CAAT*feed*

Save The Date! 2nd Pan-American Conference for Alternative Methods

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

The second Pan-American Conference for Alternative Methods, which brings together experts and stakeholders in alternatives from across the Americas, will be held in Rio de Janeiro, Brazil. For sponsorship opportunities or other questions, please contact: caat@jhsph.edu.

Awards: David Pamies and the Human Toxicology Project Consortium (HTPC) Win 2016 LUSH Prizes; Lena Smirnova Wins Green and Open Neuroscience Award

David Pamies won the LUSH Young Researcher Americas Prize for his work on development of a dysmyelination test to study developmental neurotoxicity of environmental chemicals in a human brain microphysiological system.

The HTPC, of which CAAT is a member, won the LUSH Prize in the Training category.

Lena Smirnova won the Green and Open Neuroscience Award for her outstanding contributions to forwarding human-based neurotoxicity research that saves human lives and replaces the use of animals in research. The honor is awarded by the Green Neuroscience Laboratory and the Physicians Committee for Responsible Medicine (PCRM).

Progress in Refinement: Enhancement of Scientific Integrity and Animal Well-Being

November 30, 2017
Baltimore, MD, USA

This one-day refinement-focused symposium was held at the Bloomberg School of Public Health. Discussions covered social housing, pain assessment and management, environmental enrichment, and other critical topics.

The event concluded with a retirement reception honoring Joanne Zurlo, CAAT's Director of Science Strategy and head of the Refinement program, and introduced Kathrin Herrmann, who will be replacing Joanne as Director of the Refinement Program. Please join us in wishing Joanne a happy and productive retirement!

Thomas Hartung on New Technologies Driving the Future of Healthcare and Public Health at World Science Forum 2017

CAAT Director Thomas Hartung spoke at the World Science Forum 2017 at the King Hussein Bin Talal Convention Centre in Jordan on November 10. Hartung's talk, "New Technologies Driving the Future of Healthcare and Public Health," was part of a session on sustainable development goals.

Non-Human Primates, Biomedical Research, New Technologies, and Replacement Methods

November 9, 2017
Rome, Italy

CAAT's Thomas Hartung and Costanza Rovida presented at this conference, sponsored by Italian Senator Silvana Amato in collaboration with OSA (*Oltre la Sperimentazione Animale* (Beyond Experiments with Animals)) and LAV (Italian Anti-Vivisection League). Hartung discussed "New Animal-free Strategies for Product Safety."

CAAT and CAAT Academy Workshop on 3Rs & 2D, 3D Liver, Skin, Eye and Gastrointestinal Regulatory Models

November 1, 2017
Turkey

CAAT and CAAT Academy organized a workshop on 3Rs & 2D, 3D Liver, Skin, Eye and Gastrointestinal Regulatory Models at the Tubitak MAM Research Centre in Turkey. About 100 people attended the events.

Turkey has already legally implemented the principles of Directive 2010/63/EU, and is committed to establishing a formal 3Rs center for the dissemination, validation and implementation of new alternative methods. On the following day, 25 students had the opportunity to learn in the lab using reconstructed *in vitro* human epidermal cornea models and 3D primary human intestine. Special focus was also dedicated to *in vitro* models for drug hepatotoxicity.

Joint EFSA and Evidence-based Toxicology Collaboration Colloquium

October 25-26, 2017
Lisbon, Portugal

Leading scientists from across the world took part in the colloquium to explore future directions for evidence integration in human risk assessment of chemicals. It was the 23rd in the EFSA scientific colloquium series and was jointly organized with the Evidence-based Toxicology Collaboration (EBTC) at the Johns Hopkins Bloomberg School of Public Health.

Recent Publications

Harris, G., Hogberg, H., Hartung, T. and Smirnova, L. (2017). 3D differentiation of LUHMES cell line to study recovery and delayed neurotoxic effects. *Curr Protoc Toxicol 73*, 11.23.1-11.23.28. doi:10.1002/cptx.29

Hartung, T. and Rovida, C. (2017). Prospettive della ricerca scientifica attraverso metodi alternative alla sperimentazione animale. In M. V. Ferroni and C. Campanaro (ed.)., *Metodi Alternative Alla Sperimentazione Animale* (17-23). G. Giappichelli Editore, Torino.

