



The **TERATOLOGY** **SOCIETY**

42nd ANNUAL MEETING

June 22–27, 2002

**Fairmont Scottsdale Princess Resort
Scottsdale, Arizona**

**26th Annual Meeting of the Neurobehavioral
Teratology Society (NBTS)**

June 23–26, 2002

and the

**15th International Conference of the Organization of
Teratology Information Services (OTIS)**

June 22–25, 2002

The **TERATOLOGY**
SOCIETY

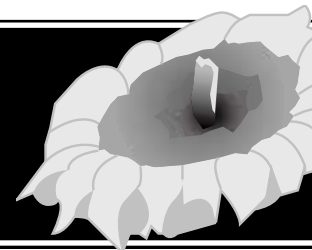
42nd ANNUAL MEETING

June 22–27, 2002

*Program
And
Abstracts*

42nd ANNUAL MEETING

June 22–27, 2002



Program Overview

Saturday, June 22

11:30 AM – 5:00 PM
Registration

1:00 PM – 4:30 PM
Education Course

2:00 PM – 7:00 PM
Council IA Meeting

Sunday, June 23

7:30 AM – 8:15 AM
Education Course Continental Breakfast

8:00 AM – 5:00 PM
Registration

8:00 AM – 12:30 PM
Council IB Meeting

8:15 AM – 11:30 AM
Education Course

1:00 PM – 4:30 PM
March of Dimes Symposium

5:00 PM – 6:00 PM
Student Discussions with MOD
Symposium Speakers

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 24

7:15 AM – 7:45 AM
Coffee and Continental Breakfast

7:45 AM – 8:00 AM
President's Welcome and
Introduction

8:00 AM – 5:00 PM
Registration

8:00 AM – 9:00 AM
The Josef Warkany Lecture

9:00 AM – 9:45 AM
The James G. Wilson Publication Award

10:00 AM – 12:00 PM
Student Plenary Session and Platform
Award Competition

12:15 PM – 1:00 PM
"The Great Debate"

12:30 PM – 7:30 PM
Posters and Exhibits Open

1:30 PM – 4:45 PM
Public Affairs Symposium with
NBTS/OTIS/TS

5:00 PM – 7:30 PM
Joint Poster Session I
TS/NBTS/OTIS

7:30 PM – 10:30 PM
Student Career Event

Tuesday, June 25

6:30 AM – 7:00 AM
Mini-Course Breakfast

7:00 AM – 8:15 AM
Mini-Course

8:00 AM – 8:30 AM
Coffee and Continental Breakfast

8:00 AM – 5:00 PM
Registration

8:30 AM – 11:30 PM
NBTS/OTIS/TS/ETS
Joint Symposium

12:00 PM – 12:45 PM
Teratology: Big Picture Perspective

12:30 PM – 7:30 PM
Posters and Exhibits Open

1:00 PM – 4:00 PM
Teratogen Update
(TS/OTIS Joint Session)

5:00 PM – 7:30 PM
Joint TS/NBTS Poster Session II

Wednesday, June 26

7:30 AM – 8:30 AM
Teratology Liaison Breakfast
(By invitation only)

8:00 AM – 8:30 AM
Coffee and Continental Breakfast

8:00 AM – 5:00 PM
Registration

8:30 AM – 11:30 AM
Concurrent Session I—The Use of
Nonhuman Primate Models in
Developmental Toxicology Studies

8:30 AM – 11:30 AM
Concurrent Session II—The Direct
Dosing of Pre-Weaning Mammals
in Toxicity Testing

8:30 AM – 11:30 AM
Concurrent Session III—Microarray
Data Analysis and Bioinformatics
Workshop

11:45 AM – 12:45 PM
Preventing Birth Defects: The Role of
Public Policy

1:00 PM – 2:30 PM
Past Presidents' Luncheon
(By invitation only)

1:00 PM – 5:00 PM
Concurrent Platform Session I—
Clinical Teratology and Epidemiology

1:00 PM – 5:00 PM
Concurrent Platform Session II—
Mechanisms of Abnormal
Development

1:00 PM – 4:30 PM
Concurrent Platform Session III—
Hazard and Risk Evaluation

5:00 PM – 6:00 PM
Business Meeting (Members only)

7:00 PM – 8:00 PM
Banquet Reception

8:00 PM
Banquet

Thursday, June 27

8:00 AM – 8:30 AM
Coffee and Continental Breakfast

8:00 AM – 12:00 PM
Registration

8:30 AM – 11:30 AM
The Wiley-Liss Symposium

11:45 AM – 1:00 PM
James G. Wilson and F. Clarke Fraser
Awards Luncheon

1:30 PM – 4:00 PM
Council II Meeting

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42nd ANNUAL MEETING

June 22–27, 2002



Program Agenda

Saturday, June 22

11:30 AM – 5:00 PM REGISTRATION—East Foyer

1:00 PM – 4:30 PM EDUCATION COURSE—Salon H
(Separate registration required)

Mechanisms, Biomarkers, Data Interpretation: An Integrative Risk Assessment using Developmental Neurotoxicity as a Model

Supported by: Monsanto Company and Eli Lilly & Company

Organized by the Education Committee, Donna Farmer, Chairperson

1:00 PM – 1:05 PM

Welcome—Jan Friedman,
President, Teratology Society

1:05 PM – 1:15 PM

Introduction—Donna Farmer, *Monsanto Company*

1:15 PM – 2:00 PM

Using mechanistic data in risk assessment.
Speaker: Carole Kimmel, U.S. EPA

2:00 PM – 2:45 PM

General overview of pre- and postnatal nervous system development.
Speaker: John DeSesso, Mitretek Systems

2:45 PM – 3:00 PM

BREAK

3:00 PM – 3:45 PM

Molecular markers of nervous system development and toxicity.
Speaker: James P. O'Callaghan, CDC/NIOSH

3:45 PM – 4:30 PM

Structural and functional manifestations of early injury to the CNS.
Speaker: Patricia Rodier, University of Rochester

2:00 PM – 7:00 PM COUNCIL 1A MEETING—Salon 1

Sunday, June 23

7:30 AM – 8:15 AM EDUCATION COURSE CONTINENTAL BREAKFAST—East Foyer

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

8:00 AM – 12:30 PM COUNCIL 1B MEETING—Salon 1

Sunday, June 23 (continued)

8:15 AM – 11:30 AM EDUCATION COURSE—Salon F (Continued from Saturday)

8:15 AM – 9:00 AM

Developmental neurotoxicity: Testing and data interpretation (focus on practical and logistical considerations, data interpretation and challenges).

Speaker: Abby A. Li, Monsanto Company

9:00 AM – 9:45 AM

Examination of the effects of chlorpyrifos on developmental processes; evaluation of biochemical, morphological and behavioral indices of developmental neurotoxicity.

Speaker: Stan Barone, U.S. EPA

9:45 AM – 10:00 AM

BREAK

10:00 AM – 10:45 AM

Integrative risk assessment: BBDR modeling.

Speaker: Elaine Faustman, University of Washington

10:45 AM – 11:30 AM

Panel discussion. Beginning with a set of predetermined questions related to applications of mechanistic information in applied research, testing and risk assessment.

Facilitator: Joseph Holson, WIL Research Laboratories, Inc.

