice: Human (Stem) Cells and Organoids

December 3, 2015
Konstanz, Germany

The advances in cell culture techniques and the establishment of *in vitro* test systems in research need to be accompanied with approaches to standardize processes



and documentation. The Bologna Statement on Good Cell Culture Practice in 1999 prompted the ECVAM Task Force on Good Cell Culture Practice (GCCP) to produce two seminal guidance documents. Additional refinements were introduced in 2011. With the growing availability of cultured organoids, and the increasing generation and use of pluripotent stem cells and their differentiation progeny, there is a need for revision and update of the GCCP guidelines for these new technologies. This includes quality assurance of supplied biological materials as well as consideration of ethical and legal aspects. This symposium focuses on GCCP regarding human cells and tissues and the quality assurance of cells obtained by reprogramming.

CAAT is currently establishing the secretariat for a Good Cell Culture Practice Collaboration, for which we seek further partners.

Systems Toxicology 2016: Real World Applications and Opportunities

January 27-29, 2016

Les Diablerets, Switzerland

Systems toxicology is a paradigm shift from empirical endpoints to modes of action and adverse outcome pathways. It integrates *in vitro* and *in vivo* toxicity data with computational modeling.

Building on the highly successful 2013 Systems Toxicology conference in Ascona, the 2016 meeting explores current and likely future specific applications of systems toxicology approaches in chemical risk evaluation. The three-day meeting

will be held in the village and ski resort of Les Diablerets, located at 1200 m in the Swiss Alps, close to Lake Geneva and easily reached by train. CAAT Director Thomas Hartung will discuss “In Vitro Models for Developmental Neurotoxicity.” The full program may be found here: <http://systox2016.ch/Programme/>

Social Housing of Laboratory Animals

March 17-18, 2016

UC Davis, California

Co-hosted by USDA, OLAW, UC Davis School of Veterinarian Medicine, Division of Veterinary Resources NIH, and CAAT. http://caat.jhsph.edu/programs/workshops/social_housing.html

Save the Date: Pan-American Conference for Alternative Methods

April 12-14, 2016

Baltimore, Maryland

This conference will bring together experts and stakeholders from across the Americas, with a focus on the Six Rs: *Replacement, Reduction, Refinement, Read-across, Relevance, and Roadmaps*. Although still in the early stages of development, this event promises to fill up quickly, as it will be limited to 300 participants on a first-come, first-served basis. More details to be announced. Contact Jamie DeRita: jderita1@jhu.edu

Recent Publications

Special Issue of EuroScientist Features Hartung Article on Evidence-Based Policy

This special issue of EuroScientist (October 2015) included the article “Evidence-based safety science is nigh” by Thomas Hartung. In this article, Hartung (founder of the Evidence-Based Toxicology Collaboration (EBTC), <http://www.ebtox.com/>), examines what remains to be done to address the mounting pressure exerted on industries and food and drug regulators worldwide to bring their decision-making process up-to-date with modern science.

Read the full article here: <http://www.euroscientist.com/evidence-based-safety-science-is-nigh/>

Borotkanics, R. and Locke, P. Analysis of ToxCast data – *in vitro* and physicochemical properties – in the accurate classification of chemicals that induce hepatocarcinogenesis *in vivo*. *Applied In Vitro Toxicology*, in press.

Lohren, H., Blagojevic, L., Fitkau, R. et al. (2015). Toxicity of organic and inorganic mercury species in differentiated human neurons and human astrocytes. *J Trace Elem Med Biol* 32, 200-208. <http://dx.doi.org/10.1016/j.jtemb.2015.06.008>

Rempel, E., Hoelting, L., Waldmann, T. et al. (2015). A transcriptome-based classifier to identify developmental toxicants by stem cell testing: design, validation and optimization for histone deacetylase inhibitors. *Arch Toxicol* 89, 1599-1618. <http://dx.doi.org/10.1007/s00204-015-1573-y>



News from ECOPA

The 16th General Assembly of ecopa was held on September 22, 2015 in Linz, Austria, during the EUSAAT congress.

