

**Society for Birth Defects Research and Prevention (BDRP)**  
**64th Annual Meeting**  
**Addressing Disparities in Birth Defects Research and Prevention**  
**Wyndham Grand Pittsburgh Downtown, Pittsburgh, PA**  
**June 22–26, 2024**

***As of June 3, 2024***

The times listed are in Eastern Daylight Time.

**Friday, June 21, 2024**

**3:00 PM–6:00 PM**            **Registration Open**

**Saturday, June 22, 2024**

**7:30 AM–5:00 PM**            **Registration Open**

**8:00 AM–8:30 AM**            **Education Course Coffee and Pastries**  
*(Education Course Session 1 Registrants Only)*

**8:30 AM–12:00 Noon**        **Education Course Session 1**  
**The Role of the Microbiome in Normal and Abnormal Development**  
*(Separate Registration Required)*  
*Organized by the Education Committee*  
*Chairperson: Terry C. Hrubec, E. Via Virginia College of Osteopathic Medicine*

8:30 AM–8:40 AM            Welcome  
*BDRP President, Anthony M. DeLise,*  
*Novartis Pharmaceuticals Corporation*

8:40 AM–8:45 AM            Course Overview  
*Education Committee Chairperson,*  
*Terry C. Hrubec, E. Via Virginia College of*  
*Osteopathic Medicine*

8:45 AM–9:25 AM            Introduction to the Microbiome: How the Various  
Microbiomes Are Established, the Influence of the  
Microbiome on Maternal Health  
*Terry C. Hrubec, E. Via Virginia College of*  
*Osteopathic Medicine*

9:25 AM–10:05 AM        Maternal-Fetal-Gut Microbiome Axis: How the  
Maternal Gut Microbiome Affects Development of  
the Fetus  
*Lori L. Driscoll, The Colorado College*

10:05 AM–10:20 AM        Break

10:20 AM–11:00 AM        Placenta as Mediator of Maternal Microbiome  
Effects on the Fetus and Newborn  
*Carolyn M. Salafia, Placental Analytics, LLC*

11:00 AM–11:40 AM Microbiome and Development of the Immune System  
*Eldin Jašarević, University of Pittsburgh School of Medicine*

11:40 AM–12:00 Noon Discussion

**12:00 Noon–1:30 PM**

**Lunch on Your Own**

**1:30 PM–5:00 PM**

**Education Course Session 2**

**Stem Cells: The Role and Promise in Birth Defects Research**

*(Separate Registration Required)*

*Organized by the Education Committee*

*Chairperson: Terry C. Hrubec, E. Via Virginia College of Osteopathic Medicine*

1:30 PM–1:35 PM

Course Overview

*Education Committee Chairperson,  
Terry C. Hrubec, E. Via Virginia College of  
Osteopathic Medicine*

1:35 PM–2:20 PM

Introduction to Stem Cells, the Different Kinds of Stem Cells, and How to Collect and Maintain Them

*Lena Smirnova, Johns Hopkins University*

2:20 PM–3:05 PM

Nonclinical Considerations for Stem Cell Therapies

*Shawna Jackman, Charles River Laboratories*

3:05 PM–3:20 PM

Break

3:20 PM–4:05 PM

A Path to Decode Human Development via Novel Stem Cell-Based Embryo Models

*Mo Ebrahimkhani, University of Pittsburgh*

4:05 PM–4:50 PM

Clinical Applications: Stem Cell Therapy

*Amy E. O'Connell, Boston Children's Hospital*

4:50 PM–5:00 PM

Discussion

**5:00 PM–7:00 PM**

**Council 1 Meeting**

*(All current and incoming Council members as well as current Committee Chairs and Vice Chairs attend Council 1.)*

**Sunday, June 23, 2024**

**7:00 AM–6:00 PM**

**Registration Open**

**7:00 AM–8:00 AM**

**2025 Program Committee Meeting**

**8:00 AM–8:15 AM**

**President's Welcome**

*BDRP President, Anthony M. DeLise, Novartis Pharmaceuticals Corporation*

**8:15 AM–9:00 AM**

**Josef Warkany Lecture  
Understanding of Mechanisms of Environmental Teratogenesis: From  
Mercury to Nutrition**

(Joint with DNTS)

