Monday, 27 September 2021	
08h00–20h00	**Exhibition & Poster Viewing**
08h00–12h00	**Continuing Education Courses (CEC)**
08h00–12h00	**CEC01** **Thyroid hormones, brain development and toxicity testing** Chairs: Marta Axelstad, Denmark, Manon Beekhuijzen, Netherlands and Barbara Demeneix, France **Thyroid hormone action and disruption during development: pregnancy, brain and rat versus human** Barbara Demeneix, UMR 7221 Molecular Physiology and Adaptation (CNRS/MNHN), Paris, France **Low thyroid hormone during pregnancy and consequences for child neurological development** Peter Taylor, Cardiff University, Cardiff, UK **Safeguarding the thyroid system – developing an *in vitro* testing battery** Sharon Munn, European Commission, Joint Research Centre, Ispra, Italy **Recommendations for the future: lessons learned from thyroid hormone determinations in OECD/ US EPA guideline studies** Abby Li, Exponent Inc., San Francisco, US **Searching for an adverse effect endpoint in the developing brain** Louise Ramhøj, Technical University of Denmark, Kgs. Lyngby, Denmark **Current *in vivo* guideline testing for endocrine disruption: practical issues and interpretation challenges with focus on thyroid hormones** Manon Beekhuijzen, Charles River, Den Bosch, Netherlands **Panel Discussion**
08h00–12h00	**CEC02** **Advances in conducting systematic reviews for chemical assessment: automation, uncertainty assessment and synthesis** Chairs: Andrew Rooney, US and Sebastian Hoffmann, Germany **LECTURE: Global orientation to systematic review – successes, challenges, and preparing for next generation decision making on mechanistic data**

	Elisa Aiassa, Assessment and Methodological Support Unit/ EFSA, Parma, Italy **HANDS ON ACTIVITY 1: PECO, Inclusion/Exclusion** **LECTURE: Automated and semi-automated approaches for literature searching, screening, and data extraction for systematic reviews in environmental health** Vickie Walker, National Institute of Environmental Health Sciences, Research Triangle Park, US **HANDS ON ACTIVITY 2: Critical appraisal/Risk of Bias** **LECTURE: Synthesis, certainty (GRADE), and qualitative integration of human, animal, and mechanistic data** Sebastian Hoffmann, Evidence-based Toxicology Collaboration (EBTC), Paderborn, Germany **LECTURE: Quantitative evidence integration supporting toxicity value development and characterization of uncertainty** Daniele Wikoff, ToxStrategies, Asheville, US **HANDS ON ACTIVITY 3: Evidence certainty/GRADE** **LECTURE: Conduct and reporting standards for systematic reviews in toxicology and risk assessment** Paul Whaley, Lancaster University, Lancaster Environment Centre, Lancaster, UK
08h00–12h00	**CEC03** (subject to updates) **Lessons learned and future directions for toxicology in water safety and security** Chairs: Heidi Foth, Germany and Elaine Faustman, US **Water bodies and frame work for protection** Heidi Foth, Martin Luther University, Institute of Environmental Toxicology, Halle (Saale), Germany **Contamination in groundwater by overuse of fertilizers and implications for human health** Speaker tba. **Contamination pattern by pesticides in water** Aristidis Tsatsakis, University of Crete, Greece **Arsenite in drinking water** Louis Schiesari, University of Sao Paolo, Brazil **Ecotoxicological assessment of pharmaceuticals and personal care products using predictive toxicology approaches** Susanne Boutrup and Hans Sanderson DCE (NERI) - Department of Environmental Science, Denmark

	Dissipative use of lead a future risk for groundwater Thomas Schupp, FH Münster – University of Applied Sciences, Steinfurt, Germany **Bromate in bathing water – a carcinogenic risk?** Speaker tba. **Metagenomic approaches for surveillance and testing water** Elaine M. Faustman, US
12h00–13h00	**Virtual Lunch Break**
13h00–14h00	**Opening Ceremony** incl. **EUROTOX Merit Award**
14h00–15h00	**Bo Holmstedt Memorial Fund Lecture** Chair: Heather Wallace, EUROTOX President **Context matters: next generation insights on the chemistry of DNA damage and mutation** Shana Sturla, ETH Zürich, Zurich, Switzerland
15h00–15h30	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
15h30–17h30	**Session 01 – Symposium** **The effect of chemicals on the gut microbiota: is it the cause of all problems?** Chair: Reinhilde Schoonjans, Italy **Gut microbiota and human health through lifespan** Anne Salonen, University of Helsinki, Helsinki, Finland **Dietary emulsifiers, human microbiota and intestinal inflammation** Tom Van de Wiele, Ghent University, Ghent, Belgium **Low calorie sweeteners and their impact on the gut microbiota** Ian Rowland, Reading University, Reading, UK **The role of diet on stability, resilience and modulation of the human gut microbiota**

	Carmen Peláez, Autonomous University of Madrid, Madrid, Spain
15h30–17h30	**Session 02 – Symposium** ***In vitro* organotypic models for predicting the toxicity of chemicals or drugs** Chairs: Saadia Kerdine-Römer, France and Lisbeth Knudsen, Denmark **Predictive (diseased) 3D lung models to assess effects of aerosolized nanomaterials and nanodrugs** Barbara Rothen Rutishauser, Université de Fribourg, Fribourg, Switzerland **Advanced *in vitro* models for nephrotoxicity testing: as complex as possible, but simple in use** Rosaline Masereeuw, Utrecht Institute for Pharmaceutical Sciences, Utrecht, Netherlands **Human 3D brain model to study developmental neurotoxicity** David Pamies, Université de Lausanne, Lausanne, Switzerland **Mini-gut organoids for therapeutic testing** Nathalie Vergnolle, IRSD, Toulouse, France
15h30–17h30	**Session 03 – Symposium** **Artificial intelligence and machine learning in chemical risk assessment** Chairs: João Barroso, Italy and Anne Marie Vinggaard, Denmark **Systematic reviews and chemical risk assessment: current challenges, and the need for AI in overcoming them** Paul Whaley, Lancaster University, Lancaster, UK **Use of chemical informatics, quantum chemistry modelling and artificial intelligence algorithms to predict molecular initiating events** Tim Allen, St. John's College, Cambridge, UK **Machine learning *in silico* models in chemical hazard identification** Eva Bay Wedeby, Technical University of Denmark, Kgs. Lyngby, Denmark **Virtual physiological human** Geris Liesbet, University of Liège, Liège, Belgium