New statutes for ecopa were approved. These are a simplification of the old statutes. CAAT Europe provided the secretary support. The Board of ecopa now consists of four members, with personal deputies, one from each of the four stakeholders in alternative approaches: regulators, industry, academia and animal welfare organizations. The President and Vice-President are chosen from among these eight persons.

The primary aim of ecopa is to promote “the three Rs” and to strive for consensus between the stakeholders. ecopa accepts as a Full Member any National Consensus Platform (one per country) which promotes the three Rs, includes representatives of all four stakeholders in its governing body and is a recognized legal organization located in Europe. Individuals, academic institutions, professional associations, companies, other European or international networks, and any other organization (or one of its divisions) which support ecopa’s aims but fail to qualify for membership as a National Consensus Platform can be Associate Members of ecopa.

A new Board was elected for the next two years:

- Tuula Heinonen, President (academia)
deputy: Lisbeth Knudsen
- Philippe Hubert, Vice-President (government and regulatory authorities)
deputy: Manfred Liebsch
- Erwin Roggen (industry)
deputy: Costanza Rovida
- Kirsty Reid (animal protection and welfare organizations)
deputy: Marianne Norring

Philippe Vanparys continues as Treasurer for ecopa, and Francois Busquet as Secretary. CAAT Europe continues to provide valuable secretarial support to ecopa. Manfred Liebsch was elected as Auditor. A new Election Committee was also chosen.

Activities for the next year include:

- modernization of the website
- viewing ecopa’s role against the present and future needs. The work based on the performed survey continues. President and secretary as well as the other members of the board welcome receiving ideas/needs.
- The next workshop will be held in Copenhagen at the Panum building at Medical Sciences in Copenhagen, August 14-18, 2016 as the co-operation meeting with the NordEMS, EEMS and ecopa. Three travel grants will be available for young scientists. The selection will be made based on the abstract and its potential to support ecopa’s mission.
- plans for a joint CAAT/ecopa workshop
- representation in a Partner Expert Group in connection with ECHA guidance on acute toxicity. Tuula Heinonen will represent ecopa in a December 2015 meeting on this topic.
- three travel grants to young scientists who wish to attend the FRAME Training School in Experimental Design and Statistical Analysis at Voss, Norway, in February 2016.

Ecopa’s membership fee will remain unchanged for the next year at € 100. Both new Full and Associate Members are welcome.

Several representatives of National Consensus Platforms had oral or poster presentations at the EUSAAT Congress.

News from the ECOPA members

IPAM

Science and Consciousness Exhibition at the Laboratory of Contemporary Art Museum, Sapienza University, Rome

The exhibition will take place at MLAC (Laboratory of Contemporary Art Museum, at the rear of the Rector’s Office building near the Sapienza infopoint) from September 25 to October 2, 2015 (10:00 am - 6:00 pm) with free admission. The exhibition includes a guided tour of 38 display panels that cover three thematic sections: the 3Rs between past, present and future. Through this exhibition not only researchers and students but anyone can learn about a subject that is much discussed and become aware of a phenomenon that affects all citizens, through objective and balanced information in accordance with the scientific rigor.

FRANCOPA

- The management committee of FRANCOPA elaborated new recommendations and areas of improvement for the French platform. It will be included in the updated report on the state of the art of alternative methods in France (in French). This report will be published before the end of 2015.
- FRANCOPA will contact French agencies in order to get feedback on the application of the 3R principles in research and in order to promote the exchange of information among institutional stakeholders.
- FRANCOPA is about to publish a newsletter. The main article of the newsletter will be focused on the safety assessment of cosmetics ingredients and alternative methods.
- On the November 4, OPAL and FRANCOPA will be co-organizing a workshop on the role of methods avoiding and replacing the use of animals in Paris. The full program of the event is available at the following link: <http://www.alphavisa.com/opal/2015/>



EUSAAT

European Society for
Alternatives to Animal Testing

News from EUSAAT

In this issue, our commentary summarizes some highlights from the Linz 2015 – EUSAAT 2015 conference and reports on the election of the new EUSAAT Board.