Lee, J., Choi, J., Alpergin, E. S. S. et al. (2017). Loss of hepatic fatty acid oxidation confers resistance to diet-induced obesity and glucose intolerance. *Cell Reports 20*, 655-667. doi:10.1016/j.celrep.2017.06.080

Maertens, A. and Hartung, T. (2017). Green toxicology – Know early about and avoid toxic product liabilities. *Toxicol Sci*, kfx243. doi:10.1093/toxsci/kfx243

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*, Epub ahead of print. doi:10.1007/s00204-017-2125-4

Terron, A., Bal-Price, A., Paini, A. et al. (2017). An adverse outcome pathway for parkinsonian motor deficits associated with mitochondrial complex I inhibition. *Arch Toxicol*, Epub ahead of print. doi:10.1007/s00204-017-2133-4

ecopa

Participation in the open assembly of the ECHA Forum

ECHA, the European Chemicals Agency, has established a Forum for Exchange of Information on Enforcement (Forum) that is a network of authorities responsible for the enforcement of the REACH, CLP and PIC regulations. The activity of the Forum is organized in several working groups to respond to specific needs that may arise during the implementation of those regulations or that are considered relevant for any improvement deemed necessary. The Forum is very important in the EU as it defines the subject of the inspections under the responsibility of the National Authorities. Once a year, registered stakeholders at ECHA have the opportunity to participate in an open plenary session. During the latest meeting that took place on November 8, 2017, Costanza Rovida from CAAT-Europe and representative of *ecopa* at ECHA was invited to report about the *Role of CROs* (*Contract Research Organisations*) *and NAMs* (*New Approach Methodologies*) *in the REACH registration process*.

The REACH registration process requires performance of demanding new tests according to the tonnage band of the substances. Most of the companies do not have internal facilities and need support from CROs. The 2018 deadline is only six months away and it is now clear that there is a general shortage of CRO availability to cope with the need of the industry to fulfil the registration obligations in terms of new tests.

NAMs may offer the opportunity to speed up the testing process and allow the companies to comply with REACH obligations without endangering the protection of human and environmental health. NAMs represent a unique opportunity to accomplish toxicology needs for regulatory purposes, being faster and more relevant to model the impact of chemical exposure to human health and the environment. Unfortunately, this is a theoretical opportunity because there are not enough labs able to propose *in vitro* tests and/or suitable read-across approaches. The problem of CRO shortage and limited expertise in the application of NAMs spans the whole EU. The difficulty is greater for SMEs that depend on external support to cope with REACH obligations for registration. The solution may only arrive from a joint effort to seize the opportunity. This problem is particularly urgent during the six months before the deadline, but it goes beyond. We expect that the workload for CROs to support companies in the REACH registration process will continue for many years, due to:

- Discussion of testing proposals that were submitted in 2010 or 2013 when the ap-

plicability of NAMs was still under discussion
- General update of the dossiers with subsequent need for new testing owing to, e.g., increasing tonnage band, demands from the evaluation process, etc.
- Completion of the dossiers that will be submitted with some gaps just before the deadline
- Late registrations

National authorities play an important role as they have the opportunity to talk to the highest number of registrants and may have suitable databases of the CROs offering the tests.

The assembly agreed to invite Forum members to consider what action the national authorities or inspectors can take to actively promote the use of alternative methods to animal tests, such as raising awareness among potential registrants.

Roundtable with NGOs organized by EFSA

According to the latest strategy, EFSA, the European Food Safety Authority, is committed to enhance stakeholder engagement in the process of risk assessment. Following this commitment, on November 14, 2017, EFSA organized a meeting with all registered NGOs, including *ecopa*. The main goal of the meeting was the coordination of the different activities that the NGOs may offer. This was an opportunity to explain how ecopa is willing to push forward 3R approaches in institutional debates. The main topic at the moment is the discussion on the *Draft Guidance Document for the Implementation of the Hazard-based Criteria to Identify Endocrine Disruptors* that was prepared jointly by ECHA and EFSA and is open to public consultation[1] until January 31, 2018.

[1] https://comments.echa.europa.eu/comments_cms/PC_ED_Guidance.aspx

EUSAAT

European Society for Alternatives to Animal Testing

New electronic EUSAAT 2017 election

As reported in October 2017, the EUSAAT 2017 election had to be repeated due to some formal errors. Therefore, on September 11, 2017, the Annual General Assembly (AGA) decided that the new election should be organized by the Election Commission (EC), on which four long-term members agreed to serve: Christiane Hohensee (D), Dagmar Jirova (CZ), Claus-Michael Lehr (D) and Klaus-Rudolf Schröder (A). Dagmar Jirova volunteered to serve as election coordinator.