15h30–17h30	**Session 03 A – Symposium** **EAPCCT symposium on COVID-19 and the toxicity of therapeutic drugs and vaccines** Chair: Martin Wilks, Switzerland and Paul Dargan, UK **Specific treatments in the critically ill COVID-19 patients: benefits and toxicities** Bruno Mégarbane, University of Paris, France **Understanding vaccine-induced immune thrombocytopenia and thrombosis** Beverly Hunt, Guy's and St Thomas' NHS Foundation Trust and King's College London, UK **Impact of the COVID crisis on European poison centres** Davide Lonati, Poison Control Centre and National Toxicology Information Centre - Toxicology Unit, Pavia, Italy **Rapid Development of the FDA ACMT COVID-19 ToxIC (FACT) Pharmacovigilance Pilot Project to Monitor Adverse Events Reported in Association with COVID-19 Therapeutics** Paul Wax, American College of Medical Toxicology, Phoenix, AZ, US
17h30–18h00	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
18h00–20h00	**Session 04 – Symposium** **Personalized nano-immunotoxicology for the workplace** Chairs: Martin Himly, Austria and Paola Italiani, Italy **Does immunotoxicity of nanomaterials depend on the individual pre-existing conditions? A need for a personalised testing strategy** Paola Italiani, National Research Council, Naples, Italy ***In vitro* immuno-nanotoxicological methods that take pre-existing conditions into account** Martin Himly, Salzburg University, Salzburg, Austria **Understanding the biological impact of industrial engineered nanomaterials upon the alveolar epithelial barrier *in vitro* using occupational and *in vivo* relevant concentrations** Martin Clift, Swansea University, Swansea, UK **Impact of nanomaterials on haemodynamic parameters in normal and disease conditions** Julie Laloy, Université de Namur, Namur, Belgium

18h00–20h00	**Session 05 – Symposium** **The use of minipigs in juvenile studies in an evolving regulatory landscape** Chairs: Andrew Makin, Denmark and Lars Friis Mikkelsen, Denmark **Use of juvenile minipigs in testing drugs and foodstuffs to demonstrate safety for human children – practical issues** Andrew Makin , Andrew Makin Preclinical Consulting, Kokkedal, Denmark **The minipig – a rising star for nonclinical safety testing in support of development of paediatric medicines?** Georg Schmitt, Roche Pharma, Basel, Switzerland **The juvenile Göttingen Minipig: role of organ development in view of food and drug safety in neonates, infants and toddlers** Steven Van Cruchten, University of Antwerp, Antwerp, Belgium **Early life nutrition and later life cardiometabolic health in Göttingen Minipigs** Sietse Jan Koopmans, Wageningen UR Livestock Research, Wageningen, Netherlands
18h00–20h00	**Session 06 – Symposium** **Human induced pluripotent stem cell (iPSC)-based test systems for future mechanism-based chemical safety testing** Chairs: Catherine Verfaillie, Belgium and Marcel Leist, Germany **iPSC-derived neurospheres for chemical safety assessment** Andras Dinnyes, Biotalentum, Gödöllő, Hungary **Multicellular 3D liver models based on hiPSC-derived liver cells** Catherine Verfaillie, Leuven University, Leuven, Belgium **Dissecting lineage specific oxidative stress response dynamics using high content imaging of the hiPSC HMOX1 fluorescent reporter line** Marije Niemeijer, Leiden Academic Centre for Drug Research, Leiden, Netherlands **Nephrotoxic liability assessment using hiPSC-derived renal glomerular and proximal tubular epithelial cells** Anja Wilmes, Free University Amsterdam, Amsterdam, Netherlands
18h00–19h00	**Industry Symposium I**

19h00–20h00	**Industry Symposium II**

Tuesday, 28 September 2021	
08h00–18h30	**Exhibition & Poster Viewing**
08h00–12h00	**CEC04** **Inflammation as a mediator of toxic responses** Chairs: Emanuela Corsini, Italy and Ron Tjalkens, US **Inflammation as a mediator of toxic responses** Marie Cumberbatch, Immune Insight, Alderley Park, UK **The multiple facets of skin inflammation: from direct toxic insult to specific immune responses** Marc Pallardy, Université Paris-Saclay, Châtenay-Malabry, France **Innate immune inflammatory signaling in glial cells modulates chemical neurotoxicity** Ron Tjalkens, Colorado Stage University, Fort Collins, US **Evaluating cytokines in immunotoxicity testing** Emanuela Corsini, University of Milan, Milan, Italy
08h00–12h00	**CEC05** **Nanotoxicology** Chair: Ulla Vogel, Denmark **Genotoxicity of nanomaterials** Julia Catalán Rodríguez, Finnish Institute of Occupational Health, Helsinki, Finland **Nanomaterial-induced inflammation, acute phase response and risk of cardiovascular disease** Ulla Vogel, National Research Center of the Working Environment, Copenhagen, Denmark **Toxicity of nanomaterial in the user phase** Anne Saber, National Research Center of the Working Environment, Copenhagen, Denmark