11:30 AM – 1:00 PM LUNCH ON YOUR OWN

1:00 PM – 4:30 PM MARCH OF DIMES SYMPOSIUM—Salon F

The Application of Proteomics to Developmental Toxicology

Supported by: March of Dimes and GlaxoSmithKline

Organizers and Chairpersons: Patrick Wier and Karen Augustine, GlaxoSmithKline

1:00 PM – 1:10 PM

Introduction—Patrick Wier, GlaxoSmithKline

1:10 PM – 1:50 PM

S1 **Mining proteomic diversity with LC-MS and the SALSA algorithm.**

Speaker: Daniel C. Liebler, The University of Arizona

1:50 PM – 2:30 PM

S2 **Direct profiling of proteins in biological tissue sections by MALDI mass spectrometry.**

Speaker: David L. Hachey, Vanderbilt University

2:30 PM – 3:10 PM

S3 **Qualitative and quantitative proteomics without polyacrylamide.**

Speaker: David Goodlett, The Institute for Systems Biology

3:10 PM – 3:40 PM

BREAK

3:40 PM – 4:20 PM

S4 **Spot the difference: The effects of hypoxia on the cytotrophoblast protein repertoire.**

Speaker: Van Hoang, National Cancer Institute

4:20 PM – 4:30 PM

Summary

5:00 PM – 6:00 PM STUDENT DISCUSSIONS WITH MOD SYMPOSIUM SPEAKERS—Salon 8

Moderator: Donald Mattison, Columbia University

5:00 PM – 6:00 PM ISSUES FORUM—Salon F

5:00 PM – 7:30 PM EXHIBITS OPEN—Salon H

6:00 PM – 7:30 PM WELCOMING RECEPTION—Salon H

Monday, June 24

- 7:15 AM – 7:45 AM **COFFEE AND CONTINENTAL BREAKFAST**—East Foyer
- 7:45 AM – 8:00 AM **PRESIDENT'S WELCOME AND INTRODUCTION: J.M. FRIEDMAN**—Salon F
- 8:00 AM – 5:00 PM **REGISTRATION**—East Foyer
- 8:00 AM – 9:00 AM **THE JOSEF WARKANY LECTURE**—Salon F
From Recognition to Responsibility: David Smith, Josef Warkany and the Fetal Alcohol Syndrome in the 21st Century.
Kenneth L. Jones, M.D., University of California, San Diego
- 9:00 AM – 9:45 AM **THE JAMES G. WILSON PUBLICATION AWARD PRESENTATION AND ADDRESS**—Salon F
- 9:45 AM – 10:00 AM **BREAK**
- 10:00 AM – 12:00 PM **STUDENT PLENARY SESSION AND PLATFORM AWARD COMPETITION**—Salon F
Chairpersons: Janet Uriu-Adams, University of California, Davis and Jack Bishop, NIEHS
- 10:00 AM – 10:15 AM 1 **Comparative study of susceptibility to hypoglycemia-induced apoptosis in the embryonic heart during developmental stages E8.5 to E11.5.**
G.S. Ghatnekar and I.W. Smoak, Department of Anatomy, Physiological Sciences and Radiology, College of Veterinary Medicine, NCSU, Raleigh, North Carolina
- 10:15 AM – 10:30 AM 2 **Regulation of AP-2 and apoptosis in developing eye in a vitamin a deficiency model.**
J. Zhou, C.W. Santoni, and D.M. Kochhar, Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, Pennsylvania
- 10:30 AM – 10:45 AM 3 **Zinc influences the *in vitro* development of peri-implantation mouse embryos.**
L.A. Hanna¹, M.S. Clegg¹, T. Momma¹, J. Rogers², G. Daston³, and C.L. Keen¹. ¹Departments of Nutrition and Internal Medicine, UCD, Davis, California; ²U.S. EPA, Research Triangle Park, North Carolina; and ³Procter and Gamble Corporation, Ross, Ohio
- 10:45 AM – 11:00 AM 4 **Zinc depletion impairs rat cardiac neural crest cells (NCCS) viability and motility and induces oxidative stress *in vitro*.**
V. Lopez, L. Lanoue, and C.L. Keen, University of California at Davis, Davis, California
- 11:00 AM – 11:15 AM 5 **Cranial and craniofacial abnormalities associated with altered gene expression in folate binding protein 1 deficient mouse embryo.**
L.S. Tang and R.H. Finnell, CE&GM, Institute of Biosciences & Technology, Texas A & M University System Health Science Center, Houston, Texas
- 11:15 AM – 11:30 AM 6 **The expression of transcriptional regulators is altered in retinoic acid-treated organogenesis-stage mouse limb buds.**
S.E. Ali-Khan and B.F. Hales, Department of Pharmacology and Therapeutics, McGill University, Montreal, Canada.

Monday, June 24 (continued)

- 11:30 AM – 11:45 AM 7 **Arsenite-induced neural tube defects: impact of Pax3 and cystathionine β -synthase mutations.**
A.F. Machado, E. Marshall, and M.D. Collins, UCLA, Los Angeles, California
- 11:45 AM – 12:00 PM 8 **Valproic acid lowered vertebrae ossification. Usefulness of simple radiological procedure for bone ossification assessment in *in vivo* teratological studies.**
F. Burdan^{1,2}, I. Rozylo-Kalinowska², and T.K. Rozylo³.
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
- 12:15 PM – 1:00 PM THE GREAT DEBATE: IS THERE AN ALL OR NONE PHENOMENON IN TERATOLOGY?—Salon F**
Moderator: Mason Barr, University of Michigan
Presenters: Robert Brent, DuPont Hospital for Children and Joe Rutledge, University of Washington
(Lunch available for purchase from the Cazadores Area)
- 12:30 PM – 7:30 PM POSTERS AND EXHIBITS OPEN—Salon H**
- 1:30 PM – 4:45 PM PUBLIC AFFAIRS SYMPOSIUM (JOINT SESSION WITH NBTS/OTIS/TS)—Salon F**
Methylmercury: From Minamata Bay to Current Policy Implementation
Organizers: Jane Adams, University of Massachusetts and Carole Kimmel, U.S. EPA
Chairpersons: Carole Kimmel, U.S. EPA and Christina Chambers, University of California, San Diego
- 1:30 PM – 1:40 PM **Introduction—Carole Kimmel, U.S. EPA**
- 1:40 PM – 2:25 PM S5 **Historical methylmercury exposure and developmental toxicity.**
Speaker: Kenneth Reuhl, Rutgers University
- 2:25 PM – 3:05 PM S6 **Recent Studies on the Health Effects of Methylmercury.**
Speaker: David Bellinger, Harvard University
- 3:05 PM – 3:25 PM BREAK—Salon H**
- 3:25 PM – 4:05 PM S7 **EPA hazard assessment for methylmercury relies on recent epidemiological studies.**
Speaker: Deborah Rice, U.S. EPA
- 4:05 PM – 4:45 PM S8 **Management and communication of risk: the Maine experience.**
Speaker: Andrew E. Smith, Maine
- 5:00 PM – 7:30 PM JOINT TS/NBTS/OTIS POSTER SESSION I—Salon H**
Chairpersons: Judy Buelke-Sam, Toxicology Services and Lynn Martinez, Utah Department of Health
Teratology Posters: 1–22, NBTS Posters: 18–25, OTIS Posters: 1–4
- 7:30 PM – 10:30 PM MARTA/MTA STUDENT CAREER EVENT—Sonoran Room**
Supported by: Pfizer, Aventis, Pharmacia, and Covance

Tuesday, June 25

6:30 AM – 7:00 AM **MINI-COURSE BREAKFAST**

7:00 AM – 8:15 AM **MINI-COURSE**—Salon F
(Separate registration required, includes syllabus)

Experimental Design and Biostatistics (Joint Session with NBTS)

Partially supported by: NCTR/U.S. FDA

Organizer: Deborah Hansen, NCTR/U.S. FDA

7:00 AM – 7:45 AM

Basic statistical analysis of developmental toxicity studies.

Instructor: Woody Setzer, U.S. EPA

7:45 AM – 8:15 AM

Evaluation of postnatal developmental outcomes: Study design considerations for endocrine active chemicals.

