44th Annual Meeting
June 26-July 1, 2004
Vancouver

28th Annual Meeting of the Neurobehavioral Teratology Society (NBTS)
June 26–30, 2004
and the
17th International Conference of the Organization of Teratology Information Services (OTIS)
June 25–28, 2004

Hyatt Regency Vancouver
Vancouver, British Columbia
Canada
# Program Overview

## Saturday, June 26
- **9:00 AM – 12:00 PM**
  - Council 1A Meeting
- **11:30 AM – 5:00 PM**
  - Registration
- **1:00 PM – 4:30 PM**
  - Education Course
- **5:00 PM – 9:00 PM**
  - Council 1B Meeting

## Sunday, June 27
- **8:00 AM – 5:00 PM**
  - Registration
- **8:15 AM – 11:30 AM**
  - Education Course
- **1:00 PM – 4:00 PM**
  - March of Dimes Symposium
- **4:15 PM – 6:00 PM**
  - Maternal-Fetal Medicine
- **6:00 PM – 6:15 PM**
  - National Children’s Study Update
- **6:15 PM – 7:45 PM**
  - Welcoming Reception and Exhibits Open

## Monday, June 28
- **7:00 AM – 8:15 AM**
  - BDR-B Editorial Meeting
- **8:00 AM – 5:00 PM**
  - Registration
- **8:00 AM – 8:10 AM**
  - President’s Welcome
- **8:10 AM – 9:00 AM**
  - The Josef Warkany Lecture
- **9:00 AM – 9:45 AM**
  - Wilson Publication Award Presentation and Address
- **10:00 AM – 11:00 AM**
  - Special Lecture
  - Fetal Determinants of Long Term Health
- **11:00 AM – 12:30 PM**
  - Student Plenary Session
- **12:30 PM – 7:30 PM**
  - Posters and Exhibits Open
- **1:00 PM – 4:00 PM**
  - Teratogen Update
- **1:00 PM – 4:00 PM**
  - Computational Systems Biology and Implications for Developmental Toxicology: From Molecules to Systems
- **4:00 PM – 5:00 PM**
  - Issues Forum/Editor Reports
- **5:00 PM – 7:30 PM**
  - Joint TS/NBTS Poster Session I

## Tuesday, June 29
- **7:00 AM – 8:15 AM**
  - BDR-A Editorial Meeting
- **8:00 AM – 5:00 PM**
  - Registration
- **8:00 AM – 9:30 AM**
  - Mini Course
- **9:30 AM – 12:00 PM**
  - Public Affairs Committee Symposium
  - (NBTS/TS Joint Symposium)
- **12:00 PM – 1:00 PM**
  - Past Presidents’ Luncheon (By invitation only)
- **1:00 PM – 5:00 PM**
  - Platform Session I—Mechanisms of Abnormal Development
- **1:00 PM – 5:00 PM**
  - Platform Session II—Clinical Teratology and Epidemiology
- **1:00 PM – 5:00 PM**
  - Platform Session III—Genomics/Molecular Biology
- **5:00 PM – 6:00 PM**
  - Business Meeting
- **7:00 PM – 8:00 PM**
  - Banquet Reception
- **8:00 PM**
  - Wilson and Fraser Banquet

## Wednesday, June 30
- **7:00 AM – 8:00 AM**
  - Public Affairs Committee Meeting
- **7:00 AM – 8:00 AM**
  - Publications Committee Meeting
- **8:00 AM – 5:00 PM**
  - Registration
- **8:30 AM – 11:45 AM**
  - SIFER/TS Joint Symposium—Epidemiology of M miscarriage
- **11:45 PM – 1:15 PM**
  - Past Presidents’ Luncheon (By invitation only)
- **1:00 PM – 5:00 PM**
  - Platform Session II—Clinical Teratology and Epidemiology
- **5:00 PM – 6:00 PM**
  - Business Meeting
- **7:00 PM – 8:00 PM**
  - Banquet Reception
- **8:00 PM**
  - Wilson and Fraser Banquet

## Thursday, July 1
- **7:30 AM – 8:00 AM**
  - Registration and Continental Breakfast
- **8:00 AM – 11:00 AM**
  - Wiley-Liss Symposium
  - The Role of Neural Crest Cells
- **12:00 PM – 4:00 PM**
  - Council II Meeting
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</table>

**CONSTITUTION & BYLAWS COMMITTEE**

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<td>To Be Announced</td>
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</tbody>
</table>

#### F. CLARKE FRASER AWARD COMMITTEE (AD HOC)

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<tbody>
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(as of March 31, 2004)

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44th Annual Meeting

Program Agenda

Saturday, June 26

9:00 AM – 12:00 PM  COUNCIL 1A MEETING—Prince of Wales Room
11:30 AM – 5:00 PM  REGISTRATION—Regency Foyer
1:00 PM – 4:30 PM  EDUCATION COURSE—Regency Ballroom E–F

PART 1: Signaling Pathways and Tissue Interactions in Organ-System Development
Organized by the Education Committee; Michael G. Narotsky, Chairperson

Sponsored by DuPont Haskell Laboratory and Endo Pharmaceuticals, Inc.
Coursebooks provided by CTBR