	***In vitro-based* high-throughput screening and toxicogenomics to support effective safety evaluation of engineered nanomaterials** Penny Nymark, Karolinska Institutet, Institute of Environmental Medicine, Stockholm, Sweden
08h00–12h00	**CEC06** **Toxicity assessment in drug development** Chair: Stine Bartelt, Måløv, Denmark **Challenging early target safety assessment strategies** Jens Schuemann, Novartis Institute for BioMedical Research, Basel, Switzerland **Phototoxicity of small molecules – from initial assessment to *in vivo* studies** Allan Dahl Rasmussen, Lundbeck A/S, Valby, Denmark **Effects of an FGF21 analogue on the female reproductive system** Stine Bartelt, Novo Nordisk A/S, Måløv, Denmark **PEGylated coagulation factor IX: The road to regulatory approval** Hanne Offenberg, Novo Nordisk A/S, Måløv, Denmark
12h00–13h00	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
13h00–14h00	**EUROTOX–SOT Debate** Chairs: Félix Carvalho, EUROTOX President-Elect and Michael Aschner, SOT Vice President **Individualized toxicity Is the future of risk assessment** Alan Boobis (EUROTOX debater) and Syril Pettit (SOT debater)
14h00–16h00	**Session 07 – Roundtable** **Setting the European Environment and Health Research Agenda, 2020-2030: the HERA project** Chairs: Robert Barouki, France and Manolis Kogevinas, Spain **Identifying research gaps in environment and health research** Roel Vermeulen, Utrecht University, Utrecht, Netherlands and Annette Peters, Helmholtz Zentrum, Munich, Germany

	Stakeholder approach for identification of research needs of policy and practice in environment, climate and health Brigit Staatsen, RIVM, Bilthoven, Netherlands **Major environmental stressors and their effect on health: a global perspective** Julia Nowacki, WHO Regional Center, Bonn, Germany **Infrastructure needs in the field of environment and health** Jana Klánová, Recetox, Brno, Czech Republic
14h00–16h00	**Session 08 – Symposium** **Back-translation from clinical outcomes, how did investigative toxicology, modelling and simulation actually perform?** Chairs: Harrie C.M. Boonen, Denmark and François Pognan, Switzerland **Mathematical modelling combined with new in-vitro technologies to enable quantitative translation between preclinical and clinical safety** Carmen Pin, AstraZeneca, Cambridge, UK **A case study of a retrospective review of risk factors for DILI based on *in vitro* and *in vivo* data** Thomas Steger-Hartmann, Bayer AG, Berlin, Germany **Moving from detection of cardiovascular liabilities to quantitative mechanistic translational understanding: challenges and opportunities** Amy Pointon, AstraZeneca, Cambridge, UK **eTRANSAFE's Rosetta stone – a new approach to overcome safety translational hurdles** Jan Kors, Erasmus University Medical Center, Rotterdam, Netherlands
14h00–16h00	**Session 09 – Workshop** **Increasing confidence in non-animal approaches for regulatory decision-making** Chairs: Suzanne Fitzpatrick, US and Fiona Sewell, UK **Acceptance of *in silico* methods for regulatory purposes** Glenn Myatt, Leadscope, Columbus, US **Strengthening a grouping/read-across case using omics-derived molecular mechanistic evidence from an invertebrate model** Tomasz Sobanski, ECHA, Helsinki, Finland & Mark Viant, University of Birmingham, Birmingham, UK

	A new path for pesticide assessment: using the AOP framework as a tool in risk assessment Susanne Hougaard Bennekou, Technical University of Denmark, Kgs. Lyngby, Denmark
14h00–16h00	**Session 28 – Symposium** **Preclinical immune-safety evaluation of immuno-oncology therapies** Chair: Curtis Maier, US **Current nonclinical evaluation of immune-related safety risks for IO biopharmaceuticals** N. N. **Current nonclinical evaluation of immune-related safety risks for engineered T cell therapies** Hervé Lebrec, AMGEN, US **Clinical toxicology of immune checkpoint blockers** Nathalie Chaput-Gras, University Paris-Sud Institut Gustave Roussy, Châtenay-Malabry & Villejuif, France **Regulatory considerations and establishing FIH dose across immunomodulators** Gabriele Reichmann, Paul-Ehrlich-Institut, Langen, Germany
16h00–16h30	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
16h30–18h30	**Session 10 – Symposium** **Computational modeling of AOP networks to assist risk assessment of chemicals** Chairs: Frederic Bois, UK and Joost Beltman, Netherlands **Quantitative Bayesian networks analyses of mitochondrial toxicity** Frederic Bois, CERTARA Inc., Sheffield, UK **Logic modeling of toxicology pathways** Attila Gabor, EMBL, Heidelberg, Germany **Data-driven computational modeling of the DNA damage response and liver toxicity** Joost Beltman, Leiden University, Leiden, Netherlands

	Spatial-temporal multiscale-multilevel modeling of APAP damage and its consequence on ammonia detoxification in a virtual liver lobule: steps towards a virtual liver Dirk Drasdo, INRIA & University of Leipzig, Paris & Leipzig, France & Germany
16h30–18h30	**Session 11 – Symposium** **Emerging tools for the investigation and prediction of liver toxicity** Chairs: Mathieu Vinken, Belgium and Magnus Ingelman-Sundberg, Sweden **ULA 3D spheroids as a tool for studying normal and diseased liver function and for prediction of drug pharmacokinetics and hepatotoxicity** Magnus Ingelman-Sundberg, Karolinska Institutet, Stockholm, Sweden **Functional imaging of hepatotoxicity** Jan Hengstler, Leibniz Research Center (IfADo), Dortmund, Germany **Dynamic imaging of stress response pathway activation for quantitative systems liver toxicity approaches** Bob van de Water, Leiden University, Leiden, Netherlands **Using real time sensors to illuminate human-relevant mechanisms of action** Yaakov Nahmias, Silberman Institute of Life Sciences, Jerusalem, Israel
16h30–18h30	**Session 12 – Symposium** **Application of high throughput transcriptomics in mechanism-based chemical safety assessment** Chair: Hennicke Kamp, Germany **High throughput transcriptomics for determining chemical-induced perturbations to predict adverse renal outcomes** Paul Jennings, Free University Amsterdam, Netherlands **Early prediction of late adverse outcome using benchmark dose modelling of high throughput transcriptomics data** Scott Auerbach, U.S. NIEHS/National Toxicology Program, Durham, US **Transcriptomic profiling of the inter-individual variability of chemical-induced cellular stress response activation in primary human hepatocytes** Marije Niemeijer, Leiden University, Leiden, Netherlands