Instructor: Paul Foster

8:00 AM – 8:30 AM **COFFEE AND CONTINENTAL BREAKFAST**—East Foyer

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

8:30 AM – 11:30 AM **NBTS/OTIS/TS/ETS JOINT SYMPOSIUM**—Salon F

Children's Health and Environmental Chemical Exposures: Prediction of Risk from Animal Models and Clinical Studies

Organizers and Chairpersons: Asher Ornoy, Hebrew University and Merle Paule, NCTR/U.S. FDA

8:30 AM – 9:15 AM

S9 **The role of the environment in the neurodevelopmental modulation in children exposed *in utero* to illicit drugs or maternal diseases.**

Speaker: Asher Ornoy, Hebrew University

9:15 AM – 10:00 AM

S10 **Developmental outcome of children exposed *in utero* to antiepileptic drugs.**

Speakers: Lew Holmes, Massachusetts General Hospital and Jane Adams, University of Massachusetts

10:00 AM – 10:15 AM

BREAK

10:15 AM – 11:00 AM

S11 **Use of identical behavioral tasks in children and nonhuman primates for studying chemical effects on a variety of complex brain functions.**

Speaker: Merle Paule, NCTR

11:00 AM – 11:45 AM

S12 **Use of imaging techniques to explore neural substrates associated with prenatal alcohol syndrome.**

Speaker: Elizabeth R. Sowell, UCLA

12:00 PM – 12:45 PM **TERATOLOGY: BIG PICTURE PERSPECTIVE** —Salon F

Speaker: Bernard Schwetz, Acting Principal Deputy Commissioner U.S. FDA
(Lunch available for purchase from the Cazadores Area)

12:30 PM – 7:30 PM **POSTERS AND EXHIBITS OPEN**—Salon H

Tuesday, June 25 (continued)

- 1:00 PM – 4:00 PM** **TERATOGEN UPDATE (TS/OTIS JOINT SESSION)**—Salon F
Organizers and Chairpersons: Robert Brent, DuPont Hospital for Children and Janine Polifka, University of Washington
- 1:00 PM – 1:40 PM S13 **Caffeine—A human teratogen?**
Speaker: Mildred Christian, Argus Research, A Division of Charles River Laboratories, Inc.
- 1:40 PM – 2:20 PM S14 **Cholesterol lowering drugs (the statins).**
Speaker: Robert Brent, DuPont Hospital for Children
- 2:20 PM – 2:40 PM** **BREAK**—Salon H
- 2:40 PM – 3:20 PM S15 **Vitamin A.**
Speaker: Andrew Hendrickx, California Regional Primate Research Center
- 3:20 PM – 4:00 PM S16 **Binge drinking.**
Speaker: Janine Polifka, University of Washington
- 5:00 PM – 7:30 PM** **JOINT TERATOLOGY/NBTS POSTER SESSION II** —Salon H
Chairpersons: Tom Collins, CFSAN/U.S. FDA and Kim Grant, University of Washington
Teratology Posters: 23–46, NBTS Posters: 35–42

Wednesday, June 26

- 7:30 AM – 8:30 AM** **TERATOLOGY LIAISON BREAKFAST**—Salon 10 (By invitation only)
- 8:00 AM – 8:30 AM** **COFFEE AND CONTINENTAL BREAKFAST**—East Foyer
- 8:00 AM – 5:00 PM** **REGISTRATION**—East Foyer
- 8:30 AM – 11:30 AM** **CONCURRENT SESSION I**—Salon F
The Use of Nonhuman Primate Models in Developmental Toxicology Studies
Organizers and Chairpersons: Andrew Hendrickx, California Regional Primate Research Center, University of California, Davis and Walter H. Bee, Sierra Biomedical, Inc., A Division of Charles River Laboratories, Inc.
- 8:30 AM – 9:00 AM S17 **The non-human primate model in reproductive toxicology with special emphasis on male fertility testing.**
Speaker: Walter H. Bee, Sierra Biomedical, Inc., A Division of Charles River Laboratories, Inc.
- 9:00 AM – 9:30 AM S18 **Chronic uterine and vascular female catheterization techniques and opportunities for investigative studies.**
Speaker: George J. Haluska, Oregon Regional Primate Research Center, Oregon Health & Science University
- 9:30 AM – 10:00 AM** **Warkany Tea**
- 10:00 AM – 10:30 AM S19 **Female reproduction and prenatal development of the immune system in macaques.**
Speaker: Andrew G. Hendrickx, California Regional Primate Research Center, University of California, Davis

Wednesday, June 26 (continued)

10:30 AM – 11:00 AM S20 **Preclinical development strategy for testing effects of immune modulating HuMAb in reproduction in non-human primates.**
Speaker: Corine K. Klingbeil, Preclinical Development, Protein Design Labs, Inc.

11:00 AM – 11:30 AM S21 **Neurobehavioral testing in the rhesus monkey.**
Speaker: Nellie K. Laughlin, University of Wisconsin

8:30 AM – 11:30 AM CONCURRENT SESSION II—Salon E

The Direct Dosing of Pre-Weaning Mammals in Toxicity Testing

Organizers and Chairpersons: David Beckman, Novartis and Isabel Walls, ILSI Risk Science Institute

8:30 AM – 9:00 AM S22 **General experimental design issues in direct dosing of pre-weaning mammals.**
Speaker: Sue Makris, U.S. EPA

9:00 AM – 9:30 AM S23 **Direct dosing of pre-weaning rodents.**
Speaker: Susan Barron, University of Kentucky

9:30 AM – 10:00 AM Warkany Tea

10:00 AM – 10:30 AM S24 **Direct dosing of pre-weaning pigs, dogs, and primates.**
Speaker: Larry Garthoff, CFSAN/U.S. FDA

10:30 AM – 11:30 AM **Panel discussion. Direct dosing of pre-weaning mammals.**
Panelists: Sue Makris, Susan Barron, Larry Garthoff, David Beckman, Tom Sobotka, U.S. FDA/CFSAN

8:30 AM – 11:30 AM CONCURRENT SESSION III—Salon G

Microarray Data Analysis and Bioinformatics Workshop

Supported by: PerkinElmer Life Sciences

Organizers and Chairpersons: Thomas B. Knudsen, Jefferson Medical College and George P. Daston, Procter & Gamble Company, Miami Valley Laboratories

8:30 AM – 8:50 AM S25 **Standards and practices of microarray analysis in developmental biology and developmental toxicity.**
Speakers: Thomas B. Knudsen, Jefferson Medical College and George P. Daston, Procter & Gamble Company, Miami Valley Laboratories

8:50 AM – 9:30 AM S26 **Toxicogenomics: Use of a data set of toxicant-induced transcriptional profiles to derive signature patterns associated with mode of action.**
Speaker: Mark Johnson, Johnson & Johnson Pharmaceutical Research and Development

Wednesday, June 26 (continued)

- 9:30 AM – 10:00 AM **Warkany Tea**
- 10:00 AM – 10:40 AM S27 **Bioinformatics pipeline and its information resources.**
Speaker: Sylvia J. Spengler, Lawrence Berkeley National Laboratory
- 10:40 AM – 11:20 AM S28 **Morphants: A new systematic Vertebrate functional genomics approach.**
Speaker: Stephen C. Ekker, University of Minnesota Medical School
- 11:20 AM – 11:30 AM **Summary**
- 11:45 AM-12:45 PM PREVENTING BIRTH DEFECTS: THE ROLE OF PUBLIC POLICY**—Salon F
Speaker: José F. Cordero, Director National Center on Birth Defects and Developmental Disabilities, CDC
(Lunch available for purchase from the Cazadores Area)
- 1:00 PM – 2:30 PM PAST PRESIDENTS' LUNCHEON**—Salon 10 (By invitation only)
- 1:00 PM – 5:00 PM CONCURRENT PLATFORM SESSION I**—Salon F
Clinical Teratology and Epidemiology
Chairpersons: Ken Jones, UCSD and Jeanne Manson, Jefferson Medical College
Clinical Teratology and Epidemiology
- 1:00 PM – 1:15 PM 9 **Pattern of malformation secondary to prenatal exposure to cyclophosphamide.**
K.K. Vaux^{1,2}, N. Kahole², and K.L. Jones². ¹Department of Pediatrics, Naval Medical Center San Diego, San Diego, California; ²Department of Pediatrics, University of California, San Diego, School of Medicine, La Jolla, California
- 1:15 PM – 1:30 PM 10 **Hypospadias: Trends and risk factors, California, 1989–1997.**
S.L. Carmichael, G.M. Shaw, V. Nelson, C. Torfs, and C. Curry, California Birth Defects Monitoring Program, Oakland, California
- 1:30 PM – 1:45 PM 11 **Of diabetic mothers and their babies.**
M. Barr, Jr., Departments of Pediatrics, Pathology and Obstetrics, University of Michigan, Ann Arbor, Michigan
- 1:45 PM – 2:00 PM 12 **Pregnancy outcome after gestational exposure to corticosteroids: A prospective controlled cohort study.**
O. Diav-Citrin¹, C. Gur², S. Shechtman¹, J. Arnon¹, and A. Ornoy^{1,2}. ¹The Israeli Teratogen Information Service, Israel Ministry of Health; and the ²Hebrew University Hadassah Medical School, Jerusalem, Israel