1:00 PM – 1:10 PM  Welcome – Rochelle W. Tyl, President, Teratology Society
1:10 PM – 1:15 PM  Introduction
Speaker: Michael G. Narotsky, U.S. EPA
1:15 PM – 2:00 PM  Overview of Signaling and Development
Speaker: Henk Roelink, University of Washington
2:00 PM – 2:45 PM  Patterning
Speaker: Claudia Kappen, University of Nebraska Medical Center
2:45 PM – 3:00 PM  Break
3:00 PM – 3:45 PM  Cellular, Molecular and Genetic Approaches to Study Cell Migration In Vivo
Speaker: Vanessa Auld, University of British Columbia
3:45 PM – 4:30 PM  Signaling and Tissue Interactions in Morphogenesis
Speaker: Barbara Abbott, U.S. EPA

5:00 PM – 9:00 PM  COUNCIL 1B MEETING (Committee Reports)—Prince of Wales Room
Sunday, June 27

**EDUCATION COURSE CONTINENTAL BREAKFAST**—Regency Foyer
7:30 AM – 8:15 PM

**REGISTRATION**—Regency Foyer
8:00 AM – 5:00 PM

**EDUCATION COURSE (Continued from Saturday)**—Regency Ballroom E–F
8:15 AM – 11:30 AM

**PART 2: Signaling Pathways and Tissue Interactions in Organ-System Development**

8:15 AM – 9:00 AM Development of Bone and Cartilage  
*Speaker: Rocky Tuan, NIH/NIAMS*

9:00 AM – 9:45 AM Heart Development  
*Speaker: Ida Smoak, North Carolina State University*

9:45 AM – 10:00 AM Break

10:00 AM – 10:45 AM Patterning of the Gastrointestinal Tract and Derivatives  
*Speaker: Drucilla Jane Roberts, Harvard Medical School*

10:45 AM – 11:30 AM Signaling in Genitourinary Development  
*Speaker: H. Scott Stadler, Oregon Health Sciences University*

**MARCH OF DIMES SYMPOSIUM**—Regency Ballroom E–F
1:00 PM – 4:00 PM

**RNA Interference (RNAi) Approaches to the Study of Normal and Abnormal Development**
Organized by Philip E. Mirkes, University of Washington; Jan Friedman, University of British Columbia, Vancouver; and Richard Finnell, Texas A&M University System Health Science Center

Sponsored by March of Dimes Birth Defects Foundation Grant No. 4-FY03-138

1:00 PM – 1:05 PM Introduction  
*Speaker: Philip E. Mirkes, University of Washington*

1:05 PM – 1:40 PM S1 Enabling Developments in siRNA-Mediated Gene Silencing  
*Speaker: Steve Daniel, Dharmacon RNA Technologies, Inc.*

1:40 PM – 2:20 PM S2 RNAi in C. Elegans  
*Speaker: TBA*

2:20 PM – 2:40 PM Break

2:40 PM – 3:20 PM S3 MicroRNA Regulators of Cell Death in Development  
*Speaker: Bruce Hay, California Institute of Technology*

3:20 PM – 4:00 PM S4 Mus Musculus, RNAi and Development  
*Speaker: Janet Rossant, Samuel Lunenfeld Research Institute*
Sunday, June 27 (continued)

4:15 PM – 6:00 PM  MATERNAL-FETAL MEDICINE—Regency Ballroom E–F
Teratogenic Implication of Maternal Disease and its Treatment
This session will address from the perinatologist’s perspective, two common maternal conditions that may have significant impact on fetal development. The presentations will focus on the affect on fetal development of treatment of the maternal disease as well as the disease itself.
Moderator: Andy Hull, University of California, San Diego

4:15 PM – 4:25 PM  Introduction
Speaker: Andy Hull, University of California, San Diego

4:25 PM – 5:05 PM  S5 Maternal Diabetes
Speaker: Tom Moore, University of California, San Diego

5:05 PM – 5:45 PM  S6 Hypertensive Disorders and Pregnancy
Speaker: John Kingdom, Mount Sinai Hospital

5:45 PM – 6:00 PM  Discussion

6:00 PM – 6:15 PM  NATIONAL CHILDREN’S STUDY UPDATE
Speaker: Donald Mattison, NICHD

6:15 PM – 7:45 PM  WELCOMING RECEPTION AND EXHIBITS OPEN—Regency Ballroom A–D
Sponsored by Bristol-Myers Squibb, MPI Research and RTI International

Monday, June 28

7:00 AM – 8:15 AM  BDR-B EDITORIAL MEETING—Tennyson Room

8:00 AM – 5:00 PM  REGISTRATION—Regency Foyer

8:00 AM – 8:10 AM  PRESIDENT’S WELCOME—Rochelle W. Tyal—Regency Ballroom E–F
Speaker: Carl L. Keen, University of California, Davis

9:00 AM – 9:45 AM  THE JAMES G. WILSON PUBLICATION AWARD PRESENTATION AND ADDRESS—Regency Ballroom E–F
Neural and Orofacial Defects in Follbp 1 Knockout Mice
Speaker: Richard H. Finnell, Texas A&M University System Health Science Center

10:00 AM – 11:00 AM  SPECIAL LECTURE—Regency Ballroom E–F
Fetal Determinants of Long Term Health
Speaker: Judith Hall, University of British Columbia, Vancouver