Several of the candidates of the first electronic election decided not to serve as candidates in the new election. We are fortunate that several experienced EUSAAT members stepped in as new candidates.

The new election was conducted from November 20, 2017 until December 1, 2017. EUSAAT members sent their signed ballots to Dagmar Jirova and she and her colleagues counted the ballots and also sent copies of the signed ballots to the three other members of the EC, who independently counted the ballots.

According to the EUSAAT bylaws, the results of the new election must be confirmed by an "Extraordinary General Meeting" of the EUSAAT society. We are very grateful that Dagmar Jirova volunteered to host the EGM 2017 at the NIPH in Prague on December 8, 2017. Eight EUSAAT members managed to attend the EGM. The main topic was the report of the results of the new election by the EC to the EGM and the approval of the results by the EGM. The EC had checked that each ballot had been signed properly. 32 members (33%) had participated in the electronic election and only 1 ballot was invalid. We are proud to present the newly elected board of the EUSAAT:

President: Winfried Neuhaus (AT)
Vice-Presidents: Dagmar Jirova (CZ) and Dominik Rünzler (AT)
Secretary General: Horst Spielmann (DE)
EUSAAT Board: Candida Nastrucci (IT), Györgyi Szabo (HU) and Kristina Wagner (DE)
Audit Committee: Christiane Hohensee (DE), Manfred Liebsch (DE) and Klaus-Rudolf Schröder (AT)

It is very encouraging that the new President Winfried Neuhaus was supported by all voters and received 100% of the valid votes. The EGM approved the report of the EC and meanwhile all of the elected new officers have accepted to serve the EUSAAT society.

18th European Congress on Alternatives to Animal Testing EUSAAT 2018
www.eusaat-congress.eu

The EGM also discussed the planning of the EUSAAT 2018 congress, which will take place on September 23-26, 2018 in Linz. Helmut Appl, who has organized all of the previous EUSAAT congresses, reported on the current status of planning including financial issues, advertising and sponsoring.

As in the past, the scientific program will be drafted in collaboration with an experienced Scientific Committee (SC). Colleagues who have in the past served on the SC of EUSAAT congresses have been invited to provide their input to the program of the EUSAAT2018 congress: http://eusaat-congress.eu/index.php/congress/2018/topics

The following topics will be covered and additional ones may be added:

- Advanced technologies: systems biology, -omics technologies, stem cells
- 3D models & multi-organ-chips (MOC), human-organ-chips (HOC)
- International progress in 3Rs research – Global cooperation on implementing the 3Rs
- Replacement – new approaches
- Predictive toxicology & risk assessment
- Specific toxicological endpoints: oral & repeated-dose toxicity, inhalation toxicity, sensitization, reprotox (mEST & hEST), carcinogenesis, nanotoxicology
- REACH – meeting the 2018 deadline
- Efficacy and safety testing of drugs and biopharmaceutics including vaccines, blood, blood components, allergenics, somatic cells, gene therapies, tissues, recombinant therapeutic protein, and living cells used in cell therapy
- Medical devices
- Initiative for implementing serum free culture media
- Disease models using human cells, tissues and organs
- Biological barriers
- Advanced GMO models – CRISPR/Cas *in vivo* & *in vitro*
- Ethical and legal issues & Dir 63/2010/EU update
- Refinement & welfare, culture of care, best practice approaches, avoidance of severe suffering
- 3Rs in education and academia
- "Young Scientists" session
- Free communications

The EUSAAT Board and the Co-Chairs of the SC welcome additional input to the program and also sponsors and supporters of the EUSAAT 2018 congress.

Winfried Neuhaus and Horst Spielmann

EU-ToxRisk

EU-ToxRisk is spearheading the development and evaluation of new tools and their combinatory power for regulatory risk assessment in Europe. This ambition requires a close interaction of the developers with the scientists affiliated to regulatory authorities. Within the EU-ToxRisk project, this interaction is considered the best way to improve a mutual understanding and to perceive the value systems behind expectations and demands.

