CAAT*feed*

Upcoming Events

52th Annual Symposium on Social Housing of Laboratory Animals

June 4-5, 2018
USDA Agricultural Library
Beltsville, MD

The goal of this symposium series is to bring together experts on the behavior and science of laboratory animal species to exchange information with scientists, Institutional Animal Care and Use Committee (IACUC) members, veterinarians, and animal care technicians about the welfare needs of social laboratory animal species and the means to achieve optimal social housing conditions in a variety of settings. The format includes two days of lectures in the morning followed by interactive breakout sessions in the afternoon. The lectures give participants a strong foundation in the relevant research underlying socialization and behavioral management efforts, while the breakout sessions allow participants to get feedback specific to their own facilities from experts and colleagues.

This year, we will start out with a keynote on play behavior and positive affective states in several species, followed by talks focusing on the specific housing needs of rabbits, swine, and rats. The afternoon will commence with input from the USDA, OLAW, and AAALAC regarding current policies and guidance, followed by the breakout session. The second day will begin with housing considerations and harm/benefit analysis and will then cover the current best practices for the social housing of old world monkeys. In the afternoon, we will learn about the psychological well-being of fish before ending with another breakout session.

A pre-symposium visit to the National Zoo in Washington, D.C. will be available to participants, but space is limited – so please register early!

Details and Registration: http://caat.jhsph.edu/programs/workshops/social_housing.html

2nd Pan-American Conference for Alternative Methods

August 23-24, 2018
Windsor Florida Hotel
Rio de Janeiro, Brazil

The first Pan-American Conference, held in Baltimore in 2016, was an enormous success, and we expect this year's to be a sellout, with a number of major scientific, corporate, government, and academic organizations taking part. The conference brings South, Central, and North America together to further alternatives to animal testing and build collaboration for the exchange of scientific ideas.

Abstracts should be emailed to caat@jhu.edu as an attachment following these guidelines:

- Microsoft Word document
- Include title, authors (indicating presenter), and affiliations
- Figures and references can be included
- Please include complete contact information
- Please indicate in the accompanying email if you want to be considered for an oral presentation.

Deadline for Submissions: April 30, 2018

Sponsorship Opportunities

Your sponsorship will enable us to provide the optimal experience for all our participants, including dinners, special events and travel grants to participants requiring financial support. To become a sponsor, please contact caat@jhu.edu

Travel Grants

To apply for a travel grant, please email caat@jhu.edu the following information:

- Name
- Institution/affiliation
- Highest degree
- Why should we award you with the travel grant?
- What do you plan to get out of this conference?

Full details and registration may be found here: http://caat.jhsph.edu/programs/workshops/PanAmerican2018/index.html

20th International Congress on In Vitro Toxicology (ESTIV 2018)

Hosted by ESTIV, CAAT and Gesellschaft für Toxikologie
October 15-18, 2018
Berlin, Germany

Details and Registration:
http://www.estiv2018.com/

Grants and Awards

CAAT Grants: Call for Pre-proposals

Deadline: April 30, 2018

CAAT is soliciting projects that focus on the implementation of the NAS Report: *Toxicity Testing in the 21st Century: A Vision and a Strategy* in the following areas:

- Proposals Relating to Toxicology: Maximum grant amount is $40,000. The ob-

jective should be to significantly reduce or replace laboratory animals. Projects should be developed to provide mechanistic understanding of *in vitro* responses to toxicants in human cells. Consideration should be given to the translation of this new method to evaluate/predict health outcomes.
- Proposal Relating to Refinement: See *Science-Based Animal Welfare Awards – funded separately*.

Pre-proposal Details: http://caat.jhsph.edu/programs/grants/preproposal.html
Pre-proposal Form: http://caat.jhsph.edu/programs/grants/proposalform.html

Next Generation Humane Science Award

Deadline: May 30, 2018

This award is available annually to young scientists to acknowledge and encourage researchers who focus on replacing animal experiments. The 2018 award will provide a prize of up to $9,000 recognizing the work of one young scientist, or may be shared among two or more young scientists.

