

THE TERATOLOGY SOCIETY

43rd Annual Meeting

Philadelphia, Pennsylvania USA

JUNE 21–26, 2003

27th Annual Meeting of the
Neurobehavioral Teratology Society (NBTS)
June 21–25, 2003

the

22nd Annual Meeting of the Behavioral Toxicology Society (BTS)
June 21–25, 2003

and the

16th International Conference of the
Organization of Teratology Information Services (OTIS)
June 20–24, 2003

Loews Philadelphia Hotel

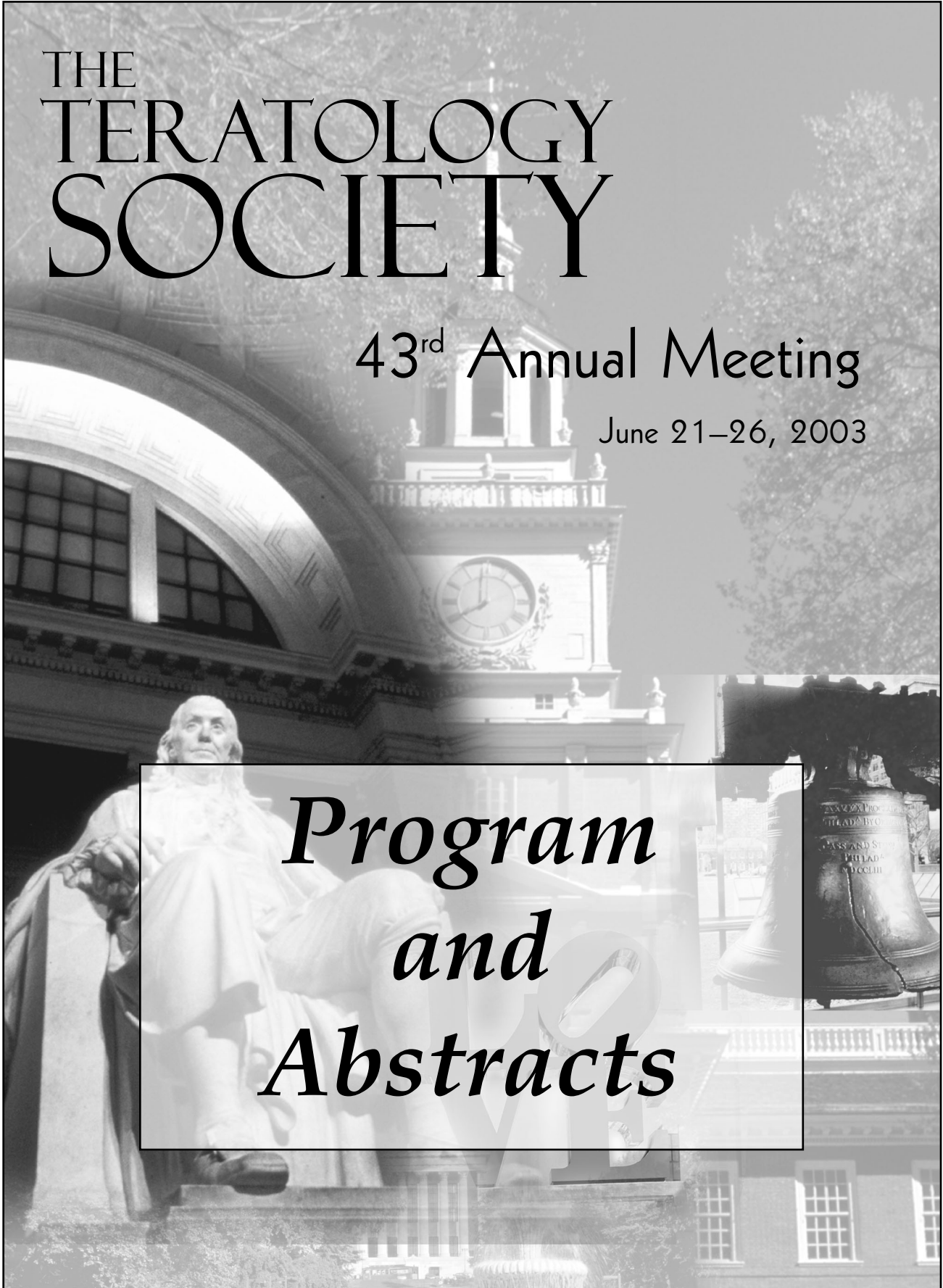
2 TERATOLOGY SOCIETY PROGRAM

THE TERATOLOGY SOCIETY

43rd Annual Meeting

June 21–26, 2003

*Program
and
Abstracts*





Program Overview

SATURDAY, JUNE 21

11:30 AM – 5:00 PM
Registration
1:00 PM – 5:00 PM
Education Course
2:00 PM – 7:00 PM
Council IA Meeting

SUNDAY, JUNE 22

8:00 AM – 5:00 PM
Registration
8:00 AM – 12:30 PM
Council IB Meeting
8:00 AM – 11:45 AM
Education Course
1:00 PM – 4:40 PM
March of Dimes Symposium
5:00 PM – 6:00 PM
Issues Forum
5:00 PM – 7:30 PM
Exhibits Open
6:00 PM – 7:30 PM
Welcoming Reception

MONDAY, JUNE 23

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 – 9:50 AM
The James G. Wilson Publication
Awards Presentation and Address
10:00 AM – 11:00 AM
2003 Decade of Behavior
Distinguished Lecture
11:00 AM – 12:30 PM
Student Plenary Session and Platform
Award Competition
12:30 PM – 7:30 PM
Posters and Exhibits Open

1:00 PM – 9:00 PM
Public Affairs Committee Workshop
(Joint Session with NTBS/OTIS/TS)
5:00 PM – 7:30 PM
Poster Session I
7:30 PM – 10:30 PM
MARTA/MTA Student Career Event

TUESDAY, JUNE 24

7:00 AM – 8:30 AM
Sunrise Mini-Course
8:00 AM – 5:00 PM
Registration
9:00 AM – 12:00 PM
Wiley-Liss Symposium
12:30 PM – 7:30 PM
Posters and Exhibits Open
1:00 PM – 4:00 PM
Symposium I — An Update on
Animal Juvenile Toxicity Testing:
Pharmaceutical Use and Environmental
Exposures in Children
1:00 PM – 4:30 PM
Symposium II — Teratogen Update
5:00 PM – 7:30 PM
Poster Session II
7:30 PM – 9:30 PM
Mütter Museum Tour
(Ticket required)

WEDNESDAY, JUNE 25

7:00 AM – 8:00 AM
Teratology Society Liaison Breakfast
(By invitation only)
8:00 AM – 5:00 PM
Registration
8:00 AM – 11:30 AM
Symposium I — Childhood Obesity:
Impact on Children's Health and
Possible Developmental Etiologies
8:00 AM – 11:30 AM
Symposium II — Occupational
Exposures and Reproductive Health