Wednesday, June 26 (continued)

- 2:00 PM – 2:15 PM 13 **Pregnancy outcome after gestational exposure to paroxetine: A prospective controlled cohort study.**
O. Diav-Citrin¹, S. Shechtman¹, D. Weinbaum³, J. Arnon¹, R. Wajnberg¹, and A. Ornoy^{1,2}. ¹The Israeli Teratogen Information Service, Israel Ministry of Health; the ²Hebrew University Hadassah Medical School; and the ³School of Pharmacy, Jerusalem, Israel
- 2:15 PM – 2:30 PM 14 **Case-control study of vasoconstrictive exposures and risks of gastroschisis and small intestinal atresia.**
M.M. Werler and A.A. Mitchell, Slone Epidemiology Unit, Boston University, Boston, Massachusetts
- 2:30 PM – 2:45 PM 15 **Relationship between genotypes and phenotypic characteristics of the autism spectrum disorder.**
C.J. Stodgell¹, S.L. Hyman¹, and S.E. Bryson². ¹University of Rochester School of Medicine, Rochester, New York; and ²Dalhousie University-IWK Health Centre, Halifax, Nova Scotia
- 2:45 PM – 3:00 PM 16 **A study of teratogenicity of hydrosalpinx fluid using a whole rat embryo culture model.**
L.Y. Chan, P.Y. Chiu, L.P. Cheung, C.J. Haines, H.F. Tung, and T.K. Lau, Department of Obstetrics and Gynaecology, The Chinese University of Hong Kong, Shatin, Hong Kong
- 3:00 PM – 3:15 PM BREAK**
- 3:15 PM – 3:30 PM 17 **Maternal hyperthermia in pregnancy and the risk for neural tube defects in offspring: A meta-analysis.**
M.E. Moretti¹, B. Bar-Oz², S. Fried¹, and G. Koren¹. ¹The Motherisk Program, The Hospital for Sick Children, Toronto, Canada; and ² Department of Neonatology, Hadassah Medical Center, Jerusalem, Israel
- 3:30 PM – 3:45 PM 18 **Perinatal outcome following third trimester exposure to paroxetine.**
A. Costei, T. Ho, E. Kozer, S. Ito, and G. Koren. The Motherisk Program, Division of Clinical Pharmacology, The Hospital for Sick Children, University of Toronto, Toronto, Canada
- 3:45 PM – 4:00 PM 19 **Efficiency of prenatal screening for community-based prevention of congenital anomalies.**
Y. Alembik, B. Dott, M.P. Roth, and C. Stoll, Génétique Médicale, Centre Hospitalo-Universitaire, Strasbourg, France

Wednesday, June 26 (continued)

- 4:00 PM – 4:15 PM 20 **Ovulation stimulation, assisted reproductive techniques, and craniosynostosis—Atlanta, California, and Iowa, 1993–1997.**
J. Reefhuis^{1,2}, G. Shaw³, P.A. Romitti⁴, and M.A. Honein².
¹Epidemiology Program Office, Centers for Disease Control and Prevention, Atlanta, Georgia; ²National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia; ³California Birth Defects Monitoring Program, Emeryville, California; and ⁴Department of Epidemiology, University of Iowa, Iowa City, Iowa
- 4:15 PM – 4:30 PM 21 **Epidemiologic risk factors for hypospadias: Preliminary results from an on-going study.**
J.M. Manson¹, M. Buchanan¹, C. Daskalakis¹, and M.C. Carr². ¹Thomas Jefferson University; ²Children's Hospital of Philadelphia, Philadelphia, Pennsylvania
- 4:30 PM – 4:45 PM 22 **Diagnosis and management of environmentally determined head shape abnormalities.**
J.M. Graham, Ahmanson Pediatric Center, Medical Genetics Birth Defects Center, Cedars-Sinai Medical Center, UCLA Medical School, Los Angeles, California
- 4:45 PM – 5:00 PM 23 **Asthma severity and pregnancy outcome.**
D.L. Johnson¹, N.D. Van Maarseveen¹, K.L. Jones¹, M. Schatz², C.D. Chambers¹, and the Otis Collaborative Research Group. ¹University of California, La Jolla, California; and ²Kaiser-Permanente, San Diego, California
- 1:00 PM – 5:00 PM CONCURRENT PLATFORM SESSION II—Salon G**
Mechanisms of Abnormal Development
Chairpersons: Michael Collins, UCLA and Tom Flynn, CFSAN/U.S. FDA
- 1:00 PM – 1:15 PM 24 **Fumonisin B1-induced neural tube defects: Disruption of membrane sphingolipids and folate transport.**
J. Gelineau-van Waes, L. Starr, J. Maddox, S. Heller, and G. Bennett, University of Nebraska Medical Center, Omaha, Nebraska
- 1:15 PM – 1:30 PM 25 **Maternal folate rescues neural crest cell-derived conotruncal heart defects in *Folbp1* knockout mice.**
J. Gelineau-van Waes¹, L. Tang², F. Aleman¹, J.D. Eudy¹, J. Maddox¹, R.H. Finnell², and T.H. Rosenquist¹.
¹University of Nebraska Medical Center, Omaha, Nebraska; ²Institute of Biosciences and Technology, Houston, Texas
- 1:30 PM – 1:45 PM 26 **The transfer of insulin lispro across the human placenta.**
R. Boskovic¹, D. Feig², B. Knie¹, G. Portnoi¹, and G. Koren¹.
¹Motherisk Program, Division of Clinical Pharmacology, The Hospital for Sick Children; ²Mount Sinai Hospital, Department of Endocrinology, University of Toronto, Toronto, Canada

Wednesday, June 26 (continued)