The work must be focused on the replacement of animals used in experimentation and exhibit excellence of research outcome as demonstrated by publications and presentations at scientific meetings. The review committee will also take into account the significance of the potential to replace animal experiments, inspiration to others (fellow students, members of the research group) and outreach to wider audiences, and the potential for the replacement methodologies to be used in a regulatory context

The candidate must be a citizen or permanent resident of the United States working at a US-based institution, the candidate should not have received a PhD or similar degree earlier than 2010, and current and former employees (or their family members) of the Center of Alternatives to Animal Testing at Johns Hopkins University may not apply.

Please download http://caat.jhsph.edu/2018HumaneScienceApplication.pdf and email completed applications and required information including a CV (2 pages max.), a list of all publications and two reference letters, not to exceed two pages each, stating why you should receive this award. These letters should be from individuals well-qualified in the field, at least one of whom is not associated with the research itself (such as current supervisors or co-authors of publications) to caat@jhu.edu.

Further details: http://caat.jhsph.edu/humanescienceaward.html

Call for Expression of Interest: P4M – Public Private Partnership for Performance Standards for Microphysiological Systems

Organo-typic cultures with elements of organ architecture and functionality are flourishing, increasingly moving even to multi-organ systems. They promise to boost the relevance of *in vitro* work, fueled also by the increasing availability of high quality human cells due to stem cell technologies. CAAT has been part of and actively promoted these developments. In various stakeholder discussions, we perceived the need to complement the technical developments with quality assurance aspects. Our ongoing efforts toward Good Cell Culture Practice (GCCP), *in vitro* reporting standards and *in vitro* risk-of-bias assessments already go in this direction.

As a next step, we would like to invite all stakeholders to join us starting a discussion about performance standards for microphysiological systems (MPS). This will encompass questions like:
- What makes a cell culture an MPS?
- What is a good MPS, e.g., fit-for-purpose, reproducibility, relevance, validity?
- How does an MPS need to be documented and reported?
- How can a lab show proficiency in testing with an MPS?
- What quality assurance and management need to be in place?

This call for expression of interest wants to identify possible partners from academia, regulatory agencies, industry (users and technology providers), and others (e.g., NGOs). You are invited to contact us at caat@jhu.edu. Letter of motivation and referrals to relevant activities in this area you are part or aware of are most welcome. We will start organizing the dialogue with the exact form depending on the responses received.

Become part of an exciting process helping to revamp the relevance of *in vitro* work!

Recent News

Toxicology 21: Scientific Applications: New Course on Coursera

Course Info and Registration: https://www.coursera.org/learn/toxicology-21/home/welcome
Taught by CAAT's Thomas Hartung and Lena Smirnova.

This course familiarizes students with the novel concepts being used to revamp regulatory toxicology in response to a breakthrough National Research Council Report *Toxicity Testing in the 21st Century: A Vision and a Strategy*. We present the latest developments in the field of toxicology – the shift from animal testing toward human relevant, high content, high-throughput integrative testing strategies. Active programs from EPA, NIH, and the global scientific community illustrate the dynamics of safety sciences.

A certificate can be acquired ($49), otherwise the course is free to registrants. Financial aid is also available (see Coursera website).

UL, CAAT, and ToxTrack Scientists Train US FDA and Health Canada on Novel Computational Toxicology Tools

Scientists from Underwriters Laboratories (UL), Johns Hopkins' CAAT, and ToxTrack LLC, a Hopkins spin-off created by CAAT's Tom Luechtefeld, provided separate in-depth training meetings at Health Canada and the US Food and Drug Administration in February 2018. The meetings provided an overview of UL's Cheminformatics Suite and an in-depth training on the science underpinning the REACHacross Module, which implements CAAT research into automated read-across. By analyzing billions of chemical combinations, REACHacross software can predict chemical hazards, including skin sensitization, acute oral and dermal toxicity, eye and dermal irritation, mutagenicity, and acute and chronic aquatic toxicity. The training was designed to assist these agencies in adopting non-animal methods as a means to evaluate chemicals for a variety of regulatory programs.

