Symposium Overview
At this symposium, internationally-recognized experts from industry, regulatory, and academia will present their latest findings regarding developmental and reproductive toxicology. The journey of developing new scientific approaches for detecting, understanding, predicting, and performing better risk assessment as a critical pathway to the future of drug safety will also be explored.

Learn about the recent advances and challenges associated with developmental and reproductive toxicology, including
- Genomes being used to explore changes in gene expression
- Post-genomic technologies offering a new paradigm for identifying and verifying biomarkers
- Thorough safety assessment of drugs through identification of toxicity pathways and development of targeted assays to systemically assess potential modes of action

Gain valuable knowledge about current trends in developmental and reproductive toxicology, including
- Biomarkers
- Animal models
- Alternative testing
- Risk assessment
- Regulatory aspects

Ample opportunity to engage in question-and-answer dialogues will be provided. Discuss your own experiences during informal discussions with a panel of world-renowned experts.

Symposium Fees
The symposium fees include all meals and transportation to and from symposium-related events. Transportation, via shuttle service, from the airport to the Radisson Plaza Hotel can be arranged with advance reservations.

Registration received on or before June 1, 2011
- $350 – Industry
- $125 – Academic/Government

Registration received after June 1, 2011
- $500 – Industry
- $200 – Academic/Government

Registration
Space is limited, so early registration is encouraged. Registration must be received no later than August 1, 2011. There will be no on-site registration.

Register in one of four ways:
- E-mail symposium@mpiresearch.com
- Online at https://symposium.mpiresearch.com/
- Call +1 269.668.3336, ext. 4202
- Mail or fax enclosed form (see back page)

Visit www.mpiresearch.com for more information about the symposium.
Welcome!

Dear Colleague,

Welcome to Southwest Michigan, home of the rapidly growing life sciences corridor of the Midwest! This is the sixth year that MPI Research has conducted its popular educational series. Each year, the symposium theme has been a timely topic, relevant to preclinical drug and device researchers. This year, at the request of our Sponsors, we welcome the opportunity to collaborate with MichBio and MISOT in bringing you an exciting symposium focused on developmental and reproductive toxicology (DART).

Our distinguished panel of speakers is certain to stimulate, as well as to inform. The advances, challenges, and opportunities that developmental and reproductive toxicology present to the marketplace continue to grow and shape the regulatory environment. At the 2011 symposium, new scientific approaches to detecting, understanding, predicting, and performing better risk assessment in DART studies will be explored.

We are certain that you will take away valuable perspectives on this timely topic. We look forward to seeing you in Kalamazoo this August!

Sincerely,

William U. Parfet, MBA
Chairman and CEO
MPI Research

Ali S. Faqi, DVM, PhD, DABT
Senior Director, Developmental and Reproductive Toxicology and Senior Principal Study Director
MPI Research

Symposium Facilitator

Ali S. Faqi, DVM, PhD, DABT, is the Senior Director of Developmental and Reproductive Toxicology and Senior Principal Study Director at MPI Research. He received his PhD from the University of Leipzig in Germany in 1995 and DVM from Somali National University. He earned a diploma of specialization in experimental pharmacology from the University of Milan in Italy. He was a postdoctoral fellow at the Institute of Clinical Pharmacology and Toxicology at the Free University of Berlin-Germany from 1996 to 1998. Before joining MPI Research, Dr. Faqi was a Senior Scientist at Allergan Pharmaceuticals in Irvine, California, and a Research Toxicologist at IIT Research Institute in Chicago. He is a Diplomate of the American Board of Toxicology (DABT) and a member of the editorial board of Reproductive Toxicology Journal. Dr. Faqi has served on the Board of Scientific Counselors (BOSC) for Computational Toxicology at the United States Environmental Protection Agency (US EPA). He is a past chairman of the membership committee of the Teratology Society and a past-president of the Michigan Chapter of the Society of Toxicology. Dr. Faqi is a visiting professor of Pharmacology and Toxicology at the University of Palermo, Italy. He has published extensively in the field of developmental and reproductive toxicology.

A Note About Our Venue

Radisson Plaza Hotel
Kalamazoo, Michigan

With a prime downtown location close to shopping, theaters, museums, and Fortune 500 companies, the 100% smoke-free Radisson Plaza Hotel is ideal for both business and leisure travelers. Hotel guests can enjoy its well-equipped Business Center, indoor heated pool with a waterfall and hot tub, Idun Spa and Salon, and full-service fitness facility.