- 1:45 PM – 2:00 PM 27 **Comparison of the effects of agents causing hypomethylation on neural tube closure and early ganglia development in cultured rat embryos.**
J. Chen¹, L.B. Fawcett¹, J.E. Pugarell² and R.L. Brent^{1,2}.
¹*Department of Pediatrics, Thomas Jefferson University, Philadelphia;* and ²*Department of Research, Alfred I. DuPont Hospital for Children, Wilmington, Delaware*
- 2:00 PM – 2:15 PM 28 **Molecular dissection of a novel mitochondrial pathway in teratogenesis.**
M.F. O'Hara, K.R. Nemeth, J.H. Charlap, R.C. Craig, B. Nibbio, and T.B. Knudsen, Department of Pathology, Anatomy and Cell Biology, Jefferson Medical College, Thomas Jefferson University, Philadelphia, Pennsylvania
- 2:15 PM – 2:30 PM 29 **Inhibition of protein kinase C induces supernumerary inner hair cells in the developing mammalian cochlea.**
A. Dabdoub, J. Jones, M.J. Donohue, P.J. Lanford, and M.W. Kelley, Section on Developmental Neuroscience, NIDCD, NIH, Rockville, Maryland
- 2:30 PM – 2:45 PM 30 **Animal-human concordance in the developmental toxicity of two antihypertensive agents.**
S.A. Tabacova¹, C.A. Kimme², K. Wall¹, and C.A. McCloskey³. ¹*National Center for Toxicological Research, U.S. FDA, Rockville, Maryland & Jefferson, Arkansas;* ²*National Center for Environmental Assessment, Office of Research and Development, U.S. EPA, Washington, DC;* and ³*Center for Drug Evaluation and Research, U.S. FDA, Rockville, Maryland*
- 2:45 PM – 3:00 PM 31 **Transcript profiles for estrogens: Comparing fetal and adolescent rat uterine response.**
J.M. Naciff, M.L. Jump, G.J. Overmann, S.M. Torontali, J.P. Tiesman, and G.P. Daston, Procter & Gamble, Cincinnati, Ohio
- 3:00 PM – 3:15 PM BREAK**
- 3:15 PM – 3:30 PM 32 **Transmission disequilibrium of a variant allele of *HOXD1* in autism spectrum disorders.**
N. Wanek¹, M. O'Bara², C.J. Stodgell¹, and P.M. Rodier².
¹*Rochester Institute of Technology and* ²*University of Rochester Medical Center, Rochester, New York*
- 3:30 PM – 3:45 PM 33 **Gastroschisis is caused by a combination of protein-zinc deficiencies and carbon monoxide.**
J. Singh, Stillman College, Tuscaloosa, Alabama
- 3:45 PM – 4:00 PM 34 **Diabetes-alcohol interaction: The effect of maternal alcohol treatment on fetal development in streptozotocin-induced diabetes in the mouse.**
R. Padmanabhan and M. Shafiulla, Faculty of Medicine and Health Sciences, UAE University, Al Ain, United Arab Emirates

Wednesday, June 26 (continued)

- 4:00 PM – 4:15 PM 35 **Hyperthermia and 4-hydroperoxycyclophosphamide-induced changes in gene expression in day 9 mouse embryos: Analysis 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
- 4:15 PM – 4:30 PM 36 **Revisitation of the embryonic stress response as a mechanism of teratogenesis.**
W.J. Scott, C.M. Schreiner, and S.M. Bell, Children's Hospital Research Foundation, Cincinnati, Ohio
- 4:30 PM – 4:45 PM 37 **Study of placenta of children born with congenital malformations.**
C. Stoll, Y. Alembik, B. Dott, and M.P. Roth, Génétique Médicale, Centre Hospitalo-Universitaire, Strasbourg, France
- 4:45 PM – 5:00 PM 38 **Developmental toxicity assessment of a soy-derived protease inhibitor (Bowman-Birk Inhibitor) in rats.**
*A.S. Faqi¹, J.A. Crowell², N. Kozub¹, and D.L. McCormick¹.
¹Life Sciences Operation, IIT Research Institute, Chicago, Illinois; ²Division of Cancer Prevention, National Cancer Institute, Bethesda, Maryland*
- 1:00 PM – 4:30 PM CONCURRENT PLATFORM SESSION III—Salon E**
Hazard and Risk Evaluation
Chairpersons: Alan Hoberman, Argus Research, A Division of Charles Laboratories and Gary Kimmel, U.S. EPA
- 1:00 PM – 1:15 PM 39 **The effects of antiphospholipid antibodies purified from women with SLE and recurrent pregnancy loss on rat embryos and their yolk sacs in culture.**
A. Ornoy¹, S. Tartakover Matalon^{1,2}, M. Blank², S. Yacobi¹, Z. Blumenfeld³, Y. Shoenfeld³. ¹Hebrew University, Jerusalem, Israel; ²Tel Aviv University, Tel Aviv, Israel; and the ³Technion School of Medicine, Haifa, Israel
- 1:15 PM – 1:30 PM 40 **Timing of prenatal care initiation and risk of congenital malformations.**
S.L. Carmichael, G.M. Shaw, and V. Nelson, California Birth Defects Monitoring Program, Oakland, California
- 1:30 PM – 1:45 PM 41 **Does maternal periconceptional vitamin use influence associations of selected factors on congenital anomaly risks?**
G.M. Shaw, S.L. Carmichael, and V. Nelson, California Birth Defects Monitoring Program, Oakland, California

Wednesday, June 26 (continued)

- 1:45 PM – 2:00 PM 42 **Safety and efficacy of ondansetron for the treatment of nausea and vomiting of pregnancy: A prospective comparative study.**
A. Einarson, K. Chandra, C. Maltepe, Y. Navois, and G. Koren, The Motherisk Program, The Hospital for Sick Children, Toronto, Canada
- 2:00 PM – 2:15 PM 43 **Child development following antidepressant exposure throughout fetal life: A prospective controlled study.**
I. Nulman, J. Rovet, D.E. Stewart, M. Loebstin, J. Wolpin, P. Pace-Asciak, S. Fried, and G. Koren, The Motherisk Program, Division of Clinical Pharmacology/Toxicology, Department of Psychology, The Hospital for Sick Children, Women's Health Program, The Toronto Hospital, The University of Toronto, Toronto, Canada
- 2:15 PM – 2:30 PM 44 **The safety and effects of aspirin consumption on pregnancy outcomes: A meta-analysis.**
E. Kozer, A. Costei, R. Boskovic, I. Nulman, S. Nikfar, and G. Koren, The Motherisk Program, Division of Clinical Pharmacology and Toxicology, The Hospital for Sick Children, and University of Toronto, Toronto, Ontario, Canada
- 2:30 PM – 2:45 PM 45 **Survival of infants born with encephalocele in Atlanta.**
C. Siffel, L.Y. Wong, R. Olney, and A. Correa, National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia
- 2:45 PM – 3:00 PM 46 **Developmental toxicity testing of four vaccines: evaluation of pre- and post-natal maternal antibody transfer.**
P.C. Barrow¹ and F. Verdier². ¹MDS Pharma Services, L'Arbresle, France; ²Aventis Pasteur, Marcy l'Etoile, France
- 3:00 PM – 3:15 PM BREAK**
- 3:15 PM – 3:30 PM 47 **The developmental toxicity of tetrathiomolybdate (TTM, NSC-714598) and protective effects of copper in rats.**
A.V. Lyubimov¹, M.D. Merceica², J.E. Tomaszewski³, A.C. Smith³, and B.S. Levine¹. ¹University of Illinois at Chicago, Chicago, Illinois; ²Pathology Associates, Frederick, Maryland; ³National Cancer Institute, Bethesda, Maryland
- 3:30 PM – 3:45 PM 48 **Developmental injury in murine preimplantation embryos exposed *in vitro* to commonly used agrochemicals.**
A.R. Greenlee¹, T.M. Ellis¹, and R.L. Berg². ¹National Farm Medicine Center, ²Department of Clinical Research, Marshfield Medical Research Foundation, Marshfield, Wisconsin

Wednesday, June 26 (continued)

- 3:45 PM – 4:00 PM 49 **Congenital diaphragmatic hernia: Associated anomalies and mortality-metropolitan Atlanta, 1968–1999.**
M.M. Dott^{1,2}, S.A. Rasmussen², and L.Y. Wong². ¹Epidemic Intelligence Service, ²National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia
- 4:00 PM – 4:15 PM 50 **Development and evaluation of a novel technique to examine the fetal rodent cranium.**
A.B. Astroff, S.E. Ray, L.M. Rowe, K.G. Hilbish, A.L. Linville, J.P. Stutz, and W.J. Breslin, Eli Lilly and Company, Lilly Research Laboratories, Greenfield, Indiana
- 4:15 PM – 4:30 PM 51 **Association between sauna use during early pregnancy and congenital anomaly.**
J.Y. Han, H.K. Ahn, Y.C. Jung, S.H. Jung, J.S. Choi, M.Y. Kim, H.M. Rheu, J.H. Yang, and K.H. Choi, Department of Obstetrics & Gynecology, Samsung Cheil Hospital and Women's Healthcare Center, Sungkyunkwan University, School of Medicine, Seoul, Korea

