Corners

CAAT-Europe Making Major Change at Home

"*Patience is a virtue*": Seven years after CAAT published a "Global analysis of publicly available safety data for 9,801 substances registered under REACH from 2008-2014" (doi:10.14573/altex.1510052), the European Commission this month published its proposal for "*establishing a common data platform on chemicals, laying down rules to ensure that the data contained in it are findable, accessible, interoperable and reusable and establishing a monitoring and outlook framework for chemicals*". Starting from this inception article in 2016, Altertox & CAAT-Europe have advocated to Members of the European Parliament and other stakeholders in the EU the idea of an open database where agencies such as EFSA and ECHA would make public the toxicological data to the scientific community and hence enable the development of new *in silico* models. Sometimes advocating means to be at the right place at the right time with the right idea; in 2017, this led to the creation of the European Parliament ENVI data working group, which took on board this idea and submitted a pilot project titled "Feasibility study on a common open platform on chemical safety data". This is now a reality.

Unveiling the Role of Microbial Metabolites in Parkinson's disease

A groundbreaking study published in *Environment International* by the CAAT-Europe team together with the University of Vienna's Institute of Biological Chemistry, the Centre for Microbiology and Environmental Systems Science, and the Albert Einstein College of Medicine, sheds light on a microbial metabolite's role in triggering Parkinson's-like symptoms (Ückert et al., 2023, doi:10.1016/j.envint.2023.108229). With 90% of Parkinson's cases lacking a clear genetic cause, this discovery marks a significant shift in understanding environmental triggers behind the disease. This study specifically explores a bacterial metabolite from *Streptomyces venezuelae*, demonstrating its ability to mimic neuronal loss observed in Parkinson's in an *in vitro* model.

Thomas Hartung Championing the Use of AI in Toxicology

CAAT Director Thomas Hartung has been presenting on the use of AI in toxicology and the burgeoning CAAT program around the world, encouraging fellow toxicologists to embrace AI and think of it as a co-pilot or collaborator.

Recent keynotes on this topic have included the French (November 24, Paris), Swiss (November 16, Basel) and Canadian (December 4, Montreal) Societies of Toxicology. Other keynote lectures this fall included AAPS (October 22, Orlando), MASOT (November 2, Edison), CBMALT (November 6, Rio de Janeiro). At the latter, Thomas received a formal tribute by the Brazilian Center for the Validation Alternative Methods (BraCVAM).

First CAAT Coursera Course Surpasses 10,000 Learners

CAAT's education program continues to expand its reach, engaging and educating broad, international audiences by way of virtual learning. 10,000 learners have enrolled in "Toxicology 21: Scientific Applications" and close to 9,000 in "Evidence-based Toxicology". This remarkable milestone demonstrates the importance of broadening education strategies and engaging new technologies. Both courses can be accessed through the official Coursera website (https://www.coursera.org/courses) and offer affordable options for enrollment.

CAAT Award Recipients Announced

CAAT's Beyond Classical Refinement Program, led by Kathrin Herrmann, PhD, awards two annual grants. The Reduction Grant is given to a research project that helps reduce animal use by identifying areas of research and testing where animal models lack reproducibility and translational value. The Humane Education Grant is awarded for the development of animal-free training resources for veterinary, medical, or laboratory courses. Each grant includes prize money of $6,000 USD. The jury, consisting of five members of the Beyond Classical Refinement Program's Advisory Board, had to decide among numerous excellent proposals.

Valerie Speirs, Professor of Molecular Oncology, University of Aberdeen, is the winner of CAAT's 2023 Reduction Grant. Her proposal is entitled "Alternatives to animals in cancer research: what, how and why not – a systematic review". The overarching goal of this project is to reduce the number of animals used in breast cancer research using an evidence-based approach to change the mindset of scientists. The principal aim is to conduct a systematic review to identify animal replacement models in breast cancer research and assess their reproducibility and translational value. A secondary aim is to identify any perceived

barriers to adoption by the scientific community, which may be highlighted in these papers and/or become evident in the systematic review. This novel approach will challenge the preconception in science that universal animal research is required for successful high-impact publications and high-value grants, by evaluating the promise and raising the awareness of robust animal-free alternative approaches to the research community. It will also identify new avenues of research that can be exploited in future breast cancer research projects.