Accommodations

You can make reservations directly with the hotel. If you choose to make a reservation at the Radisson Plaza Hotel, please be sure to let the front desk know you are with the “MPI Research Symposium” to receive a discounted rate.

Radisson Plaza Hotel
+1.269.343.3333
www.radissonkz.com

The Gilmore Car Museum

The Gilmore Car Museum began in 1963 as the hobby of Donald S. Gilmore when his wife gave him an antique car for his birthday. After fully restoring the vehicle, Mr. Gilmore’s collection grew to over 30 automobiles. After purchasing 90 acres of farm property and several historic barns, Mr. Gilmore turned his collection into a museum where future generations could enjoy the restored cars for years to come. The Gilmores established a nonprofit foundation, and opened the museum to the public in 1966. Today, the site includes eight historic barns, a re-created 1930s service station, a small town train station, and nearly three miles of paved roads. The Museum is a founding member of the National Association of Automobile Museums, a member of the World Forum of Motor Museums, the Michigan Association of Museums, and the American Association of Museums.
Sunday, August 21, 2011

Check-in at the Radisson Plaza Hotel
4 pm; early check-in can be arranged upon request

Welcome Reception
5:30 pm; hors d’oeuvres and cocktails
Radisson Plaza Hotel
Kalamazoo Room
Welcoming Remarks
Tina S. Rogers, PhD, MBA, DABT
Executive Vice President and Director of Research
MPI Research

Monday, August 22, 2011

All presentations will take place in Arcadia Ballroom 1.

Breakfast
7:45–8:30 am
Kalamazoo Room

Welcome
8:30–8:45 am
Ali S. Faqi, DVM, PhD, DABT
Senior Director of Developmental and Reproductive Toxicology
and Senior Principal Study Director
MPI Research

Virtual Embryo: Systems Modeling in Developmental Toxicity
8:45–9:40 am
Thomas Knudsen, PhD
Developmental Systems Biologist
National Center for Computational Toxicology
U.S. Environmental Protection Agency

High-throughput screening (HTS) studies are providing a rich source of data that can be applied to in vitro profiling of chemical compounds for biological activity and potential toxicity. EPA’s ToxCast™ project and the broader Tox21 consortium, in addition to projects worldwide, are generating HTS data to construct in vitro cellular bioactivity profiles for thousands of chemical compounds in commerce or potentially entering the environment. EPA’s ToxCast project generated HTS data on 309 environmental chemicals in more than 500 in vitro assays. Phase I focused mostly on pesticidal and anti-microbial chemicals, with rich in vivo animal testing data culled from the ToxRef database. The assays covered diverse biochemical activities, receptor binding activities, reporter gene activation and gene expression profiles, stress-response indicators, and perturbation in cell state and cellular function. Also included were assays to monitor effects in zebrafish embryos and pathways of differentiation in mouse embryonic stem cells. In vitro profiles (AC50 in uM) and in vivo endpoints (mg/kg/day dosage) are compared for each chemical in the ToxCast database, with machine-learning algorithms used to identify patterns of biological activity and optimal feature selection for predictive modeling. Applying this approach to predictive modeling and mechanistic understanding of developmental toxicity faces several challenges: correlating in vitro concentration-response with internal dose-response kinetics; understanding how in vitro bioactivity profiles extrapolate from one cell-type or technology platform to another; and linking targets of in vitro bioactivity into pathways of developmental toxicity and mechanistic models. The latter would include in silico platforms that can be used to connect in vitro to in vivo effects with relevant knowledge about the developmental process, and computer simulations that run rules-based cellular behaviors to dissect complex multicellular responses at a systems-level. Addressing these challenges will require computer models that simulate multicellular dynamics. The Virtual Embryo project is building a framework for incorporating knowledge gained from these projects into computational models that run a morphogenetic series of events to analyze complex interactions underlying developmental toxicity. [This abstract does not necessarily reflect US EPA policy.]