5:00 PM – 6:00 PM **BUSINESS MEETING** (Members only)—Salon F

7:00 PM – 8:00 PM **BANQUET RECEPTION**—Princess Plaza

8:00 PM **BANQUET**—Salon H

Thursday, June 27

8:00 AM – 8:30 AM **COFFEE AND CONTINENTAL BREAKFAST**—East Foyer

8:00 AM – 12:00 PM **REGISTRATION**—East Foyer

8:30 AM – 11:30 AM **THE WILEY-LISS SYMPOSIUM**—Salon F

Immunotoxicology: Principles and Applications to Developmental Toxicity Studies

Organizers and Chairpersons: Antonio F. Machado, UCLA and Rochelle W. Tyl, RTI International

8:30 AM – 9:15 AM S29 **The postnatal immune system as target for teratogens/developmental toxicants from perinatal exposures.**
Speaker: Michael Luster, CDC, NIOSH

9:15 AM – 10:00 AM S30 ***In utero* and postnatal development of the immune system.**
Speaker: Ralph J. Smialowicz, U.S. EPA, NHEERL

10:00 AM – 10:15 AM **BREAK**

10:15 AM – 11:00 AM S31 **Windows of differential immunotoxic sensitivities during development: Phylogenetic and sub-population considerations.**
Speaker: Rodney R. Dietert, Cornell University

Thursday, June 27 (continued)

11:00 AM – 11:45 AM S32 **The effect of the maternal immune system on teratogenicity.**

Speaker: Steven D. Holladay, VA-MD Regional College of Veterinary Medicine, Virginia Polytechnic Institute and State University

11:45 AM – 1:00 PM JAMES G. WILSON AND F. CLARKE FRASER AWARDS LUNCHEON—Salon H
F. Clarke Fraser Award Recipient: Jeffrey M. Peters, Pennsylvania State University

1:30 PM – 4:00 PM COUNCIL II MEETING—Salon 1

Annual Meeting Exhibitors

**The Teratology Society thanks the following organizations
for their participation as Exhibitors at the 2002 Annual Meeting.**

Data Sciences International

John Wiley & Sons, Inc.

FASEB

Pathology Data Solutions, Inc.

Hamilton-Kinder LLC

San Diego Instruments, Inc.

Hamilton Thorne Research

SkeleTech

Huntingdon Life Sciences

SNBL USA Ltd.

IIT Research Institute

TherImmune Research
Corporation

Instem Life Science Systems
(North America) Ltd.

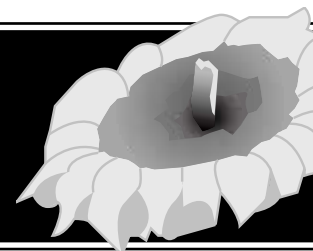
Toxicology Research
Laboratory

ISIS BioComp



42nd ANNUAL MEETING

June 22-27, 2002



Exhibitor Information

List of Exhibitors as of March 25, 2002; listing is in alphabetical order. The exhibiting company provided all information.

Data Sciences International

Booth 16

4211 Lexington Avenue North
Suite 2244
St. Paul, MN 55126

Telephone: (651) 481-7400
Fax: (651) 481-7404
Email: mknutson@datasci.com
Internet: www.datasci.com

Data Sciences International provides complete systems for collecting and analyzing data from conscious, freely moving laboratory animals. The parameters monitored include: blood pressure, heart rate, temperature, ECG, EEG, EMG, activity, left ventricular pressure, and respiration.

FASEB

Booth 1

MARC Program Coordinator
9650 Rockville Pike
Bethesda, MD 20814

Telephone: (301) 530-7109
Fax: (301) 571-0699
Email: cwright@faseb.org
Internet: <https://ns2.faseb.org/marc>

The FASEB MARC Program provides travel award opportunities for minority students, faculty, and scientists in the pursuit of graduate training leading to Ph.D. degree in the biomedical and behavioral sciences. These programs include travel awards opportunities to the FASEB Societies Scientific Meetings, Summer Research Opportunities at prominent research laboratories, Summer Conferences for the senior faculty, and a Visiting Scientist program.

We also provide Grantsmanship Training Programs at Historical Black Colleges, and minority-serving institutions. In the Summer months the FASEB MARC Program/Career Resources, in association with the National Institutes of Health and Grant Writers' Seminars and Workshops, LLC, sponsors Grantsmanship Training Program seminars, at the Omni Tucson National Golf Resort & Spa. For more information regarding the FASEB MARC Program Travel Awards and training opportunities, visit our Web site at: <https://ns2.faseb.org/marc>.

Hamilton-Kinder LLC**Booth 10**

12655 Danielson Court
Suite 308
Poway, CA 92064

Telephone: (858) 679-1515
Fax: (858) 679-4811
E-mail: mkinder@abac.com
Internet: www.hamiltonkinder.com

Hamilton-Kinder offers advanced behavioral test equipment including Startle Reflex Systems, Motor Monitor Activity Systems for cage racks and open fields, Learning and Memory with Passive Avoidance, Cued/Contextual Fear Conditioning and Tail Suspension testing. Systems for motor activity and startle reflex are also available for large animals such as K9 and mini-pigs.

Hamilton Thorne Research**Booth 6**

100 Cummings Center
Suite 102C
Beverly, MA 01915-6101

Telephone: (978) 921-2050
Fax: (978) 921-0250
Toll-free : (800) 323-0503
E-mail: sales@hamiltonthorne.com
Internet: www.hamiltonthorne.com

Meet the U.S. EPA regulations for reproductive toxicology with the TOX IVOS sperm analyzer. Perform sperm counts, concentrations, motility and morphology analyses on one validated, integrated system. Included research software enables detailed analysis data to be output to ASCII file for statistical evaluation. Multispecies applications are available to expand capability.

Huntingdon Life Sciences**Booth 14**

100 Mettlers Road
P. O. Box 2360
East Millstone, NJ 08875-2360

Telephone: (732) 873-2550
Fax: (732) 873-3992
E-mail: rodwelld@princeton.huntingdon.com

Huntingdon Life Sciences has extensive leadership and excellence in designing and conducting reproductive and developmental toxicology studies acceptable for submission to regulatory agencies. We can help get your product to market quickly, while ensuring safety for its intended use.

IIT Research Institute**Booth 5**

10 W. 35th Street
Chicago, IL 60616-3799

Telephone: (312) 567-4357
Fax: (312) 567-4021
Internet: www.iitri.org/lifesciences

IIT Research Institute (IITRI) is a full service contract toxicology, microbiology and immunology testing laboratory. IITRI offers services in the areas of reproductive and developmental toxicology, neurotoxicology, inhalation toxicology, immunotoxicology, metabolism/pharmacokinetics, cancer research, drug development, and clinical trial laboratory support. IITRI's personalized approach will customize services to assist you in effectively reaching your research objective.

Instem Life Science Systems (North America) Ltd.**Booth 2**

37 East Germantown Pike, Suite 101
Plymouth Meeting, PA 19462

Telephone: (610) 941-0990
Fax: (610) 941-0992
E-mail: info@instem-lss.com
Internet: www.instem-lss.com

Instem Life Science System, World Leaders in Toxicology Computing, is proud to present Provantis™ Reproductive Toxicology. This product supports the reproductive toxicologist or teratologist in conducting all study types, including ICH protocols, multigenerational, developmental toxicity, behavioral and developmental neurotoxicity studies.

ISIS BioComp**Booth 13**

39540 Tinderbox Way
Murrieta, CA 92562

Telephone: (951) 677-2446
Fax: (781) 207-5533
E-mail: dave@isisbio.com
Internet: www.isisbio.com

TFR/Tox is a comprehensive, integrated, Oracle-based system for the collection, management, and evaluation of data generated by teratology, fertility, reproductive, and general toxicology studies. It is mature, documented, validated, Part 11-compliant, flexible, and easily customized to users' requirements. Developed with GLP compliance in mind, it is easily validated with aids we supply.