Nick Jukes, the coordinator of InterNICHE (International Network for Humane Education) wins CAAT's 2023 Humane Education Grant for his project proposal "Alternatives in education: A comprehensive information resource", which relates to the production of a comprehensive information resource to support transformational change in veterinary, medical, and biology education worldwide. It focuses on a multi-language set of printed and online materials that detail the range of alternative methods by discipline for each faculty and how these humane innovations can fully replace harmful animal use and enhance knowledge and skills acquisition in higher education. Such methods are increasingly becoming the norm, but there is still much change to achieve. The online materials will use and be integrated with existing and forthcoming resources such as the InterNICHE Alternatives and Studies databases, the video resource database featuring clips taken from the InterNICHE veterinary film series, and the films themselves. The materials are to be targeted at teachers, students, campaigners, and trainers internationally, as well as the public. They will inform all users of the latest concepts, definitions, arguments, and examples in the field, including such methods' pedagogical, ethical, social, and economic advantages. And it will empower those who work for change with a comprehensive and powerful new resource for reference and for distribution.

Upcoming Events

2024 AAAS Annual Meeting

The American Association for the Advancement of Science will be hosting its 2024 Annual Meeting in Denver, Colorado on February 15-17. The working theme of the event is "Toward Science Without Walls" and will feature presentations from a diversity of disciplines. Among the presentations focused on AI will be "Chemical Safety Meets the AI Algorithm," led by Alex Maertens of CAAT's GreenTox program. To learn more about the event and register to attend, please visit: https://meetings.aaas.org/

CAAT Hosting Multiple Events at SOT

CAAT will be hosting two events at the Society of Toxicology's (SOT) annual meeting, taking place March 10-14 in Salt Lake City, Utah. March 14, from 12:30-4:30 PM CDT, CAAT will be hosting its annual satellite meeting on Toxicology in the 21st Century. This multi-speaker event will be focused on considering and celebrating the impact and advancements of a global network. There will also be a developmental immunotoxicology workshop led by CAAT Deputy Director Fenna Sillé, during which participants will have the opportunity to consider the role of exposomics as a compliment to genomics. Finally, one of CAAT's core programs, the Evidence-Based Toxicology Collaborative (EBTC), will be hosting an award ceremony with plenty of opportunity to make new connections.

DNT5 Conference Abstract Submission Now Open

The 5th International Conference on Developmental Neurotoxicity Testing (DNT5) will take place in Konstanz, Germany on April 7-10, 2024. DNT5 will address the theme "Developmental neurotoxicity: a call for the implementation of new approach methodologies for regulatory purposes" and will proudly host the OECD DNT expert group meeting. Registration and abstract submission are open via www.uni-konstanz.de/dnt5/.

MPS World Summit 2024

CAAT will – for the first time with the newly formed Microphysiological Systems Society – be hosting the third annual MPS World Summit in the iconic US city of Seattle! The multiday conference will run June 10-14 and will offer attendees the opportunity to hear from thought leaders in the field, connect with colleagues from around the world, and explore the pacific-facing city of Seattle. Additional information, event registration, and abstract submissions (open until January 20) are available at the official MPS World Summit website: https://mpsworldsummit.com/

Conferences & Conversations

CAAT leadership has been busy presenting on ToxAIcology, the promise of microphysiological systems, and the burgeoning field of exposomics. Both Thomas Hartung and Lena Smirnova joined the "6th Academic Conference and Industrial Investment Forum on Organoids and Organs-on-Chip" and supported the development of and presented at the Johns Hopkins Center for Microphysiological Systems Inaugural Retreat. Also representing CAAT were students Dowlette-Mary Alam El Din, Lixuan Ding, Itzy E. Morales Pantoja, and Alex Rittenhouse, who all contributed posters.

Thomas Hartung has recently served as a Guest Editor of the "Bioinformatics and Artificial Intelligence" section of the *Frontiers in Molecular Medicine* journal.

CAAT Members Thomas Hartung, Lena Smirnova, and Fellow Maren Schenke presented on the theme "State of the Science in Assessing Developmental Neurotoxicity (DNT) Using New Approach Methods (NAMs)" at the Joint Institute for Food Safety and Applied Nutrition (JIFSAN) – Center for Food Safety and Security Systems (CFS3) workshop hosted by the University of Maryland.