	Genomics-based platforms in combination with machine learning algorithms enabling well informed and reliable risk assessments for different toxicological endpoints Andy Forreryd, SenzaGen, Lund, Sweden
16h30–17h30	**Industry Symposium III**
17h30–18h30	**Industry Symposium IV**
18h30–20h00	**Short Oral Communications I** Chairs: tba. **SOC01-01** **Development of a kidney-on-a-chip model that replicates an antisense oligonucleotide-induced kidney injury biomarker response** T. T. Nieskens[1], O. Magnusson[1], M. Persson[1], P. Andersson[2], M. Söderberg[1], **A. Sjögren**[1] [1]AstraZeneca, CVRM Safety, Clinical Pharmacology and Safety Sciences, R&D, Gothenburg, Sweden [2]AstraZeneca, R&I Safety, Clinical Pharmacology and Safety Sciences, R&D, Gothenburg, Sweden **SOC01-02** **Pyrrolizidine alkaloids affect miRNA expression in human HepaRG cells** A. M. Enge, H. Sprenger, A. Braeuning, **S. Hessel-Pras** German Federal Institute for Risk Assessment, Berlin, Berlin, Germany **SOC01-03** **Novel *in vitro* model captures drug-induced inflammation as a mechanism contributing to hepatotoxicity** **F. Tasnim**[1], X. Huang[1, 2], Y. T. Soong[1], H. Yu[1, 2, 3] [1] Institute of Bioengineering and Nanotechnology, Health and Medical Technologies, Singapore, Singapore [2] National University of Singapore, Department of Physiology, Yong Loo Lin School of Medicine, Singapore, Singapore [3] CAMP IRG, Singapore-MIT Alliance for Research and Technology, Singapore, Singapore **SOC01-04** **Scientific validity of non-animal-derived antibodies** **J. Barroso**, M. Halder, M. Whelan European Commission, Joint Research Centre, Ispra (VA), Italy **SOC01-05** ***In vitro* toxicity screening of an inclusive panel of engineered nanomaterials using an advanced 3D liver model** **S. V. Llewellyn**[1], G. E. Conway[1], U.-K. Shah[1], G. J. Jenkins[1], M. J. Clift[1], S. H. Doak[1]

	Swansea University, In Vitro Toxicology Group, Swansea, UK **SOC01-06** **Development of a Liver Carcinoma Biomarker Panel in 3D HepG2 Liver Spheroids Following Exposure to Ag and TiO_2 Nanomaterials** **G. E. Conway**[1], S. V. Llewellyn[1], P. Nymark[2, 3], U. B. Vogel[4], S. Halappanavar[5], G. J. Jenkins[1], M. J. Clift[1], S. H. Doak[1] [1]InVitro Toxicology Group, Swansea University Medical School, Swansea, United Kingdom [2]Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden [3]Misvik Biology Oy, Turku, Finland [4]National Research Centre for the Working Environment, Copenhagen, Denmark [5]Environmental Health Science and Research Bureau, Health Canada, Ottawa, Canada **SOC01-07** **Combining single cell gene expression analysis and a 3D *in vitro* liver model to investigate cell type-specific responses to pro-fibrotic TGF-β1** **C. J. Messner**[1, 2], L. Babrak[1], G. Titolo[1], M. Caj[1], E. Miho[1, 3, 4], L. Suter-Dick[1, 2] [1]Fachhochschule Nordwestschweiz, Institute for Chemistry and Bioanalytics, Muttenz, Basel-Land, Switzerland [2]Swiss Centre for Applied Human Toxicology, Basel, Basel-Stadt, Switzerland [3]SIB Swiss Institute of Bioinformatics, Lausanne, Switzerland [4]aiNET GmbH, Basel, Switzerland
18h30–20h00	**Short Oral Communications II** Chairs: tba. **SOC02-01** **Towards a personalized drug development using autologous iPSC-derived Multi-Organ-Chips** **A. Ramme**, L. Koenig, D. Faust, M. Jäschke, N. Nguyen, E.-M. Dehne, U. Marx TissUse GmbH, Berlin, Berlin, Germany **SOC02-02** **Prediction of inotropic effect based on calcium transients in human iPSC-derived cardiomyocytes using novel waveform parameters and a modified random forest algorithm** **H. Yang**[1], O. Obrezanova[2], A. Pointon[2], W. Stebbeds[3], J. Francis[3], K. A. Beattie[4], P. Clements[4], J. S. Harvey[4], G. F. Smith[2], A. Bender[1] [1]University of Cambridge, Department of Chemistry, Cambridge, United Kingdom [2]AstraZeneca, BioPharmaceuticals R&D, Cambridge, United Kingdom [3]GlaxoSmithKline, R&D, Stevenage, UK [4]GlaxoSmithKline, R&D, Ware, UK

SOC02-03
High-throughput phenotypic profiling within the NAMs-based, tiered hazard evaluation strategy at the United States Environmental Protection Agency
J. Nyffeler[1, 2], C. Willis[1], M. Culbreth[1], R. E. Brockway[1, 3], L. J. Everett[1], G. Patlewicz[1], I. Shah[1], D. Chang[1], K. Paul Friedman[1], J. Wambaugh[1], J. A. Harrill[1]
[1]US Environmental Protection Agency, Center for Computational Toxicology and Exposure, Office of Research and Development, Durham, North Carolina, United States of America
[2]Oak Ridge Institute for Science and Education (ORISE) Postdoctoral Fellow, Oak Ridge, Tennessee, US
[3]Oak Ridge Associated Universities (ORAU) National Student Services Contractor, Oak Ridge, Tennessee, US