TFR/Tox is particularly well suited for the needs of CROs, as it keeps each client's data separate and secure. Please stop by for more information or a demonstration.

John Wiley & Sons, Inc.**Booth 3**

605 Third Avenue
New York, NY 10158

Telephone: (212) 850-6000
Fax: (212) 850-6617
E-mail: lifrank@wiley.com
Internet: www.wiley.com

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Pathology Data Solutions, Inc.**Booth 15**

20 Jill Terrace
Succasunna, NJ 07876

Telephone: (973) 927-8886
Fax: (973) 927-4761

San Diego Instruments, Inc.**Booth 7**

7758 Arjons Drive
San Diego, CA 92126

Telephone: (858) 530-2600
Fax: (858) 530-2646
E-mail: info@sd-inst.com
Internet: www.sd-inst.com

Manufacturers 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.

SkeleTech**Booth 11**

22002 26th Ave., SE
Suite 104
Bothell, WA 98021

Telephone: (425) 424-2663
Fax: (425) 424-2600
Email: info@skeletech.com
Internet: www.skeletech.com

SkeleTech is a leading-edge contract research organization providing services that are therapeutically-focused in bone and central nervous system (CNS) biologies. SkeleTech's wide range of experience enables the offering of the latest drug development tools and technologies to the pharmaceutical, biotechnology, and medical device companies that are engaged in the discovery of new, innovative therapeutic products.

SNBL USA Ltd.**Booth 8**

6605 Merrill Creek Parkway
Everett, WA 980203

Telephone: (425) 407-0121
Fax: (425) 407-8601
Toll-free: (866) 560-7625
E-mail: info@snblusa.com
Internet: www.snblusa.com

Acknowledged as the world's leading Nonhuman Primate (NHP) CRO, SNBL provides the pharmaceutical and biotechnology industries with the full-service drug development capabilities. With over 10 years experience, SNBL is able to offer immediate initiation of reproductive and developmental toxicity studies (seg I, seg II, seg III) in cynomolgus monkeys.

TherImmune Research Corporation

Booth 4

555 Quince Orchard Road
Gaithersburg, MD 20878

Telephone: (301) 330-3733
Fax: (301) 330-6461
E-mail: info@therimmune.com
Internet: www.therimmune.com

TherImmune Research Corporation is a privately held CRO specializing in areas of Drug Development (Regulatory Support, Clinical Trial Development and Management), Preclinical Studies, Analytical Chemistry, and Immunology. TherImmune is committed to helping clients effectively achieve their goals by providing customized Drug Development Services from Discovery to Clinical Trials.

The Toxicology Division, Lab Services Division, and Drug Development Division, are each led by a senior scientist with over twenty years of experience. An on-going training program and quality improvement process ensures that our technical staff maintains the highest skill levels and expertise in current scientific procedures. Our facilities operate according to pertinent national and international guidelines including GLP, cGMP, ICH OECD, and MOHW. The toxicology facility is accredited by AAALAC and registered with USDA.

Toxicology Research Laboratory

Booth 9

1940 West Taylor Street
Room 312
Chicago, IL 60612-7353

Telephone: (312) 996-9185
Fax: (312) 996-7755
E-mail: bslevine@uic.edu

The Toxicology Research Laboratory conducts GLP-compliant studies in reproductive, developmental, and neurobehavioral toxicology (i.e., ICH1, ICH2, and ICH3); general toxicology; pharmacokinetics; and pharmacology. The AAALAC Intl.-accredited animal facility houses rodents (e.g., rats, mice, hamsters, guinea pigs), rabbits, ferrets, dogs, and nonhuman primates, including rhesus/cynomolgus monkeys and baboons.

The following pages need to be inserted at end of document starting with a right-hand page.

TERATOLOGY SOCIETY

Code of Ethics

Preamble

The objective of the Teratology Society is to stimulate scientific interest in and to promote the exchange of ideas and information on problems of abnormal biological development at the fundamental or clinical level.

Code of Ethics

As a member of the Teratology Society, I shall:

1. Strive to assure credibility by conducting my work and myself with objectivity and integrity.
2. Communicate information with potential or real health implications expeditiously and responsibly, with due regard for the significance and credibility of the available data.
3. Present my scientific or professional judgments with full disclosure of the extent of factual support.
4. Not allow conflict of interest to influence my judgment.
5. Observe the spirit and letter of the laws, regulations, and ethical standards relating to the welfare of humans and animals involved in experimental or clinical procedures.
6. Maintain high health and safety standards for the protection of my experimental subjects, co-workers, and others.

Adherence to the Code of Ethics is a condition of membership in the Teratology Society.

Guidelines for Ethical Publication and Presentation of Scientific Information and Data

Members of the Teratology Society subscribe to the Code of Ethics adopted by the Society membership on June 8, 1990. These guidelines for publication and presentation are complementary to the Code of Ethics and are an extension of the philosophy embodied in the Code as it applies specifically to publication and presentation of information by members of the Teratology Society as they function as authors, reviewers, editors, consultants and experts to government, universities, industry and the courts.

Responsibilities for All Members of the Teratology Society

1. Avoid the following unethical practices, which are unacceptable in publications or presentations:
 - a. Plagiarism-presenting the work of others, in whole or in part, as one's own.
 - b. Fraud-fabrication of results or reports, in whole or in part.
 - c. Suppression or distortion of data.
 - d. Submission of the same data simultaneously to more than one journal unless it has been justified openly to both editors or upon request of an editor as in a review article.
2. Not to accept co-authorship of a paper without full knowledge of and agreement with the contents and conclusions.
3. Manuscripts should reference published preliminary accounts or abstracts from the same work to permit association of preliminary and full reports of studies.
4. "Personal communication" citations or references (oral presentations) should have the approval of the cited individual.
5. The author must cite fairly the work of others. Appropriate citations are an important component of scholarship.
6. Speculation in the "Discussion" section of a paper should be limited to a scientifically sound extension of the paper and relevant literature.

Responsibilities of Reviewers

1. Reviewers are obligated to make expert, critical, and unbiased scientific and literary appraisals of reports of research, or other publications as requested, in the fields of the reviewers' knowledge.
2. Reviews should be done in a timely manner to not impede release of information. If a colleague is asked to review the paper, the person must be qualified in the opinion of the editorial staff of the journal, and the colleague's name must be identified for the Editor as the actual reviewer.
3. A reviewer should not review a paper if:
 - a. The reviewer does not feel it his or her area of expertise.
 - b. The reviewer feels there may be a conflict of interest, or,
 - c. The reviewer feels that a close personal, professional or competitive relationship with the author or one of the co-authors might bias the review.

4. Reviewer's criticisms must be sufficiently detailed to justify the conclusion and should be referenced if necessary to help the author.
5. The reviewer should assess whether the work of others is properly cited.
6. If the paper substantially resembles a published paper or another paper under review, this should be reported to the editor.
7. Unpublished contents of a paper under review must be considered privileged information and must not be disclosed to anyone outside of the review process.

Responsibilities of Editors

1. The editor manages and implements the policies of the journal and is responsible for the scientific and literary quality.
2. The editor, to the best of his/her ability must assure that all authors receive confidential, expert, critical and unbiased reviews of their work in a timely fashion.
3. An editor may not take part in the editorial management of the review of the editor's own papers. The editor also should avoid conflict of interest in the review of papers closely related to the editor's own work or organizational affiliation.
4. If an editor becomes aware that the main substance or conclusion of a paper published in the editor's journal may be erroneous, the editor should communicate such to the original author, if possible, and facilitate publication of a correction.

Reference

In preparing these guidelines, liberal use was made of "Ethical Guidelines for Publications of Research," *Endocrinology*, Vol. 122(1), 1-2, 1988.