Conference Linz 2015 – EUSAAT 2015

The “Linz 2015 – EUSAAT 2015” conference, comprising the “16th Annual Congress of EUSAAT” and the “19th European Congress on Alternatives to Animal Testing,” was held on September 20-23, 2015 in Linz. This long-standing, comprehensive and prominent conference was organized once again at the Johannes Kepler University in Linz, Austria. Over 289 participants from 29 European, North- and South-American as well as Asian countries met for four days to exchange the newest developments in the 3Rs field.

The topics, presented in three parallel sessions, included skin sensitization, disease models, 3D models, multi-organ-chips, stem cells, efficacy and safety testing, repeated dose and other toxicological endpoints, inhalation, biobarriers, nano-technology, QSAR and read-across, risk assessment based on the AOP concept, 3Rs in academia and education, replacement, refinement and culture of care, international progress in 3Rs research & global cooperation, EU Directive 2010/63/EU as well as ethics.

High-quality poster sessions, especially from young researchers, and the “Young Scientists Lecture” sessions provided junior scholars the opportunity to experi-

ence lively discussions in the benevolent atmosphere which is characteristic of this conference.

There was a considerable number of noteworthy highlights among the 157 lectures and presentations held during this conference. Remarkable was the opening lecture given by Susanna Louhimies, “General Directorate Environment” of the European Commission in Brussels, on the achievements and challenges of Directive 2010/63/EU on the protection of animals used for scientific purposes. Monika Schäfer-Korting, Freie Universität Berlin, introduced the impressive research platform BB3R, the first international graduate school dedicated to innovation in 3Rs research including genetic engineering, tissue engineering and bioinformatics (*ALTEX Proceedings* 4(2), 203).

Ground-breaking results in the field of microphysiological systems were presented by Dmitry Sakharov, Scientific Research Centre Bioclinicum in Moscow, introducing a multi organ chip (MOC) for substance toxicity testing and effect prediction (*ALTEX Proceedings* 4(2), 185, 201). Jufeng Wang from National Center for Safety Evaluation of Drugs, National Institutes for Food and Drug, Beijing, China, introduced a novel approach to “Mapping of chemical injuries to organ-specific damage which can provide a basis for highly specific and robust toxicity testing” (*ALTEX Proceedings* 4(2), 250).

Notably, EUSAAT offered also this year a special “practical training course on alternative methods” for young sci-

entists to gain experience on and background in the latest methods in replacement alternatives.

As a synopsis, significant progress was reported in all the subject areas related to the field of 3Rs and new sophisticated concepts were introduced during this conference. It is most welcome, that the increasing awareness for the significance of 3Rs approaches in biomedical research and safety sciences is obviously accelerating in all sectors of the biosciences. We are optimistic that in the near future the functional non-animal models and approaches will be described thoroughly and optimized for validation and that the novel concepts will meet the standards of routine testing. Thus the EUSAAT2015 conference provided significant cause for hope that the efforts of the community, including the organizers of this conference, for human-relevant and humane science will become reality in the foreseeable future.

EUSAAT Board elections

The Annual General Assembly of the European Society for Alternatives to Animal Testing also took place during Linz 2015 – EUSAAT 2015. Since Eleonore Haltner and Ursula Sauer resigned from their positions as treasurer and secretary general (SG), the EUSAAT Board, which had been elected in 2013, had to be restructured. Horst Spielmann, who has served as president for 22 years and was acting SG, remained SG and Vice President Ellen Fritsche was elected president of the



society. Candida Nastrucci and Stefanie Schindler agreed to serve as vice presidents and Mardas Daneshian and Erwin Roggen joined the EUSAAT Board.