8:15 AM – 11:30 AM
Symposium III — The Fetal Basis of
Adult Disease: Role of the
Environment
11:30 AM – 1:00 PM
Past Presidents' Luncheon
(By invitation only)
1:00 PM – 5:00 PM
Platform Session I — Clinical
Teratology and Epidemiology
1:00 PM – 5:00 PM
Platform Session II — Mechanisms of
Abnormal Development
1:00 PM – 5:00 PM
Platform Session III — Mechanisms
Genomics and Risk Assessment
5:00 PM – 6:00 PM
Business Meeting
7:00 PM – 8:00 PM
Banquet Reception
8:00 PM
Banquet and Dancing

THURSDAY, JUNE 26

8:00 AM – 11:30 AM
Registration
8:30 AM – 11:30 AM
Symposium I — A Detective Story:
Is the Prenatal Toxicity of a
Therapeutic in Rats Relevant to
Human Risk?
8:30 AM – 11:30 AM
Symposium II — Maternal
Autoimmune Diseases and
Immunologically-Induced Embryonic
and Fetal Damage
11:45 AM – 1:15 PM
James G. Wilson and F. Clarke Fraser
Awards Luncheon
1:30 PM – 4:30 PM
Council II Meeting

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(Date indicates year of expiration of term or office.)

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(as of March 18, 2003)

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Program Agenda

SATURDAY, JUNE 21

11:30 AM - 5:00 PM **REGISTRATION** – Commonwealth Foyer (2nd Floor)

1:00 PM - 5:00 PM **EDUCATION COURSE** – Commonwealth Hall C
(separate registration required)

Integration of Human and Animal Data in Understanding Mechanisms and Risk for Human Birth Defects

Organized by the Education Committee; Dana Shuey, Chairperson

Sponsored by Endo Pharmaceuticals, Inc.

Coursebooks provided by CTBR

Refreshments sponsored by Covance and DuPont Haskell Laboratory for Health and Environmental Sciences

Session I: Integration of Animal and Human Data in Drug Development and Pregnancy Labeling: The Statins as a Case Example

1:05 PM - 1:15 PM

Welcome

William Slikker, Jr., President, Teratology Society

1:15 PM - 1:30 PM

Introduction

Dana Shuey, Endo Pharmaceuticals, Inc.

1:30 PM - 2:20 PM

Cholesterol and morphogenesis – Animal models.

Speaker: Max Muenke, NIH

2:20 PM - 3:05 PM

Cholesterol and morphogenesis – Human evidence.

Speaker: Richard Kelley, Johns Hopkins University

3:05 PM - 3:25 PM

Break

3:25 PM - 4:10 PM

Preclinical developmental toxicity studies with statins.

Speaker: L. David Wise, Merck Research Laboratories

4:15 PM - 5:00 PM

Integration of animal and human data in pregnancy labeling.

Speaker: Jeanne Manson, The Children's Hospital of Philadelphia

2:00 PM - 7:00 PM **COUNCIL IA MEETING** – Jefferson Boardroom (3rd Floor)

SUNDAY, JUNE 22

- 7:30 AM - 8:15 AM **EDUCATION COURSE**
CONTINENTAL BREAKFAST—Commonwealth Foyer (2nd Floor)
- 8:00 AM - 5:00 PM **REGISTRATION**—Regency Foyer (2nd Floor Mezzanine)
- 8:00 AM - 12:30 PM **COUNCIL IB MEETING**—Jefferson Boardroom (3rd Floor)
- 8:00 AM - 11:45 AM **EDUCATION COURSE**
(continued from Saturday)—Commonwealth Hall C
Session II: Animal Models in the Advancement of Understanding Mechanisms and Risk of Human Defects
- 8:00 AM - 8:45 AM **Human neural tube defects – Current understanding of epidemiology, genetics and risk factors.**
Speaker: Cynthia Moore, Centers for Disease Control and Prevention
- 8:45 AM - 9:30 AM **Advances in animal models for understanding the role of folates in neural tube defects.**
Speaker: Richard Finnell, Texas A&M University System Health Science Center
- 9:30 AM - 9:45 AM **Break**
- 9:45 AM - 10:30 AM **Interspecies comparison of mechanisms of neurulation, implications for interpretation of neural tube defects in developmental toxicity studies.**
Speaker: John DeSesso, Mitretek Systems
- 10:30 AM - 11:45 AM **Autism – Clinical aspects, epidemiology, and advances in animal models for understanding mechanisms and risk factors.**
Speaker: Patricia Rodier, University of Rochester
- 11:45 AM - 1:00 PM **LUNCH ON YOUR OWN**
- 1:00 PM - 4:40 PM **MARCH OF DIMES SYMPOSIUM**—Regency Ballroom B
Assisted Reproductive Technology (ART) and Reproductive Problems: What Are the Facts and Issues?
Organized by Barbara Struthers, B.J. Struthers, Ltd. and Stephen Harris, Stephen B. Harris Group.
Sponsored by March of Dimes Birth Defects Foundation Grant No. 4-FY02-262, and by TAP Pharmaceutical Products, Inc.
- 1:00 PM - 1:40 PM S1 **A clinical introduction to ART.**
Speaker: Anthony Scialli, Georgetown University
- 1:40 PM - 2:20 PM S2 **Congenital anomalies in ART.**
Speaker: David Adamson, Advanced Reproductive Care, Inc.
- 2:20 PM - 2:40 PM **Break**
- 2:40 PM - 3:20 PM S3 **High birth weights in IVF and cloned calves.**
Speaker: Gary Anderson, UC Davis

14 TERATOLOGY SOCIETY PROGRAM

SUNDAY, JUNE 22 (continued)

- 3:20 PM - 4:00 PM S4 **Methodologic issues in examining the incidence of birth defects in infants born to ART patients.**
Speaker: Jim Mills, NICHD
- 4:00 PM - 4:40 PM S5 **Off-label use of drugs in ART – A curse or a blessing? An industry perspective.**
Speaker: Ashraf Youssef, TAP Pharmaceutical Products, Inc.
- 5:00 PM - 6:00 PM **ISSUES FORUM**—Regency Ballroom B
Meet the Editors; Meeting with Other Organizations in 2007.
William Slikker, Jr., President, Teratology Society
- 5:00 PM - 7:30 PM **EXHIBITS OPEN**—Millennium Hall (2nd Floor)
- 6:00 PM - 7:30 PM **WELCOMING RECEPTION**—Millennium Hall

