Safety Pharmacology Society 2018
Washington D.C.
September 30 – October 3

Sponsored Presentations

Monday, October 1

07:00 – 08:00 | Hoover

OPTOGENETIC AND hiPSC-DERIVED CELLS – LEAP INTO THE FUTURE OF DRUG SCREENING

Presented by: Ncardia and Axion BioSystems

The cardiomyocyte and multiwell microelectrode array (MEA) assay offers an ideal approach to evaluate proarrhythmic indicators in vitro, and the addition of optogenetics provides unparalleled control of the assay. Learn how the combination of Axion BioSystems’ leading MEA technology and Ncardia’s new light-gated ion channel transfection technology provides an attractive assay for investigation of frequency-dependent responses of hiPSC-derived cardiomyocytes.

Monday, October 1

12:30 -13:30 | Hoover

BEYOND THE CiPA MYOCYTE ASSAY: TOMORROW’STOOLS TODAY

Presented by: Axion BioSystems

Trends in cardiac safety testing, as exemplified by CiPA and JiCSA, emphasize a move to integrated cellular models. The cardiomyocyte and multiwell microelectrode array (CM-MEA) assay offers an ideal approach to evaluate proarrhythmic indicators in vitro. Join Axion BioSystems to discuss advances in highly-multiplexed CM-MEA assays, fully exploiting the latent power of human cardiomyocyte models.
Oral Communications Sessions

Monday, October 1

14:00 – 15:15 | Thurgood Marshall West

**ORAL COMMUNICATIONS SESSION 2: IMPACT OF HUMAN INDUCED PLURIPOTENT STEM CELLS ON IN VITRO, CARDIAC, AND CENTRAL NERVOUS SYSTEM SAFETY ASSESSMENT**

14:45–15:00  Are Human iPSC-Derived Neurons a Good Tool to Detect Seizurogenic Drugs?
Mohamed Kreir,  et al.

*Global Safety Pharmacology, Preclinical Development & Safety, Discovery Sciences, Janssen Research & Development, Janssen Pharmaceutica NV, Beerse, Belgium*

15:00–15:15  Sex Differences in Repolarization Reserve, a Possible Mechanism for Sex-Related Differences in Drug-Induced QT Prolongation and Torsades de Pointes
Li Pang,  et al.

*US Food and Drug Administration National Center for Toxicological Research, Jefferson, AR, The United States of America*

Tuesday, October 2

14:00 – 15:15 | Thurgood Marshall North

**ORAL COMMUNICATIONS SESSION 3: RECENT PROGRESS IN NEUROLOGICAL SAFETY ASSESSMENTS**

14:15-14:30 Evaluation of Pilocarpine in Multiple Neuronal Cell Types Using Microelectrode Array
Christopher Strock,  et al.

*Cyprotex US LLC, Watertown, MA, The United States of America*

14:30-14:45 Trial to Detect Significant Metrics for Drug-Induced Seizure Liability Using Microelectrode Array Data Analysis and Primary Rodent Neurons: From Multi-Site Pilot Study of the HESI NeuTox Consortium with CSAHi and iNCENS
Norimasa Miyamoto,  et al.
Poster Presentations

**# 024** Evaluation of Electrophysiological Parameters Variability of iPS-Derived Cardiomyocytes

Celine Chantoiseau, Thierry Carriot, Veronique Ballet, Jean-Michel Guillon

*Sanofi R&D, Vitry sur Seine, France*

**# 035** Channelrhodopsin-2 Transfected hiPSC-CMS Allows for LED Excitation/Pacing on Two MEA Platforms

Benjamin Wolters, Mieke Doornbos, Chris Fleming, Ralf Kettenhofen

*Ncardia, Leiden, The Netherlands; Ncardia Inc., Plymouth Meeting, PA, The United States of America; Ncardia AG, Koln, Germany*

**# 061** Multiwell Microelectrode Array Technology for Multimodal Characterization of Neural and Cardiac Networks *In Vitro*

Daniel C. Millard, Heather B. Hayes, Stacie A. Chvatal, Anthony M. Nicolini, Colin A. Arrowood, Mike Clements, James D. Ross

*Axion BioSystems, Inc., Atlanta, GA, The United States of America*

**# 071** Functional *In Vitro* HTS Seizure Prediction with Human and Mouse Neurons Growing on Microelectrode Arrays Analyzed by Artificial Intelligence-based Methods

Benjamin M. Bader, Konstantin Jugelt, Luise Schultz, Blake Anson, Mike Clements, Olaf Schroder

*NeuroProof GmbH, Rostock, Germany; FUJIFILM Cellular Dynamics, Madison, WI, The United States of America; Axion BioSystems, Atlanta, GA, The United States of America*
# 073 Are Human iPSC-Derived Neurons a Good Tool to Detect Seizurogenic Drugs?
Mohamed Kreir, Greet Teuns, Hua Rong Lu, David J. Gallacher

Global Safety Pharmacology, Preclinical Development & Safety, Discovery Sciences, Janssen Research & Development, Janssen Pharmaceutica NV, Beerse, Belgium

# 074 High-Throughput (In Vitro) Phenotypic and Seizure Profiling Using Matured Neuro-Astrocyte Co-Cultures
Dietmar Hess, Chris Fleming, Thomas Palm, Greg Luerman

Ncardia AG, Köln, Germany; Ncardia Inc., Plymouth Meeting, PA, The United States of America

# 078 Evaluating the Use of Microelectrode Array Technology and Cell-Based Neuronal Culture Models for Proconvulsant Risk Assessment: Progress from the HESI NeuTox Consortium