TERATOLOGY
SOCIETY

**MEMBERSHIP
APPLICATION**

TERATOLOGY SOCIETY

c/o Secretary

1767 Business Center Drive

Suite 302

Reston, VA 20190-5332

Tel: (703) 438-3104 Fax: (703) 438-3113

E-mail: tshq@teratology.org

CRITERIA FOR MEMBERSHIP

REGULAR MEMBERS – For Regular Members, substantive interest in the purposes of the Teratology Society consists of pertinent publications or other documentation of interest. Publications listed shall be in teratology, as broadly defined. The list shall include only those published in referred journals; one or more publications (not abstracts) are required, with the applicant as the first author, or two or more publications are required, with the applicant as other than the first author. Manuscripts “in press” shall be considered only if a copy is submitted together with verification of acceptance for publication. In lieu of appropriate publications, other documentation of active participation in teratology (e.g. administrative or industrial experience with likelihood of continued interest) shall be considered.

ASSOCIATE MEMBERS – Associate Membership shall be considered for individuals who do not have publications in the field of teratology or direct scientific involvement in teratology. Such individuals may belong to other disciplines or professions, but demonstrate active participation in issues related to teratology, in line with the objectives of the Society. Active professional interest in teratology is to be documented in two letters of support from Regular Members. Associate Members may attend the Annual Business Meeting but may not vote, hold an elected office, or sponsor abstracts. Associate Members may present abstracts.

STUDENT MEMBERS – Requirements for Student Members consist of sponsorship by a member of the Teratology Society and the signature of the applicant’s Major Professor, whose signature verifies that the applicant is a student in good standing and is pursuing degree work in the field of teratology. The Major Professor also will provide the expected date of graduation. Student Members are expected to achieve Regular Membership status at the first Annual Meeting of the Society after they graduate; those who do not achieve Regular Membership status by the time of the succeeding Annual Meeting will no longer be members of the Society. Consideration for “restoration” of membership includes reasons for resignation or for nonpayment of dues, evidence of interim accomplishments in teratology, and likelihood of continuing interest.

DOCUMENTATION OF INTEREST IN TERATOLOGY – Briefly give your reasons for applying and list your most significant qualifications for membership.

Applications are reviewed three times a year. The application deadlines are March 1, July 1, and November 1. Approved applicants will be billed subsequently by Headquarters. Regular, Associate and Student Memberships include a subscription to *TERATOLOGY*, the official publication of the Teratology Society.

Please mail your completed original application and documentation along with three copies of each to:

TERATOLOGY SOCIETY
c/o Secretary
1767 Business Center Drive
Suite 302
Reston, VA 20190-5332
Tel: (703) 438-3104 Fax: (703) 438-3113
E-mail: tshq@teratology.org

APPLICATION FOR MEMBERSHIP

MEMBERSHIP CLASS:

Regular

Associate

Student

Combined

If student, expected graduation date _____

Major Professor _____
Signature _____ Typed Name _____

NAME OF CANDIDATE:

CURRENT POSITION AND ADDRESS:

Institution _____

Position _____ Department _____

Office Address _____

City _____ State _____ Zip _____

Office Phone _____ Fax _____

E-mail Address _____ Home Phone _____

Home Address _____

City _____ State _____ Zip _____

ACADEMIC TRAINING:

Field of Specialization _____

Institution	Dates of Attendance	Majors	Degrees

NAMES AND SIGNATURES OF ONE SPONSOR AND ONE SECONDER. (BOTH MUST BE REGULAR MEMBERS OF THE TERATOLOGY SOCIETY.)

Sponsor:

(Print or type) Name Signature Date

If this is a student application, only one signature is needed and the Major Professor may serve as the sponsor, but only if a member of the Society in good standing.

Secunder:

(Print or type) Name Signature Date

PROFESSIONAL BACKGROUND:

Attach a current *curriculum vitae*, including position held and publications.

Signature of Applicant Date

CONSTITUTION: ARTICLE II - MEMBERSHIP

Section 1

There shall be the following types of memberships:

- | | | | |
|-------------|---------------|-------------|------------|
| 1. Regular | 3. Associate | 5. Honorary | 7. Student |
| 2. Combined | 4. Sustaining | 6. Emeritus | |

Section 2

Members shall pay the Society annual dues as specified in the Bylaws.

Section 3

Regular Membership in the Society shall be open to persons who have demonstrated substantive interest in its purposes. Substantive interest is defined in the Bylaws, and a description is included on the application forms. Applications for membership must be endorsed by two members of the Society. Nominations are submitted to the Secretary and reviewed by the Membership Committee. A list of applicants meeting the requirements for membership will be transmitted by the Secretary during the first week in February, June, and October. The lists are communicated to the membership, who will have thirty (30) days to respond. Responses shall be reviewed by the Membership Committee. Its recommendations will be submitted to the Council for approval.

Section 4

Where husband and wife both qualify for regular membership, they may elect to have a *Combined Membership* entitling each of them to be listed as a member and to vote, but only one shall pay the cost of and receive a subscription to *TERATOLOGY*.

Section 5

Associate Membership in the Society shall be open to persons who do not have publications in the field of teratology or direct scientific involvement in teratology. Such individuals may belong to other disciplines or professions but demonstrate active participation in issues related to teratology in line with the objectives of the Society. Active professional interest in teratology is to be documented in two letters of support from regular members. *Associate Members* may attend the Annual Business Meeting but may not vote, hold an elected office or sponsor abstracts. *Associate Members* may present abstracts. As part of their annual dues, *Associate Members* shall receive a subscription to *TERATOLOGY*. Nominations are submitted to the Secretary and reviewed by the Membership Committee. A list of applicants meeting the requirements for membership will be transmitted by the Secretary during the first week in February, June, and October. The lists are communicated to the membership, who will have thirty (30) days to respond. Responses shall be reviewed by the Membership Committee. Its recommendations will be submitted to the Council for approval.

Section 6

All organizations interested in any aspect of Teratology shall be eligible for *Sustaining Membership*. Each sustaining member shall have the privilege of being represented without a vote at meetings of the Society by one delegate appointed by the sustaining member. *Sustaining Members* also shall receive one subscription to *TERATOLOGY* as part of their annual dues. A list of *Sustaining Members* shall be printed once a year in *TERATOLOGY*.

Section 7

Honorary Members may be elected by the Membership at the Annual Business Meeting, upon unanimous recommendation by the Council, from among the regular members or from nonmembers by a simple majority of those voting at the meeting. *Honorary Members* shall have all the voting rights and privileges of active members, are exempt from payment of annual dues, and shall receive *TERATOLOGY* gratis.

Section 8

Members who have retired from their professional posts shall become *Emeritus Members* upon application in writing to the Secretary. *Emeritus Members* shall have all the voting rights and privileges of active members and are exempt from payment of annual dues, but they shall not receive *TERATOLOGY* gratis.

Section 9

Student Membership in the Society shall be open to persons pursuing degree work or postdoctoral studies in the field of teratology. Applications for membership must be endorsed by one member of the Society. *Student Members* shall not have voting rights but shall receive the journal *TERATOLOGY*. The dues for *Student Members* shall be the Publisher's basic price for the journal.

Section 10

Termination of membership. Membership in the Society shall cease through any of the following:

1. By resignation.
2. If a member has defaulted in the payment of annual dues for two consecutive years. However, members whose dues are not paid by January of each year shall not continue to receive *TERATOLOGY*.
3. If, after consideration of a report from Council, the majority of the members of the Society present at the Annual Business Meeting decide that a member shall be expelled from membership on the grounds that his/her conduct is detrimental to the honor or interests of the Society and its objectives or is calculated to bring the work of the Society or its members into disrepute. Guidance for appropriate conduct of members is given in the Code of Ethics.

Section 11

Reinstatement. Members who have resigned or who have been dropped for nonpayment of dues may apply to be reinstated (see Bylaws). Applications are submitted to the Secretary and are reviewed by the Membership Committee for approval by Council. Names of approved nominees will be transmitted by the Secretary to the Annual Business Meeting for election to membership by simple majority vote.

Section 12

The right of any member to vote and all rights, title and interest, both legal and equitable, of a member in the Society shall cease on termination of his/her membership.