MONDAY, JUNE 23

- 8:00 AM - 5:00 PM **REGISTRATION**—Regency Foyer (2nd Floor Mezzanine)
- 8:00 AM - 8:10 AM **PRESIDENT'S WELCOME: William Slikker, Jr.**—Regency Ballroom B
- 8:10 AM - 9:00 AM **THE JOSEF WARKANY LECTURE**—Regency Ballroom B
Autism as a Birth Defect.
Patricia Rodier, Department of Obstetrics/Gynecology, University of Rochester
- 9:00 AM - 9:50 AM **THE JAMES G. WILSON PUBLICATION AWARD PRESENTATION AND ADDRESS**—Regency Ballroom B
Mitochondrial Transduction of Ocular Teratogenesis During Methylmercury Exposure.
Michael F. O'Hara, Covance Laboratories, Inc.
- 10:00 AM - 11:00 AM **2003 DECADE OF BEHAVIOR DISTINGUISHED LECTURER**—Regency Ballroom B
30-Year Perspective on Fetal Alcohol Syndrome Research.
Sponsored by NBTS/TS/BTS/OTIS
Ann Streissguth, Ph.D., Professor, Department of Psychiatry and Behavioral Sciences, Director, Fetal Alcohol and Drug Unit, University of Washington School of Medicine
- 11:00 AM - 12:30 PM **STUDENT PLENARY SESSION AND PLATFORM AWARD COMPETITION**—Regency Ballroom B
Organized by Jack Bishop, Chair, Student Affairs Committee, Teratology Society
- 11:00 AM - 11:15 AM 1 **Hypoglycemia-induced changes in VEGF, HIF-1 α , and HIF-2 α protein expression in E9.5 embryonic heart.**
G.S. Ghatnekar and I.W. Smoak, Department of Molecular Biomedical Sciences, College of Veterinary Medicine, NCSU, Raleigh, North Carolina

MONDAY, JUNE 23 (continued)

- 11:15 AM – 11:30 AM 2 **Sex differences in response to arsenic and advanced maternal age in a C57BL/6J splotch heterozygote cross.**
L.J. Martin¹, A.F. Machado^{1,2}, M.A. Loza¹, G.E. Mao¹, G.S. Lee¹, D.N. Hovland Jr.³, R.M. Cantor¹ and M.D. Collins¹. ¹UCLA, Los Angeles, California; ²California State University Northridge, Northridge, California; and ³Amgen, Thousand Oaks, California
- 11:30 AM – 11:45 AM 3 **Differential responses and windows of susceptibility to *in utero* 2,3,7,8-TCDD exposure in two inbred mouse strains.**
D.S. Hill, O. Spiegelstein and R.H. Finnell, Center for Environmental and Genetic Medicine, Institute of Biosciences and Technology, Texas A&M University, Houston, Texas
- 11:45 AM – 12:00 PM 4 **A computational model for the evaluation of interspecies variability during ethanol induced inhibition of neocortical neurogenesis.**
J.M. Gohlke, W.C. Griffith and E.M. Faustman, Department of Environmental Health and Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, Washington
- 12:00 PM – 12:15 PM 5 **Window of susceptibility to perfluorooctane sulfonate (PFOS)-induced neonatal mortality in the rat.**
R.C. Grasty^{1,2}, B.E. Grey¹, C.S. Lau¹ and J.M. Rogers^{1,2}. ¹Reproductive Toxicology Division, NHEERL, ORD, US EPA, Research Triangle Park, North Carolina and ²Curriculum in Toxicology, University of North Carolina Chapel Hill, Chapel Hill, North Carolina
- 12:15 PM – 12:30 PM 6 **A proteomic approach to hyperthermia-induced neural tube defects.**
M. Barrier¹, R. Aebersold², D. Goodlett², E. Yi² and P.E. Mirkes¹. ¹Department of Pediatrics, University of Washington and ²The Institute for Systems Biology, Seattle, Washington

12:30 PM – 7:30 PM POSTERS AND EXHIBITS OPEN – Millennium Hall (2nd Floor)

MONDAY, JUNE 23 (continued)

- 1:00 PM – 9:00 PM PUBLIC AFFAIRS COMMITTEE WORKSHOP
(JOINT SESSION WITH NTBS/OTIS/TS) – Regency Ballroom B**
Communicating Risks for Pregnancy Exposures: A Workshop on Appropriate Incorporation of Animal Developmental Toxicity Data in Drug Labels.
 Sponsored by Centers for Disease Control, Eli Lilly and Company, FDA-Office of Women's Health, March of Dimes, Merck, and Pfizer, Inc.
 Organized by Judy Buelke-Sam, Toxicology Services, Christina Chambers, California Teratogen Information Service, Jan Friedman, University of British Columbia, Carole Kimmel, ORD/U.S. EPA, Janine Polifka, University of Washington, Anthony Scialli, Georgetown University Hospital and Melissa Tassinari, Pfizer, Inc.
 A one-day, multi-disciplinary workshop will be convened with participants who represent clinicians, pharmacists, teratologists, epidemiologists, and risk communication specialists. The objective of the workshop will be to develop a set of recommendations for improvement of the pregnancy label with a particular focus on the incorporation of animal data in a clinically relevant fashion that will support improved risk assessment and risk communication.
- | | |
|--------------------------|--|
| 1:00 PM – 1:10 PM | Overview of the workshop background and goals
Speaker: Anthony Scialli, Georgetown University |
| 1:10 PM – 1:30 PM | Improving the pregnancy label; thoughts from an industry perspective.
Speaker: Melissa Tassinari, Pfizer |
| 1:30 PM – 1:50 PM | Developing the pregnancy label from the regulatory perspective.
Speaker: Sandra Kweder, U.S. FDA |
| 1:50 PM – 2:10 PM | Interpreting animal reproductive toxicity studies as they are presented in the pregnancy label when developing risk assessments.
Speaker: Jan Friedman, University of British Columbia |
| 2:10 PM – 2:30 PM | Health risk communication under terms of uncertainty.
Speaker: Katherine Lyon Daniel, CDC |
| 2:30 PM – 3:15 PM | Panel Discussion I: Should animal reproductive toxicity studies be conducted prior to marketing of a new drug, and if so why? What kinds of data should be incorporated explicitly in the label text? |
| 3:15 PM – 3:30 PM | Public comment |
| 3:30 PM – 3:45 PM | Break |
| 3:45 PM – 5:30 PM | Panel Discussion II: Should data in the label be presented in raw form or in summary form with or without interpretation? In what format should data or summary information be presented in the label to make it most informative and useful to the clinician? Should a risk/benefit statement be included? |
| 5:30 PM – 6:00 PM | Public comment |
| 6:00 PM – 7:30 PM | Dinner break |

MONDAY, JUNE 23 (continued)

- 7:30 PM - 8:30 PM **Panel Discussion III: Are there ways in which the quality of information in the label could be improved? Are there ways in which broader access to information could improve the clinician's ability to more effectively utilize information in the label?**
- 8:30 PM - 8:45 PM **Public comment**
- 8:45 PM - 9:00 PM **Summary**
- 5:00 PM - 7:30 PM **JOINT TS/NBTS/OTIS POSTER SESSION I**—Millennium Hall (2nd Floor)
Teratology Posters: 1-21, NBTS Posters: 9-18, OTIS Posters: 1-4
- 7:30 PM - 10:30 PM **MARTA/MTA STUDENT CAREER EVENT**—Washington B (3rd Floor)