EU-ToxRisk started the interaction with regulatory scientists in November 2016, when the case studies were introduced to stakeholders from different national regulatory agencies for the first time within EURL ECVAM's Network for Preliminary Assessment of Regulatory Relevance (PARERE) meeting at the JRC facilities in Ispra, Italy. One significant input from PARERE was that the read-across concepts and the complexity of the case studies needed to be addressed in more detail. It was also indicated that the regulatory relevance needed further evaluation.

For the PARERE meeting in 2017, short descriptions of case studies (CS) 1, 2, 4 and 8 (the more advanced read-across case studies) were provided to the PARERE members prior to the meeting for intensive reviewing. These case studies are focused on read-across of (un-)branched carboxylic acids for the prediction of microvesicular liver steatosis (CS-1); on the effects of valproic acid analogues regarding their developmental and reproductive toxicity (CS-2); on mitochondrial toxicity effects regarding repeated dose toxicity and developmental and reproductive toxicity (CS-4); and CS-8 is focused on read-across of diketones as the trigger for the 'Popcorn Lung'. Enclosed with the CS, a tailored questionnaire, which comprised 20 questions about the regulatory relevance and the acceptability of the read-across concept and the developed tools, was provided to the PARERE members. The questions were answered by ten national regulatory networks and regulatory authorities.

On November 28, 2017, representatives of EU-ToxRisk presented the above-mentioned CS briefly during a workshop within the annual PARERE-ESTAF meeting at the facilities of JRC's EURL ECVAM in Ispra. Sylvia Escher (Fraunhofer Item) introduced the concept of the read-across case studies, especially the difference between case studies starting with structural or biological similarity. Furthermore, she explained the testing of "*in vivo* negative" compounds. These compounds share structural properties but do not induce the adverse outcome *in vivo*. We can therefore use them to learn more about the specificity of the non-animal methods (NAMs). Therefore, further analyses of these compounds are considered to refine the view on the specificity of NAMs. Hennicke Kamp (BASF SE) presented the measures taken for the quality assurance of *in vitro* testing in EU-ToxRisk. This was followed by brief case study presentations given by Sylvia Escher, Dinant Kroese (TNO) and Rabea Graepel (University of Leiden). The members of the PARERE network were introduced to the discussion with a summary presentation of the answers to the questionnaire given by Rabea Graepel.

The first feedback from PARERE hinted at the recognition of EU-ToxRisk having taken up the comments from the first meeting in 2016 and that the case study descriptions had improved significantly. Furthermore, it was recognized that EU-ToxRisk had made tremendous progress over the last year.

It was discussed that the case studies have to focus on pragmatic and precise examples for the development of read-across approaches based on NAMs and could be directly integrated into the regulatory risk assessment concept. Some of the members mentioned that a lot of read-across cases today are solely based on structural and kinetic similarity and indicated that any additional toxicodynamic data could improve these cases. An important aspect would be to know and explain the uncertainty and limitations connected to the abovementioned approaches. It was agreed during the meeting that a good scientific basis is imperative for risk assessment approaches with NAMs. Therefore, some scientific questions per case study will not directly contribute to the IATA but to a better understanding of the robustness and relevance of the NAMs.

During the discussion, it was generally agreed that NAM-based defined approaches and IATA for testing could well be used in regulatory toxicology; however, there was no consensus to what extend this would be possible in the near term. It was also stressed that at the moment it is not foreseeable in how far NAMs, besides read-across, could be used in the mid-term to assess the hazards for compounds (i.e. *ab initio* testing).

EU-ToxRisk has the great opportunity to generate answers to these questions by showing chances as well as limitations based on the current case study work.

The members of the PARERE network encouraged the consortium to proceed with the work and to update the PARERE network regularly. All participants in the discussion highlighted the value of such interaction and are looking forward to the next discussion in 2018.