The US FDA has recently released a strategic plan for using non-animal methods in its reviews. The training was provided in conjunction with a beta-user program designed to provide REACHacross users with an opportunity to use the software and provide feedback for further design enhancements. Through the beta-user program, users of REACHacross will gain confidence for using the hazard predictions in their regulatory activities avoiding animal testing and provide valuable insights to better develop the tools that regulators need.

Lena Smirnova Receives $20,000 ARDF AiR Challenge Grant for *Testing for Autism Toxicants by Gene Environmental Interaction*

Alternatives Research and Development Foundation's (ARDF) AiR Challenge Grants are intended to accelerate alternatives development in biomedical research.

The AiR challenge program is intended not only as a means of rewarding scientists, advancing biomedical progress, and sparing animals from suffering. It is also intended to help dispel the outdated notion that an interest in medical progress and a concern for animals are inexorably in opposition; indeed, finding better non-animal approaches to researching human disease is a win-win for humans and animals. The ARDF is also seeking to broaden the understanding and appreciation for alternative methods not only among scientists, but also among the general public, thought-leaders, media representatives, and patients and patient advocates.

Society of Toxicology (SOT) Satellite Meeting Organized by the Center for Alternatives to Animal Testing and the Human Toxicology Project Consortium

"Updates on Activities Related to 21st Century Toxicology and Related Efforts: Invited Presentations and Open Mic"

On Thursday, March 15, the Center for Alternatives to Animal Testing (CAAT) and the Human Toxicology Project Consortium (HTPC) held their annual SOT satellite meeting on advancing 21st century toxicology activities and related efforts. The satellite meeting provided an informal setting in which interested stakeholders updated each other on these important topics. The meeting featured a number of invited presentations but also left time for an open microphone segment in which participants made announcements and gave brief presentations on germane topics.

Thomas Hartung Receives Hellenic Society of Toxicology Award

CAAT Director Thomas Hartung received the Hellenic Society of Toxicology Award in recognition for his contributions to toxicological sciences. The award was presented at the Greek Congress of Toxicology, held February 2-4 in Larisa, Greece. Hartung gave the plentary lecture on "Making alternatives the new normal – the continuing paradigm shift in toxicology".

What is the Future of Animal Testing? Thomas Hartung Interviewed on *Deutsche Welle*

Recent tests of car exhaust on monkeys have renewed the debate around animal testing. While researchers say eliminating animal testing is impossible, they agree there are alternatives that are less cruel.

Full article: https://bit.ly/2ExKqYC

Paul Locke Discusses Recent Volkswagen Testing Controversy with *National Geographic*

Excerpt from "Was Volkswagen the First to Test Exhaust Fumes on Monkeys? Your Questions Answered" (National Geographic), https://bit.ly/2nQaFjL:

But while that kind of experiment could show that the emissions are cleaner, it doesn't prove that they're less dangerous to human health, says Paul Locke, a Johns Hopkins environmental health scientist and attorney affiliated with the National Academies of Sciences' Institute for Laboratory Animal Research and Johns Hopkins' Center for Alternatives to Animal Testing.

When a public entity, such as a university, wants to test on animals, the National Institutes of Health (NIH), which provides at least some funding for nearly all academic research, decides whether there's a legitimate and sufficient scientific reason to do so, Locke notes. Once the merit is established, NIH can grant funding, and then the research will be reviewed by an IACUC.

In privately funded research, no outside entity is required to consider merit. A Lovelace spokeswoman did not answer specific questions about the institute's scientific review process but said in an email to Wildlife Watch that its IACUC "performed its function in full compliance with the Animal Welfare Act."