Predictive Modeling of Reproductive Toxicity from ToxCase High Throughput Screening
9:40–10:35 am
Matthew Martin, MS
Biologist
National Center for Computational Toxicology,
Office of Research & Development,
U.S. Environmental Protection Agency

The EPA ToxCast research program uses high throughput screening for bioactivity profiling and predicting the toxicity of large numbers of chemicals. ToxCast Phase I tested 309 well-characterized chemicals in over 500 assays for a wide range of molecular targets and cellular responses with 256 chemicals linked to rat reproductive toxicity studies in the ToxRef database. A robust and stable predictive model was produced, which was capable of identifying rodent reproductive toxicants with 80% balanced accuracy. With a 21-chemical external validation set, the model was 76% accurate, indicating the model’s potential for prioritizing the many thousands of environmental chemicals with little to no hazard information.

Break
10:35–10:50 am
Refreshments served

Utilization of Gene Regulatory Networks in the Sea Urchin to Detect Mechanisms of Mammalian Teratogenesis
10:50–11:45 am
Michael Collins, PhD
Professor, Interdisciplinary Program in Molecular Toxicology
and the Department of Environmental Health Sciences
University of California Los Angeles (UCLA),
School of Public Health

Teratology as a field has been hampered by the inability to detect the mechanisms by which chemicals induce congenital malformations. It could be argued that none of the human teratogens have known mechanisms of action. Part of the difficulty derives from the fact that none of the endogenous embryonic processes have been characterized sufficiently to enable determination of dysmorphogenesis. One approach for characterizing the developmental processes is the use of gene regulatory networks. These networks have been relatively well characterized in Strongylocentrotus purpuratus (purple sea urchin), as a result of the work done at the Eric Davidson Laboratory at Caltech. Efforts to use these networks to identify chemical mechanisms will be described, along with the positives and negatives of using sea urchins.
Including Maternal Function and ICH 4.1.3.—Embryo Fetal Development. The revised ICH M3 (R2) provides guidance with regard to timing of nonclinical studies for biotechnology-derived products relative to clinical development. A critical review of developmental and reproductive toxicity studies in nonhuman primate will be presented. Discussions will focus on species selection, study designs, technical and logistical challenges, and data interpretation.

Break
3:50–4:05 pm
Refreshments served

Stress Prioritizes and Imbalances Stem Cell Differentiation That Produces Diagnostic Biomarkers
4:05–5 pm
Daniel Rappolee, PhD
Associate Professor, C.S. Mott Center for Human Growth and Development, Department of Obstetrics and Gynecology, Physiology, Wayne State University School of Medicine

Toxic and experimental stress induces compensatory and prioritized differentiation in embryonic stem cells and placental trophoblast stem cells from the early mammalian embryo. Compensatory differentiation occurs when stem cell accumulation rates decrease significantly in response to benzopyrene, hyperosmolar stress, or hypoxia. Prioritized differentiation is the induction of differentiated lineages from pluripotent stem cells that mediate the next essential developmental function in the conceptus. However, in embryonic and placental stem cells, later essential differentiated lineages are suppressed. Global mRNA microarrays or studies of proteins mediating imbalanced lineage choice produce biomarkers. These are the increased ratio of early lineage differentiation/later lineage differentiation markers.

Reception and Dinner (transportation will be provided)
6:30–9 pm
Gilmore Car Museum

Tuesday, August 23, 2011

All presentations will take place in Arcadia Ballroom 1.

Breakfast
7:45–8:30 am
Kalamazoo Room

Developing RNA as a Molecular Biomarker for Sperm: The Impact of What Dad Delivers
8:30–9:25 am
Stephen Krawetz, PhD
Associate Director, C.S. Mott Center for Human Growth and Development, Department of Obstetrics and Gynecology, Center for Molecular Medicine and Genetics, Wayne State University School of Medicine

Industry continues to implement and develop state-of-the-art technologies to determine how RNAs feedback to the genome to modulate the system. From QRT-PCR to expression arrays to deep sequencing, this data-rich environment is beginning to uncover a complex set of genetic and epigenetic factors that lead to successful conception, birth of a healthy child, and
longevity. The spermatozoal RNAs delivered at fertilization are likely to provide an essential component to early paternal genome reprogramming and thus may act as genetic and epigenetic effectors to the fetal onset of adult disease. By defining the composition of this population of RNAs, a robust suite of sperm biomarkers has been developed. Their development as surrogate markers of exposures will be discussed.