11:00 AM – 12:30 PM  STUDENT PLENARY SESSION—Regency Ballroom E–F

11:00 AM – 11:15 AM  The Effect of β₂-agonists and Inhaled Corticosteroids Used to Treat Asthma in Pregnancy on Fetal Growth.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>11:15 AM – 11:30 AM</td>
<td>2 Cellular Anomalies Underlying Retinoid-Induced Phocomelia.</td>
</tr>
<tr>
<td></td>
<td>J. Zhou, D.M. Kochhar. Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, PA, United States.</td>
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<tr>
<td>11:30 AM – 11:45 AM</td>
<td>3 Evidence of Increased Birth Defects in the Offspring of Women Exposed to Valproate during Pregnancy: Findings from the AED Pregnancy Registry.</td>
</tr>
<tr>
<td></td>
<td>R.M. Alsdorf, D.F. Wyszynski, L.B. Holmes, M. Nambisan. 'Boston University School of Medicine, Department of Medicine, Boston, MA, United States, 'Massachusetts General Hospital, Pediatric Service, Boston, MA, United States, 'Harvard Medical School, Department of Pediatrics, Boston, MA, United States.</td>
</tr>
<tr>
<td>11:45 AM – 12:00 PM</td>
<td>4 Teratogen Update: Potential Risks of Angiotensin II Receptor Antagonists during Pregnancy.</td>
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<td></td>
<td>S. Alwan, J.E. Polifka, J.M. Friedman. 'Department of Medical Genetics, University of British Columbia, Vancouver, British Columbia, Canada, 'Department of Pediatrics, University of Washington, Seattle, Washington, United States.</td>
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<tr>
<td>12:00 PM – 12:15 PM</td>
<td>5 The Role of Retinoic Acid Receptors Alpha 1 and Gamma in Retinoid-Induced Limb Dysmorphogenesis.</td>
</tr>
<tr>
<td></td>
<td>E. Galdones, D. Lohnes, B.F. Hales. 'McGill University, Department of Pharmacology &amp; Therapeutics, Montreal, QC, Canada, 'Institut de Recherches Cliniques de Montreal, Montreal, QC, Canada.</td>
</tr>
<tr>
<td>12:15 PM – 12:30 PM</td>
<td>6 Activator Protein 1 (AP-1) DNA Binding Activity Is Induced in the Mouse Embryo during Organogenesis by Hydroxyurea (HU).</td>
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<td>J. Yan, B.F. Hales. McGill University, Department of Pharmacology &amp; Therapeutics, Montreal, QC, Canada.</td>
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**POSTERS AND EXHIBITS OPEN** — Regency Ballroom A–D

**CONCURRENT SYMPOSIUM I (TS/OTIS Joint Symposium)** — Regency Ballroom E–F

**Teratogen Update**

Organized by Robert Brent, Alfred I. duPont Hospital for Children

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>1:00 PM – 1:05 PM</td>
<td>Introduction</td>
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<tr>
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<td>Speaker: Robert Brent, Alfred I. duPont Hospital for Children</td>
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<tr>
<td>1:05 PM – 1:35 PM</td>
<td>Genetic Polymorphisms: Impact on the Risk of FAS</td>
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<td>Speaker: Ting-Kai Li, National Institute on Alcohol Abuse and Alcoholism</td>
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Monday, June 28 (continued)

1:35 PM – 2:05 PM  S8  Update on the Risk of New Anticonvulsants  
Speaker: Lewis B. Holmes, Massachusetts General Hospital for Children

2:05 PM – 2:35 PM  S9  Pesticides: The Risk of Birth Defects and Cancer  
Speaker: Rochelle W. Tyl, RTI International

2:35 PM – 2:50 PM  Break

2:50 PM – 3:20 PM  S10  Trimethoprim Teratogenicity  
Speaker: Sonia Hernandez-Diaz, Slone Epidemiology Center, Boston University

3:20 PM – 3:50 PM  S11  Trichloroethylene (TCE) and Cardiac Teratogenicity  
Speaker: Robert Brent, Alfred I. duPont Hospital for Children

3:50 PM – 4:00 PM  Discussion

1:00 PM – 4:00 PM  CONCURRENT SYMPOSIUM II—Balmoral Room

Computational Systems Biology and Implications for Developmental Toxicology: From Molecules to Systems  
Organized by Robert Kavlock and Elaine Francis, U.S. EPA  
Sponsored by U.S. EPA

1:00 PM – 1:10 PM  Introduction  
Speaker: Robert Kavlock, U.S. EPA

1:10 PM – 1:40 PM  S12  Computational Approaches for Predicting the Toxicological Effects of Xenobiotic Chemicals  
Speaker: William J. Welsh, RW Johnson Medical School

1:40 PM – 2:10 PM  S13  Towards Understanding Development: Building a Model of the Early Sea Urchin Embryo  
Speaker: C. Titus Brown, California Institute of Technology

2:10 PM – 2:40 PM  S14  Understanding Pathways of Toxicity: Making Sense of Changing Signals  
Speaker: Sid Hunter, U.S. EPA

2:40 PM – 3:00 PM  Break

3:00 PM – 3:30 PM  S15  Network Models of EGF Receptor Signaling during Cell Organization and Differentiation  
Speaker: H. Steven Wiley, Pacific Northwest National Laboratory

3:30 PM – 4:00 PM  S16  Birth Defects Systems Manager and Teratology Analyzer: A Beginning  
Speaker: Thomas Knudsen, University of Louisville