That response leaves Locke wondering if there was any consideration of merit: "Lovelace has an excellent reputation. They're known for doing quality science," he says. But, he adds, "I don't understand fully who reviewed this research from a scientific perspective. Who said this science was going to be valuable in terms of contributing knowledge to the world? Because that's what science is supposed to do."

Recent publications

Fritsche, E., Grandjean, P., Crofton, K. M. et al. (2018). Consensus statement on the need for innovation, transition and implementation of developmental neurotoxicity (DNT) testing for regulatory purposes. *Toxicol Appl Pharmacol*, Epub ahead of print. doi:10.1016/j.taap.2018.02.004

Pamies, D., Block, K., Lau, P. et al. (2018). Rotenone exerts developmental neurotoxicity in a human brain spheroid model. *Toxicol Appl Pharmacol*, Epub ahead of print. doi:10.1016/j.taap.2018.02.003

Ramirez, T., Strigun, A., Verlohner, A. et al. (2018). Prediction of liver toxicity and mode of action using metabolomics in vitro in HepG2 cells. *Arch Toxicol 92*, 893-906. doi:10.1007/s00204-017-2079-6

Secker, P. F., Beneke, S., Schlichenmaier, N. et al. (2018). Canagliflozin mediated dual inhibition of mitochondrial glutamate dehydrogenase and complex I: An off-target adverse effect. *Cell Death Dis 9*, 226. doi:10.1038/s41419-018-0273-y

Volz, T., Kaesler, S., Draing, C. et al. (2018). Induction of IL-10-balanced immune profiles following exposure to LTA from Staphylococcus epidermidis. *Exp Dermatol*, Epub ahead of print. doi:10.1111/exd.13540

EU-ToxRisk

First funding period completed

The project completed its first funding period successfully, i.e., the report was handed in on time and in good shape so that it was readily accepted by the European Commission. Some of the report highlights were:

- construction of 15 AOPs well advanced and partially finalized;
- upload of data (174 data sets) to joint database (BioStudies) at EBI and large progress in the construction of a knowledge base for data combination and processing;
- establishment of nine case studies with clear regulatory objectives;
- tight interaction with stakeholders such as PARERE group and creation of a regulatory advisory board (RAB);
- great advances in technology development concerning test methods (cross systems testing = case study-Y) and biokinetic approaches;
- high-quality method documentation with first tests registered in DB-ALM database of EURL-ECVAM.

3rd EU-ToxRisk General Assembly

The third EU-ToxRisk General Assembly took place on February 20-22, 2018 in Egmond aan Zee (NL). A total of 129 participants including invited industry stakeholders and members of the scientific advisory (SAB) and regulatory advisory (RAB) boards took part. Matthias Herzler from the German BfR was elected as first chairperson of the newly-formed RAB. A stakeholder symposium at the start of the meeting gave an overview to 14 industry stakeholders from a range of backgrounds (pharma, cosmetics, flavor industry, petrochemical and chemical industry). Guided poster tours to present comprehensive information on the project progress were tested for the first time with success, and the best presenters were awarded prizes. The time before and after the GA was used in a motivated and highly concentrated way for case study planning, workpackage updates and additional meetings:

- In a satellite meeting, EU-ToxRisk met with members of the European research project EuroMix. Collaboration on liver steatosis and DART was agreed.
- Another satellite formed the platform for the first data hackathon of the project. Participants of the joint case study with Cosmetics Europe identified data gaps that will direct future data generation.

Publications

The project is going into its third year. Besides many publications from various partners (see project website (http://www.eu-toxrisk.eu/page/en/project-documents.php), the output in form of joint publications (of several partners, sometimes also including Tox21 partners from across the Atlantic) is increasing. Notable examples are a collaborative review of the AOP concept (Leist et al., 2017), an overview of all relevant compounds triggering developmental neurotoxicity (Bal-Price et al., 2018), or an important contribution on sharing of legacy data (Sanz et al., 2017). New *in silico* and *in vitro* models for improved QSAR have been developed (Toropova et al., 2018; Nyffeler et al., 2017), and two examples of collaborative primary research data address neurotoxicity and hepatotoxicity (Delp et al., 2018; Kotsampasakou et al., 2017).