SOC02-04
Mutations in the filaggrin gene determine immune response after dermal chemical exposure
E. Rietz Liljedahl[2], H. K. De Paoula[2], M. Engfeldt[2], A. Julander[1], C. Lidén[1], C. Lindh[2], **K. Broberg**[1, 2]
[1]Karolinska Institutet, Institute of Environmental Medicine, Stockholm, Sweden
[2]Lund University, Department of Laboratory Medicine, Lund, Sweden

SOC02-05
The impact of pooling animal histopathology control data on the statistical detection of treatment-related findings
P. S. R. Wright[1], K. A. Briggs[2], R. Thomas[2], G. F. Smith[3], G. Maglennon[4], P. Mikulskis[5], M. Chapman[6], N. Greene[7], A. Bender[1]
[1]University of Cambridge, Chemistry, Cambridge, UK
[2]Lhasa Limited, Leeds, UK
[3]AstraZeneca, Data Science and AI, Clinical Pharmacology and Safety Sciences, R&D, Cambridge, UK
[4]AstraZeneca, Oncology Pathology, Clinical Pharmacology and Safety Sciences, R&D, Melbourn, UK
[5]AstraZeneca, Imaging and Data Analytics, Clinical Pharmacology & Safety Sciences, R&D, Gothenburg, Sweden
[6]AstraZeneca, Toxicology, Clinical Pharmacology and Safety Sciences, R&D, Melbourn, UK
[7]AstraZeneca, Imaging and Data Analytics, Clinical Pharmacology & Safety Sciences, R&D, Waltham, Massachusetts, US

SOC02-06
Novel biomimetic membranes for nanoparticle transport studies at biological barriers
L. A. Furer[1], A. Díaz Abad[1], G. Fortunato[2], S. Schürle-Finke[3], T. Buerki-Thurnherr[1]
[1] Empa, Laboratory for Particles-Biology Interactions, St. Gallen, Switzerland
[2] Empa, Laboratory for Biomimetic Membranes and Textiles, St.Gallen, Switzerland
[3] ETH Zürich, Responsive Biomedical Systems Lab, Zürich, Switzerland

SOC02-07
Validation of the ToxProfiler reporter assay for toxicological profiling and determination of the underlying mode of action
B. ter Braak[1], L. Wolters[1], T. Osterlund[1], B. Van de Water[2], G. Hendriks[1]

	[1]Toxys b.v., Leiden, Netherlands [2]Leiden University, Leiden Academic Center for Drug Research, Leiden, Netherlands

Wednesday, 29 September 2021	
09h00–18h30	**Exhibition & Poster Viewing**
10h00–11h00	**Specialty Sections meetings** **Individual Members meeting**
12h00–13h00	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
13h00–14h00	**SOT Merit Award Lecture 1** Chairs: George Daston, SOT Past President and Heather Wallace, EUROTOX President **Unraveling the molecular mechanisms of cannabinoid-mediated immune modulation and cannabinoid receptor 2 as a putative therapeutic target** Norbert E. Kaminski, Michigan State University, East Lansing, MI, US
14h00–16h00	**Session 13 – Workshop** **Modes of action in non-genotoxic carcinogenesis** Chairs: Jan Vondracek, Czech Republic and William H Bisson, US **Developing an integrated approach for the testing and assessment of chemical non-genotoxic carcinogens for global regulatory purposes** Miriam Jacobs, Public Health England, Chilton, UK **Cellular and newly proposed models to study the transforming ability of pollutants for translational toxicology** William H Bisson & Annamaria Colacci, OHSU Knight Cancer Institute & ARPAE, Portland & Bologna, US & Italy **Non-coding RNAs mechanisms enforcing oncogenic programs and allowing establishment of metastatic inches** Martin Bushell, The Beatson Institute, Glasgow, UK
14h00–16h00	**Session 14 – Symposium** **New approaches using *in vitro* assays and 3D models can improve prediction of immune reactions to xenobiotics** Chairs: Marc Pallardy, France and Saadia Kerdine-Römer, France **Immune response to chemicals and drugs: understanding is key for prediction** Marc Pallardy, University Paris-Sud, Châtenay-Malabry, France

	Development of new approaches to predict drug-induced hypersensitivity with an increased understanding of reaction mechanisms Dean Naisbitt, University of Liverpool, Liverpool, UK **The challenges of predicting biological products immunogenicity using T-cell assays** Bernard Maillère, University of Paris Saclay, Paris, France **Challenges and opportunities of 3D-skin models: the way forward for assessing chemical sensitizers?** Sue Gibbs, Amsterdam University Medical Center, Amsterdam, The Netherlands
14h00–16h00	**Session 15 – Symposium** **Impact of climate change on food safety** Chairs: Angela Mally, Germany and George Kass, Italy **The impact of climate change on mycotoxin and related fungi risks in Europe: current scenario and future perspectives** Antonio Moretti, Institute of Sciences of Food Production, National Research Council, Bari, Italy **Climate change impacts on harmful algal bloom toxicity** Dedmer van de Waal, Netherlands Institute of Ecology (NIOO-KNAW), Wageningen, Netherlands **Ocean warming and Ciguatera poisoning** Elisa Berdalet, Institute of Marine Sciences (ICM-CSIC), Barcelona, Spain **Tetrodotoxins in seafood from European waters** Ron Hoogenboom, RIKILT Wageningen University & Research, Wageningen, Netherlands
14h00–16h00	**Session 29 – Symposium** **Is there a human risk to PFAS exposure?** Chairs: Philippe Grandjean, Denmark and Martin Wilks, Switzerland **Investigating developmental effects of PFAS using a 3D human induced pluripotent stem cell differentiation model** Anne Marie Vinggaard, Technical University of Denmark, Kgs. Lyngby, Denmark **Epidemiological approaches to PFAS toxicity**