New Publications

Hartung, T. (2023). Artificial intelligence as the new frontier in chemical risk assessment. *Front Artif Intell 6*, 1269932. doi:10.3389/frai.2023.1269932

Kincaid, B., Piechota, P., Golden, E. et al. (2023). Using in silico tools to predict flame retardant metabolites for more informative exposomics-based approaches. *Front Toxicol 16*, 1216802. doi: 10.3389/ftox.2023.1216802

Morales Pantoja, I. E., Ding, L., Leite, P. et al. (2023). A novel approach to increase glial cell populations in brain microphysiological systems. *Adv Biol*, e2300198. Online ahead of print. doi:10.1002/adbi.202300198

Cruelty Free INTERNATIONAL
Ending animal experiments worldwide

Canada publishes 2022 animal testing statistics

According to the latest annual report published by the Canadian Council on Animal Care (CCAC), a total of 3.5 million animals were used in scientific research, teaching, and testing by CCAC accredited facilities across Canada in 2022. This represents a reduction of 5% since 2021.

While most Canadian institutions are thought to hold CCAC accreditation and must report their animal use numbers, not all institutions participate in this voluntary program. Therefore, the true total use of animals in Canada may be higher.

Notably, the use of non-human primates (NHPs) rose by 15% from 2021 to 7,848, and dogs by 4% to 10,417. There were also significant increases in the numbers of pigs (37%), reptiles (35%), "other animals" (e.g., ferrets) (28%), cattle (14%), and rats (7%) used in experiments in 2022. The largest decreases were seen in the use of birds (down 64%) and cats (down 28%).

Over 105,000 animals (2.8% of the total) were used in experiments classified as causing the most "*severe pain near, at, or above the pain tolerance threshold of unanesthetized conscious animals*". Of those, a total of 50% were used for regulatory tests, with 30% used for basic research purposes.

In 2015, Cruelty Free International estimated Canada to be the fourth biggest user of animals in scientific experiments in the world, behind China, Japan, and the United States of America (Taylor and Rego Alvarez, 2020). Those estimates also calculated Canada to be the third biggest user of dogs and the fifth biggest user of NHPs.

Reference

Taylor and Rego Alvarez (2020). An estimate of the number of animals used for scientific purposes worldwide in 2015. *Altern Lab Anim 47*, 196-213.

European Commission urged to develop roadmap for ending the use of animals in medicines testing

At the European Partnership for Alternatives to Animal Testing (EPAA) Annual Conference 2023, which was held on November 15 in Brussels, Cruelty Free International's Director of Science & Regulatory Affairs, Dr Emma Grange, highlighted the need for the European Commission to immediately begin planning a move away from the use of animals in medicines testing.

Dr Grange spoke of the urgency with which the Commission must plan the transition in medicines as part of its roadmap for the phase out of animal testing in the regulatory system, which it committed to have ready for delivery by 2025.

The conference, the theme of which was "Protection of people and our environment through NAMs", brings together different departments of the European Commission and key players in the European chemicals industry as well as representatives from civil society including animal protection NGOs.

Other key speakers reflected on the efforts being made in the pharmaceuticals industry to phase-in the use of non-animal methods, the European chemicals strategy for sustainability, and the reform of the way pharmaceuticals are regulated and tested.

Conference on education and training without animal experiments held in Bulgaria

On October 20-21, Bulgarian animal protection NGO Campaigns and Activism for Animals in the Industry (CAAI) hosted the first "Conference on Innovations in Education – Science Without Animal Experiments" in Sofia, Bulgaria.

Since Bulgaria is currently responsible for the highest proportionate use of animals for education and training purposes in the EU (12% of total animal use in 2020), the aim of the conference was to share experiences in the use and development of innovative non-animal methods in education with Bulgarian universities and specialists.

The event was attended by professors and students from the leading Bulgarian universities and from Bulgaria's neighboring countries, Serbia and Bosnia and Herzegovina. International experts from the United Kingdom, Australia, Germany, the Netherlands, and the USA also participated.

Cruelty Free International's Deputy Director of Science & Regulatory Affairs, Laura Rego Alvarez gave a presentation detailing the number of animals currently being used in Bulgaria and across the European Union (EU) for the purposes of education and training, including some specific examples of authorized projects involving animals from published non-technical summaries[1], and highlighted the need for a targets-based strategy to phase out the use of animals for all scientific purposes across the EU.

European Court decision undermines cosmetics testing bans

On November 22, the General Court of the European Court of Justice ruled that tests of cosmetics ingredients can be performed on animals in order to meet the requirements of the chemicals regulation, REACH, where there are no accepted non-animal options available. The judgment reflects precedence being given to the REACH regulation over the cosmetics testing bans. This prompted a strong reaction of disappointment from animal protection NGOs and their supporters, who believe that the cosmetics bans should take precedence, given that they were introduced before the REACH regulation came into effect.