The AGA endorsed the new EUSAAT Board, which is comprised of the following members until the end of its term in 2017:

- Ellen Fritsche, IUF – Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany: President
- Candida Nastrucci, TheAlternatives. Eu, Italy: Vice-president
- Stefanie Schindler, Animal-free Research, Bern, Switzerland: Vice-president
- Horst Spielmann, Freie Universität Berlin & State Animal Welfare Officer, Berlin, Germany: Secretary General
- Mardas Daneshian, CAAT-Europe at the University of Konstanz, Germany,
- Erwin L. Roggen, 3Rs Management and Consulting ApS, Lyngby, Denmark

EUSAAT Young Scientists Travel Award (YSTA)

Taking into account the success of the young scientists travel award (YSTA) program of the 8th World Congress on Alternatives and Animal Use in the Life Sciences last year in Prague, EUSAAT established its first YSTA program at EUSAAT2015 to promote the 3Rs principles of Russel and Burch among young scientists up to 35 years of age, i.e., graduate, postgraduate or PhD students. 53 YSTA applicants submitted 68 abstracts from which the Scientific Committee selected 32 travel awards. The Scientific Committee of the YSTA program consisted of Manfred Liebsch, Germany (chair), Helena Kandarova, Slovakia, Lucia Lu Li (Hong Kong). 28 awardees were invited to give oral presentations, 14 within the general program and 14 in two special “Young Scientists Sessions.” The EUSAAT2015 YSTA Award ceremony was held within the closing ceremony.

Young scientists awarded with the EUSAAT2015 YSTA are:

- Annemarie Lang, Charité University Hospital Berlin, Germany, for the lecture on “Molecular modelling of Osteoarthritis – Evaluating pathways *in vitro*” (*ALTEX Proceedings 4(2)*, 138)
- Tijana Markovic, University of Ljubljana, Slovenia, for the lecture on “Human lymphoblastoid cell lines as an *in vitro* tool in preclinical drug evaluation” (*ALTEX Proceedings 4(2)*, 159)
- Katharina Schimek, Technical University Berlin, Germany, in cooperation with the TissUse Inc. for the presentation of “Strategies for combining skin and vasculature in a multi-organ-chip platform” (*ALTEX Proceedings 4(2)*, 204)
- Sebastian Konzok, Fraunhofer Institute for Toxicology and Experimental Medicine ITEM, Hannover, Germany, for the presentation of “A novel human organotypic tumor invasion model of cell line MDA-MB-231 in Precision-Cut Lung Slices (PCLS) to reduce animal experiments in preclinical oncology” (*ALTEX Proceedings 4(2)*, 134)
- Jiangwa Xing, Institute of Bioengineering and Nanotechnology, Singapore, for the lecture on “Geometrically confined cell differentiation and migration model for human teratogen detection” (*ALTEX Proceedings 4(2)*, 262)

The YSTA program at EUSAAT2015 was generously sponsored by EUSAAT, SET Foundation for Promoting Alternatives, Frankfurt, Germany, and by BASF, Ludwigshafen, Germany.

Media Coverage

Besides the scientific highlights, the on-site interest of the media in the conference also posed an exciting highlight. This year’s conference was accompanied by journalists and a TV crew of the Franco-German television network Arte (Association relative à la télévi-

sion européenne), which promotes programming in the areas of culture and the arts. It was remarkable that ARTE sent a fully-equipped eight-person crew, with a German speaking and a French speaking editor. The ARTE team showed lively interest in all aspects of the conference and was present at the lectures and also at the courses for young scientists. Their attention was drawn particularly to artificial skins and 3D cell cultures as well as organoids. We would like to thank ARTE for directing spotlights on the different aspects of the 3Rs field and are looking forward in excitement to the report.

Special thanks and acknowledgments

The former and new board of EUSAAT would like to express its gratitude to all the colleagues who were involved in the scientific organization of the Linz 2015 – EUSAAT 2015. Special thanks are due to Dr Manfred Liebsch and Prof. Dr Horst Spielmann for their immense efforts toward this conference, which were the drive for the success of the meeting. The event owes special thanks to Helmut Appl and his team for the swift organization of the conference at short notice and the smooth operation during the conference and also the ALTEX for producing the abstract book. The board of EUSAAT would like to address special thanks to all the participants for their attendance and also for their dedicated contributions to the 3Rs.