TUESDAY, JUNE 24

- 6:30 AM - 7:00 AM **SUNRISE MINI-COURSE ATTENDEE CONTINENTAL BREAKFAST**—Regency Foyer (2nd Floor Mezzanine)
- 7:00 AM - 8:30 AM **SUNRISE MINI-COURSE**—Regency Ballroom B (separate registration required)
The Placenta and Developmental Toxicity/Teratogenicity.
 Chaired by Dana Shuey, Endo Pharmaceuticals, Inc.
 Coursebooks provided by CTBR
- 7:00 AM - 7:45 AM **The placenta as a target for toxicity and human health risk assessment.**
 Speaker: Richard Miller, University of Rochester Medical Center
- 7:45 AM - 8:30 AM **Interspecies comparison of placental metabolism and transport, implications for developmental toxicity testing and human health risk assessment.**
 Speaker: William Slikker, Jr., NCTR/U.S. FDA
- 8:00 AM - 5:00 PM **REGISTRATION**—Regency Foyer (2nd Floor Mezzanine)
- 9:00 AM - 12:00 PM **WILEY-LISS SYMPOSIUM**—Regency Ballroom B
Gene-Environment Interactions in Susceptibility: Human Studies and Animal Models.
 Organized and Co-chaired by Barbara Abbott, U.S. EPA and Martha Werler, Boston University
- 9:00 AM - 9:45 AM S6 **Interactions between host susceptibilities and exogenous exposures in birth defects research: An epidemiologic perspective.**
 Speaker: Gary M. Shaw, California Birth Defects Monitoring Program
- 9:45 AM - 10:30 AM S7 **Gene variants influencing susceptibility to neural tube defects.**
 Speaker: Richard H. Finnell, Texas A & M University System Health Science Center

TUESDAY, JUNE 24 (continued)

- 10:30 AM - 10:40 AM **Break**
- 10:40 AM - 11:25 AM S8 **Pancreatic transcription factors in sacral agenesis models related to currarino syndrome.**
Speaker: J. Michael Salbaum, Center for Human Molecular Genetics, University Nebraska Medical Center
- 11:25 AM - 12:00 PM S9 **Gene-environment interactions and susceptibility to childhood asthma.**
Speaker: Stephen R. Kleeberger, NIEHS, Laboratory of Pulmonary Pathobiology
- 12:30 PM - 7:30 PM **POSTERS AND EXHIBITS OPEN**—Millennium Hall (2nd Floor)
- 1:00 PM - 4:00 PM **CONCURRENT SYMPOSIUM I (NBTS/TS/JOINT SYMPOSIUM)**—Regency Ballroom C
An Update on Animal Juvenile Toxicity Testing: Pharmaceutical Use and Environmental Exposures in Children.
Co-organized by Judy Buelke-Sam, Toxicology Services and J. Edward Fisher, U.S. FDA
- 1:00 PM - 1:10 PM **Introduction**
J. Edward Fisher, U.S. FDA
- 1:10 PM - 1:40 PM S10 **Juvenile animal studies: Species selection and comparative organ system developmental schedules.**
Speaker: Mark Hurtt, Pfizer, Inc.
- 1:40 PM - 2:10 PM S11 **Overview of U.S. FDA guidance for juvenile toxicity studies.**
Speaker: Kenneth Hastings, U.S. FDA
- 2:10 PM - 2:20 PM **Break**
- 2:20 PM - 2:50 PM S12 **Current U.S. EPA approach to assessing hazards of childhood exposures to pesticides.**
Speaker: Susan Makris, U.S. EPA
- 2:50 PM - 3:20 PM S13 **Design considerations in juvenile toxicity studies.**
Speaker: Judy Buelke-Sam, Toxicology Services
- 3:20 PM - 4:00 PM **Discussion Period**
- 1:00 PM - 4:30 PM **CONCURRENT SYMPOSIUM II (TS/OTIS JOINT SESSION)**—Regency Ballroom B
Teratogen Update
Organized by Robert Brent, Alfred I. DuPont Hospital for Children
- 1:00 PM - 1:45 PM S14 **Update on the reproductive risks associated with lead exposure.**
Speaker: David C. Bellinger, Children's Hospital Boston and Harvard Medical School
- 1:45 PM - 2:30 PM S15 **Vertical transmission of HIV: AIDS in the newborn.**
Speaker: Richard Miller, University of Rochester School of Medicine and Dentistry

TUESDAY, JUNE 24 (continued)

- 2:30 PM – 2:45 PM **Break**
- 2:45 PM – 3:30 PM S16 **Update of advances in environmentally-relevant endocrine disruptors.**
Speaker: Shelley Tyl, RTI International
- 3:30 PM – 4:00 PM S17 **Update on non-genital malformations from exposure to progestational agents.**
Speaker: Robert Brent, Alfred I. DuPont Hospital for Children
- 4:00 PM – 4:30 PM **Discussion Period**
- 5:00 PM – 7:30 PM **JOINT TS/NBTS POSTER SESSION II** – Millennium Hall (2nd Floor)
Teratology Posters: 22-47, NBTS Posters: 32-42
- 7:30 PM – 9:30 PM **MÜTTER MUSEUM TOUR** (Ticket required)

WEDNESDAY, JUNE 25

- 7:00 AM – 8:00 AM **TERATOLOGY SOCIETY LIAISON BREAKFAST** – Congress A
(By invitation only)
- 8:00 AM – 5:00 PM **REGISTRATION** – Regency Foyer (2nd Floor Mezzanine)
- 8:00 AM – 11:30 AM **CONCURRENT SYMPOSIUM I** – Regency Ballroom A
Childhood Obesity: Impact on Children’s Health and Possible Developmental Etiologies.
Organizers and Co-chairs William Slikker, Jr., NCTR/U.S. FDA and Bernard Schwetz, U.S. FDA
- 8:00 AM – 8:40 AM S18 **Impact of childhood obesity on children’s health.**
Speaker: Rear Admiral Ken Moritsugu, Deputy Surgeon General
- 8:40 AM – 9:15 AM S19 **The fetal programming hypothesis: Possible role in childhood obesity.**
Speaker: William Slikker, Jr., NCTR/U.S. FDA
- 9:15 AM – 9:45 AM **Warkany Tea**
- 9:45 AM – 10:25 AM S20 **Maternal smoking during pregnancy and association with childhood obesity.**
Speaker: Michael Toschke, Ludwig-Maximilians-University, Munich, Germany
- 10:25 AM – 11:05 AM S21 **Animal models of developmental nicotine exposure: Possible mechanisms of childhood obesity.**
Speaker: Edward Levin, Duke University
- 11:05 AM – 11:30 AM **Discussion Period**