[1] ALURES – Animal Use Reporting – EU System, EU NTS database on the use of animals for scientific purposes under Directive 2010/63/EU: https://webgate.ec.europa.eu/envdataportal/web/resources/alures/submission/nts/list

In 2018, the European Chemicals Agency (ECHA) told the chemicals manufacturer Symrise AG that they must supply data for the substances homosalate and 2-ethylhexyl salicylate, which are solely used as UV filters in cosmetics products. Testing on animals is the standard way to supply the required data, as laid out in the REACH regulation, and it is estimated that the required tests would involve over 5,500 animals, including rats, rabbits, and fish.

Following ECHA's dismissal of an appeal against the requirements to test these substances on animals, Symrise AG took their case to the General Court. Cruelty Free Europe, of which Cruelty Free International are a member, were allowed to intervene in the case on their behalf.

European Commission holds workshop on a roadmap for phasing out use of animals in chemicals testing

On December 11, the European Commission held its first workshop on a roadmap for phasing out animal testing in chemical safety assessments. The workshop was organized in response to the European Citizens' Initiative "Save Cruelty-free Cosmetics – Commit to a Europe without Animal Testing". With the goal to eventually phase out all animal testing for regulatory purposes, the Commission have committed to developing a roadmap that will outline milestones and specific actions that would be pre-requisites for a transition to animal-free chemicals legislation.

This first workshop started to explore the challenges ahead, and views were exchanged on what changes will be needed to enable a full transition away from testing on animals. Perspectives from the European Parliament and Commission, from agencies such as the ECHA, EFSA and the EMA, the chemicals industry, the research community, and from animal protection NGOs were shared.

A second workshop is planned for the second half of 2024, with the aim being to finalize the roadmap in the first quarter of the term of the next Commission.

EUSAAT

European Society for Alternatives to Animal Testing

COST Action IMPROVE

Currently, about 200 members of the COST Action "CA21139 – 3Rs concepts to improve the quality of biomedical science (IMPROVE)" have started to collaborate in the four working groups (WG) Quality and Translatability of Science, Implementation, Dissemination, and Education.

A training school on 3D cell culture methods will be organized in Lithuania in May 2024; a WG 1 & 2 - meeting is planned in Utrecht, The Netherlands, on June 17-18, 2024 ahead of a 3Rs center meeting; and a cross-WG workshop on "Ethics and 3Rs" will take place in Istanbul, Turkey on September 2-3, 2024.

In addition, an online webinar series dedicated to young researchers and innovators is in preparation, and further activities in online webinar series and at basic science conferences will be supported.

Consult the website https://www.cost-improve.eu for information on the COST Action IMPROVE itself, the objectives of the WGs, outcomes, news, etc. You can submit events for the event calendar and add resources relevant for the 3Rs field or basic research (databases, communication platforms, laws, educational material, etc.).

You can still apply to participate in the working groups. More details can be found at https://www.cost.eu/actions/CA21139/.

EUSAAT/EU3Rnet at the Austrian 3R days

EUSAAT and EU3Rnet presented their activities at the Austrian 3Rs days in Innsbruck, Austria on December 5-7, 2023. Winfried Neuhaus gave a talk entitled "The COST Action Networking Activity IMPROVE". The Austrian 3Rs Days were attended by about 200 international participants, who discussed novel methods and measures for each of the three 3Rs, replacement, reduction and refinement of animal experiments. More information can be found at: https://www.austrian-3rdays.com/

Winfried Neuhaus was honored by The RepRefRed Society for his substantial contributions to the 3Rs field. This recognition, presented at the Austrian 3Rs days, included an honorary award and a lifetime membership. Winfried Neuhaus holds the first professorship in Austria for alternatives to animal testing at the Danube Private University Austria (DPU). He develops new approach methodologies (NAMs) implementing models for biological barriers at the Austrian Institute of Technology (AIT), teaches at five universities, works as coordinator for EU3Rnet, as president of EUSAAT, and is a member of the EPAA mirror group.

EUSAAT/EU3Rnet at the JSAAE Congress

At the 36th Congress of the Japanese Society for Alternatives to Animal Experimentation (JSAAE) on November 27-29, 2023 in Chiba, Japan, Winfried Neuhaus

gave an overview of the European 3R landscape in "The rise of European 3Rs centres, their network EU3Rnet, and the COST Action Networking Activity IMPROVE", in which he presented the activities of EUSAAT (European Society for Alternatives to Animal Testing), EU3Rnet (network of European 3R centres), and the COST Action IMPROVE.