Upcoming events

Next year the conference will celebrate its 25th anniversary. This is a pleasant reason to look forward to an outstanding EUSAAT 2016 conference in August 2016 in Linz, Austria. The EUSAAT Board would like to invite and engage all scientists to participate and consider the opportunity to promote their 3Rs related work in Linz.



NTP
National Toxicology Program
U.S. Department of Health and Human Services



News from NICEATM and ICCVAM

NICEATM Database of Rodent Uterotrophic Bioactivity Now Available

An article published October 2 as an advance publication in *Environmental Health Perspectives* (<http://ehp.niehs.nih.gov/15-10183/>) describes curation and evaluation of a database of rodent uterotrophic bioactivity. The uterotrophic assay is a widely accepted *in vivo* test for identifying chemicals with potential estrogen receptor agonist activity.

The new database, which includes data from studies that adhere to six criteria specified in accepted regulatory test guidelines, is being proposed as a resource both for understanding *in vivo* outcome variability and for evaluating performance of *in vitro* alternative assays that measure estrogenic activity. For example, the database was used to validate an approach that could use high-throughput assays and computational methods to replace the uterotrophic assay in the U.S. Environmental Protection Agency's (EPA's) Endocrine Disruptor Screening Program (EDSP; see article at <http://go.usa.gov/3JC6W>)

The database described in the article is available on the NICEATM website at <http://ntp.niehs.nih.gov/go/40658>.

NICEATM Co-organizes Workshop on Alternatives to Acute Toxicity Testing

Representatives from regulatory agencies, academia, and industries developed strategies for advancing alternative methods for product safety testing that meet the needs of regulatory agencies at a September 24-25 workshop on Alternative Approaches for Identifying Acute Systemic Toxicity: Moving from Research to Regulatory Testing. The workshop was co-organized by NICEATM, Physicians Committee for Responsible Medicine, and PETA International Science Consortium Ltd., and was held at the National Institutes of Health (NIH) in Bethesda, Maryland.

Several resources were identified during the workshop as necessary for meaningful progress in identifying and implementing alternatives: high quality reference data, training on use and interpretation of computational approaches, and global harmonization of testing requirements. Attendees particularly noted the need to characterize variability in reference data being used to evaluate new approaches. Scientists at NICEATM and the National Toxicology Program (NTP) plan to take a lead role in coordinating data collection from a number of sources identified during the workshop. Break-

out groups explored different approaches to reducing or replacing animal use for acute toxicity testing, with each group crafting a roadmap and strategy for accomplishing this within a three-year timeframe. NICEATM will coordinate the creation of and provide support for a working group comprised of workshop participants that will be charged with implementing the strategies.

The workshop proceedings will be submitted for publication early next year. All materials, including the program and presentations, are available on the NICEATM website at <http://ntp.niehs.nih.gov/go/atwksp-2015>.

ICCVAM Advisory Committee Tackles Big-picture Questions

ICCVAM's advisory committee, the Scientific Advisory Committee for Alternative Toxicological Methods, met on September 2 at the National Institute of Environmental Health Sciences (NIEHS) in Research Triangle Park, North Carolina. The committee discussed three broad questions relevant to the advancement of animal alternatives: international harmonization of animal testing requirements, measurement of success in the 3Rs, and creation of a U.S. roadmap for alternative methods development. Updates were also



presented on NICEATM activities and on 3Rs activities ongoing at three ICCVAM member agencies: the U.S. Department of Agriculture, EPA, and the U.S. Food and Drug Administration. An NIEHS presentation also described funding opportunities available for small businesses developing alternative methods. Materials from the meeting are available on the NTP website at <http://ntp.niehs.nih.gov/go/8202>.