*Chairperson: Anthony M. DeLise, Novartis Pharmaceuticals Corporation*

*Lecturer: Christina D. Chambers, University of California San Diego*

**9:05 AM–12:05 PM**

**Graduate Student and Postdoctoral Fellow Platform Session 1**

*Organized by the Student Affairs Committee*

*Chairperson: Christopher J. Bowman, Pfizer Inc.*

9:05 AM–9:10 AM

Introduction

*Christopher J. Bowman, Pfizer Inc.*

9:10 AM–9:30 AM

1

Developmental Exposure to Perfluorohexane Sulfonate (PFHxS) Induces Metabolic Disturbances in Lactating Rats and Their Offspring

*Aubrey L. Sasser, US Environmental Protection Agency and Oak Ridge Institute for Science and Education*

9:30 AM–9:50 AM

2

Decreased DNA Repair and Ethanol Dysregulate Fetal Brain Gene Expression and Impact Brain Function

*Ashley P. Cheng, University of Toronto*

9:50 AM–10:10 AM

3

The Teratogenic Risk Impact and Mitigation (TRIM) Tool: Development of Explicit Criteria for Teratogenicity Risk Mitigation Programs

*Celeste L. Y. Ewig, University of Florida*

10:10 AM–10:30 AM

4

Crosstalk of Dioxin and RhoA-ROCK1 Signaling in Epithelial Morphogenesis

*Bo Xiao, University of Cincinnati*

10:30 AM–10:45 AM

Break

10:45 AM–11:05 AM

5

Embryonic Exposures to Flame Retardant Tetrabromobisphenol A (TBBPA) Disrupts Dorsoventral Patterning in Zebrafish

*Kanchaka Sidath Senal Pathiraja, Clemson University*

11:05 AM–11:25 AM

6

Developmental Toxicity of Isopropylated Phenyl Phosphate (IPP): An Organophosphate Flame Retardant, in Zebrafish Embryos

*Sunil Sharma, Clemson University*

11:25 AM–11:45 AM

7

Impact of Maternal Nano-Titanium Dioxide Inhalation Exposure on Cyclooxygenase Metabolites: From Maternal Microvascular to Feto-Placental Outcomes

*Julie A. Griffith, West Virginia University*

11:45 AM–12:05 PM 8 Proteomic Analysis Reveals Perfluorooctanoic Acid-Induced Alterations in Primary Human Cytotrophoblasts  
*Mengjing Wang, University of California, San Francisco*

**12:05 PM–1:30 PM Lunch on Your Own**

**12:05 PM–1:30 PM Past Presidents' and Honorees' Luncheon**  
*(By Invitation Only)*

**12:30 PM–1:30 PM Diversity, Equity, Inclusion, and Accessibility Committee Meeting**

**12:30 PM–1:30 PM Education Committee Meeting**

**1:30 PM–2:00 PM F. Clarke Fraser New Investigator Award**  
**Building a Career in Birth Defects Epidemiology Through Collaboration and Innovation**

*Chairperson: Bethany R. Hannas, Eli Lilly and Company*

*Lecturer: Jeremy M. Schraw, Baylor College of Medicine*

**2:05 PM–2:35 PM James G. Wilson Publication Award**  
**An Improved Multicellular Human Organoid Model for the Study of Chemical Effects on Palatal Fusion**

*Chairperson: Wendy Nembhard, University of Arkansas for Medical Sciences*

*Lecturer: Cynthia J. Wolf, US Environmental Protection Agency*

**2:40 PM–3:45 PM Innovator Award Finalists Platform Session 2**

*Organized by the Awards Committee*

*Chairperson: Bethany R. Hannas, Eli Lilly and Company*

2:40 PM–2:45 PM Introduction  
*Bethany R. Hannas, Eli Lilly and Company*

2:45 PM–3:05 PM 9 Rare Variants in PRKCI Cause Van der Woude Syndrome and Other Features of Peridermopathy  
*Kelsey Robinson, Emory University*

