2023 NCTR SOT Presentations – March 20, 2023

NCTR Divisions
Division of Bioinformatics and Biostatistics (DBB)
Division of Biochemical Toxicology (DBT)
Division of Genetic and Molecular Toxicology (DGMT)
Division of Microbiology (DM)
Division of Neurotoxicology (DNT)
Division of Systems Biology (DSB)

9:00am-10:45am (ToxExpo, Hall C, Music City Center)

POSTER SESSION: ALTERNATIVES TO MAMMALIAN MODELS I
1. Qiang Shi (DBB). Abstract Number 3005, Poster Board Number P106. Poster Title: Lessons Learned in Establishing a Reliable and Low-Cost Assay for Urea Production in Human Primary Hepatocytes Cultured in a Liver Chip for the Study of Drug Hepatotoxicity
2. Xi Chen (DBB). Abstract Number 3026, Poster Board Number P127. Poster Title: AnimalGAN: A Generative AI Alternative to Animal Clinical Pathology Testing
3. Prathyusha Bagam (DSB). Abstract Number 3027, Poster Board Number P128. Poster Title: Cardiotoxicity Assessment of HESI Reference Compounds Using Human iPSC-CMs
4. Xiaqing Guo (DGMT). Abstract Number 3029, Poster Board Number P130. Poster Title: Performance of the Three-Dimensional HepaRG Micronucleus Assay for In Vitro Genotoxicity Testing

POSTER SESSION: EPIDEMIOLOGY AND PUBLIC HEALTH
1. Huyen Le (DBB). Abstract Number 3190, Poster Board Number P306. Poster Title: A Systematic Analysis and Data Mining of Opioid-Related Adverse Events Submitted to the FAERS Database
3. Wen Zou (DBB). Abstract Number 3192, Poster Board Number P308. Poster Title: RxNorm for Drug Name Normalization: A Case Study of Prescription Opioids in the US FDA Adverse Events Reporting System

POSTER SESSION: REPRODUCTIVE AND DEVELOPMENTAL TOXICOLOGY I
Yiying Wang (DGMT). Abstract Number 3542, Poster Board Number P667. Poster Title: Assessing the Developmental Toxicity of Busulfan in an In Vitro Human Placental Barrier-Embryo Co-culture System

POSTER SESSION: CARCINOGENICITY
Rose Willett (DBT). Abstract Number 3598, Poster Board Number P726. Poster Title: DNA Methylation and Transcriptomic Alterations Induced by Extended Treatment of Normal Human MCF10A Mammary Gland Epithelial Cells with Non-cytotoxic Doses of Lorcaserin

9:15am-9:30am Session Room: Music City Center, Room 209

PLATFORM SESSION: EXPLORING TIME AND CELL DIVERSITY IN TOXICOGENOMICS SPACE
Carlos Wells (DBT). Abstract Number: 2000, Oral Presentation Title: Effect of Food-Grade Titanium Dioxide on DNA Methylation in Human Cells
9:45am-10:05am Session Room: Music City Center, Room 207B
WORKSHOP SESSION: UNDERSTANDING THE CONCEPT OF SIMILARITY AND ITS APPLICATIONS TO TOXICOLOGICAL RESEARCH AND RISK ASSESSMENT
Huixiao Hong (DBB). Abstract Number: 1054, Oral Presentation Title: Structure similarity based on chemical descriptors, fingerprints, and structural alerts

10:45am-12:30pm (ToxExpo, Hall C, Music City Center)
PAPER SESSION: DNA DAMAGE AND REPAIR
1. Nan Mei (DGTM). Abstract Number 3226, Poster Board Number P343. Poster Title: Evaluation of Newly Developed 14 Human TK6-Derived Cell Lines That Individually Express a Human Cytochrome P450 for Toxicity Studies
2. Xilin Li (DGTM). Abstract Number 3228, Poster Board Number P345. Poster Title: Nitrosamine Drug Impurities Induce Genotoxicity in Human Lymphoblastoid TK6 Cells
3. Yuan Le (DGTM). Abstract Number 3229, Poster Board Number P346. Poster Title: Actein Contributes to Black Cohosh Extract-Induced Genotoxicity in Human TK6 Cells
4. Ji-Eun Seo (DGTM). Abstract Number 3252, Poster Board Number P369. Poster Title: Assessment of DNA Damage-Induced by 10 Nitrosamine Impurities Using 2D and 3D HepaRG Models
5. Javier Revollo (DGTM). Abstract Number 3253, Poster Board Number P370. Poster Title: Evaluation of the DNA Mutagenicity of N-hydroxycytidine in Mouse Lymphoma Cells by HiFi and Clone Sequencing
6. Vasily Dobrovolsky (DGTM). Abstract Number 3254, Poster Board Number P371. Poster Title: HiFi Sequencing for Detecting In Vivo Somatic Mutation
7. Jaime Miranda (DGTM). Abstract Number 3255, Poster Board Number P372. Poster Title: HiFi Sequencing Detects the On- and Off-Target Effects of a Cytosine-to-Thymine Base Editor in E. coli