4:00 PM – 5:00 PM  ISSUES FORUM/EDITOR REPORTS—Regency Ballroom E–F

5:00 PM – 7:30 PM  JOINT TS/NBTS/OTIS POSTER SESSION I—Regency Ballroom A–D

7:30 PM – 10:30 PM  MARTA/MTA STUDENT CAREER EVENT—Cypress Room
Tuesday, June 29

7:00 AM – 8:15 AM  **BDR-A EDITORIAL MEETING**—Cavendish Room

7:30 AM – 8:00 AM  **MINI COURSE ATTENDEE CONTINENTAL BREAKFAST**—Balmoral Room

8:00 AM – 5:00 PM  **REGISTRATION**—Regency Foyer

8:00 AM – 9:30 AM  **MINI COURSE (Separate Registration Required)**—Balmoral Room

**Epidemiology: The Basics**
Organized by the Education Committee, Michael G. Narotsky, Chairperson
Coursebooks provided by CTBR

8:00 AM – 8:45 AM  **Clinical Epidemiology**
*Speaker: Christina Chambers, University of California, San Diego*

8:45 AM – 9:30 AM  **Current Issues in Molecular Epidemiology**
*Speaker: Andrew Olshan, University of North Carolina*

9:30 AM – 12:00 PM  **PUBLIC AFFAIRS COMMITTEE SYMPOSIUM (NBTS/TS Joint Symposium)**—Regency Ballroom E–F

**Birth Defects and Other Adverse Pregnancy Outcomes Due to Maternal Obesity**
Organized by James Mills, NICHD; Thomas Flynn, U.S. FDA; and Christina Chambers, University of California, San Diego
Sponsored by the Teratology Society and NBTS

9:30 AM – 9:40 AM  **Introduction**
*Speaker: Thomas Flynn, U.S. FDA*

9:40 AM – 10:05 AM  **Neural Tube Defects & Other Birth Defects Associated with Maternal Obesity—Risks, Ethnic Variability, and Folic Acid Prevention**
*Speaker: Gary Shaw, California Birth Defects Monitoring Program*

10:05 AM – 10:30 AM  **Maternal Obesity and Adverse Obstetrical Outcome**
*Speaker: Joel Ray, University of Toronto*

10:30 AM – 10:55 AM  **Break**

10:55 AM – 11:20 AM  **Causes and Prevention of Maternal Obesity—Genetics, Regulation of Appetite, Suppression of Appetite, Strategies for Weight Loss**
*Speaker: David Cummings, University of Washington*

11:20 AM – 11:45 AM  **The Epidemic of Obesity—National and International Policy and Strategic Approaches to Prevention**
*Speaker: William Dietz, Centers for Disease Control*

11:45 AM – 12:00 PM  **Closing Remarks**
*Speaker: James Mills, NICHD*

12:00 PM – 1:00 PM  **2005 PROGRAM COMMITTEE MEETING**—Dover Room

12:30 PM – 7:30 PM  **POSTERS AND EXHIBITS OPEN**—Regency Ballroom A–D
CONCURRENT SYMPOSIUM I (NBTS/TS Joint Symposium)—Regency Ballroom E–F

Neurobehavioral Outcomes of Common Exposures
Organized by Sherry Ferguson, National Center for Toxicological Research, U.S. FDA; and Kenneth Lyons Jones, University of California, San Diego

1:00 PM – 1:10 PM Introduction
Speaker: Sherry Ferguson, National Center for Toxicological Research, U.S. FDA

1:10 PM – 1:40 PM S17 Accutane
Speaker: Jane Adams, University of Massachusetts

1:40 PM – 2:10 PM S18 Cocaine
Speaker: Gale Richardson, University of Pittsburgh

2:10 PM – 2:40 PM S19 PCB
Speaker: Sandra Jacobson, Wayne State University

2:40 PM – 3:00 PM Break

3:00 PM – 3:30 PM S20 Alcohol
Speaker: Claire D. Coles, Emory University School of Medicine

3:30 PM – 4:00 PM S21 Prozac
Speaker: Sarah Mattson, San Diego State University

4:00 PM – 4:30 PM S22 Phenobarbital
Speaker: Jane Adams, University of Massachusetts

CONCURRENT SYMPOSIUM II—Balmoral Room

Pharmacokinetics and Metabolism in Pregnancy and Lactation—Consideration for Maternal Therapy and Fetal and Neonatal Risk
Organized by Dana L. Shuey, Endo Pharmaceuticals, Inc.

Sponsored by Middle Atlantic Reproduction and Teratology Association and Midwest Teratology Association

1:00 PM – 1:10 PM Introduction
Speaker: Dana L. Shuey, Endo Pharmaceuticals, Inc.

1:10 PM – 1:55 PM S23 Ontogeny of Human Drug-Metabolism
Speaker: Ronald Hines, Medical College of Wisconsin

1:55 PM – 2:40 PM S24 Metabolism and Drug Transporters in the Placenta
Speaker: William Slikker, Jr., National Center for Toxicology Research

2:40 PM – 3:00 PM Break

3:00 PM – 3:45 PM S25 Treating the Mother—Protecting the Unborn: Toward Rational Drug Therapy in Pregnancy
Speaker: Gideon Koren, Hospital for Sick Children

3:45 PM – 4:30 PM S26 Transfer of Drugs and Chemicals into Human Milk: Rational Risk Assessment
Speaker: Shinya Ito, Hospital for Sick Children
Tuesday, June 29 (continued)

5:00 PM – 7:30 PM  JOINT TS/NBTS POSTER SESSION II—Regency Ballroom A–D

Wednesday, June 30

7:00 AM – 8:00 AM  Public Affairs Committee Meeting—Cavendish Room
7:00 AM – 8:00 AM  Publications Committee Meeting—Dover Room
8:00 AM – 5:00 PM  REGISTRATION—Regency Foyer
8:30 AM – 11:45 AM  SPER/TS JOINT SYMPOSIUM—Regency Ballroom E–F

**Epidemiology of Miscarriage**

**Goal:** Examine the methods and current knowledge regarding the causes of miscarriage derived from epidemiology, with consideration of corresponding toxicology, measurement challenges, and future prospects for improved study.