During the congress with 650 participants, there was an intensive exchange on the legal framework and structural international differences between Europe and Asia, especially with representatives of the Japanese, Korean and Indian societies. Moreover, the Japanese and the Korean Societies for Alternatives to Animal Experiments signed a Memorandum of Understanding.

EUSAAT/EU3Rnet at the 1st International Conference of the Würzburg Initiative 3R (WI3R)

EUSAAT and EU3Rnet have been invited to present their activities and participate at the 1st International Conference of the Würzburg Initiative 3R (WI3R) in Würzburg, Germany, on June 5-7, 2024 (https://wi3r.de/). WI3R bundles the Bavarian activities of scientists, regulatory authorities, and industry in the 3R field and networks with 3R centers in Germany, Europe, and worldwide. Winfried Neuhaus will give the keynote "3Rs – past and progress" to open the scientific program on the second day.

Within the 1st WI3R symposium the German Research Foundation (DFG) will award the 10th Ursula M. Händel Animal Welfare Prize, which recognizes scientists who have made exemplary and sustained efforts to improve the welfare of animals in research. The € 80,000 biannual prize is the largest 3Rs prize in Germany.

Find more information about the objectives of the event, the speakers, and the preliminary program at: https://event.fourwaves.com/wi3r/pages

EUSAAT Congress 2024

The EUSAAT Congress 2024 will take place on September 18-20, 2024. We hope that many stakeholders and researchers from different areas of the 3Rs community will participate. We will again pay special attention to enabling as many young scientists as possible to participate – through low participation fees and a variety of Young Scientist Travel Awards. We are already very excited about the topics and key areas in 2024 and are happy to receive thematic suggestions.

The 3Rs Collaborative

About The 3Rs Collaborative

The 3Rs Collaborative is a US-based non-profit organization whose goal is to advance better science – for both people and animals. We do this by collaborating to refine, reduce, and replace the use of animals in research. We currently have three primary strategic goals: 1) promote the 3Rs globally, 2) promote specific 3Rs strategies, and 3) promote the 3RsC. To execute these goals, the 3RsC has eight distinct initiatives, each addressing one of the 3Rs in animal research. One of these is the 3RsC Microphysiological Systems (MPS) Initiative.

The 3RsC-MPS Initiative is an industry group of MPS stakeholders that strives to increase the adoption of MPS technologies through stakeholder engagement. The 3RsC-MPS Initiative is unique in that it is comprised primarily of developers of commercially available MPS technologies. Additionally, we include MPS consultants, enabling technology providers, and end-users to participate in the group, allowing for unique collaboration and communication opportunities. Currently, our initiative includes 96 individual members from 45 institutions, 31 of which are technology providers. We work across North America and Europe to increase our impact and recognize the global nature of the field. Our 3RsC-MPS webpage can be viewed here: https://www.na3rsc.org/mps/

The 3RsC-MPS Initiative has three subgroups: Regulatory, Technology, and End-User Engagement & Education. The Regulatory subgroup aims to increase regulatory acceptance of MPS technology testing results in drug approval applications in the USA. The Technology subgroup works to create a centralized platform to access commercially available MPS technologies. The End-User Engagement subgroup focuses on the interaction between technology developers and end-users to facilitate communication and address knowledge gaps. This group also focuses on Education by interfacing with current animal users. In 2023 our Executive Director, Dr Megan LaFollette, was invited to join the National Institute of Health (NIH) working group on alternative methods, an additional important step in continuing MPS education.

If you are interested in joining our initiative, please visit our FAQ page here: https://www.na3rsc.org/mps/faq-how-to-join/

Currently Available Resources

- 3RsC-MPS Technology Hub
- MPS & FDA Modernization Act Statement
- Perspectives on the Regulatory Acceptance of MPS
- 3RsC-MPS & IQ-MPS Webinar Series

The 3RsC-MPS has created an expansive MPS Technology Hub. The goal of this webpage is to display commercially available, advanced *in vitro*/*ex vivo* models across a variety of organs. This includes companies focused on organ-on-a-chip, organoid, and spheroid platforms. This hub allows end-users to filter technologies by 1) tissue type, 2) disease area, and 3) non-human species. End-users are able to see available relevant technologies, contact companies, and view research articles related to each technology. Our full MPS Tech Hub can be viewed here: https://www.na3rsc.org/microphysiological-systems-companies/