WEDNESDAY, JUNE 25 (continued)8:00 AM - 11:30 AM **CONCURRENT SYMPOSIUM II**—Regency Ballroom C**Occupational Exposures and Reproductive Health.**Organized by the National Institute for Occupational Safety and Health (NIOSH),
National Occupational Research Agenda Reproductive Team8:00 AM - 8:30 AM S22 **Overview: Impact and extent of reproductive hazards in the workplace.**

Speaker: Barbara Grajewski, National Institute for Occupational Safety and Health, CDC

8:30 AM - 9:15 AM S23 **Conducting workplace exposure assessments for reproductive hazards.**

Speaker: Joseph Coble, National Cancer Institute

9:15 AM - 9:45 AM **Warkany Tea**9:45 AM - 10:25 AM S24 **Clinical tools and strategies for occupational reproductive workplace hazards.**

Speaker: Linda Frazier, University of Kansas School of Medicine

10:25 AM - 11:05 AM S25 **Considerations for making alternative duty recommendations.**

Speaker: Melissa McDiarmid, University of Maryland School of Medicine

11:05 AM - 11:30 AM **Panel Discussion**8:15 AM - 11:30 AM **CONCURRENT SYMPOSIUM III**—Regency Ballroom B**The Fetal Basis of Adult Disease: Role of the Environment.**

Sponsored by The National Institute of Environmental Health Sciences, NIH, DHHS

Organized by Jerry Heindel, NIH/NIEHS

8:15 AM - 8:20 AM **Introduction and opening remarks.**

Speaker: Jerry Heindel, NIH/NIEHS

8:20 AM - 8:40 AM S26 **Gene imprinting during development: A systems biology approach to Teratology.**

Speaker: John McLachlan, Center for Bioenvironmental Research at Tulane and Xavier Universities

8:40 AM - 9:15 AM S27 **DES exposure *in utero*: A paradigm for mechanisms leading to adult disease.**

Speaker: David Sassoon, Mt. Sinai Medical School

9:15 AM - 9:45 AM **Warkany Tea**9:45 AM - 10:20 AM S28 **Developmental pesticide exposure and the Parkinson's Disease phenotype.**

Speaker: Deborah Cory-Slechta, University of Rochester Medical School

10:20 AM - 10:55 AM S29 **Interaction of diet and *in utero* chemical exposures on adult disease.**

Speaker: Fred vom Saal, University of Missouri

WEDNESDAY, JUNE 25 (continued)

- 10:55 AM – 11:30 AM S30 **The fetal basis of adult disease: Epigenetic mechanism.**
Speaker: Miguel Constancia, The Babraham Institute, UK
- 11:30 AM – 1:00 PM **PAST PRESIDENTS' LUNCHEON**—Congress A (By invitation only)
- 1:00 PM – 5:00 PM **CONCURRENT PLATFORM SESSION I**—Regency Ballroom A
Clinical Teratology and Epidemiology.
Chairpersons: Lewis B. Holmes, Massachusetts General Hospital for Children and Jeanne Manson, Thomas Jefferson University
- 1:00 PM – 1:15 PM 7 **Malformations in CHARGE association arise during a limited time period early in pregnancy.**
K. Strömland¹, M. Miller², B.-M. Ekman-Joelsson³, L. Sjögren⁴, J. Andersson-Norinder⁴, C. Jacobsson⁵, M. Johansson⁶, S. Danielsson⁶, E. Billstedt⁶, C. Gillberg⁶ and G. Granström⁷. ¹Department of Pediatric Ophthalmology, Göteborg University, Göteborg, Sweden; ²Department of Ophthalmology and Visual Sciences, University of Illinois, Chicago, Illinois; ³Department of Pediatrics, Central Hospital, Skövde, Sweden; ⁴Mun-H-Center Orofacial Resource Center, Göteborg University, Göteborg, Sweden; ⁵Department of Pedodontics, Borås Hospital, Borås, Sweden; ⁶Department of Child and Adolescent Neuropsychiatry, Göteborg University, Göteborg, Sweden; ⁷Department of Otolaryngology, Göteborg University, Göteborg, Sweden
- 1:15 PM – 1:30 PM 8 **Developmental evaluation of children born to mothers occupationally exposed to waste anesthetic gases.**
N. Ratzon, A. Pardo, R. Margolin, M. Hatch and A. Ornoy. Medical Faculties, Tel Aviv University, Ramat Aviv and Hebrew University, Jerusalem, Israel
- 1:30 PM – 1:45 PM 9 **Cytomegalovirus in pregnancy: primary versus secondary infection: a prospective cohort study on 208 pregnancies.**
O. Diav-Citrin¹, R. Gabbay², G. Rahav^{2,3}, S. Shechtman¹, J. Arnon¹ and A. Ornoy^{1,2}. ¹The Israeli Teratogen Information Service, Israel Ministry of Health; the ²Hebrew University Hadassah Medical School; and ³Hadassah Medical Center, Jerusalem, Israel

WEDNESDAY, JUNE 25 (continued)

- 1:45 PM – 2:00 PM 10 **The risks of birth defects after intracytoplasmic sperm injection.**
P.A.L. Lancaster, School of Women's and Children's Health, University of New South Wales, Sydney, New South Wales, Australia
- 2:00 PM – 2:15 PM 11 **Pregnancy outcome after teratogenic risk counseling in OPD and Internet site.**
J.Y. Han¹, H.K. Ahn¹, J.S. Choi¹, J.H. Chung¹, M.J. Moon¹, S.Y. Park², J.O. Kim¹, J.S. Shin¹, M.Y. Kim¹, H.M. Ryu^{1,2}, J.H. Yang¹, K.H. Choi¹ and I.S.Kang¹. ¹Department of Obstetrics & Gynecology and ²Laboratory of Medical Genetics, Samsung Cheil Hospital and Women's Healthcare Center, Sungkyunkwan University, School of Medicine, Seoul, Korea
- 2:15 PM – 2:30 PM 12 **Preliminary investigation of the use of high frequency ultrasound imaging of the chick embryo.**
M.A. Schellpfeffer¹, G.L. Kolesari¹, R.S. Kuhlmann², D.L. Bolender¹ and C.G. Ruffolo³. ¹Department of Cell Biology, Neurobiology, and Anatomy, Medical College of Wisconsin, Milwaukee, Wisconsin; ²Department of Obstetrics and Gynecology, Medical College of Wisconsin, Milwaukee, Wisconsin; and ³Department of Biological Sciences, University of Wisconsin-Parkside, Kenosha, Wisconsin
- 2:30 PM – 2:45 PM 13 **Potential for misclassification in the diagnosis of fetal alcohol syndrome due to palpebral fissure length measurement error.**
C.E. Cronk¹, M. Weiss², S. Mahkorn³, R. Glysch³, M. Lubinsky¹ and S. Zirbel². ¹Department of Pediatrics, Medical College of Wisconsin and Children's Hospital of Wisconsin, Milwaukee, Wisconsin; ²College of Nursing, Marquette University, Milwaukee, Wisconsin; and ³Wisconsin Bureau of Health Information, Madison, Wisconsin
- 2:45 PM – 3:00 PM 14 **Evidence for human teratogenicity of statins.**
R.J. Edison and M. Muenke, Medical Genetics Branch, NHGRI, NIH, Bethesda, Maryland
- 3:00 PM – 3:15 PM **Break**
- 3:15 PM – 3:30 PM 15 **Trends over time: pattern of malformations from 1974 to 1999, effects of prenatal diagnosis, severity and elective termination.**
A.J. Peller¹, M. Westgate¹ and L.B. Holmes^{1,2}. ¹Genetics and Teratology Unit, Pediatric Service, Massachusetts General Hospital; ²Department of Newborn Medicine, Brigham and Women's Hospital, Boston, Massachusetts