*Organized by Christina Chambers, University of California, San Diego; Martha M. Werler, Slone Epidemiology Center, Boston University; and David A. Savitz, University of North Carolina*

8:30 AM – 8:40 AM  Introduction
  Speaker: Martha M. Werler, Slone Epidemiology Center, Boston University

8:40 AM – 9:05 AM  S27 Animal Models for Studying Miscarriage—Illustration with Study of Drinking Water Disinfection By-Products
  Speaker: Michael G. Narotsky, U.S. EPA

9:05 AM – 9:30 AM  S28 Genetic Causes of Miscarriage
  Speaker: Wendy P. Robinson, University of British Columbia

9:30 AM – 10:00 AM  Warkany Tea

10:00 AM – 10:25 AM  S29 Autoimmune Causes of Miscarriage
  Speaker: Mary Stephenson, University of Chicago

10:25 AM – 10:50 AM  S30 Epidemiologic Approaches to the Study of Early Miscarriage
  Speaker: Germaine Buck, NICHD

10:50 AM – 11:15 AM  S31 Epidemiologic Evidence on Causes of Miscarriages: Illustration with Ongoing Study of Drinking Water Disinfection By-Products
  Speaker: David A. Savitz, University of North Carolina

11:15 AM – 11:45 PM  Closing Comments and Discussion
  Speaker: Christina Chambers, University of California, San Diego

11:45 PM – 1:15 PM  PAST PRESIDENTS’ LUNCHEON (By invitation only)—Seymour Room
Wednesday, June 30 (continued)

**CONCURRENT PLATFORM SESSION I**

**Mechanisms of Abnormal Development**—Balmoral Room

1:00 PM – 1:15 PM  
**Laser Capture Microdissection and Gene Array Analysis of Palatal Epithelial and Mesenchymal Cells Exposed to TCDD.**  

1:15 PM – 1:30 PM  
**Alterations in Biotin-Dependent Carboxylases in Fetal and Maternal Liver Induced by Biotin Deficiency.**  
D.K. Hansen, S.L. Stratton, W.M. Sealey, D.M. Mock. 1National Center for Toxicological Research, Division of Genetic and Reproductive Toxicology, Jefferson, AR, United States, 2University of Arkansas for Medical Sciences, Department of Biochemistry and Molecular Biology, Little Rock, AR, United States.

1:30 PM – 1:45 PM  
**The Progressive Effects of Heat Stress on Somitogenesis and Other Developing Tissues in the Rat.**  

1:45 PM – 2:00 PM  
**Beneficial Effect of Folate in Two Genetic Models of Aberrant Skeletal Development.**  
C. Kappen, C. Kruger, C. Talmadge, J.M. Salbaum. University of Nebraska Medical Center, Department of Genetics, Cell Biology and Anatomy, Omaha, NE, United States.

2:00 PM – 2:15 PM  
**Intra Uterine Growth Restriction: A Unique Experimental Rat Model Combining Genetic and Environmental Causative Factors.**  
M. Avgil, R.K. Miller, A. Ornoy. 1Hebrew University Hadassah Medical School, Jerusalem, Israel, 2School of Medicine and Dentistry, University of Rochester, Rochester, NY, United States.

2:15 PM – 2:30 PM  
**In Utero and Lactational Exposures to Low Dose PBDE 47 Cause Neurobehavior Disturbances in Rat Offspring.**  
S.N. Kuriyama, C.E. Talsness, I. Chahoud. Institute of Clinical Pharmacology and Toxicology, Charité University Medical School Berlin, Campus Benjamin Franklin, Berlin, Germany.
Wednesday, June 30 (continued)

2:30 PM – 2:45 PM  
13 Altered Gene Expression of Mouse Embryo Cultures Exposed to Bromochloroacetic Acid.  
E.D. Karoly\(^1\), J.E. Schmid\(^2\), M.R. Blanton\(^2\), E.S. Hunter III\(^2\).  
\(^1\)University of North Carolina at Chapel Hill,  
Curriculum in Toxicology, Chapel Hill, NC, United States,  
\(^2\)U.S. EPA, Reproductive Toxicology Division, Research Triangle Park, NC, United States.

2:45 PM – 3:00 PM  
14 Phospholipase C Signaling in Ethanol-Induced Apoptosis during Early Embryo Development.  
A. Garic-Stankovic\(^1\), M. Hernandez\(^1\), K.A. Kragtorp-Debelak\(^1\), D.R. Armani\(^2\), S.M. Smith\(^1\).  
\(^1\)Department of Nutritional Sciences, University of Wisconsin-Madison, Madison, WI, United States,  
\(^2\)Department of Obstetrics & Gynecology, Wayne State University, Detroit, MI, United States.