**Testicular Pathology in Juvenile Toxicity Studies**
9:25–10:20 am
Katharine Whitney, DVM, PhD, DACVP
GPRD Preclinical Safety, Pathology
Abbott Laboratories

Pathologic interpretation of juvenile studies is necessarily complicated by the dynamic developmental processes underway within the test subjects. In addition to potentially marked differences in compound metabolism, juvenile animals have vulnerable, temporally defined proliferating cell populations, often concurrent with less restricted compound distribution to key organ systems, compared to their adult counterparts. Pathologists require an understanding of developmental processes and conditions underway during exposure to compound in a juvenile toxicity study in order to interpret the terminal histopathology accurately. Post-natal testicular development in rats affords an example of how developmental considerations are essential to understanding a toxic effect.

**Break**
10:20–10:35 am
Refreshments served

**4-Vinylcyclohexene Diepoxide: A Model Chemical for Ovotoxicity**
10:35–11:30 am
Patricia Hoyer, PhD
Professor, Department of Physiology
The University of Arizona

The occupational chemical 4-vinylcyclohexene diepoxide (VCD) has been shown to cause selective destruction of ovarian small pre-antral follicles in rats and mice by accelerating the natural process of atresia (apoptosis). This follicle destruction requires repeated daily dosing. Chemicals that destroy small pre-antral follicles are of concern to women because exposure can result in premature ovarian failure (early menopause). An in vitro system using cultured whole neonatal rat ovaries has demonstrated that the cell survival c-kit/kit ligand signaling pathway is the direct target for VCD-induced ovotoxicity. The findings supporting these conclusions will be presented and discussed.

**The Extended One-Generation Reproductive Toxicity Study: An Integrated Approach to Evaluate Toxicity Across Life Stages**
11:30 am–12:25 pm
Sue Marty, PhD, DABT
Senior Toxicology Leader
Dow Chemical Company

The extended one-generation reproductive toxicity study (EOGRTS) is an integrated study design that not only evaluates reproductive and endocrine-sensitive endpoints, but also examines developmental immunotoxicity, developmental neurotoxicity, and systemic toxicity in F1 offspring exposed during critical windows of development. The EOGRTS evaluates more F1 offspring than the traditional two-generation study (3 pups/sex/litter vs. only 1 pup/sex/litter), and the quality of data generated from these offspring is enhanced by evaluating multiple systems for toxicity. This allows a large reduction in animal use, as a second generation is not routinely bred. However, there are some logistical challenges in managing the EOGRTS design.

**Lunch**
12:25–1:30 pm
Kalamazoo Room

**REACH: Still Many Unanswered Questions**
1:30–2:25 pm
Anthony Scialli, MD
Senior Scientist
Tetra Tech Sciences
Adjunct Professor, Department of Obstetrics and Gynecology
Georgetown University School of Medicine

The European Union’s REACH regulation has explicit requirements for reproductive and developmental toxicity data on all substances manufactured in or imported into the European Union at P10 metric tons/year. Meeting the data requirements with whole-animal testing could result in the use of almost 22 million vertebrate animals for the registration of existing chemicals and cost up to several hundred thousand dollars per registered substance. The requirement for financial and animal resources can be reduced by the use of in vitro testing, quantitative structure-activity relationship models, and grouping of related substances. Although REACH strongly encourages these methods of avoiding vertebrate animal testing, it remains to be seen whether in vitro testing or quantitative structure-activity relationship analysis will replace whole-animal reproductive and developmental toxicity testing. Grouping of related compounds offers the possibility, perhaps in conjunction with in vitro testing and structure-activity analysis, of reducing vertebrate animal testing, provided there is sufficient information on the related compounds and sufficient reason to believe that the related compounds will have similar toxicological properties. The designation of a substance as a reproductive or developmental toxicant follows criteria that do not consider the dose level of the substance at which reproductive or developmental effects occur, as long as excessive generalized toxicity does not occur. This method of labeling substances without consideration of effective dose level does not provide information on the actual risk of the chemical. Designation of a substance as a reproductive or developmental toxicant may have important implications under REACH and can be expected to result in the need to obtain authorization for marketing of the substance in the European Union.

**Panel Discussion and Closing Remarks**
2:25–3:30 pm
Speakers and summit co-sponsors
MPI Research, MichBio, and MISOT
Dr. Faqi has served on the Board of Scientific Counselors (BOSC) for Computational Toxicology at the United States Environmental Protection Agency (US EPA). He is a past-president of the Teratology Society and since 2003 has served as Editor in Chief of Reproductive Toxicology. His research on prenatal developmental toxicity, and mitochondrial and systems biology has led to over 90 scientific papers and book chapters. Dr. Knudsen has an adjunct faculty appointment at the University of Louisville. At EPA, he is a member of the ToxCast research team and leader of the Virtual Embryo Project.