Webinars and Workshop on IVIVE

NICEATM and EPA are co-organizing a webinar series and workshop on In Vitro to In Vivo Extrapolation for High Throughput Prioritization and Decision Making. The series of four webinars began October 7 and will culminate in a February 2016 workshop at EPA in Research Triangle Park, North Carolina.

The workshop aims to address the capabilities and the limitations of *in vitro* to *in vivo* extrapolation (IVIVE) within the context of risk decision making. The webinar series will present the current science and the in-person workshop will facilitate discussions that will follow up and build on information presented in the webinars. Workshop participants will (1) review the state of the science to form recommendations on the best practices for using IVIVE in chemical screening and risk decision making, (2) identify areas that require additional data and/or research, and (3) highlight examples of how best to apply IVIVE in a tiered risk decision-making strategy.

More information on the workshop and a link to registration are available on the NICEATM website at <http://ntp.niehs.nih.gov/go/ivive-wksp-2016>. Registration is required to attend both the webinars and the workshop. Individuals who plan to view webinars must register two days in advance to ensure access. The workshop is open to the public, free of charge, with attendance limited only by the space available. Those planning to attend the workshop should plan to participate in all four webinars. However, the

webinars will be open to persons unable to attend the workshop.

NICEATM Activities at ASCCT Annual Meeting

Recent NICEATM activities were highlighted in many presentations at the Annual Meeting of the American Society of Cellular and Computational Toxicology (ASCCT), held October 1 and 2 at EPA in Research Triangle Park, North Carolina. NICEATM director Warren Casey, Ph.D., delivered a plenary lecture at the meeting, in which he reviewed factors motivating development of new testing approaches and advocated for the creation of a U.S. roadmap for alternative methods development. NICEATM activities described in meeting presentations included:

- An approach that uses computational methods and data from non-animal tests to identify substances that can cause allergic contact dermatitis (more information at <http://ntp.niehs.nih.gov/go/its>)
- A proposal to use *in vitro* test data and computational methods to replace animal testing for some tests required by the EDSP (see first article above)
- A project to characterize the induction of pulmonary fibrosis by inhalation of carbon-based nanomaterials that arose from a February 2015 workshop co-organized by NICEATM (more information at <http://www.piscltd.org.uk/nanoworkshop/>)

NICEATM and NTP scientists also co-authored five posters at the meeting that discussed computational methods and reference databases for development of alternative testing approaches.

Nature Biotechnology Paper Reports Results of Crowdsourcing Challenge

An international study published in *Nature Biotechnology* (<http://www.ncbi.nlm.nih.gov/pubmed/26258538>) presents the combined results of a crowdsourcing

initiative to test how well the effects of a toxic compound can be predicted in different people. The study shows that computational methods can be used to predict some toxic effects in populations, although they are not yet sensitive enough to predict such effects in individuals. It also presents algorithms useful for environmental risk assessment.

The community-based challenge, known as the DREAM Toxicogenetics Collaboration, was led and organized by scientists from NIEHS, EMBL-EBI, Sage Bionetworks, IBM, the University of North Carolina, and the NIH's National Center for Advancing Translational Sciences. Hundreds of computational biologists from all over the world tried their hand at predicting the toxicities of environmental compounds that had potential adverse health effects. One key benefit of the study is that it offers new methodologies for improvements in some areas of hazard evaluation and assessment.

Report Outlines Predictive Toxicology Approach for Defense Applications

The National Academies Press has issued a report on "Application of Modern Toxicology Approaches for Predicting Acute Toxicity for Chemical Defense." Prepared in response to a request by the U.S. Department of Defense, the report provides a conceptual approach that could be used to evaluate chemicals that could pose threats to deployed personnel. In addition to providing an overview of current computational and high-throughput testing approaches and methods for integrating data and predictions, the report summarizes lessons learned from current high-throughput screening programs and suggests initial steps for investment.

The report is available on the National Academies' website and can be read online or downloaded as a PDF for free at <http://bit.ly/1N37b2e>.