3:00 PM – 3:15 PM  
Break

3:15 PM – 3:30 PM  

3:30 PM – 3:45 PM  
16 Fumonisin, Folate, and Neural Tube Defects: Novel Mechanisms Involving TNF\(\alpha\) Signaling and Redox Homeostasis.  
J. Gelineau-Van Waes, L. Starr, J. Wilberding, F. Aleman, J. Maddox. Dept. Genetics, Cell Biology & Anatomy, University of Nebraska Medical Center, Omaha, NE, United States.

3:45 PM – 4:00 PM  
17 The Role of Hypoxia-Inducible Factor-1 (HIF-1 Alpha) in Mouse Limbs Exposed to 4-Hydroperoxycyclophosphamide In Vitro.  
C. Huang, B.F. Hales. McGill University, Department of Pharmacology & Therapeutics, Montreal, QC, Canada.

4:00 PM – 4:15 PM  
18 Role of P53 in Regulation of Cell Death and Cell Survival in Teratogen Treated Day 9 Mouse Embryos.  
S.A. Little, P.E. Mirkes. University of Washington, Department of Pediatrics, Seattle, WA, United States.

4:15 PM – 4:30 PM  
19 Disruption of Heart Development by Trichloroethylene, a Common Groundwater Contaminant.  
V.J. Drake\(^1\), S.L. Koprowski\(^2\), J.W. Lough\(^2\), S.M. Smith\(^1\).  
\(^1\)Department of Nutritional Sciences, University of Wisconsin-Madison, Madison, WI, United States,  
\(^2\)Department of Cell Biology, Anatomy and Neurobiology, Medical College of Wisconsin, Milwaukee, WI, United States.
Wednesday, June 30 (continued)

4:30 PM – 4:45 PM  
20 The Impact of Pax3 and Cystathionine Beta Synthase Mutations on Arsenic Induced Birth Defects.  
E.K. Marshall¹, A.F. Machado¹, A.F. Elsaid³, M.D. Collins¹. ¹University of California Los Angeles, Department of Environmental Health Sciences, Los Angeles, CA, United States, ²California State University, Northridge, Department of Environmental and Occupational Health, Northridge, CA, United States, ³University of California Los Angeles, Interdepartmental Program in Molecular Toxicology, Los Angeles, CA, United States.

4:45 PM – 5:00 PM  
21 Amelioration of Vitamin A-Induced Malformations in the Mid-Organogenesis-Stage Mouse Limb Bud by a Retinoic Acid Receptor Alpha and Gamma Selective Antagonist.  
S.E. Ali-Khan, B.F. Hales. McGill University, Department of Pharmacology and Therapeutics, Montreal, Quebec, Canada.

1:00 PM – 5:00 PM  
PLATFORM SESSION II—Regency Ballroom F  
Clinical Teratology and Epidemiology

1:00 PM – 1:15 PM  
22 Hypospadias and Maternal Intake of Progestins and Oral Contraceptives.  
S.L. Carmichael¹, G.M. Shaw¹, C. Laurent¹, M. Croughan¹, R.S. Olney¹, E.J. Lammer¹. ¹MOD/CA Birth Defects Monitoring Program, Berkeley, CA, United States, ²CDC/NCBDDD, Atlanta, GA, United States, ³Children’s Hospital Research Institute, Oakland, CA, United States, ⁴UCSF, San Francisco, CA, United States.

1:15 PM – 1:30 PM  
23 Ultrasound Imaging of the Neonatal Corpus Callosum Is Feasible and Useful.  

1:30 PM – 1:45 PM  
24 Autism and Ocular Malformations in CHARGE Association and Goldenhar Syndrome.  
K. Strömland¹, M. Miller², M. Johansson³, S. Danielsson¹, E. Billstedt², C. Gillberg³, B.M. Ekman-Joelsson¹. ¹Pediatric Ophthalmology, Göteborg University, Göteborg, Sweden, ²Ophthalmology, University of Illinois, Chicago, United States, ³Child Neuropsychiatry, Göteborg University, Göteborg, Sweden, ⁴Pediatrics, Sköde, Sweden.
Wednesday, June 30 (continued)

1:45 PM – 2:00 PM  25  Different Fetal Effects of Three Anticonvulsant Drugs on Skull and Face.
D. Doan¹, L.A. Wilf³, L.B. Holmes¹. ¹Genetics & Teratology Unit, Pediatric Service, Massachusetts General Hospital, Boston, MA, United States, ³Department of Growth and Development, Harvard School of Dental Medicine, Boston, MA, United States.

2:00 PM – 2:15 PM  26  Change in Paternity As a Risk Factor for Gastroschisis.
C.D. Chambers¹, B.H. Chen¹, K.A. Kalla², K.L. Jones¹. ¹University of California, San Diego, La Jolla, CA, United States, ²Kaiser Permanente Medical Center, San Diego, CA, United States.

J. Reefhuis¹, M. Honein¹, S. Rasmussen¹, A. Correa¹, C. Hobbs², A. Scheuerle³, L. Schieve³. ¹National Center on Birth Defects and Developmental Disabilities, CDC, Atlanta, GA, United States, ²University of Arkansas for Medical Sciences, Little Rock, AR, United States, ³Texas Department of Health, Austin, TX, United States, ³National Center for Chronic Disease Prevention and Health Promotion, CDC, Atlanta, GA, United States.

2:30 PM – 2:45 PM  28  Maternal Obesity and Cardiovascular Malformations.
A. Correa-Villaseñor, C.J. Alverson. CDC, NCBDDD, Atlanta, GA, United States.