WEDNESDAY, JUNE 25 (continued)

- 3:30 PM – 3:45 PM 16 **Maternal age and nonchromosomal birth defects, Atlanta --1968-2000: Teenager or thirty-something, who is at risk?**
J. Reefhuis^{1,2} and M.A. Honein². ¹Epidemiology Program Office, Centers for Disease Control and Prevention and ²National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia
- 3:45 PM – 4:00 PM 17 **Risk of congenital anomalies in the vicinity of municipal solid waste incinerators.**
S. Cordier¹, C. Lorente², E. Robert-Gnansia³, C. Chevrier¹, P. Brula⁴ and M. Hours⁵. ¹INSERM U435, Rennes, France; ²AFSSAPS, Paris, France; ³Institut Européen des Génomutations, Lyon, France; ⁴INSAVALOR, Division POLDEN, Villeurbanne, France; and ⁵Unité Mixte de Recherche Épidémiologique Transport Travail Environnement, Lyon, France
- 4:00 PM – 4:15 PM 18 **Military service, Gulf War service, and hemifacial microsomia.**
M.M. Werler¹, C. Hayes², J.E. Sheehan¹ and A.A. Mitchell¹. ¹Slone Epidemiology Center, Boston University, Boston, Massachusetts and ²Department of Oral Health Policy and Epidemiology, Harvard School of Dental Medicine, Boston, Massachusetts
- 4:15 PM – 4:30 PM 19 **Post-marketing surveillance for drug safety in pregnancy: the Organization of Teratology Information Service project.**
R.J. Felix¹, K.L. Jones¹, K.A. Johnson¹, C.A. McCloskey², C.D. Chambers¹ and the OTIS Collaborative Research Group³. ¹California Teratogen Information Service and Clinical Research Program, Department of Pediatrics, University of California San Diego, La Jolla, California; ²Center for Drug Evaluation and Research, United States Food and Drug Administration, Rockville, Maryland; and ³Organization of Teratology Information Services, Seattle, Washington

WEDNESDAY, JUNE 25 (continued)

- 4:30 PM – 4:45 PM 20 **Survival of infants with Down syndrome, metropolitan Atlanta, 1979-1998.**
S.A. Rasmussen¹, L.Y. Wong², A. Correa¹, D. Gambrell³ and J.M. Friedman⁴. ¹National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia; ²Health Investigations Branch, Division of Health Studies, Agency for Toxic Substances and Disease Registry, Atlanta, Georgia; ³DynCorp Systems & Solutions LLC, Atlanta, Georgia; and ⁴Department of Medical Genetics, University of British Columbia, Vancouver, Canada
- 4:45 PM – 5:00 PM 21 **A new X-linked syndrome with agenesis of the corpus callosum, mental retardation, coloboma, micrognathia, and a mutation in the Alpha 4 gene at Xq13.**
J.M. Graham¹, Jr., P. Wheeler², D. Tackels-Horne³, A.E. Lin⁴, B.D. Hall⁵, C.E. Schwartz³ and T.C. Cox⁶. ¹Medical Genetics Birth Defects Center, Ahmanson Dept. of Pediatrics, Cedars-Sinai Medical Center, UCLA School of Medicine, Los Angeles, California; ²Tufts-New England Medical Center, Boston, Massachusetts; ³Greenwood Genetic Center, Greenwood, South Carolina; ⁴Genetics and Teratology Unit, Massachusetts General Hospital for Children, Boston, Massachusetts; ⁵Department of Pediatrics, University of Kentucky Medical Center, Lexington, Kentucky; and ⁶School of Molecular and Biomedical Science, University of Adelaide, Adelaide & Australian Craniofacial Institute, North Adelaide, South Australia

1:00 PM – 4:30 PM **CONCURRENT PLATFORM SESSION II—Regency Ballroom B****Mechanisms of Abnormal Development.**

Chairpersons: Phillip E. Mirkes, University of Washington and Barbara D. Abbott, USEPA

- 1:00 PM – 1:15 PM 22 **Identification of chromosomal locations associated with differential sensitivity between the C57BL/6N and SWV murine strains to all-trans-retinoic acid-induced forelimb defects.**
G.S. Lee¹, A. Abnoosian¹, E. Park¹, R.M. Cantor² and M.D. Collins¹. ¹Department of Environmental Health Sciences, UCLA School of Public Health, Los Angeles, California; and ²Departments of Human Genetics and Pediatrics, UCLA School of Medicine, Los Angeles, California

WEDNESDAY, JUNE 25 (continued)