POSTER SESSION: BIOTRANSFORMATION/CYTOCHROME P450
Si Chen (DBT). Abstract Number 3267, Poster Board Number P386. Poster Title: Study of the Roles of Cytochrome P450 (CYPs) in the Metabolism and Cytotoxicity of Perhexiline

2:30pm-4:15pm (ToxExpo, Hall C, Music City Center)
PAPER SESSION: COMPUTATIONAL TOXICOLOGY I
2. Liang Xu (DBB). Abstract Number 3061, Poster Board Number P166. Poster Title: Development of Random Forest Model for Predicting SARS-CoV-2 Main Protease Binders as Potential Candidates for Repurposing to COVID-19 Treatment
3. Fan Dong (DBB). Abstract Number 3062, Poster Board Number P167. Poster Title: Opioid Agonist/Agonist Database (OADB): A Database to Facilitate Opioid Drug Development
2023 NCTR SOT Presentations – March 21, 2023

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Division of Microbiology (DM)
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Division of Systems Biology (DSB)

9:00am-10:45am (ToxExpo, Hall C, Music City Center)

POSTER SESSION: COMPUTATIONAL TOXICOLOGY II
Minjun Chen (DBB). Abstract Number 3705, Poster Board Number P190. Poster Title: Machine Learning for Predicting Risk of Drug-Induced Autoimmune Diseases by Structural Alerts and Daily Dose

POSTER SESSION: SYSTEMS BIOLOGY
Luisa Camacho (DBT). Abstract Number 4119, Poster Board Number P617. Poster Title: Assessment of the Toxicity of Cannabidiol (CBD) in Rats upon Oral Developmental Exposure

POSTER SESSION: REPRODUCTIVE AND DEVELOPMENTAL TOXICOLOGY III
1. Yuxi Li (DBT). Abstract Number 4165, Poster Board Number P664. Poster Title: Cannabidiol-Induced Transcriptomic Changes and Cellular Senescence in Human Sertoli Cells

10:45am-12:30pm (ToxExpo, Hall C, Music City Center)

POSTER SESSION: SAFETY ASSESSMENT: PHARMACEUTICAL-DRUG DEVELOPMENT II
Dong Wang (DBB). Abstract Number 3867, Poster Board Number P357. Poster Title: Obtain Drug Safety Rankings through Meta-analysis of Clinical Trial Data Using Penalized Bayesian Model

POSTER SESSION: BIOMARKERS
Syed Imam (DNT). Abstract Number 3725, Poster Board Number P211. Poster Title: T2-MRI Mapping as a Minimally Invasive Correlate of Central Nervous System (CNS) Toxicity in a Cuprizone Model: A Biomarker Study

POSTER SESSION: EPIGENETICS
Ira Roudachevski (DBT). Abstract Number 4145, Poster Board Number P643. Poster Title: Effect of the Weight-Loss Drug Lorcaserin on DNA Methylation in Mammary Glands of Sprague Dawley Rats

1:45pm-2:00pm Session Room: Music City Center, Room 201

PLATFORM SESSION: ENHANCING TOXICOLOGY WITH MACHINE LEARNING
Joshua Xu (DBB). Abstract Number: 2032, Oral Presentation Title: PathologAI - a deep learning framework for whole slide classification in preclinical pathology
POSTER SESSION: ALTERNATIVES TO MAMMALIAN MODELS II
Chair: Qiang Shi (DSB)
Tao Chen (DGMT). Abstract Number 3619, Poster Board Number P101. Poster Title: Whole Genome Sequencing Analysis of Mutagenicity of N-Nitrosodiethylamine Using Caenorhabditis elegans Models

POSTER SESSION: BIOINFORMATICS
1. Meng Song (DBB). Abstract Number 3727, Poster Board Number P213. Poster Title: Deep Learning-Based Genotype Imputation for Enhancing Toxicogenomic Data
3. Skylar Connor (DBB),. Abstract Number 3732, Poster Board Number P218. Poster Title: Development of a Large List of Drugs for the Study of Nephrotoxicity in Drug Discovery
4. Zoe Li (DBB). Abstract Number 3733, Poster Board Number P219. Poster Title: Random Forest Model for Predicting µ Opioid Receptor Binding Activity for Assisting Development of Opioid Drugs

POSTER SESSION: RISK ASSESSMENT II
Winjing Gu (DBB). Abstract Number 3841, Poster Board Number P331. Poster Title: Informing Selection of Drugs for COVID-19 Treatment through Analysis of Adverse Events

POSTER SESSION: NEUROTOXICITY: DEVELOPMENTAL I
1. Jacqueline Yeary (DNT). Number 3968, Poster Board Number P462. Poster Title: Cytokine-Mediated Chemotherapy-Induced Cognitive Impairment in Cisplatin and Methotrexate Treated Sprague Dawley Rats
2. Wesley Gill (DNT). Abstract Number 3975, Poster Board Number P469. Poster Title: Examining Immune Modulatory Effects of Perinatal Cannabidiol Exposure in Sprague Dawley Rats
3. John Talpos (DNT). Abstract Number 3979, Poster Board Number P473. Poster Title: The Neurotoxic Potential of a Single Dose of Ketamine in Adolescent and Adult Rats