With the passing of the Food and Drug Administration (FDA) Modernization Act 2.0 in 2022, the 3RsC-MPS initiative and leadership wrote a statement discussing its impact and importance. The changes that were made bring current FDA practice into legislation by formally codifying that non-animal research data can be considered in submissions on efficacy and safety. Our resource summarizes the Act and disseminates what these changes mean for MPS technologies and what the current strengths and weaknesses of MPS are related to drug discovery and development. The statement can be viewed here: https://www.na3rsc.org/mps/fdamodernizationactandmps/

The 3RsC-MPS group also provides unique perspective on MPS regulatory acceptance from a provider's point of view. Regulatory acceptance is critical to increasing widespread adoption, and although some advances have been made, guidance is still lacking, especially for developers. View our presentation on this topic at the MPS World Summit 2021 and the 3D Tissue Summit 2022 here: https://www.na3rsc.org/mps/presentations/

Finally, the 3RsC-MPS group collaborates with the International Consortium for Innovation and Quality in Pharmaceutical Development (IQ) MPS affiliate (https://www.iqmps.org/) to conduct quarterly webinars. These webinars are promoted to the US FDA and the 3RsC mailing list – they are open to all stakeholders. The goal of these webinars is to provide a broad overview of tissue-specific MPS technologies and hear from companies with relevant commercially available MPS models. Recordings of our past webinars are available here: https://www.na3rsc.org/mps/presentations/, and further details are provided below.

MPS Webinar Series: 2023 in Review

The 3RsC-MPS and IQ-MPS webinars were created to facilitate communication between MPS technology providers and end-users. These webinars allow MPS companies with commercially available models to present data-driven highlights on their models, allowing end-users to hear briefly about multiple companies in one space.

These collaborative webinars first debuted in March 2022. Since that time, we have organized seven webinars on a variety of MPS organ model topics: liver, kidney, neurology, blood-brain-barrier, vascular, gastrointestinal, and lung. Our most highly attended webinar was our recent gastrointestinal MPS webinar in September 2023, with 149 live attendees and 189 registrants. All recorded versions of these webinars can be viewed on our YouTube channel (http://www.youtube.com/@3RC), with our most watched recording having over 35,000 views.

Across our 2023 MPS webinars, a total of 14 companies were featured with commercially-available MPS technologies on blood-brain barrier models, vascular models, gastrointestinal models, and lung models. These companies were Altis Biosystems, AlveoliX, Aracari Biosciences, BiomimX, CN Bio Innovations, Draper, Emulate, Hesperos, Mimetas, Newcells Biotechnology, React4Life, SynVivo Inc., TissUse, and Visikol. Webinars begin with an introduction to both the 3RsC-MPS and the IQ-MPS affiliate as well as an introduction to the model system topic by an independent consultant. Each company discusses their technologies for 15 minutes. Webinars are concluded by a roundtable Q&A session hosted by a consultant and 3RsC staff, allowing end-users to engage with all companies at one time.

The 3RsC-MPS and IQ-MPS groups look forward to continuing these collaborative webinars in 2024 and will be announcing our 2024 topics soon!

News and Events

3Rs Sharing Conference 2024

The 3Rs Collaborative will once again be co-hosting the 3Rs Sharing Conference on April 17, 2024, in San Francisco California, with the New Jersey Association for Biomedical Research (https://njabr.org/). This is an in-person, discussion-focused 3Rs conference involving high-quality speakers and participant interactions and networking. The conference will focus on aspects of refinement, reduction, and replacement, ranging from discussions on MPS and AI technologies to species-specific refinements and compassion fatigue. Registration is currently open for attendees, vendors, and sponsors. Early bird registration closes March 25, 2024. To view the tentative agenda and register visit https://www.na3rsc.org/3rs-sharing-conference/.

MPS World Summit 2024

The 3RsC-MPS group will also attend the MPS World Summit in Seattle, WA in June 2024. We look forward to networking and connecting with current and future collaborators, participating in important discussions on MPS technologies, and discussing the work done at the 3RsC.

3RsC-MPS & IQ-MPS Webinar Series 2024

The 3RsC will continue to conduct quarterly topic-specific webinars to facilitate continued communication between MPS technology providers and end-users. Topics for 2024 will be released soon. Subscribe to our newsletter (https://pages.na3rsc.org/subscribe) or follow us on LinkedIn (https://www.linkedin.com/company/the3rc/) for real-time updates.