- 1:15 PM – 1:30 PM 23 **Retinoic acid induction of cleft palate (CP) in EGF and TGF α knockout mice: Stage specific influences of growth factor expression.**
B.D. Abbott, K.E. Leffler and A.R. Buckalew, Reproductive Toxicology Division, NHEERL, ORD, US EPA, Research Triangle Park, North Carolina
- 1:30 PM – 1:45 PM 24 **Cumulative risk of hyperthermia and boric acid (BA) effects on the developing axial skeleton of the rat.**
W.A. Harrouk¹, K.E. Wheeler², G.L. Kimmel³ and C.A. Kimmel³. ¹Center for Drug Evaluation and Research, US Food and Drug Administration, Rockville, Maryland; ²Charles River Laboratories, Frederick, Maryland; ³National Center for Environmental Assessment, US Environmental Protection Agency, Washington, D.C.
- 1:45 PM – 2:00 PM 25 **Increased levels of 3 pro-apoptotic Bcl-2 genes, NOXA, PUMA, and DP5, in day 9 mouse embryos exposed to hyperthermia (HS) or 4-hydroperoxycyclophosphamide (4-CP).**
S.A. Little and P.E. Mirkes, Birth Defects Research Laboratory, Division of Genetics and Development, Department of Pediatrics, University of Washington, Seattle, Washington
- 2:00 PM – 2:15 PM 26 **Role of p53 in regulating teratogen-induced apoptosis in day 9 mouse embryos.**
S.A. Little and P.E. Mirkes Birth Defects Research Laboratory, Division of Genetics and Development, Department of Pediatrics, University of Washington, Seattle, Washington
- 2:15 PM – 2:30 PM 27 **Fumonisin, folate, and neural tube defects: mechanisms in an *in vivo* mouse model.**
J. Gelineau-van Waes¹, L. Starr¹, J. Maddox¹, K. Voss², G. Bennett¹ and R. Riley². ¹University of Nebraska Medical Center, Omaha, Nebraska and ²USDA-ARS, Toxicology & Mycotoxin Research Unit, Russell Research Center, Athens, Georgia
- 2:30 PM – 2:45 PM 28 **Vascular endothelial growth factor rescues 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin inhibition of coronary vasculogenesis.**
I.D. Ivnitski-Steele and M.K. Walker, University of New Mexico, Albuquerque, New Mexico
- 2:45 PM – 3:00 PM 29 **Gene expression in the teratogenic mechanism of valproic acid.**
C.J. Stodgell, S. Sazenski-Gnall, C. Burns and P.M. Rodier, Department of Obstetrics and Gynecology, University of Rochester, Rochester, New York

WEDNESDAY, JUNE 25 (continued)

- 3:00 PM – 3:15 PM **Break**
- 3:15 PM – 3:30 PM 30 **Teratogenicity by the HERG potassium channel blocking drug almokalant: use of hypoxia marker gives evidence for a hypoxia related mechanism mediated *via* embryonic arrhythmia.**
B. Danielsson^{1,2}, A-C. Sköld¹, Å. Johansson¹, B. Dillner¹ and B. Blomgren^{1,3}. ¹Safety Assessment, AstraZeneca R&D, Södertälje, Sweden; ²Department of Pharmaceutical Biosciences, Uppsala University, Sweden; ³Department of Womens and Childrens Health, Uppsala University, Sweden
- 3:30 PM – 3:45 PM 31 **Teratogenicity of arsenate and valproate is enhanced in mice lacking folate binding protein-2 (Folbp2).**
O. Spiegelstein¹, X. Lu², X.C. Le², A. Troen³, J. Selhub³ and R.H. Finnell¹. ¹Center for Environmental and Genetic Medicine, Institute of Biosciences and Technology, Texas A&M University System Health Science Center, Houston, Texas; ²Department of Public Health Sciences, University of Alberta, Edmonton, Alberta, Canada; and ³Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, Massachusetts
- 3:45 PM – 4:00 PM 32 **Exposure to cyclophosphamide alters gene expression in organogenesis stage mouse limb buds.**
C. Huang and B.F. Hales, McGill University, Montreal, Canada
- 4:00 PM – 4:15 PM 33 **Zinc depletion disrupts rat cardiac neural crest cells (NCC) cytoskeletal organization and is associated with poor morphology and motility and increased cell death.**
L. Lanoue, V. Lopez and C.L. Keen, University of California at Davis, Davis, California
- 4:15 PM – 4:30 PM 34 **Micro CT cephalometric studies of MEK1 transgenic achondroplastic mice.**
P. Duke¹, M. Wadler¹, D. Cody², D. Montufar-Solis¹, B. de Crombrughe² and S. Murakami². ¹University of Texas Health Science Center at Houston, Houston, Texas; ²University of Texas M.D. Anderson Cancer Center, Houston, Texas

WEDNESDAY, JUNE 25 (continued)
1:00 PM – 4:15 PM CONCURRENT PLATFORM SESSION III – Regency Ballroom C
Mechanisms Genomics and Risk Assessment

Chairpersons: Thomas B. Knudsen, Jefferson Medical College and Catherine J. Price, RTI International

- 1:00 PM – 1:15 PM 35 **SB-236057: critical window of sensitivity study and embryopathy of a potent skeletal teratogen.**
K.A. Augustine, Q.J. Zhang, L.M. Posobiec, R.C. Mirabile, L.S. Deboer, H.M. Solomon and P.J. Wier, GlaxoSmithKline Pharmaceuticals, King of Prussia, Pennsylvania
- 1:15 PM – 1:30 PM 36 **Evidence for a molecular mechanism of teratogenicity of sb-236057, a novel spiropiperidine-containing compound that alters axial skeletal formation.**
K.A. Augustine, Q.J. Zhang, J.M. Leonard, A. Chadderton, L.M. Gaster and P.J. Wier, GlaxoSmithKline Pharmaceuticals, King of Prussia, Pennsylvania
- 1:30 PM – 1:45 PM 37 **Developmental toxicity studies in rats and rabbits with DOV 21,947: a triple reuptake inhibitor.**
M.J. Beck¹, D.G. Stump¹, M.D. Nemeč¹, J. Holson¹, J.P. Tizzano² and J. Buelke-Sam³. ¹WIL Research Laboratories, Inc., Ashland, Ohio; ²DOV Pharmaceutical, Inc., Hackensack, New Jersey; and ³Toxicology Services, Greenfield, Indiana
- 1:45 PM – 2:00 PM 38 **Oral developmental toxicity study of ammonium tetrathiomolybdate (NSC-714598) in rabbits.**
A.V. Lyubimov¹, M.D. Mercieca², A.C. Smith³, J.E. Tomaszewski³ and B.S. Levine¹. ¹University of Illinois at Chicago, Chicago, Illinois; ²Pathology Associates, Frederick, Maryland; and ³National Cancer Institute, Bethesda, Maryland
- 2:00 PM – 2:15 PM 39 **Dose response of *Listeria monocytogenes*-induced stillbirths in a pregnant nonhuman primate model.**
M.A. Smith¹, G.A. Anderson¹, H.M. McClure², K. Takeuchi³, R. Raybourne⁴, G.O. Ware¹ and M.P. Doyle³. ¹University of Georgia, Athens, Georgia; ²Yerkes National Primate Research Center, Emory University, Atlanta, Georgia; ³University of Georgia, Griffin, Georgia; ⁴US Food and Drug Administration, Laurel, Maryland

WEDNESDAY, JUNE 25 (continued)