3:05 PM–3:25 PM 10 Integrating *In Vitro* and Computational Approaches to Identify Novel Environmental Chemicals that Alter Human Retinoic Acid Signaling  
*Mengjing Wang, University of California, San Francisco*

3:25 PM–3:45 PM 11 Profiling Naled Toxicity in Primary Human Placental Cytotrophoblasts  
*Lin Li, University of California, San Francisco*

**3:45 PM–4:00 PM Break**



|                     |    |   |
|---------------------|----|---|
| 9:45 AM–10:15 AM    | S2 | Congenital Anomalies among American Indian and Alaskan Native People in Oklahoma<br><i>Amanda E. Janitz, University of Oklahoma Health Sciences Center</i>                |
| 10:15 AM–10:30 AM   |    | Break   |
| 10:30 AM–11:00 AM   | S3 | Voluntary Folic Acid Fortification Policy of Corn Masa Flour and Tortillas in the US and Neural Tube Defects Among Hispanics<br><i>Vijaya Kancherla, Emory University</i> |
| 11:00 AM–11:30 AM   | S4 | Neighborhood Sociodemographic Characteristics and Prevalence of Congenital Anomalies in Texas<br><i>Jeremy M. Schraw, Baylor College of Medicine</i>                      |
| 11:30 AM–12:00 Noon |    | Discussion  |

**9:05 AM–12:00 Noon**

**Platform Session 3**

*Chairpersons: Christopher J. Bowman, Pfizer Research & Development; and Julie M. Petersen, Boston University School of Public Health*

|                   |    |   |
|-------------------|----|---|
| 9:05 AM–9:15 AM   |    | Introduction  |
| 9:15 AM–9:30 AM   | 12 | Leveraging a Cell-Based Model of Whole-Pathway Sonic Hedgehog Signaling Activity to Assess Chemical Interactions among Teratogenic Agents<br><i>Tyler G. Beames, University of Wisconsin-Madison</i>  |
| 9:30 AM–9:45 AM   | 13 | Reversible Effects on Female Fat Fertility with Abrocitinib: A Janus Kinase 1 Inhibitor<br><i>Christopher J. Bowman, Pfizer Research &amp; Development</i>  |
| 9:45 AM–10:00 AM  | 14 | Assessment of Systemic Levels of HFA-152a, a Low Global Warming Potential pMDI Propellant, During Nose-Only Inhalation Exposure in Male and Female Sprague Dawley Rats<br><i>Jaime L. Mesnard, Charles River</i>                              |
| 10:00 AM–10:15 AM | 15 | Glucose-6-Phosphate Dehydrogenase Deficiency: A Possible Unsung Risk Factor for Congenital Anomalies<br><i>Ayoade Desmond Babalola, Universidade Federal do Rio Grande do Sul</i>   |
| 10:15 AM–10:30 AM |    | Break   |
| 10:30 AM–10:45 AM | 16 | Recent Reductions in Gastroschisis Prevalence in the United States and Puerto Rico Largely Explained by Population-Level Decline in Younger Maternal Age at Live Birth<br><i>Julie M. Petersen, Boston University School of Public Health</i> |

