

2023 RASS Student/Postdoc Award Winners

John Doull Risk Assessment Endowment Award

Lucie Ford, Advisor: Ivan Rusyn

Texas A&M University, College Station, TX

Hazard Characterization and Grouping of PFAS using a Compendium of Human Cell Lines from Different Organs

Pavani Gonnabathula, Advisor: Miao Li

US FDA National Center for Toxicological Research, Jefferson, AR

Development and Application of a Paxlovid PBPK Model for Modeling-Based Dose Recommendations in the Pediatric Population

Perry J. Gehring Best Graduate Student Abstract Award

Haley Moyer, Advisor: Ivan Rusyn

Texas A&M University, College Station, TX

Evaluating Mechanistic Underpinnings of Environmental Chemical Effects on Feto-Maternal Interface Using a Human Organ-On-Chip Model

Robert J. Rubin Student Travel Award

Arthur Stem, Advisor: Jared Brown

University of Colorado Anschutz Medical Campus, Aurora, CO

Sugarcane Ash and Sugarcane Ash-Derived Silica Nanoparticles Alter Cellular Metabolism in Human Proximal Tubular Kidney Cells

Andersen Clewell Trainee Award

Elise Hickman, Advisor: Julia Rager

University of North Carolina, Chapel Hill, NC

Interindividual Variability Assessments through Benchmark Dose-Response Modeling of Primary Human Bronchial Epithelial-Fibroblast Co-Culture Responses to Acrolein

2022 Best Abstract Award Winners

Best Abstract

Risk Assessment Framework to Evaluate Persistent Organic Pollutant Contaminations in Dietary Supplements

L. G. Yang¹, J. A. Parker², S. B. Bandara¹, E. Fung², and A. Maier³

Stantec (ChemRisk), ¹San Francisco, CA, ²Aliso Viejo, CA, and ³Cincinnati, OH

Remaining Top 10 Best Abstracts

In Silico Occupational Exposure Banding Framework for Data-Poor Compounds in Biotechnology

E. S. Fung¹, A. Massarsky¹, and A. Maier²

Cardno ChemRisk, ¹Aliso Viejo, CA and ²Cincinnati, OH

Government of Canada Commitment to Uphold the 3Rs of Replacing, Reducing, and Refining Animal Toxicity Tests in Chemical Risk Assessment (CRA) through the Use of Refined Juvenile and Adult Zebrafish Models as New Alternative Toxicity Assays (NATAs) for Use in Quantitative Human Health and Environmental CRAs

C. L. Woodland¹, L. D. Ellis², and J. J. Pappas¹

¹Health Canada, Ottawa, ON, Canada and ²National Research Council Canada, Halifax, NS, Canada

PKSmart: A Public Tool to Predict In Vivo Pharmacokinetics of Small Molecules

S. Seal¹, O. Spjuth², A. Bender¹, and L. Hosseini-Gerami¹

¹University of Cambridge, Cambridge, United Kingdom and ²Uppsala Universitet, Uppsala, Sweden

Assessing the Concordance of In Vitro and In Vivo Protective Points-of-Departure: A Case Study of ATSDR Substance Priority List Chemicals

E. Lu, Z. Chen, L. C. Ford, I. Rusyn, and W. A. Chiu

Texas A&M University, College Station, TX

Refine and Strengthen SAR-Based Read-Across by Considering Bioactivation and Mode of Action

G. Yan, J. Rose, C. Ellison, A. Mudd, X. Zhang, and S. Wu

The Procter & Gamble Company, Mason, OH

Optimizing Protection for Human Health and the Environment Using Zebrafish Models in an Integrated Approach to Testing and Assessment-IATA for Predicting Endocrine Disruption and Systemic General Toxicity in Quantitative Chemical Risk Assessments

L. Ellis¹, J. Achenbach¹, M. Morash¹, and C. Woodland²

¹National Research Council Canada, Halifax, NS, Canada and ²Health Canada, Ottawa, ON, Canada

Investigating the Uncertainty of Prediction Accuracy for the Application of Physiologically Based Pharmacokinetic Models to Animal-Free Risk Assessment

S. Terasaka¹, A. Hayashi², Y. Nukada², and M. Yamane²

Kao Corporation, ¹Sumida-ku, Tokyo, Japan and ²Ichikai-machi, Haga-gun, Tochigi, Japan

3D Microphysiological Placenta In Vitro Model as a Tool for Drug Transport Studies and Risk Assessment

G. Rabussier¹, D. Goubert¹, C. Soragni¹, C. Ng¹, K. Bircsak¹, L. de Windt², and H. Lanz¹

¹MIMETAS, Oegstgeest, Netherlands and ²Maastricht University, Maastricht, Netherlands

Assessing whether Expert Knowledge-Based and Statistical In Silico Models Can Be Used to Predict the Sensitization Potential of Extractables and Leachables

M. L. Chilton and A. F. Oliveira

Lhasa Limited, Leeds, United Kingdom

2022 Best Published Paper Award Winners

Best Published Paper in the Application of Risk Assessment

De Abrew KN, Natoli T, Lester CC, Wang X, Shobair M, Subramanian A, Daston GP. A New Approach Methodology (NAM) Based Assessment of Butylated hydroxytoluene (BHT) for Endocrine Disruption Potential. *Toxicol Sci.* 2022 Nov 23;190(2):227-241. doi: [10.1093/toxsci/kfac099](https://doi.org/10.1093/toxsci/kfac099). PMID: 36161505.