Dr. Stephen Krawetz is the Charlotte B. Failing Professor of Fetal Therapy and Diagnosis, Associate Director C.S. Mott Center for Human Growth and Development in the Department of Obstetrics and Gynecology, Center for Molecular Medicine and Genetics, Wayne State University School of Medicine

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Dr. Patricia Hoyer is a Professor in the Department of Physiology at The University of Arizona. Her research specializes in the effects of environmental chemicals on ovarian function. Her professional activities have included membership in societies and on NIH and American Cancer Society study sections. She currently serves on the editorial boards of Toxicology and Applied Pharmacology, Biology of Reproduction, Endocrinology, and Experimental Biology and Medicine. In 2010 she organized the XVII International Ovarian Workshop.

Dr. Patricia Hoyer, PhD
Professor, Department of Physiology
The University of Arizona

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Dr. Thomas Knudsen is a Developmental Systems Biologist at the US Environmental Protection Agency’s National Center for Computational Toxicology (NCCT). He trained at Thomas Jefferson University, Children’s Hospital Research Foundation in Cincinnati, and Emory University. He held academic appointments at East Tennessee State University, Jefferson Medical College, and the University of Louisville. Dr. Knudsen is a past-president of the Teratology Society and since 2003 has served as Editor in Chief of Reproductive Toxicology. His research on prenatal developmental toxicity, and mitochondrial and systems biology has led to over 90 scientific papers and book chapters. Dr. Knudsen has an adjunct faculty appointment at the University of Louisville. At EPA, he is a member of the ToxCast research team and leader of the Virtual Embryo Project.

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Dr. Michael Collins is a Professor in the Interdisciplinary Program in Molecular Toxicology and in the Department of Environmental Health Sciences at the University of California Los Angeles (UCLA), School of Public Health

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Deborah Hansen, PhD
Research Biologist
Division of Personalized Nutrition and Medicine
FDA/National Center for Toxicological Research

Dr. Deborah Hansen received a BS in zoology from Eastern Illinois University, an MS in genetics from Iowa State University, and a PhD in medical genetics from Indiana University. She took postdoctoral positions at Yale University and at the University of Texas Health Science Center at Houston. Since 1985, she has worked as a Research Biologist at the Food and Drug Administration’s National Center for Toxicological Research. She also holds a position as Adjunct Associate Professor in the Department of Pharmacology and Interdisciplinary Toxicology at the University of Arkansas for Medical Sciences. Her research focus is in mechanisms of abnormal development, especially those which may include a nutritional component. She has utilized a variety of experimental techniques, including whole animal studies and whole embryo culture techniques, and she is currently working with embryonic stem cells.

Deborah Hansen received a BS in zoology from Eastern Illinois University, an MS in genetics from Iowa State University, and a PhD in medical genetics from Indiana University. She took postdoctoral positions at Yale University and at the University of Texas Health Science Center at Houston. Since 1985, she has worked as a Research Biologist at the Food and Drug Administration’s National Center for Toxicological Research. She also holds a position as Adjunct Associate Professor in the Department of Pharmacology and Interdisciplinary Toxicology at the University of Arkansas for Medical Sciences. Her research focus is in mechanisms of abnormal development, especially those which may include a nutritional component. She has utilized a variety of experimental techniques, including whole animal studies and whole embryo culture techniques, and she is currently working with embryonic stem cells.

Michael Collins, PhD
Professor, Interdisciplinary Program in Molecular Toxicology and the Department of Environmental Health Sciences
University of California Los Angeles (UCLA), School of Public Health

Michael Collins received a BS in zoology from Eastern Illinois University, an MS in genetics from Iowa State University, and a PhD in medical genetics from Indiana University. He then trained with Gordon Dixon at The University of Calgary as an AHFMR postdoctoral fellow. He has served as the Director of the WSU-Michigan Life Sciences Corridor Bioinformatics Node and was the Founding Director of the Center of Excellence: Paternal Impact of Toxicological Exposure. He received his PhD in biochemistry from the University of Toronto in 1983 and then trained with Gordon Dixon at The University of Calgary as an AHFMR postdoctoral fellow.