- 2:15 PM – 2:30 PM 40 **Lumbar vertebrae ossification profile in late prenatal and postnatal development in radiological study.**
F. Burdan^{1,2}, I. Rozylo-Kalinowska² and A. Michalska³.
¹Experimental Teratology Unit of the Human Anatomy Department; ²2nd Department of Radiology; and ³Department of Dental and Maxillofacial Radiology, Medical University of Lublin, Lublin, Poland
- 2:30 PM – 2:45 PM 41 **Development and validation of a 5-color, 7-parameter flow cytometry assay to quantify vascular endothelial cells (vecs) in rat embryo and yolk sac.**
A.R. Chadderton¹, D.C. McFarland¹, P.K. Narayanan¹, Q.J. Zhang¹ and K.A. Augustine².
¹GlaxoSmithKline, King of Prussia, Pennsylvania and ²Bristol Myers Squibb, Princeton, New Jersey
- 2:45 PM – 3:00 PM 42 **The rotating bioreactor supports three-dimensional *in vivo*-like development of eyes, cartilages, and vibrissae in alginate encapsulated embryonic mouse heads.**
V. Leonhart, D. Montufar-Solis, N. Horn, J. Iverson and P.J. Duke, The University of Texas Dental Branch, Houston, Texas
- 3:00 PM – 3:15 PM **Break**
- 3:15 PM – 3:30 PM 43 **Gene expression profile induced by 17- α -ethynyl estradiol in the developing male reproductive system of the rat.**
J.M. Naciff, K. Hess, S.M. Torontali, G.J. Carr, J.P. Tiesman, G.J. Overmann and G.P. Daston, The Procter and Gamble Company, Cincinnati, Ohio
- 3:30 PM – 3:45 PM 44 **Altered gene expression in day 9 mouse embryos exposed to hyperthermia (HS) detected using cDNA microarrays.**
S. Mikheeva and P.E. Mirkes, Birth Defects Research Laboratory, Division of Genetics and Development, Department of Pediatrics, University of Washington, Seattle, Washington
- 3:45 PM – 4:00 PM 45 **Identification of an embryonic core response signature to PK11195, an ameliorative ligand of the mitochondrial benzodiazepine receptor.**
T.B. Knudsen, J. H. Charlap, B. Nibbio, R.C. Craig and K. Rozett Nemeth, Thomas Jefferson University, Philadelphia, Pennsylvania

WEDNESDAY, JUNE 25 (continued)

- 4:00 PM - 4:15 PM 46 **Strain-based differences in susceptibility to the teratogenic effects of ethanol in mice analyzed by cDNA microarray.**
K. Rozett Nemeth, J. H. Charlap, B. Nibbio, R.C. Craig and T.B. Knudsen, Thomas Jefferson University, Philadelphia, Pennsylvania
- 5:00 PM - 6:00 PM **BUSINESS MEETING** – Regency Ballroom C
- 7:00 PM - 8:00 PM **BANQUET RECEPTION** – Commonwealth Hall A (2nd Floor)
Sponsored by Covance
- 8:00 PM **BANQUET AND DANCING** – Millennium Hall (2nd Floor)
Band supported by WIL Research Laboratories, Inc.

THURSDAY, JUNE 26

- 8:00 AM - 11:30 AM **REGISTRATION** – Regency Foyer (2nd Floor Mezzanine)
- 8:30 AM - 11:30 AM **CONCURRENT SYMPOSIUM I** – Regency Ballroom C
A Detective Story: Is the Prenatal Toxicity of a Therapeutic in Rats Relevant to Human Risk?
Co-Chaired by Joseph F. Holson, WIL Research Laboratories, Inc. and L. Bruce Pearce, BioPure Corporation
- 8:30 AM - 8:50 AM S31 **Overview of issues concerning false positive findings in reproductive toxicology and introduction of a case study of an oxygen therapeutic.**
Speaker: Joseph F. Holson, WIL Research Laboratories, Inc.
- 8:50 AM - 9:15 AM S32 **Review of clinical indication, manufacture and general toxicology of an oxygen therapeutic (HBOC-201).**
Speaker: L. Bruce Pearce, BioPure Corporation
- 9:15 AM - 9:35 AM S33 **Studies of HBOC-201 in explanted rat whole embryo culture.**
Speaker: Craig Harris, University of Michigan
- 9:35 AM - 9:50 AM **Break**
- 9:50 AM - 10:20 AM S34 **Finding of developmental toxicity studies of HBOC-201 in rodent and canine models.**
Speakers: Donald G. Stump and Joseph F. Holson, WIL Research Laboratories, Inc.
- 10:20 AM - 11:00 AM S35 **An analysis and review of the relative morphology of extraembryonic membranes in mammals and their roles in histiotrophic nutrition and as possible sites of development insult.**
Speakers: John DeSesso, Mitretek Systems Inc. and Joseph F. Holson, WIL Research Laboratories, Inc.

THURSDAY, JUNE 26 (continued)

- 11:00 AM - 11:30 AM **Panel Discussion**
 Moderator: Joseph F. Holson, WIL Research Laboratories, Inc.
 Panelists: A. Scialli, C. Kimmel, J. DeSesso, D. Stump, B. Pearce
- 8:30 AM - 11:30 AM CONCURRENT SYMPOSIUM II (TS/ETS JOINT SYMPOSIUM) – Regency Ballroom B**
Maternal Autoimmune Diseases and Immunologically-Induced Embryonic and Fetal Damage
 Chaired by Asher Ornoy, Hebrew University Hadassah Medical School, and Israeli Ministry of Health
- 8:30 AM - 8:45 AM **Introductory comments: Immunological studies in animals: Implications for understanding human reproduction problems.**
 Speaker: Robert Brent, Alfred I. DuPont Hospital for Children
- 8:45 AM - 9:20 AM S36 **Molecular Aspects of Reproductive Immunology and Antiphospholipid Syndrome.**
 Speaker: Tim Mosmann, University of Rochester School of Medicine and Dentistry
- 9:20 AM - 9:55 AM S37 **Maternal antiphospholipid autoantibodies: Implications for the embryo and fetus and mechanism of action.**
 Speaker: Ware D. Branch, Department of Obstetrics and Gynecology, University of Utah Medical Center
- 9:55 AM - 10:15 AM Break**
- 10:15 AM - 10:55 AM S38 **Maternal autoimmune diseases: The role of the placenta in immune responses during pregnancy.**
 Speaker: Richard Miller, University of Rochester School of Medicine and Dentistry
- 10:55 AM - 11:30 AM S39 **Animal models for maternal autoimmune diseases: The effects of human autoantibodies on developing mouse and rat embryos.**
 Speaker: Asher Ornoy, Hebrew University Hadassah Medical School, and Israeli Ministry of Health
- 11:45 AM - 1:15 PM JAMES G. WILSON AND F. CLARKE FRASER AWARDS LUNCHEON – Regency Ballroom A**
 F. Clarke Fraser Award Recipient: Ida W. Smoak, North Carolina State University
- 1:30 PM - 4:30 PM COUNCIL II MEETING – Jefferson Boardroom (3rd Floor)**

Annual Meeting Exhibitors

The Teratology Society thanks
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(As of March 28, 2003)

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Exhibitor Information

(As of March 20, 2003)

All information printed in this exhibitor section is listed in alphabetical order and was submitted by the exhibiting company.

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Pathology Data Solutions

Booth 11

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Toxicology Research Laboratory**Booth 2**

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