	Philippe Grandjean, University of Southern Denmark & Boston University, Odense & Boston, Denmark & US **Exposure to real-life PFAS mixtures present in several human matrices, assessed with *ex vivo* effect biomarkers** Eva Cecilie Bonefeld-Jørgensen[1,2], Vicente Mustieles[3,4,5,6], Andrea Rodríguez[3,4,5,6], Maria Wielsøe[1], Mariana F. Fernandez[3,4,5,6] [1]Centre for Arctic Health & Molecular Epidemiology, Department of Public Health Aarhus University, Denmark [2]Greenland Centre for Health Research, University of Greenland, Nuuk, Greenland [3]University of Granada, Center for Biomedical Research (CIBM), Spain [4]Department of Radiology and Physical Medicine, School of Medicine, University of Granada, Granada, Spain [5]Instituto de Investigación Biosanitaria Ibs Granada, Spain; [6]Consortium for Biomedical Research in Epidemiology & Public Health (CIBERESP), Spain **Wide-spread PFAS contamination of drinking water in Sweden – exposure and health risk assessment** Anders Glynn, SLU, Uppsala, Sweden
16h00–16h30	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
16h30–18h30	**Session 16 – Symposium** **Human microengineered organs-on-chips: advancing regulatory science through innovation** Chairs: Suzanne Fitzpatrick, US and Adrian Roth, Switzerland **Organs-on-chips for safety testing and disease 18odelling** Geraldine A. Hamilton, Emulate Inc., Boston, US **Human on a chip – are we there yet?** Uwe Marx, TissUse GmbH, Berlin, Germany **Incorporating organ-on-chip into integrated approaches to testing and assessment** Sofia Batista Leite, European Commission's Joint Research Centre, Ispra, Italy **An industry perspective: importance of organs-on-chips for advancing drug discovery and development** Adrian Roth, Roche Pharma, Basel, Switzerland
16h30–18h30	**Session 17 – Symposium** **Designing toxicology studies to support development of cell-based therapies** Chair: Niklas Öhrner, Denmark, Ridhirama Bhuwania, Germany

	Regulatory considerations for cell based therapies David Jones, MHRA, UK **Non-clinical study design considerations in the development of cellular therapeutics** Mark Johnson, Northern Biomedical Research, Norton Shores, MI, US **Preclinical assessment of a pluripotent cell therapy for Parkinson's Disease** Agnete Kirkeby, Lund University, Lund, Sweden **How cell therapies derived from pluripotent stem cells are evaluated for tumorigenicity *in vivo* and *in vitro*** Dorthe Bach Toft, NovoNordisk, Måløv, Denmark
16h30–18h30	**Session 18 – Symposium** **Mechanistic toxicology as the basis for modelling and prediction of organ-specific toxicity** Chairs: Anna Bal-Price, Italy and Ulla Vogel, Denmark **Applying the adverse outcome pathways network for understanding and predicting neurotoxicity** Anna Bal-Price, European Commission Joint Research Centre, Ispra, Italy **Application of the adverse outcome pathway conceptual framework for translation of mechanistic data into regulatory decisions: adverse outcome pathways for kidney injury as case study** Angela Mally, University of Würzburg, Würzburg, Germany **Novel means of enabling high-throughput toxicogenomics and adverse outcome pathways for prediction of lung toxicity** Penny Nymark, Karolinska Institute, Stockholm, Sweden **Development and application of an adverse outcome pathway of cholestatic liver injury** Mathieu Vinken, Vrije Universiteit Brussels, Brussels, Belgium
16h30–17h30	**Industry Symposium V**
17h30–18h30	**Industry Symposium VI**
18h30–20h00	**Short Oral Communications III** Chairs: tba.

SOC03-01

Rat biodistribution of cerium dioxide and titanium dioxide nanomaterials after single and repeated inhalation exposure

I. Gosens[1], E. Duistermaat[1], J. Boere[1], P. Fokkens[1], J. Vidmar[2], K. Löschner[2], C. Delmaar[1], A. L. Costa[3], R. Peters[4], F. Cassee[1, 5]
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SOC03-02

Estimation of uncertainty in multi-level *in silico* models predicting biomarkers of drug-induced proarrhythmic risk

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SOC03-03

Next generation risk assessment for skin sensitization combining non-animal data and read- across: a case study with Resorcinol

F. Gautier[1], F. Tourneix[2], H. Assaf Vandecasteele[1], D. Bury[1], N. Alépée[2]
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SOC03-04

Expanding the H295R steroidogenic assay using LC-MS/MS and an ER-alpha reporter gene assay as read-outs using azole fungicides as test compounds

P. Vazakidou, C. Koopmans, S. Grimberg, S. Evangelista, J. Koekkoek, M. Lamoree, P. Leonards, M. van Duursen
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SOC03-05

A novel prediction model to evaluate genotoxicity based on a gene signature in metabolically competent human HepaRG™ cells

A. Thienpont[1], S. Verhulst[2], L. van Grunsven[2], V. Rogiers[1], T. Vanhaecke*[1], B. Mertens*[3, 4]
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[3]Sciensano, Department of Chemical and Physical Health Risks, Brussels, Belgium
[4]University of Antwerp, Department of Biomedical Sciences, Wilrijk, Belgium