Axion BioSystems, Inc., Atlanta, The United States of America; Cyprotex US, LLC, an Evotec Company, Watertown, The United States of America; ISTD NHEERL US EPA, Research Triangle Park, NC, The United States of America; Safety Pharmacology, In Vitro / In Vivo Translation, GlaxoSmithKline, Collegeville, PA, The United States of America; NeuCyte, Sunnyvale, CA, The United States of America; FUJIFILM Cellular Dynamics, Inc., Madison, WI, The United States of America, Ncardia AG, Köln, Germany; Axol Bioscience, Little Chesterford, United Kingdom; Bristol-Myers Squibb, Princeton, NJ, The United States of America; Janssen Pharmaceutica NV (J&J), Beerse, Belgium; Tohoku Institute of Technology, Sendai, Japan; Japan iPSC-non-clinical Experiments for Nervous System project, Sendai, Japan; Biopharmaceutical Assessments Core Function Unit, Medicine Development Center, Eisai Co., Ltd, Tsukuba, Japan; Tsukuba branch, Techno Pro R&D company, Techno Pro Inc., Tsuchiura, Japan; NIH, Kawasaki, Japan; US Food and Drug Administration, Center for Devices and Radiological Health, Silver Spring, MD, The United States of America; Neurotoxicology Branch, US Environmental Protection Agency, Research Triangle Park, NC, The United States of America; ApconIX, Cheshire, United Kingdom; Health and Environmental Science Institute, Washington, DC, The United States of America
Trial to Detect Significant Metrics for Drug-Induced Seizure Liability Using Microelectrode Arrays Data Analysis and Primary Rodent Neurons: From Multi-site Pilot Study of the HESI NeuTox Consortium in Collaboration with CSAHI and iNCENS

Norimasa Miyamoto, Atsuko Ojima, Saori Inaba, Tetsuo Kitamura, Tomoharu Osada, Takashi Yoshinaga

Biopharmaceutical Assessments Core Function Unit, Medicine Development Center, Eisai Co., Ltd., Tsukuba, Japan; Consortium for Safety Assessment using iPS Cells (CSAHi), Kawasaki, Japan; iPS Non-clinical Experiments for Nervous System (iNCENS), Kawasaki, Japan; The NeuTox Micro-Electrode Array (MEA) Subteam, The Translational Biomarkers of Neurotoxicity (NeuTox) Committee, Health and Environmental Sciences Institute (HESI), Washington, DC, The United States of America; Tsukuba branch, TechnoPro R&D, Company, TechnoPro, Inc., Tsuchiura, Japan; Safety Assessment Department, Nonclinical Research Center, LSI Medience Corporation, Kamisu, Japan; Advanced Medical Business Development Department, LSI Medience Corporation, Chiyoda, Japan

Evaluation of Pilocarpine in Multiple Neuronal Cell Types Using Microelectrode Array

Jennifer A. Bradley, Christopher J. Strock

Cyprotex US LLC, Watertown, MA, The United States of America

Robust Estimation of Field Potential Duration in Multi-Electrode Array Signals

Levy Batista, Thierry Bastogne

CYBERNANO, Villers-les-nancy, France; CRAN, University Lorraine-CNRS UMR, Vandoeuvre-lesNancy, France; INRIA BIGS, Vandoeuvre-les-Nancy, France

Comparison of In Silico Action Potential Modeling (AP-Predict) and the hiPSC-CM MEA Assay in Predicting Drug-Induced Cardiotoxicity

Shuya Wang, Patricia A. Valentine, Matthew J. Cato, Anthony Bahinski, Khuram W. Chaudhary

GlaxoSmithkline, Collegeville, PA, The United States of America

Assessment of Hypertrophic Cardiomyopathy Using Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes Reveals Abnormal Excitation Contraction Coupling

Natsuyo Aoyama, Jing Liu, Souameng Lor, T.K. Feaster, Simon Hilcove, Eugenia Jones

FUJIFILM Cellular Dynamics, Inc., Madison, WI, The United States of America
# 165 Clinical Trials-in-a-Dish: Different Inter-Individual Drug Responses for Calcium Handling and Electrophysiology in a Cohort of hiPSC-Derived Cardiomyocytes

Bernard Fermini, Denise D. Sullivan, Jerome Chal, Eli J. Fine, Shawn T. Coyne, Alexia King, Jessica Johnson, Alexander Hernandez, Chinye F. Obata, Kevin P. Coyne

*Coyne Scientific, Atlanta, GA, The United States of America*

# 177 Sex Differences in Repolarization Reserve, a Possible Mechanism for Sex-Related Differences in Drug-Induced QT Prolongation and Torsades de Pointes

Feng Wei, Chengzhong Cai, Beverly Lyn-Cook, Li Pang

*National Center for Toxicological Research, Jefferson, AR, The United States of America; US Food and Drug Administration National Center for Toxicological Research, Jefferson, AR, The United States of America*

# 189 Utilization of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes on an MEA Platform for Prediction of Liabilities with Chronic Drug Treatment

Christopher J. Strock

*Cyprotex US LLC, Watertown, MA, The United States of America*

# 194 High-Throughput and High-Content Safety Pharmacology Assessments with 3-Dimensional Human Induced Pluripotent Stem-Cell Derived Cortical Spheroid Platforms

Steven Dea, Steven Biesmans, Sergio Mora-Castilla, Sarah Romero, Neh Sodhi, Aurian Saleh, Grace Woodruff, Tony Harrington, Fabian Zanella, Cassiano Carromeu

*StemoniX, San Diego, CA, The United States of America; Janssen Pharmaceutica, San Diego, CA, The United States of America*