|                     |    |  |
|---------------------|----|--|
| 10:45 AM–11:00 AM   | 17 | Evaluating the Need for Children with Critical Congenital Heart Defects to be Referred from the Texas Birth Defects Registry to Agency Social Workers<br><i>Caitlyn Yantz, Texas Department of State Health Services</i>     |
| 11:00 AM–11:15 AM   | 18 | Risk of Pregnancy Loss after Prenatal Exposure to Doxycycline: A Retrospective Cohort Study<br><i>Hung-Kai Chen, University of Florida</i>   |
| 11:15 AM–11:30 AM   | 19 | A Complex High-Throughput Testing Paradigm for Assessing Egocentric Learning and Memory in the Biel Water Maze in Rats<br><i>Edward Marsden, Charles River</i>   |
| 11:30 AM–11:45 AM   | 20 | Discovering Phenotype-Gene Correlations Using Variant WorkBench<br><i>Yiran Guo, Children's Hospital of Philadelphia</i>   |
| 11:45 AM–12:00 Noon | 21 | The Per- and Polyfluoroalkyl Substance (PFAS) Hexafluoropropylene Oxide Dimer Acid (GenX) Alters Mitochondrial Protein Expression in Placental Trophoblasts<br><i>Mikayla Watt, University of North Carolina-Chapel Hill</i> |

**12:00 Noon–2:00 PM**

**Lunch on Your Own**

**12:05 PM–1:45 PM**

**Professional Development Lunch Workshop  
Science Communication**

(Separate Registration Required)

*Organized by the Student Affairs Committee*

*Chairpersons: Christopher J. Bowman, Pfizer Inc.; and  
Deirdre K. Tucker, Crinetic's Pharmaceuticals*

12:05 PM–12:10 PM

Lunch Pick-Up

12:10 PM–12:50 PM

W1

Let's Talk About Science: Practice, Practice, Practice!

*Barbara L. F. Kaplan, Mississippi State University, College of Veterinary Medicine*

12:50 PM–1:20 PM

Breakout Session

1:20 PM–1:45 PM

Discussion

**2:00 PM–2:30 PM**

**Agnish Fellowship Lecture  
The Identification of Human Teratogens Using a Clinical Approach**

*Chairperson: Terry C. Hrubec, E. Via Virginia College of Osteopathic Medicine*

*Lecturer: Kenneth L. Jones, UCSD, CA MotherToBaby*

**2:35 PM–5:30 PM**

**Chemicals Altering Signaling Molecules and Developmental Pathways Symposium**

(Joint with DNTS)

*Organized by the BDRP Public Affairs Committee*

*Chairpersons: Christine Perdan Curran, Northern Kentucky University; and Rajesh C. Miranda, Texas A&M Health Science Center*

|                 |    |   |
|-----------------|----|---|
| 2:35 PM–2:40 PM |    | Introduction  |
| 2:40 PM–3:15 PM | S5 | Pdgfra and mTOR Signaling in Alcohol Teratogenesis<br><i>Johann K. Eberhart, The University of Texas at Austin</i>  |
| 3:15 PM–3:50 PM | S6 | Alcohol and Cannabinoids Act through Overlapping Pathways Critical for Brain and Face Development<br><i>Karen E. Boschen, SUNY Upstate Medical University</i> |
| 3:50 PM–4:05 PM |    | Break   |
| 4:05 PM–4:40 PM | S7 | Executive Function Deficits after Prenatal Opioid Exposure Relate to Changes in Microglia<br><i>Brittany Smith, Northern Kentucky University</i>              |
| 4:40 PM–5:15 PM | S8 | The Role of the Aryl Hydrocarbon Receptor in Multi-Organ Developmental Disorders<br><i>Christine Perdan Curran, Northern Kentucky University</i>              |
| 5:15 PM–5:30 PM |    | Discussion  |

**2:35 PM–5:30 PM**

**Genetic and Environmental Factors Driving Facial Morphology and Dymorphology Symposium**

*Chairpersons: Seth M. Weinberg, University of Pittsburgh; and John R. Shaffer, University of Pittsburgh*

|                 |     |  |
|-----------------|-----|--|
| 2:35 PM–2:40 PM |     | Introduction   |
| 2:40 PM–3:10 PM | S9  | The Genetic Architecture of the Human Face: From Morphology to Dymorphology<br><i>Seth M. Weinberg, University of Pittsburgh</i>   |
| 3:10 PM–3:40 PM | S10 | Quantifying Craniofacial Variation during Development: Implications for Understanding Genotype-Phenotype Correlation and Structural Birth Defects<br><i>Rebecca M. Green, University of Pittsburgh</i> |
| 3:40 PM–3:55 PM |     | Break  |
| 3:55 PM–4:25 PM | S11 | Gene-Environment Interactions in Nonsyndromic Orofacial Clefting<br><i>Mary L. Marazita, University of Pittsburgh</i>  |