Dissemination

Direct contact in relevant meetings was used for dissemination. Besides many local and national meetings, EU-ToxRisk was very well-represented, with multiple presentations and an own booth, at the 2018 SOT meeting in San Antonio, TX. Particularly important were a satellite session with the US FDA that raised a lot of interest, and the interaction with multiple stakeholders at the traditional CAAT satellite meeting.

Outlook

The project is running at full speed and a lot of developments are expected in the months to come. Particularly exciting will be the focus on case study outputs towards improved read-across, and the selection of the second generation of case studies: Topics worth following in the next edition of this corner.

References

Leist, M., Ghallab, A., Graepel, R. et al. (2017). Adverse outcome pathways: Opportunities, limitations and open questions. *Arch Toxicol 91*, 3477-3505. doi:10.1007/s00204-017-2045-3

Bal-Price, A., Hogberg, H. T., Crofton, K. M. et al. (2018). Recommendation on test readiness criteria for new approach methods in toxicology: Exemplified for developmental neurotoxicity. *ALTEX*, Epub ahead of print. doi:10.14573/altex.1712081

Sanz, F., Pognan, F., Steger-Hartmann, T. et al. (2017). Legacy data sharing to improve drug safety assessment: The eTOX project. *Nat Rev Drug Discov 16*, 811-812. doi:10.1038/nrd.2017.177

Toropova, A. P., Toropov, A. A., Marzo, M. et al. (2018). The application of new HARD-descriptor available from the CORAL software to building up NOAEL models. *Food Chem Toxicol 112*, 544-550. doi:10.1016/j.fct.2017.03.060

Nyffeler, J., Chovancova, P., Dolde, X. et al. (2017). A structure-activity relationship linking non-planar PCBs to functional deficits of neural crest cells: New roles for connexins. *Arch Toxicol 92*, 1225-1247. doi:10.1007/s00204-017-2125-4

Delp, J., Gutbier, S., Klima, S. et al. (2018). A high-throughput approach to identify specific neurotoxicants / developmental toxicants in human neuronal cell function assays. *ALTEX*, Epub ahead of print. doi:10.14573/altex.1712182

Kotsampasakou, E., Escher, S. E. and Ecker, G. F. (2017). Linking organic anion transporting polypeptide 1B1 and 1B3 (OATP1B1 and OATP1B3) interaction profiles to hepatotoxicity – The hyperbilirubinemia use case. *Eur J Pharm Sci 100*, 9-16. doi:10.1016/j.ejps.2017.01.002

Marcel Leist

ICCVAM Workshop on Predictive Models for Acute Oral Toxicity

An April 11-12 ICCVAM workshop presented outcomes of a global project to develop *in silico* models of acute oral systemic toxicity that predict specific endpoints needed by regulatory agencies. Platform and poster presentations at the workshop described results from over 100 model/endpoint combinations that were developed by more than 30 submitters. Slides from platform presentations and other materials from the workshop are available at https://ntp.niehs.nih.gov/go/atwksp-2018.

Endpoints modeled included identification of "very toxic" chemicals (LD50 less than 50 mg/kg) and "nontoxic" chemicals (LD50 greater than or equal to 2000 mg/kg), point estimates for rodent LD50s, and categorization of toxicity hazard using the U.S. Environmental Protection Agency (EPA) and Globally Harmonized System of Classification and Labelling (GHS) classification schemes. The models were developed and evaluated using rat acute oral toxicity data collected by NICEATM and the EPA National Center for Computational Toxicology.