Michael Collins is Senior Director of Developmental and Reproductive Toxicology and Senior Principal Study Director at MPI Research. He received his PhD from the University of Leipzig in Germany in 1995 and DVM from Somali National University. He earned a diploma of specialization in experimental pharmacology from the University of Milan in Italy. He was a postdoctoral fellow at the Institute of Clinical Pharmacology and Toxicology at the Free University of Berlin–Germany from 1996 to 1998. Before joining MPI Research, Dr. Faqi was a Senior Scientist at Allergan Pharmaceuticals in Irvine, California, and a Research Toxicologist at IIT Research Institute in Chicago. He is a Diplomate of the American Board of Toxicology (DABT) and a member of the editorial board of Reproductive Toxicology Journal. Dr. Faqi has served on the Board of Scientific Counselors (BOSC) for Computational Toxicology at the United States Environmental Protection Agency (US EPA). He is a past chairman of the membership committee of the Teratology Society and a past-president of the Michigan Chapter of the Society of Toxicology. Dr. Faqi is a visiting professor of Pharmacology and Toxicology at the University of Palermo, Italy. He has published extensively in the field of developmental and reproductive toxicology.
Matthew Martin, MS  
**Biologist**  
**National Center for Computational Toxicology, Office of Research & Development, U.S. Environmental Protection Agency**

Matthew Martin earned his BS in integrated science and technology from James Madison University and his MS in environmental science and engineering from the University of North Carolina at Chapel Hill. He continues to work toward completion of his PhD in the same program, with an additional focus in bioinformatics and computational biology; his graduate work focuses on developing predictive models of reproductive toxicity and the application of those models toward chemical prioritization and integrated testing strategies. He started his career at Versar Inc. as an environmental scientist working on antimicrobial pesticide risk assessment and eventually moved to CH2M Hill Inc. as a database analyst. He began his career at EPA as part of the EPA Intern Program (now called the Environmental Careers Program), where he was able to do rotations across different parts of the agency, including the Office of Pesticide Programs and Office of Pollution Prevention and Toxics. He is now a biologist within NCCT, where he is part of the EPA ToxCast team and leads the Toxicity Reference Database (ToxRefDB) effort.

Sue Marty, PhD, DABT  
**Senior Toxicology Leader**  
**Dow Chemical Company**

Dr. Sue Marty received her MPH and PhD degrees from the University of Michigan, specializing in the area of reproductive toxicology. She was a postdoctoral fellow at Michigan State University, where she studied the effects of methylmercury on neurons and glia. In 1997, she joined The Dow Chemical Company, where she is currently a Senior Toxicology Leader in the neuro-endocrine toxicology group. Her research interest is investigating the modes of action for chemical effects on the endocrine system and neurodevelopment.

Jorge Naciff, PhD  
**Toxicologist, Central Product Safety Division**  
**The Procter & Gamble Company**

Dr. Jorge Naciff is a specialist in the areas of molecular and cellular physiology. He joined The Procter and Gamble Company in April 2000 in the Central Product Safety Division as a toxicologist. Before joining P&G he was an Adjunct Assistant Professor in the Department of Molecular and Cellular Physiology at the University of Cincinnati, College of Medicine in Ohio. Since he joined P&G, he has been working on a project to understand the relationship of altered gene expression to frank toxicity, by determining quantitative relationships between changes in gene expression and manifestations of toxicity at the cell, tissue and organ level. The study uses toxicogenomics principles and model chemicals with estrogenic activity, as well as other developmental toxicants. The data are being used as the bases to evaluate the feasibility of using transcript profiling as endpoints in quantitative, mechanistic-based risk assessments, in the endocrine disruptors field. He is also the human safety support for Product Development, particularly for skin care.

Daniel Rappolee, PhD  
**Associate Professor, C.S. Mott Center for Human Growth and Development, Department of Obstetrics and Gynecology, Physiology, Wayne State University School of Medicine**

Dr. Daniel Rappolee is an Associate Professor at Wayne State University School of Medicine, Departments of Obstetrics and Gynecology, and Reproductive Sciences, Physiology. He is Associate Editor of the journals Fertility and Sterility, Reproduction, and Journal of Assisted Reproduction and Genetics, as well as the past Executive Editor at Molecular Reproduction and Development. He has published 45 papers and 19 book chapters, held three NIH grants, one NASA and two AHA grants, and has sat on NIH and AHA study sections. He received his BS from UC Santa Barbara and his PhD in cell biology at UC San Francisco.