2:45 PM – 3:00 PM  29  Maternal Diabetes and Cardiovascular Malformations.
M.K. Thong², A. Correa-Villaseñor¹, C.J. Alverson¹. ¹CDC, NCBDDD, Atlanta, GA, United States, ²University of Malay, Department of Pediatrics, Kuala Lumpur, Malaysia.

3:00 PM – 3:15 PM  Break

3:15 PM – 3:30 PM  30  Diabetes, Body Mass Index, Vitamin Supplementation, and Anotia/Microtia.
M.M. Werler, J.E. Sheehan, A.A. Mitchell. Slone Epidemiology Center at Boston University, Boston, MA, United States.

3:30 PM – 3:45 PM  31  Impact of Maternal Alcohol Consumption on Sonographically–Visualized Fetal Brain Anatomy.
N.S. Handmaker², W.F. Rayburn¹, C. Meng², B.B. Rayburn¹, A. Wodajo², V. Rappaport³. ¹University of New Mexico, Obstetrics & Gynecology, Albuquerque, NM, United States, ²University of New Mexico, Psychology, Albuquerque, NM, United States.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>3:45 PM – 4:00 PM</td>
<td>32</td>
<td>Placental Abnormalities Associated with Misoprostol Administration.</td>
<td>K.K. Vaux1, C.H. Chambers1, R. Chamit2, K. Benirschke3, E. Vanazzi4, K.L. Jones1. 1University of California, Department of Pediatrics, San Diego, CA, United States, 2University of California, San Diego, Department of Reproductive Medicine, San Diego, CA, United States, 3University of California, San Diego, Department of Pathology, San Diego, CA, United States, 4Universitat San Pablo, San Pablo, Brazil.</td>
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<tr>
<td>4:15 PM – 4:30 PM</td>
<td>34</td>
<td>Evaluation of the Teratogenicity of Homocysteine in Rat Embryos Cultured In Vitro.</td>
<td>L.B. Fawcett, J.E. Pugarelli, R.L. Brent. Alfred I. duPont Hospital for Children, Department of Biomedical Science, Wilmington, DE, United States.</td>
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<tr>
<td>4:30 PM – 4:45 PM</td>
<td>35</td>
<td>Neurdevelopmental Outcome of Infants and Toddlers Exposed Prenatally to Selective Serotonin Reuptake Inhibitors.</td>
<td>S.N. Mattson1, K.E. Calarco2, K.K. Kao3, K.L. Jones4, C.D. Chambers5. 1Center for Behavioral Teratology, Department of Psychology, San Diego State University, San Diego, CA, United States, 2California Teratogen Information Service and Clinical Research Program, Department of Pediatrics, University of California, San Diego, San Diego, CA, United States.</td>
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Wednesday, June 30 (continued)

1:00 PM – 5:00 PM  PLATFORM SESSION III—Regency Ballroom E
Genomics/Molecular Biology

1:00 PM – 1:15 PM  Temporal and Spatial Distribution of Steroidogenic Acute Regulatory Protein in Developing Male Sprague-Dawley Rats Following Transplacental Exposure to 17-α-Ethynyl Estradiol or Bisphenol A.

1:15 PM – 1:30 PM  Transplacental Exposure to 17α-Ethynyl Estradiol or Bisphenol A Induces a Specific Gene Expression Profile in the Developing Male Rat Reproductive System.

1:30 PM – 1:45 PM  Identification of Molecular Targets, Mechanisms and Biomarkers of Valproic Acid Teratogenicity Using a Toxicogenomics Approach.

1:45 PM – 2:00 PM  The Role of Antioxidant Enzymes and Transcription Factor NF-kB in Diabetic Embryopathy in the Cohen Diabetic Rat Model.

2:00 PM – 2:15 PM  Heat Shock Protein 70 (Hsp70) Protects Embryos From Hyperthermia-Induced Exencephaly: Analysis Using Hsp70 Null Mice.
M. Barrier1, S. Gil1, W.K. Kim1, P.E. Mirkes1, 1University of Washington, Department of Pediatrics, Seattle, WA, United States, 2Hanyan University, Department of Anatomy and Cell Biology, Seoul, Korea, South.

2:15 PM – 2:30 PM  Effects of Prenatal Exposure to Perflurooctane Sulfonate on the Developing Lung in the Rat.
R.C. Grasty2, N. Roberts2, C.S. Lau2, B.E. Grey2, J.M. Rogers2, 2Reproductive Toxicology Division, NHEERL, Office of Research and Development, U.S. EPA, Research Triangle Park, NC, United States, 2Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC, United States.
2:30 PM – 2:45 PM 43 Developmental Toxicity of the Antimalarial Artesunate in Rats and Rabbits.
T. White, S. Clode, I. Gaunt, S. Ward, C. Powell, R. Clark. 1GlaxoSmithKline, Safety Assessment Department, King of Prussia, PA, United States, 2Covance, Harrogate, North Yorkshire, United Kingdom, 3Liverpool School of Tropical Medicine, Liverpool, United Kingdom, 4GlaxoSmithKline, Safety Assessment Department, Ware, Hertfordshire, United Kingdom, 5Independent Consultant, London, United Kingdom.

2:45 PM – 3:00 PM 44 Maternal Folate Deficiency Exacerbates the Developmental Toxicity of 5-Fluorouracil in Rats.