Models meeting criteria defined by the project organizing committee are being used to generate consensus predictions for the acute oral toxicity endpoints of interest. Two journal articles, one summarizing the compiled dataset and another describing the compilation of a consensus for each endpoint, will be submitted soon for publication in the peer-reviewed literature. Toxicity predictions generated by the models will also be made available via EPA's Chemistry Dashboard (https://www.epa.gov/chemical-research/chemistry-dashboard).

ICCVAM Elects Co-chairs

At its January 24 meeting, ICCVAM elected Anna Lowit, EPA, and Emily Reinke, Department of Defense, to serve two-year terms as co-chairs of ICCVAM.

- Lowit is a senior science advisor in the EPA Office of Pesticide Programs. She has been a member of ICCVAM since 2011 and has served as an ICCVAM co-chair since 2013.
- Reinke is a biologist at the U.S. Army Institute of Public Health and has been an ICCVAM member since 2015. As co-chair of ICCVAM, Reinke succeeds Abigail Jacobs, who served as ICCVAM co-chair from 2013 until her retirement from the U.S. Food and Drug Administration (FDA) in September 2017.

EPA Releases Draft Strategy to Reduce Animal Use for TSCA Testing

On March 7, EPA released a draft strategy to reduce use of vertebrate animals in chemical testing. The Frank R. Lautenberg Chemical Safety for the 21st Century Act, which amended the Toxic Substances Control Act (TSCA), mandates development of the strategy. The announcement regarding the draft strategy release is available at https://www.epa.gov/newsreleases/epa-meets-another-tsca-milestone-releases-draft-strategy-reduce-animal-testing.

The draft strategy was available for comment through April 20 at https://www.regulations.gov/ under docket EPA-HQ-OPPT-2017-0559. Comments received will be considered in the Agency's development of the final strategy. More information about the draft strategy and an April 10 public meeting on the draft strategy is available at https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/alternative-test-methods-and-strategies-reduce.

Integrated Chemical Environment Adds Formulations Viewer

A March update to the NICEATM Integrated Chemical Environment (ICE) added a formulations viewer that allows users to explore toxicity data on pesticide formulations and their active ingredients. ICE currently includes data from six-pack studies on almost 700 formulations that were submitted for pesticide registration: skin sensitization, skin and eye irritation, and acute oral, dermal, and inhalation systemic toxicity. Active ingredient lists from the formulations can be used to query the ICE Integrator for data on these substances from other *in vivo* and *in vitro* assays.

The recent ICE release also updated and expanded physicochemical property predictions, updated androgen and estrogen pathway model predictions, and improved filtering on assay endpoints. Additional future updates to ICE include interactive workflows for predicting physicochemical property data, chemical use category information, and *in vitro* to *in vivo* extrapolation predictions.

ICE is available at https://ice.ntp.niehs.nih.gov/.

NICEATM and ICCVAM Activities at SOT

At the Society of Toxicology (SOT) annual meeting in March, ICCVAM co-chair Anna Lowit, senior science advisor in EPA's Office of Pesticide Programs, received the Enhancement of Animal Welfare Award. This award recognizes contributions made towards the development and application of methods that replace, refine, or reduce the need for experimental animals.

The SOT annual meeting included a number of sessions featuring NICEATM and ICCVAM projects and scientists.

- The March 10 satellite meeting, "Building a Better Epithelium: Breaking the Barrier to the Next Generation of Toxicity Testing," included on the organizing committee NICEATM Director Warren Casey and David Allen, principal investigator on the ILS NICEATM support contract.
- Three March 11 continuing education courses included NICEATM staff and ICCVAM members as presenters.
  - The What, When, and How of Using Data from Alternative Testing Methods in Chemical Safety Assessments