	SOC03-06 **N. N.** **SOC03-07** **Air pollutants induced immunotoxicity linked to COVID-19 complications: toxicogenomic approach** **D. Jorgovanovic**, K. Živančević, K. Baralić, A. Buha Djordjevic, E. Antonijević Miljaković, B. Antonijević, D. Đukić-Ćosić University of Belgrade - Faculty of Pharmacy, Department of Toxicology, Belgrade, Serbia
18h30–20h00	**Short Oral Communications IV** Chairs: tba. **SOC04-01** **Estimating the kinetics of titanium dioxide nanoparticles in rats after inhalation using physiologically based kinetic modelling** **J. Minnema**[1], C. Delmaar[1], I. Gosens[1], F. R. Cassee[1, 2], L. Tran[3], B. Bokkers[1] [1]National Institute for Public Health and the Environment, Bilthoven, Netherlands [2]Institute for Risk Assessment Studies, Utrecht University, Utrecht, Netherlands [3]Institute of Occupational Medicine, Edinburgh, UK **SOC04-02** **Glyphosate and T cells: an immunotoxicity *in vitro* evaluation** **A. Maddalon**[1], V. Galbiati[1], M. Iulini[2], M. Marinovich[1], E. Corsini[2] [1]University of Milan, Department of Pharmacological and Biomolecular Sciences, Milan, Italy [2]University of Milan, Department of Environmental and Political Sciences, Milan, Italy **SOC04-03** **Analysis of Murine Liver mRNA Expression, DNA Methylation, And Histone After Repeated Exposure To Chemicals** **J. Kanno**, K.-I. Aisaki, R. Ono, S. Kitajima National Institute of Health Sciences, Division of Cellular & Molecular Toxicology/Center for Biological Safety & Research, Kawasaki, Japan **SOC04-04** N.N.

SOC04-05

An *in vitro* harmonized strategy to assess the toxicity of chemicals using multiple human induced pluripotent stem cell (hiPSC)-derived models

C. Nunes[1, 2], P. Singh[3, 4], Z. Mazidi[5, 6], C. Murphy[7], A. Bourguignon[8, 9], S. Wellens[10], S. Ghosh[11], M. Zana[8], C. Verfaillie[11], M. Culot[10], A. Dinnyés[8, 13], P. Jennings[7], J. Grillari[5, 6, 12], T. Exner[14], M.-G. Zurich[1, 2]
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[7]Vrije Universiteit Amsterdam, Division of Molecular and Computational Toxicology, Department of Chemistry and Pharmaceutical Sciences, Amsterdam, Netherlands
[8]BioTalentum Ltd, Gödöllő, Hungary
[9]Szent István University, Gödöllő, Hungary
[10]University of Artois, Laboratoire de la Barrière Hémato-Encéphalique (LBHE), Faculté des sciences Jean Perrin, Lens, France
[11]KU Leuven, Department of Development and Regeneration, Stem Cell Institute, Leuven, Belgium
[12]Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna, Austria
[13]University of Szeged, HCEMM-USZ StemCell Research Group, Szeged, Hungary
[14]Seven Past Nine d.o.o., Cerknica, Slovenia

SOC04-06

Brain organoids to study SARS-Cov-2 infection of developing CNS

L. Smirnova[1], C. K. Bullen[2], H. T. Hogberg[1], A. Pekosz[3], W. Bishai[2], T. Hartung[1]
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SOC04-07

***In silico* approaches to link adverse outcomes to molecular initiating events through AOPs**

A. A. Oliveira, A. Caley, S. A. Stalford, S. Kane, R. Foster, E. Hill, G. Kocks, A. Fowkes, A. Myden, D. Newman, J. D. Vessey
Lhasa Limited, Leeds, UK

Thursday, 30 September 2021	
09h00–18h30	**Exhibition & Poster Viewing**
09h00–12h00	**Business Council Meeting**
12h00–13h00	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
13h00–14h00	**SOT Merit Award Lecture 2** Chairs: George Daston, SOT Past President and Heather Wallace, EUROTOX President **The exciting challenge of working in regulatory toxicology** Rogene Henderson, Lovelace Respiratory Research Institute, Albuquerque, NM
14h00–16h00	**Session 19 – Workshop** **Can we panelize seizure?** Chairs: Ruth Roberts, UK and Jennifer Pierson, US **Seizure liability in drug discovery and development: current state of play** Jean-Pierre Valentin, UCB, Braine-l'Alleud, Belgium **Exploring the utility of an ion channel panel for detecting seizure liability** Mike Morton, ApconiX, Alderley Park, UK **Development of seizure prediction methods using *in vitro* microelectrode array (MEA)** Ikuro Suzuki, Tohoku Institute of Technology, Sendai, Japan **Panel Discussion focusing on key questions: confidence in the biology, confidence in the robustness of the assay and confidence in translation to the clinic and the patient** All speakers
14h00–16h00	**Session 20 – Symposium** **Modernizing cancer risk assessment: beyond the bioassay** Chairs: Gina Hilton, UK and Mirjam Luijten, Netherlands **Current challenges in a paradigm shift for cancer risk assessment**

	Alan Boobis, Imperial College London, UK **Current transcriptional benchmark dose approaches that are available to safely assess carcinogenicity risk** Virunya Bhat, Independent Consultant, US **Strategies for a weight of evidence-based carcinogenicity assessment of human pharmaceuticals** Jan Willem van der Laan, Netherlands Organization for Applied Scientific Research (TNO), Zeist, Netherlands **Predicting non-genotoxic carcinogenic potential of agrochemicals: a mechanistic approach** Mirjam Luijten, RIVM, Netherlands
14h00–16h00	**Session 21 – Symposium** **Drug – exposome interactions** Chairs: Benedikt Warth, Austria and Angela Mally, Germany **The exposome: drugs, toxicants, and metabolites** Gary W. Miller, Columbia University, New York City, US **Impact of dietary xenoestrogens and other food contaminants on drug metabolism and action** Benedikt Warth, University of Vienna, Vienna, Austria **The Central European Longitudinal Studies of Parents and Children (CELSPAC) from an exposome perspective** Jana Klánová, Masaryk University, Brno, Czech Republic **Biotransformation-driven interactions and precision responses to chemotherapy** Shana Sturla, ETH Zurich, Zurich, Switzerland
14h00–16h00	**Session 30 – Symposium** **Revisiting paracetamol-induced multisystem toxicity: novel mechanistic insights** Chairs: Hilmi Orhan, Turkey and Hartmut Jaeschke, US **Paracetamol hepatotoxicity: Discovering new drugs based on mechanistic insight from animal studies** Hartmut Jaeschke, University of Kansas Medical Center, Kansas City, US **Paracetamol-associated adverse reactions in kidney: different mechanistic pathways compared to liver** Hilmi Orhan, Ege University, Izmir, Turkey