4:25 PM–4:55 PM S12 Mechanism-Based Identification of Environmental Risk Factors for Orofacial Clefts  
*Robert J. Lipinski, University of Wisconsin*

4:55 PM–5:30 PM Discussion

**5:30 PM–7:00 PM**

**Poster Session 2**  
(Joint with DNTS)

BDRP Posters P25–P48  
LB5–LB8  
DNTS Posters 12–22

**Tuesday, June 25, 2024**

**7:00 AM–3:30 PM**

**Registration Open**

**7:00 AM–8:00 AM**

**Membership Committee Meeting**

**7:00 AM–8:00 AM**

**Publications Committee Meeting**

**7:00 AM–8:00 AM**

**Science Committee Meeting**

**8:00 AM–10:55 AM**

**Neural Tube Defects in a Post-Folate Fortified World Symposium**  
(Joint with DNTS)

*Chairpersons Robert M. Cabrera, Baylor College of Medicine; and  
Richard H. Finnell, Baylor College of Medicine*

8:00 AM–8:10 AM

Introduction  
*Richard H. Finnell, Baylor College of Medicine*

8:10 AM–8:40 AM

S13 Genomic Advances in Understanding the Etiology of Neural Tube Defects  
*M. Elizabeth Ross, Weill Cornell Medicine*

8:40 AM–9:10 AM

S14 Policy Matters: Folate Fortification, Pharmaceutical Interactions, and Neural Tube Defect  
*Robert M. Cabrera, Baylor College of Medicine*

9:10 AM–9:25 AM

Break

9:25 AM–9:55 AM

S15 Folic Acid and Birth Defect Prevention: Metabolic Regulation of Biomechanical Forces Explain the Beneficial Effects of Folic Acid in Preventing Preventable Birth Defects  
*Richard H. Finnell, Baylor College of Medicine*

9:55 AM–10:25 AM

S16 Precision Medicine Approaches for Treating Spina Bifida  
*Bruna Corradetti, Baylor College of Medicine*

10:25 AM–10:55 AM

Discussion

**8:00 AM–10:55 AM****Platform Session 4**

*Chairpersons: Leyla Sahin, US FDA, CDER; and  
J. Michael Wright, US Environmental Protection Agency*

|                   |    |  |
|-------------------|----|--|
| 8:00 AM–8:10 AM   |    | Introduction   |
| 8:10 AM–8:25 AM   | 22 | Addressing Disparities in Pregnancy Research: Updates from FDA<br><i>Leyla Sahin, US FDA, CDER</i>   |
| 8:25 AM–8:40 AM   | 23 | Defining DNA Methylation-Regulated Molecular Mechanisms That Control Cranial Neural Crest Biology Orofacial Morphogenesis and Orofacial Cleft Pathogenesis<br><i>Christopher R. Jabbarpour, University of Wisconsin-Madison</i>                        |
| 8:40 AM–8:55 AM   | 24 | Relationship between Co-occurring Structural Birth Defects and Leukemia Risk in Children with Down Syndrome<br><i>Ching-Ju Hsu, Baylor College of Medicine</i>   |
| 8:55 AM–9:10 AM   | 25 | The Teratogenic Risk Impact and Mitigation (TRIM) Tool: Development of Scoring Weights to Prioritize Medications for Risk Management Beyond Labelling<br><i>Almut Winterstein, University of Florida</i>   |
| 9:10 AM–9:25 AM   |    | Break  |
| 9:25 AM–9:40 AM   | 26 | devTOX <i>quick</i> Predict Accurately Predicts the Developmental Toxicity Potential of Compounds with Diverse Mechanisms of Action<br><i>Jessica A. Palmer, Stemina Biomarker Discovery, Inc.</i>   |
| 9:40 AM–9:55 AM   | 27 | Efforts to Enhance Birth Defects Treatment, Research, and Prevention by the Hospital-Based Birth Defects Surveillance in Kampala, Uganda, 2015–2023<br><i>Daniel Mumpe-Mwanja, Makerere University—Johns Hopkins University Research Collaboration</i> |
| 9:55 AM–10:10 AM  | 28 | Associations between Disinfection Byproducts and Birth Defects: Use of Relative Potency Factors<br><i>J. Michael Wright, US Environmental Protection Agency</i>  |
| 10:10 AM–10:25 AM | 29 | Evaluation of FDA’s Pregnancy and Lactation Post-Marketing Requirements From 2007 to 2023<br><i>Abigail Melake, US Food and Drug Administration</i>  |