Rabea Graepel and Mardas Daneshian

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

U.S. Strategic Roadmap for New Approaches to Evaluate the Safety of Chemicals and Medical Products

ICCVAM coordinated the development of "A Strategic Roadmap for Establishing New Approaches to Evaluate the Safety of Chemicals and Medical Products in the United States." The roadmap was developed with participation from 16 federal agencies and multiple interagency workgroups, as well as input from a broad range of stakeholder groups. It describes a new framework for the development of enabling technologies and promotion of strategies to establish confidence in, and ensure utilization of, new toxicity testing approaches that improve human health relevance and reduce or eliminate the need for testing in animals. The successful development and implementation of these new approaches will require coordinated efforts that address three strategic goals:

- Connecting end-users with developers of new approach methodologies
- Fostering the use of efficient, flexible, and robust practices to establish confidence in new methods
- Encouraging the adoption and use of new methods and approaches by federal agencies and regulated industries

Activities are already underway to address the roadmap goals in the areas of skin sensitization, skin and eye irritation, and acute systemic toxicity testing. Reviews of U.S. agency information requirements for all of these areas are being prepared and are planned for publication in 2018.

The roadmap was published in January 2018; the roadmap document and related information can be found at https://ntp.niehs.nih.gov/go/natl-strategy.

ICCVAM Sponsors Project on Predictive Models for Acute Oral Toxicity

The ICCVAM Acute Toxicity Workgroup is sponsoring a global project to develop *in silico* models of acute oral systemic toxicity that predict specific endpoints needed by regulatory agencies. These endpoints include identification of "very toxic" chemicals (LD_{50} less than 50 mg/kg) and "non-toxic" chemicals (LD_{50} greater than or equal to 2000 mg/kg), point estimates for rodent LD_{50}s, and categorization of toxicity hazard using the U.S. Environmental Protection Agency (EPA) and Globally Harmonized System of Classification and Labelling (GHS) classification schemes.

Models are being 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 will be used to generate consensus predictions for the acute oral toxicity endpoints of interest. A summary of the project and developed models will be submitted for publication in the peer-reviewed literature, and the toxicity predictions generated by the models will be made available via EPA's Chemistry Dashboard.

Detailed project information is available at https://ntp.niehs.nih.gov/go/tox-models. Resources available on this page include data files, timeline, and a downloadable document that specifies project objectives and scope, data and processing details, model evaluation criteria, and additional considerations for project participants.

Prediction results from models on two different datasets (training and evaluation set) must be submitted by February 9. Project results will be presented at a workshop to be held at the National Institutes of Health in Bethesda, Maryland, on April 11-12.

EPA Developing Strategic Plan to Reduce Animal Use

The Frank R. Lautenberg Chemical Safety for the 21st Century Act amended Section 4(h) of the Toxic Substances Control Act to require EPA to develop a Strategic Plan to promote the development and implementation of alternative test methods and strategies to reduce, refine or replace vertebrate animal testing. EPA held a November 2 public meeting with support from NICEATM to obtain input from interested parties and the public on the Agency's development of the Strategic Plan. The Agency will consider input from both the meeting and written comments to develop their draft plan that will be shared with the public for comment.

A videocast recording of the November 2 public meeting is available on the NIH Videocast website at http://bit.ly/2CcG7NZ. Goals and objectives to inform the Strategic Plan that were discussed during the meeting are available on the EPA website at http://bit.ly/2Ez1yum. Written comments and other materials relevant to development of the Strategic Plan are available at docket EPA-HQ-OPPT-2017-0559 on www.regulations.gov.

FDA Launches Predictive Toxicology Roadmap

In an article published December 6 on the FDA Voice blog, the U.S. Food and Drug Administration (FDA) announced publication of their Predictive Toxicology Roadmap for integrating predictive toxicology methods into safety and risk assessments.

The Predictive Toxicology Roadmap presents a framework for new or enhanced FDA engagement in the science of toxicology that includes six elements:

1. An organizing committee to help identify areas where research is needed and reduce duplication of efforts
2. Training in use of new test methods
3. Communication among the Agency, sponsors, and test method developers
4. Fostering collaborations across sectors and disciplines nationally and internationally
5. Research to identify data gaps and promote promising technologies
6. Oversight to track progress

FDA will be holding a public workshop as part of its efforts to foster opportunities for sharing ideas, discussing new technologies, and highlighting collaborations to develop and test new methods.

The complete blog post, with links to the Predictive Toxicology Roadmap and related activities, is available at http://bit.ly/2ixBTID.

NICEATM and ICCVAM Activities at SOT

Consider including these NICEATM and ICCVAM activities as you plan your itinerary for the Society of Toxicology Annual Meeting on March 11-15, 2018.