Best Published Paper Advancing the Science of Risk Assessment

Alves VM, Borba JVB, Braga RC, Korn DR, Kleinstreuer N, Causey K, Tropsha A, Rua D, Muratov EN. PreS/MD: Predictor of Sensitization Hazard for Chemical Substances Released From Medical Devices. *Toxicol Sci.* 2022 Sep 24;189(2):250-259. doi: [10.1093/toxsci/kfac078](https://doi.org/10.1093/toxsci/kfac078). PMID: 35916740.

Remaining Top 10 Best Published Papers in the Application of Risk Assessment

Api AM, Belsito D, Botelho D, Bruze M, Burton GA Jr, Buschmann J, Cancellieri MA, Dagli ML, Date M, Dekant W, Deodhar C, Fryer AD, Jones L, Joshi K, Kumar M, Lapczynski A, Lavelle M, Lee I, Liebler DC, Moustakas H, Na M, Penning TM, Ritacco G, Romine J, Sadekar N, Schultz TW, Selechnik D, Siddiqi F, Sipes IG, Sullivan G, Thakkar Y, Tokura Y. The RIFM approach to evaluating Natural Complex Substances (NCS). *Food Chem Toxicol.* 2022 Jan 15;159 Suppl 1:112715. doi: [10.1016/j.fct.2021.112715](https://doi.org/10.1016/j.fct.2021.112715). PMID: 34848254.

Goyak KO, Sarang SS, Franzen A, Borghoff SJ, Ryman-Rasmussen JP. Adverse outcome pathway (AOP): α 2u-globulin nephropathy and kidney tumors in male rats. *Crit Rev Toxicol.* 2022 May;52(5):345-357. doi: [10.1080/10408444.2022.2082269](https://doi.org/10.1080/10408444.2022.2082269). PMID: 35862579.

Heintz MM, Chappell GA, Thompson CM, Haws LC. Evaluation of Transcriptomic Responses in Livers of Mice Exposed to the Short-Chain PFAS Compound HFPO-DA. *Front Toxicol.* 2022 Jun 27;4:937168. doi: [10.3389/ftox.2022.937168](https://doi.org/10.3389/ftox.2022.937168). PMID: 35832492.

Hilton GM, Adcock C, Akerman G, Baldassari J, Battalora M, Casey W, Clippinger AJ, Cope R, Goetz A, Hayes AW, Papineni S, Peffer RC, Ramsingh D, Williamson Riffle B, Sanches da Rocha M, Ryan N, Scollon E, Visconti N, Wolf DC, Yan Z, Lowit A. Rethinking chronic toxicity and carcinogenicity assessment for

agrochemicals project (ReCAAP): A reporting framework to support a weight of evidence safety assessment without long-term rodent bioassays. *Regul Toxicol Pharmacol*. 2022 Jun;131:105160. doi: [10.1016/j.yrtph.2022.105160](https://doi.org/10.1016/j.yrtph.2022.105160). PMID: 35311659.

Hoer D, Barton HA, Paini A, Bartels M, Ingle B, Domoradzki J, Fisher J, Embry M, Villanueva P, Miller D, Nguyen J, Zhang Q, Edwards SW, Tan YM. Predicting nonlinear relationships between external and internal concentrations with physiologically based pharmacokinetic modeling. *Toxicol Appl Pharmacol*. 2022 Apr 1;440:115922. doi: [10.1016/j.taap.2022.115922](https://doi.org/10.1016/j.taap.2022.115922). PMID: 35176293.

Kapraun DF, Zurlinden TJ, Verner MA, Chiang C, Dzierlenga MW, Carlson LM, Schlosser PM, Lehmann GM. A Generic Pharmacokinetic Model for Quantifying Mother-to-Offspring Transfer of Lipophilic Persistent Environmental Chemicals. *Toxicol Sci*. 2022 Sep 24;189(2):155-174. doi: [10.1093/toxsci/kfac084](https://doi.org/10.1093/toxsci/kfac084). PMID: 35951756.