POSTER SESSION: NEUROTOXICITY: DEVELPMENTAL II
1. Timothy Flanigan (DNT). Abstract Number 3985, Poster Board Number P479. Poster Title: Behavioral Effects of Cisplatin and Methotrexate Treatment in Juvenile Sprague Dawley Rats
2. Chengzhong Cai (DSB). Abstract Number 3987, Poster Board Number P481. Poster Title: Investigation of the Developmental Neurotoxicity of Opioids Using Human-Induced Pluripotent Stem Cells

POSTER SESSION: NEUROTOXICITY: GENERAL
Qiang Gu (DNT). Abstract Number 4029, Poster Board Number P524. Poster Title: A Modified Approach of Fluoro-Jade C Labeling for Neurotoxicity Assessments

POSTER SESSION: IMMUNOTOXICITY I
Brandon Canup (DBT). Abstract Number 4054, Poster Board Number P551. Poster Title: Sex-Based Differences in Inflammatory Responses to Silver Nanoparticles
2023 NCTR SOT Presentations – March 22-23, 2023

NCTR Divisions
- Division of Bioinformatics and Biostatistics (DBB)
- Division of Biochemical Toxicology (DBT)
- Division of Genetic and Molecular Toxicology (DGMT)
- Division of Microbiology (DM)
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- Division of Systems Biology (DSB)

March 22, 2023
8:00am-10:45am Session Room: Karl Dean Ballroom C1, Music City Center
WORKSHOP SESSION 1195: MOVING STEM CELL-DERIVED NEW APPROACH METHODS TOWARD REGULATORY ACCEPTANCE
Chair: Li Pang (DSB)
Li Pang (DSB). Abstract Number 1200, Oral Presentation Title: Predicting Interindividual Variability of Doxorubicin Cardiotoxicity with Induced Pluripotent Stem Cell-Derived Cardiomyocytes

9:00am-10:45am (ToxExpo, Hall C, Music City Center)
POSTER SESSION: BIOLOGICAL MODELING
1. Miao Li (DBT). Abstract Number 4323, Poster Board Number P188. Poster Title: A Multiscale Physiologically Based Pharmacokinetic (PBPK) Model to Predict the Plasma Concentration and the Tissue Distribution of Doxorubicin

10:45am-12:30pm (ToxExpo, Hall C, Music City Center)
POSTER SESSION: KIDNEY
Elysia Masters (DSB). Abstract Number 4310, Poster Board Number P174. Poster Title: Evaluating Renal Pathology in Post-COVID-19 Human Autopsy Tissues

POSTER SESSION: SKIN AND DERMAL TOXICITY
Alec Salminen (DBT). Abstract Number 4449, Poster Board Number P322. Poster Title: Parallel Evaluation of Alternative Skin Barrier Models and Excised Human Skin for Dermal Absorption Studies In Vitro

2:30pm-4:15pm (ToxExpo, Hall C, Music City Center)
POSTER SESSION: LIVER I: IN VIVO
Chair: Si Chen (DBT)
Volodymyr Tryndyak (DBT). Abstract Number 4247, Poster Board Number P109. Poster Title: Gene Expression Changes Predict the Severity of NAFLD-Like Liver Injury in Male Collaborative Cross Mice
1. Dongying Li (DBB). **Abstract Number 4275, Poster Board Number P138. Poster Title**: hnRNP-Q and hnRNP-L Influence Drug Metabolism and Toxicity by Regulating mRNA Processing of Drug Metabolizing Enzymes and Nuclear Receptors in HepaRG Cells

**POSTER SESSION: RESPIRATORY TOXICOLOGY I**

Yueyi Sun (DGMT). **Abstract Number 4602, Poster Board Number P492. Poster Title**: Establishing a Continuous Aerosol Exposure Method for Evaluating the Respiratory Toxicity of Ortho-Phthalaldehyde

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March 23, 2023

8:30am-11:30am (Hall A1, Music City Center)

**POSTER SESSION: LATE-BREAKING 2-4**

1. Kumari Karn (DM). **Abstract Number 5037, Poster Board Number P138. Poster Title**: Potential Link of High-Fat Diet on the Expression of Alzheimer’s Disease-Related Genes in the Ileal Mucosa of Alzheimer’s Disease Model of Rats
2. Leah Latham (DNT). **Abstract Number 5072, Poster Board Number P173. Poster Title**: The Effects of Cannabidiol and Its Main Metabolites on Human Neural Stem Cells
3. Fang Liu (DNT). **Abstract Number 5081, Poster Board Number P182. Poster Title**: Comparison of the Effects of Delta-9 Tetrahydrocannabinol and Cannabidiol on Human Neural Stem Cells
4. Andrew Shen (DNT). **Abstract Number 5084, Poster Board Number P185. Poster Title**: Assessment of Potential Developmental Neurotoxicity of Purified Cannabidiol in Sprague Dawley Rats