10:25 AM–10:40 AM 30 Postnatal Inhibition of Fetal Brain DNA Methylation May Reverse Gene Dysregulation Associated with BRCA1- and Ethanol-dependent Oxidative DNA Damage During Development  
*Sophia M. Richards, University of Toronto*

10:40 AM–10:55 AM 31 Insights of Local Ancestry from an Orofacial Cleft Genome-Wide Association Study in a Filipino Cohort  
*Noah Herrick, University of Pittsburgh*

**11:00 AM–12:00 Noon** **Robert L. Brent Lecture—Teratogen Update**  
**Everywhere All at Once: The Prenatal Chemical Exposome and Influences on Health and Health Inequities**  
(Joint with DNTS)

*Chairperson: Philip J. Lupo, Baylor College of Medicine*

*Lecturer: Tracey Woodruff, University of California San Francisco*

**12:00 Noon–1:45 PM** **Lunch and Learn Mini Course**  
**Climate Change: Heat and Wildfires**  
(Separate Registration Required)

*Organized by the Education Committee*

*Chairperson: Terry C. Hrubec, E. Via Virginia College of Osteopathic Medicine*

12:00 Noon–12:10 PM Lunch Pick-Up

12:10 PM–12:45 PM Ambient Temperature, Heat Stress, and Adverse Birth Outcomes  
*Julia M. Gohlke, Virginia Tech*

12:45 PM–1:20 PM The Effects of Wildfires on Development  
*Rebecca J. Schmidt, University of California, Davis*

1:20 PM–1:45 PM Discussion

**12:00 Noon–2:00 PM** **Lunch on Your Own**

**2:00 PM–5:00 PM** **New Approaches to Elucidate Contributors to Placental Dysfunction Symposium**

*Organized by the BDRP Science Committee*

*Chairpersons: Suzanne E. Fenton, NC State University; and Thomas B. Knudsen, US Environmental Protection Agency (Retired)*

2:00 PM–2:05 PM Introduction

2:05 PM–2:40 PM S17 Placental Dysfunction in CD-1 Mice Following Gestational Exposure to Per- and Polyfluoroalkyl Substances  
*Bevin E. Blake, US Environmental Protection Agency*

|                 |     |  |
|-----------------|-----|--|
| 2:40 PM–3:15 PM | S18 | Toxicological and Nutritional Influences on Placental Signaling Pathways and Epigenetics<br><i>John M. Rogers, ToxStrategies, Inc.</i>   |
| 3:15 PM–3:30 PM |     | Break  |
| 3:30 PM–4:05 PM | S19 | Chorionic Villus-Derived Human Trophoblast Stem Cells: A Novel Approach to Enhance Genetic Diversity in Toxicity Testing<br><i>Kaela M. Varberg, Children's Mercy Research Institute</i> |
| 4:05 PM–4:40 PM | S20 | Organoids as Models of the Maternal-Fetal Interface<br><i>Carolyn B. Coyne, Duke University</i>  |
| 4:40 PM–5:00 PM |     | Discussion   |