- An SOT satellite meeting, *Building a Better Epithelium: Breaking the Barrier to the Next Generation of Toxicity Testing*, will be held Saturday, March 10. This meeting will focus on organotypic cultures that integrate surrounding architecture components (e.g., stroma, extracellular matrix) and provide a better *in vitro* representation of *in vivo* biology compared to 2-D cultures. NICEATM scientists are members of the organizing committee. For more information, visit http://bit.ly/2A7htfW.
- Three SOT continuing education courses on Sunday, March 11, that focus on developing and using alternative methods will include ICCVAM participation. Complete information about SOT continuing education courses is available at http://bit.ly/2ECCi6H.
  - *The What, When, and How of Using Data from Alternative Testing Methods in Chemical Safety Assessment* will be co-chaired by ICCVAM member Suzanne Fitzpatrick, FDA.
  - *In Vitro Testing: Tales from the Real World* will include presentations from NICEATM Deputy Director Nicole Kleinstreuer, ICCVAM Co-chair Anna Lowit, EPA, and David Allen, of NICEATM contractor ILS.
  - *Consumer Products Safety Assessment: Progress in the Use of Alternatives to Animal Models* will include a presentation from ICCVAM member Joanna Matheson, Consumer Product Safety Commission.
- The National Toxicology Program and the National Institute of Environmental Health Sciences will sponsor a session Monday, March 12, on Implementing *New Approaches to Evaluate the Safety of Chemicals and Medical Products in the United States*. Following the publication of the strategic roadmap to establish new approaches for toxicity testing in the United States (described in the first item above), this session will detail implementation plans and associated activities to reduce and replace animal use for the "six-pack" acute toxicity studies.

A list of all NICEATM and ICCVAM activities and abstracts at SOT 2018 is available at https://ntp.niehs.nih.gov/go/niceatm-sot18.

Recent NICEATM Publications

- A position paper by representatives of the International Cooperation on Alternative Test Methods (ICATM) proposes practical ways to further promote the regulatory use and facilitate adoption of non-animal defined approaches for skin sensitization assessments. The paper, which is available at doi:10.1007/s00204-017-2097-4, is a work product of the October 2016 workshop, *International Regulatory Applicability and Acceptance of Alternative Approaches to Skin Sensitization Assessment of Chemicals*. The workshop was hosted by ICATM and the EURL ECVAM, and was attended by representatives from more than 20 international regulatory authorities, as well as representatives from NICEATM and ICCVAM. More information about the October 2016 workshop and ICATM is available at https://ntp.niehs.nih.gov/go/icatm.
- A manuscript summarizing a February 2016 workshop, In Vitro *to* In Vivo *Extrapolation for High Throughput Prioritization and Decision Making*, and a preceding webinar series was published at doi:10.1016/j.tiv.2017.11.016. The workshop report discusses activities and resources that promote inclusion of *in vitro* to *in vivo* extrapolation (IVIVE) in regulatory decision-making. It considers properties of models that successfully generate predictions of *in vivo* doses from effective *in vitro* concentration, areas of success, and areas for improvement to reduce model uncertainty. Finally, the report provides case studies on the uses of IVIVE in safety assessments. Materials from the workshop, which was co-organized by NICEATM and the EPA National Center for Computational Toxicology, are available at https://ntp.niehs.nih.gov/go/ivive-wksp-2016.

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

IIVS Announces the Opening of a Non-Animal Testing Laboratory in China

The Zhejiang Institute for Food and Drug Control (ZJIFDC), responsible for regulatory review of food, drugs, and cosmetics produced in Zhejiang province, has opened a non-animal testing laboratory after successful scientific collaboration with IIVS. Based near Shanghai, the ZJIFDC made the decision to open the new lab back in 2013 to keep in line with China's increased interest in alternatives to animal testing. In preparation, ZJIFDC partnered with IIVS to receive technical training in the implementation, execution, data interpretation and quality practices associated with a high quality non-animal testing laboratory. Read the full press release at www.iivs.org.

IIVS Training Videos Now Available in Spanish

Two of our training videos are now available in Spanish. The *Bovine Corneal Opacity and Permeability (BCOP)* video demonstrates how to perform the assay according to OECD Test Guidelines. *The 3T3 Neutral Red Uptake Phototoxicity Test* video explores a cell-based method for assessing phototoxicity or the potential for chemicals to cause damage after being exposed to light. View the videos at www.iivs.org.

View our Latest Posters and Publications

Go to www.iivs.org.