3:00 PM – 3:15 PM Break

3:15 PM – 3:30 PM 45 Microarray Approaches to Identify Retinoid-Dependent Genes in Embryogenesis: Increased Collagen Fibril Production in a Model of Retinoid Insufficiency.
G.R. Flentke, M.W. Baker, K.E. Docterman, S. Power, J. Lough, S.M. Smith. 1Department of Nutritional Sciences, University of Wisconsin-Madison, Madison WI, United States, 2Department of Cell Biology, Anatomy & Neurobiology, Medical College of Wisconsin, Milwaukee, WI, United States.

3:30 PM – 3:45 PM 46 Reduced Birth Defects Caused by Maternal Immune Stimulation in Methylnitrosourea.
R. Prater, E.D. Strahl, K.L. Zimmerman, D.L. Ward, R.B. Gogal, S.D. Holladay. 1Edward Via Virginia College of Osteopathic Medicine, Department of Biomedical Sciences, Blacksburg, VA, United States, 2VMRCVM, Virginia Tech, Department of Biomedical Sciences and Pathobiology, Blacksburg, VA, United States.

3:45 PM – 4:00 PM 47 Integrating Human Genomics into Cluster Investigations of Birth Defects and Developmental Disabilities.
Wednesday, June 30 (continued)

4:00 PM – 4:15 PM  48 Influence of an Engineered p53 Mutant Protein (m53DD) on Mitochondrial Functional State Studied with a Novel Chip-Based Cell Fluorescence Assay.  
N.H. Owens, T.B. Knudsen. University of Louisville, School of Dentistry, Birth Defects Center, Louisville, KY, United States.

4:15 PM – 4:30 PM  49 Discovering System-Level Features of the Early Mouse Embryo during Alcohol Intoxication.  

4:30 PM – 4:45 PM  50 A Digenic Cause of Cleft Lip in A-strain Mice and Definition of Candidate Genes for the Two Loci.  
D.M. Juriloff, M.J. Harris, S.L. Dewell. Department of Medical Genetics, University of British Columbia, Vancouver, B.C., Canada.

4:45 PM – 5:00 PM  51 Reproductive and Developmental Toxicity of LY900003 (AFFINITAK), an Antisense Oligonucleotide to the mRNA of Human PKC-alpha, in the Mouse and Rabbit.  
K.G. Hilbish¹, A.E. Wakefield¹, K.I. Griffey¹, J.L. Hanes¹, A.M. Vick¹, V.R. Reddy¹, S.P. Henry¹, A.B. Astroff¹.  
¹Lilly Research Laboratories, Eli Lilly & Company, Greenfield, IN, United States, ¹ISIS Pharmaceuticals, Carlsbad, CA, United States.

5:00 PM – 6:00 PM  BUSINESS MEETING—Regency Ballroom E

7:00 PM – 8:00 PM  BANQUET RECEPTION—Regency Ballroom A & B

8:00 PM  WILSON AND FRASER BANQUET—Regency Ballroom C & D

F. Clarke Fraser Award Recipient: Karen Augustine, Bristol-Myers Squibb
THURSDAY, July 1

7:30 AM – 8:00 AM  REGISTRATION AND CONTINENTAL BREAKFAST—Regency Foyer

8:00 AM – 11:00 AM  WILEY-LISS SYMPOSIUM—Regency Ballroom E

The Role of Neural Crest Cells
Organized by Richard Miller, University of Rochester Medical Center; and Rocky Tuan, NIH/NIAMS

Sponsored by John Wiley and Sons

8:00 AM – 8:40 AM  S32  The Biology of Neural Crest Cells
Speaker: Martin Garcia-Castro, California Institute of Technology

8:40 AM – 9:20 AM  S33  The Role of Neural Crest Cells and Craniofacial Development
Speaker: Rob Krumlauf, Stowers Institute for Medical Research

9:20 AM – 9:40 AM  Break

9:40 AM – 10:20 AM  S34  Cardiac Development and Cell Migration
Speaker: Cecilia Lo, National Heart Lung Blood Institute

10:20 AM – 11:00 AM  S35  Neural Crest Cells in Cardiac Development
Speaker: Margaret Kirby, Duke University

12:00 PM – 4:00 PM  COUNCIL II MEETING—Prince of Wales Room
Annual Meeting Exhibitors

The Teratology Society thanks the following organizations for their participation as Exhibitors at the 2004 Annual Meeting.

(As of March 15, 2004)

Biological Test Center Inc.
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Huntingdon Life Sciences
Instem LSS
ISIS BioComp
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All information printed in this exhibitor section is listed in alphabetical order and was submitted by the exhibiting company.

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United States

The National Library of Medicine (NLM) provides FREE access to its collection of toxicology, chemical, and environmental health information databases, collectively called TOXNET® (TOXicology data NETwork), at http://toxnet.nlm.nih.gov. These databases are used by professionals concerned with chemicals, environmental issues, medical research, and human exposure to hazardous substances. Searches in these databases will be demonstrated.

San Diego Instruments, Inc.

7758 Arjons Drive
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Manufactures of a complete line of behavioral testing systems. San Diego Instruments features systems specifically designed for behavioral toxicology/teratology testing of mice, rats, and other lab animals. Products include automated systems for: Startle Reflex testing (SR-Lab), Activity/Motor Coordination testing, Passive and Active Avoidance learning (Gemini), Single and Multi-target video tracking (Poly-Track & “SMART”), and Learning Tasks.
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