Anthony Scialli, MD  
**Senior Scientist**  
**Tetra Tech Sciences**  
**Adjunct Professor, Department of Obstetrics and Gynecology**  
**Georgetown University School of Medicine**

Dr. Anthony Scialli is a Senior Scientist at Tetra Tech Sciences. A board-certified obstetrician-gynecologist, Dr. Scialli is also Adjunct Professor in the Department of Obstetrics and Gynecology at Georgetown University School of Medicine, where he was a full-time Professor and director of the Training Program until 2003, and Clinical Professor in Obstetrics and Gynecology at George Washington University. After completing his residency in obstetrics and gynecology at George Washington University, Dr. Scialli did a fellowship in Reproductive Toxicology with Sergio Fabro at Columbia Hospital for Women Medical Center in Washington, D.C. He is currently the director of the Reproductive Toxicology Center, a nonprofit foundation that operates REPROTOX®, an internationally known database on the effects on reproduction of several thousand drugs, chemicals, and other agents. Dr. Scialli is a member and past president of the Teratology Society. He is also an active member of the Society of Toxicology, the American College of Toxicology, the American College of Obstetricians and Gynecologists, and the American Society of Reproductive Medicine. Dr. Scialli has consulted on reproductive toxicology for several government agencies, including the FDA, ATSDR, NIEHS, OSHA, and the EPA.

Katharine Whitney, DVM, PhD, DACVP  
**GPRD Preclinical Safety, Pathology**  
**Abbott Laboratories**

Dr. Katharine Whitney earned her DVM at the University of Georgia and PhD at the University of Tennessee. Following pathology residency training at Cornell University and completion of boards for the American College of Veterinary Pathology, she worked as a toxicologic pathologist at a contract research organization before joining Abbott Laboratories.
Registration

Space is limited, so early registration is encouraged. Registration must be received no later than August 1, 2011. There will be no on-site registration.

Register in one of four ways:
- E-mail symposium@mpiresearch.com
- Online at https://symposium.mpiresearch.com/
- Call +1 269.668.3336, ext. 4202
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  MPI Research
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  Mattawan, Michigan 49071 USA
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Payment

Contact symposium@mpiresearch.com for more information, or call Amber Nelson at +1 269.668.3336, ext. 4202.

Cancellations

All cancellations will be subject to a $50 administration fee. In order to receive a prompt refund, your notice of cancellation must be received in writing by July 15, 2011. We regret that refunds will not be issued after this date. The registration may be transferred to another member of your organization. If you plan to send a substitute in your place, please notify us as soon as possible so that appropriate preparations can be made. In the event of a conference cancellation, MPI Research assumes no liability for non-refundable transportation costs, hotel accommodations or additional costs incurred by registrants.

About the co-sponsors

MichBio
3520 Green Court, Suite 450
Ann Arbor, Michigan 48105
www.michbio.org

MichBio is the association for Michigan’s biosciences industry. It is committed to driving industry growth by fostering the collective impact of its members, by serving as their unified voice, and by providing them with education, information, connections, and other vital services. MichBio members include biosciences companies, academic and research institutions, bioscience service providers, and related organizations.

Michigan Chapter of the Society of Toxicology

The Michigan Chapter of the Society of Toxicology (MiSOT) was established in 1981 to serve as the focal point for interaction of members of the Society and other interested scientists in Michigan and environs. The objectives of this regional chapter are:

- to stimulate research and encourage communication among toxicologists, particularly young investigators whose opportunity to travel to national meetings might be limited
- to conduct programs and educational activities which emphasize the latest developments in toxicology
- to relate those developments to the activities of the Society of Toxicology (SOT) and to stimulate interest in toxicology and the Society of Toxicology among scientists in a wide array of disciplines
- to encourage interactions among toxicologists in government, industry, and academia

For more information about this organization, please visit www.toxicology.org/isot/rc/michigan/misot.html.

About MPI Research

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At this symposium, internationally-recognized experts from industry, regulatory, and academia will present their latest findings regarding developmental and reproductive toxicology. The journey of developing new scientific approaches for detecting, understanding, predicting, and performing better risk assessment as a critical pathway to the future of drug safety will also be explored.