  - In Vitro Testing: Tales from the Real World
  - Consumer Products Safety Assessment: Progress in the Use of Alternatives to Animal Models
- The March 12 session "Implementing New Approaches to Evaluate the Safety of Chemicals and Medical Products in the United States," sponsored by the National Toxicology Program and the National Institute of Environmental Health Sciences (NIEHS), focused on the U.S. Strategic Roadmap (see https://ntp.niehs.nih.gov/go/natl-strategy for details).
- The March 12 In Vitro Toxicology Lecture and Luncheon featured the presentation "More than Skin Deep: When Alternative Approaches Outperform Animal Tests" by NICEATM Deputy Director Nicole Kleinstreuer.
- A March 14 session sponsored by EPA summarized the draft strategy to reduce animal testing for TSCA (see article above for more details on the draft TSCA strategy).
- ICCVAM members from NIEHS and FDA were presenters at the March 14 informational session, "U.S. Tox21 Collaboration: A Decade of Experience and a New Vision for the Future."
- ICCVAM members from NIEHS, FDA, and EPA were presenters at the March 15 satellite meeting, "Updates on Activities Related to 21st-century Toxicology and Related Efforts."

NICEATM and ICCVAM scientists at SOT presented at 11 platform sessions and 18 poster sessions. More information about the NICEATM and ICCVAM presentations is available at https://ntp.niehs.nih.gov/go/niceatm-sot18.

Papers Published Describing Analysis of Defined Approaches to Skin Sensitization

A collaboration between NICEATM and Cosmetics Europe has produced two papers describing important resources for non-animal approaches to identifying potential skin sensitizers. Both papers were published February 23 in *Critical Reviews in Toxicology* and are available to all readers regardless of subscription status.

Hoffmann, S., Kleinstreuer, N., Alépée, N. et al. (2018). Non-animal method to predict skin sensitization (I): the Cosmetics Europe database. *Crit Rev Toxicol*, Epub ahead of print. doi:10.1080/10408444.2018.1429385

This paper describes a database with data for 128 chemicals from human, animal, and five non-animal tests. The chemicals in the database represent a wide variety of chemistries and use categories. The database is proposed as a point of reference for the evaluation and development of new non-animal testing strategies.

Kleinstreuer, N., Hoffmann, S., Alépée, N. et al. (2018). Non-animal methods to predict skin sensitization (II): the Cosmetics Europe database. *Crit Rev Toxicol*, Epub ahead of print. doi:10.1080/10408444.2018.1429386

This paper describes an analysis of multiple defined approaches for skin sensitization safety assessment of chemicals using the Cosmetics Europe database described above. Many of these approaches were found to perform as well or better than animal methods for predicting human skin sensitization hazard and potency.

IIVS
Institute for In Vitro Sciences
Advancing Science & Animal Welfare Together

IIVS Names Frank Gerberick as Chief Scientific Advisor

IIVS has appointed Frank Gerberick, PhD as its Chief Scientific Advisor. With his expertise and knowledge of technological advances and industry trends, Dr Gerberick will advise the organization's governing body on scientific matters and make recommendations on future directions, such as unique research opportunities, processes to promote efficiencies, and competitive positioning for the organization. Read the full press release at www.iivs.org.

View IIVS Posters from SOT 2018

IIVS presented several posters at the 2018 Society of Toxicology (SOT) annual meeting, March 11-15, in San Antonio, TX. Posters focused on respiratory toxicology and *in vitro* methods for assessing phototoxicity and photosensitization. View our posters online at www.iivs.org.

Save the Date for ASCCT 7th Annual Meeting: Sept. 11-12

The 7th Annual ASCCT Meeting – *Predictive Toxicology: Strategies for Implementing New Approaches* – will be held September 11-12 at the National Institutes of Health in Bethesda, MD.

The program will include expert plenary lectures given by:

- Brian Berridge, Associate Director, National Toxicology Program: Building Biological Bridges: Facilitating the Predictive Toxicology Paradigm
- Suzanne Fitzpatrick, FDA: Predictive Toxicology for Regulatory Decisions: Implementing New Approaches at FDA

The meeting will also include a panel discussion on public-private partnerships, poster and oral presentations, a social reception and networking event, and a mentoring activity and awards for young scientists. View information at www.ascctox.org.