	Paracetamol and pregnancy: short- and long-term consequences for mother and child N. N. **Paracetamol and development – reasons for concern** David Kristensen, University of Copenhagen & Inserm, Irset, Copenhagen & Rennes, Denmark & France
16h00–16h30	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
16h30–18h30	**Session 22 – Symposium** **Computational models to reliably predict chemical mixture toxicity** Chairs: Aristidis Tsatsakis, Greece and Michael Aschner, US **SMF-1, SMF-2 and SMF-3DMT1orthologues regulate and are regulated differentially by manganese levels in C. elegans** Michael Aschner, Albert Einstein College of Medicine, New York, US **Systems toxicology models for the development of AOP networks induced by exposure to complex mixtures** Denis Sarigiannis, University School of Advanced Studies IUSS, Pavia, Italy **Computational modelling: A new paradigm for chemical mixtures risk assessment?** Antonio F. Hernandez, University of Granada School of Medicine, Granada, Spain **PBPK modelling: Bridging animal-free toxicology tools and conventional *in vivo* testing for cumulative risk assessment after long-term-low-dose exposure to chemical mixtures** Marina Goumenou, University of Crete Medical School, Heraklion, Greece
16h30–18h30	**Session 23 – Symposium** **The value of micro-physiological systems for drug safety assessment – a series of case studies** Chairs: Ekaterina Breous-Nystrom, Switzerland and Thomas Steger-Hartmann, Germany **Microphysiological systems evolution – introducing the immune compartment** Ekaterina Breous-Nystrom, Roche, Basel, Switzerland **A microfluidic two-organ chip to investigate species specific differences of thyroid-liver crosstalk in human and rats** Diana Karwelat, Bayer AG, Berlin

	Adopting organ-chips as internal decision making-tools: a quantitative evaluation of human liver-chip predictive validity Lorna Ewart, Emulate, London, UK **Human iPSC-derived retinal organoid model for *in vitro* toxicity screening** Valeria Chichagova, Newcells Biotech, Newcastle, UK
16h30–18h30	**Session 24 – Symposium** **Building confidence in the use of new approach methodologies for safety decision-making** Chairs: Alistair Middleton, UK and Ans Punt, Netherlands **Strategies to evaluate *in vitro in silico* physiologically based kinetic (PBK) models as essential tool in next generation (animal-free) risk evaluations** Ans Punt, RIKILT Wageningen University and Research, Wageningen, Netherlands ***In silico* approaches to link adverse outcomes to molecular initiating events through AOPs** Oliveira Anax, Lhasa Limited, Leeds, UK **Strategic use of high-throughput transcriptomics and phenotypic profiling data in support of regulatory decisions** Joshua Harrill, US EPA NCCT, Research Triangle Park, US **An industry perspective on strategies for integrating new approach methodologies for next generation risk assessment** Maria Baltazar, Unilever Safety and Environmental Assurance Centre, Bedford, UK
16h30–17h30	**Industry Symposium VII**
17h30–18h30	**Industry Symposium VIII**

Friday, 1 October 2021	
09h00–17h00	**Exhibition & Poster Viewing**
10h00–12h00	**EC21-3 Meeting**
12h00–13h00	**Virtual Coffee Break, Exhibition & Poster Viewing/Discussion**
13h00–14h00	**HESI CITE Lecture**
14h00–16h00	**Session 25 – Symposium** **Safeguarding female reproductive health across disciplines** Chairs: Julie Boberg, Denmark and Paul Fowler, UK **New insights into how early-life exposure to industrial chemicals can disrupt female reproductive development** Hanna KL Johansson, Technical University of Denmark, Kgs. Lyngby, Denmark **Reproductive toxicity in wildlife** N. N. **Influence of EDCs on female puberty – evidence from human epidemiology** Anders Juul, Copenhagen University Hospital, Copenhagen, Denmark **EDCs and female fertility – what can we learn from human clinical samples?** Richelle Duque Björvang, Karolinska University Hospital, Stockholm, Sweden
14h00–16h00	**Session 26 – Symposium** **Computational toxicology – New advances and acceptance in academia, industry and regulation** Chairs: Timothy Allen, UK and Ruth Roberts, UK **Developing and assessing *in silico* profilers for organ-level toxicity using non-standard data** Mark Cronin, Liverpool John Moores University, Liverpool, UK **Artificial Intelligence in drug discovery and computational safety: What is realistic, what are illusions?** Andreas Bender, University of Cambridge, Cambridge, UK

	Industrial perspectives on *in silico* tools – early screening to regulatory applications Catrin Hasselgren, Genentech, San Francisco, US **Open source computational toxicology tools in food and feed safety: integrating historical data, meta-analysis and species-specific generic models** Jean-Lou Dorne, EFSA, Parma, Italy
14h00–16h00	**Session 27 – Symposium** **Predictive systems to identify etiological factors and pathogenic mechanisms of neurodegeneration** Chairs: Jonathan Doorn, US and Jason Cannon, US **Translation of mechanistic data into *in vivo* systems to predict risk for neurodegeneration** Jason Cannon, Purdue University, West Lafayette, US **Altered neurotransmitter homeostasis as a mechanistic biomarker of neurotoxicity progressing to neurodegeneration** Jonathan Doorn, University of Iowa, Iowa City, US **Application of an adverse outcome pathway-based *in vitro* testing battery for neurotoxicity evaluation** Katharina Koch, IUF-Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany ***In vitro* neurotoxicity test methods: from development to degeneration** Remco Westerink, Utrecht University, Utrecht, Netherlands
14h00–16h00	**Industry Symposium IX**
14h00–16h00	**Industry Symposium X**
16h00–17h00	**Closing Ceremony** and **Awards presentation**