### Wednesday, June 26, 2024

**6:30 AM–7:30 AM**      **BDRP 43rd Annual Volleyball Game**

**7:30 AM–1:30 PM**      **Registration Open**

**8:00 AM–9:00 AM**      **BDRP and ETS Exchange Lecture (L2)  
Labeling and Communication Risk**

*Chairpersons: Anthony M. DeLise, Novartis Pharmaceuticals Corporation; and Jason C. Manton, Toxiqua Ltd.*

**BDRP**

*Leyla Sahin, US FDA, CDER*

**ETS**

*Helen-Marie Dunmore, Charles River*

**9:05 AM–12:15 PM**      **Developmental Neuropathology in Rodents: Chemicals versus Pediatric  
Pharmaceuticals Workshop**  
(Joint with DNTS)

*Chairpersons: Prägati S. Coder, Charles River Laboratories, Ashland LLC; and Lori A. Dostal, LD DART Consulting*

|                 |    |   |
|-----------------|----|---|
| 9:05 AM–9:25 AM | W2 | Regulatory Requirements for the Assessment of Developmental Neuropathology Following Chemical and Pharmaceutical Exposure<br><i>Prägati S. Coder, Charles River Laboratories, Ashland LLC</i> |
|-----------------|----|---|

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|------------------|----|---|
| 9:25 AM–10:05 AM | W3 | Neuropathology Evaluation of Olney Lesions in Regulatory Drug Development Toxicology Studies<br><i>Deepa Rao, Greenfield Pathology Services</i> |
|------------------|----|---|

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|-------------------|--|-------------|
| 10:05 AM–10:35 AM |  | Warkany Tea |
|-------------------|--|-------------|

10:35 AM–11:10 AM W4 Developmental Neurotoxicity and Brain Morphometric Evaluations for Chemicals  
*Catherine Picut, Charles River Pathology Associates Inc.*

11:10 AM–11:40 AM W5 Neuropathology Evaluation in Juvenile Animal Toxicity Studies for Pharmaceuticals  
*Brad Bolon, GEMpath, Inc.*

11:40 AM–12:15 PM Panel Discussion

**12:15 PM–1:15 PM Lunch on Your Own**

**12:15 PM–1:15 PM Awards Committee Meeting**

**12:15 PM–1:15 PM Public Affairs Committee Meeting**

**12:15 PM–1:15 PM Student Affairs Committee Meeting**

**1:20 PM–4:15 PM DART Strategies for Oligonucleotides Symposium**

*Chairpersons: Bethany R. Hannas, Eli Lilly and Company; and Michael V. Templin, Charles River Laboratories*

*Sponsored by the Health and Environmental Sciences Institute*

1:20 PM–1:55 PM S21 Oligonucleotides: What Are They and What Challenges Do They Bring to DART Assessments?  
*Tacey E. White, Tacey White Consulting*

1:55 PM–2:30 PM S22 Principles of Study Design for DART Studies with Oligonucleotides  
*Bethany R. Hannas, Eli Lilly and Company*

2:30 PM–2:45 PM Break

2:45 PM–3:20 PM S23 Approaches for Off-Target Assessment and DART Screening of Oligonucleotides  
*Dinah Misner, Aligos Therapeutics, Inc.*

3:20 PM–3:55 PM S24 DART Assessment for Oligonucleotide-Based Therapeutics: A CDER Perspective  
*Ronald Wange, FDA, CDER*

3:55 PM–4:15 PM Discussion

**4:30 PM–5:45 PM Annual Meeting Awards Presentation and Business Meeting**

Graduate Student and Postdoctoral Fellow Travel Awards

Wilson Presentation Awards

Marie Taubeneck Award

James C. Bradford Memorial Student Poster Awards

Edward W. Carney Trainee Awards

BDRP Innovator Award

Edward W. Carney Distinguished Service Award

Recognition of Other Awards Presented throughout the Week

Annual Business Meeting

**6:30 PM–9:30 PM**

**Closing Celebration**

**Thursday, June 27, 2024**

**7:00 AM–9:30 AM**

**Council 2 Meeting**  
(2024–2025 Council members)