Speen AM, Murray JR, Krantz QT, Davies D, Evansky P, Harrill JA, Everett LJ, Bundy JL, Dailey LA, Hill J, Zander W, Carlsten E, Monsees M, Zavala J, Higuchi MA. Benchmark Dose Modeling Approaches for Volatile Organic Chemicals Using a Novel Air-Liquid Interface In Vitro Exposure System. *Toxicol Sci*. 2022 Jun 28;188(1):88-107. doi: [10.1093/toxsci/kfac040](https://doi.org/10.1093/toxsci/kfac040). PMID: 35426944.

van der Zalm AJ, Barroso J, Browne P, Casey W, Gordon J, Henry TR, Kleinstreuer NC, Lowit AB, Perron M, Clippinger AJ. A framework for establishing scientific confidence in new approach methodologies. *Arch Toxicol*. 2022 Nov;96(11):2865-2879. doi: [10.1007/s00204-022-03365-4](https://doi.org/10.1007/s00204-022-03365-4). PMID: 35987941.

Woodhead JL, Siler SQ, Howell BA, Watkins PB, Conway C. Comparing the Liver Safety Profiles of 4 Next-Generation CGRP Receptor Antagonists to the Hepatotoxic CGRP Inhibitor Telcagepant Using Quantitative Systems Toxicology Modeling. *Toxicol Sci*. 2022 Jun 28;188(1):108-116. doi: [10.1093/toxsci/kfac051](https://doi.org/10.1093/toxsci/kfac051). PMID: 35556143.

Remaining Top 10 Best Published Papers Advancing the Science of Risk Assessment

Chen X, Roberts R, Tong W, Liu Z. Tox-GAN: An Artificial Intelligence Approach Alternative to Animal Studies-A Case Study With Toxicogenomics. *Toxicol Sci*. 2022 Mar 28;186(2):242-259. doi: [10.1093/toxsci/kfab157](https://doi.org/10.1093/toxsci/kfab157). PMID: 34971401.

Ford LC, Jang S, Chen Z, Zhou YH, Gallins PJ, Wright FA, Chiu WA, Rusyn I. A Population-Based Human In Vitro Approach to Quantify Inter-Individual Variability in Responses to Chemical Mixtures. *Toxics*. 2022 Aug 1;10(8):441. doi: [10.3390/toxics10080441](https://doi.org/10.3390/toxics10080441). PMID: 36006120.

Graham JC, Trejo-Martin A, Chilton ML, Kostal J, Bercu J, Beutner GL, Bruen US, Dolan DG, Gomez S, Hillegass J, Nicolette J, Schmitz M. An Evaluation of the Occupational Health Hazards of Peptide Couplers. *Chem Res Toxicol*. 2022 Jun 20;35(6):1011-1022. doi: [10.1021/acs.chemrestox.2c00031](https://doi.org/10.1021/acs.chemrestox.2c00031). PMID: 35532537.

Ji C, Weissmann A, Shao K. A computational system for Bayesian benchmark dose estimation of genomic data in BBMD. *Environ Int*. 2022 Mar;161:107135. doi: [10.1016/j.envint.2022.107135](https://doi.org/10.1016/j.envint.2022.107135). PMID: 35151117.

Kapraun DF, Sfeir M, Pearce RG, Davidson-Fritz SE, Lumen A, Dallmann A, Judson RS, Wambaugh JF. Evaluation of a rapid, generic human gestational dose model. *Reprod Toxicol*. 2022 Oct;113:172-188. doi: [10.1016/j.reprotox.2022.09.004](https://doi.org/10.1016/j.reprotox.2022.09.004). PMID: 36122840.

Lea IA, Pham LL, Antonijevic T, Thompson C, Borghoff SJ. Assessment of the applicability of the threshold of toxicological concern for per- and polyfluoroalkyl substances. *Regul Toxicol Pharmacol*. 2022 Aug;133:105190. doi: [10.1016/j.yrtph.2022.105190](https://doi.org/10.1016/j.yrtph.2022.105190). PMID: 35662637.

Price PS, Hubbell BJ, Hagiwara S, Paoli GM, Krewski D, Guiseppi-Elie A, Gwinn MR, Adkins NL, Thomas RS. A Framework that Considers the Impacts of Time, Cost, and Uncertainty in the Determination of the Cost Effectiveness of Toxicity-Testing Methodologies. *Risk Anal*. 2022 Apr;42(4):707-729. doi: [10.1111/risa.13810](https://doi.org/10.1111/risa.13810). PMID: 34490933.

Sakolish C, Georgescu A, Huh DD, Rusyn I. A Model of Human Small Airway on a Chip for Studies of Subacute Effects of Inhalation Toxicants. *Toxicol Sci*. 2022 May 26;187(2):267-278. doi: [10.1093/toxsci/kfac036](https://doi.org/10.1093/toxsci/kfac036). PMID: 35357501.

Wang X, Luu T, Beal MA, Barton-Maclaren TS, Robaire B, Hales BF. The Effects of Organophosphate Esters Used as Flame Retardants and Plasticizers on Granulosa, Leydig, and Spermatogonial Cells Analyzed Using High-Content Imaging. *Toxicol Sci*. 2022 Mar 28;186(2):269-287. doi: [10.1093/toxsci/kfac012](https://doi.org/10.1093/toxsci/kfac012). PMID: 35135005.