CURRICULUM VITAE

Kim Boekelheide

Education

Medical Scientist Training Program, Duke University, 1974-1980
M.D., Duke University, 1980
Ph.D., Pathology, Duke University, 1980
B.A., Biochemistry, Harvard University, 1974

Professional Training and Academic Career

Resident, Combined Anatomic and Clinical Pathology Program, Department of Pathology, Duke University Medical Center, 1980 -1984
Assistant Professor, Department of Pathology and Laboratory Medicine, Brown University, 1984 - 1990
Associate Professor (with tenure), Department of Pathology and Laboratory Medicine, Brown University, 1990 - 1995
Professor, Department of Pathology and Laboratory Medicine, Brown University, 1995 - present
Adjunct Professor, Department of Biomedical Sciences, School of Pharmacy, University of Rhode Island, 1991 - present

Professional Certification

Diplomate, The American Board of Pathology, Anatomic and Clinical Pathology, 1984

Medical Licensure

North Carolina #26196 (inactive)
Rhode Island #6430 (inactive)

Professional Affiliations

Society of Toxicology, 1985
American Society of Andrology, 1986
American Society for Cell Biology, 1986
American Society for Investigative Pathology, 1986
American Association for the Advancement of Science, 1987
American Chemical Society, 1988
Society for the Study of Reproduction, 1990

Awards and Honors

Lifetime Achievement Award, Reproductive and Development Toxicology Specialty Section, Society of Toxicology, 2015
Doerenkamp-Zbinden Award, 2009 (given to authors of the National Academy of Sciences report entitled *Toxicity Testing in the 21st Century: A Vision and a Strategy*)
Center for Alternatives to Animal Testing (CAAT) Recognition Award, 2009 (given to authors of the National Academy of Sciences report entitled *Toxicity Testing in the 21st Century: A Vision and a Strategy*)
AstraZeneca Traveling Lectureship Award, Society of Toxicology, 2009

Annual Best Paper Award in Experimental Biology, 2002, *Experimental Biology & Medicine*

Burroughs Wellcome Toxicology Scholar Award, 1994-1999

Research Career Development Award, 1989 - 1994

International Life Sciences Institute Research Foundation Award in Comparative Toxicology, 1987- 1990

Pharmaceutical Manufacturers Association Foundation Faculty Development Award in Toxicologic Pathology, 1985-1987

Medical School Senior Citation, 1989

Sigma Xi, Duke University, 1981

Phi Beta Kappa, Duke University, 1980

Alpha Omega Alpha, Duke University, 1977

Professional Service

Chair, U01 CLARITY BPA Steering Committee, representing a consortium of 13 academic grantees participating in a joint NIEHS, NTP, FDA study of rat toxicity resulting from lifelong exposure to bisphenol A

Expert Consultant, Workshop on Phthalates and the Male Reproductive System, French Agency for Food, Environmental and Occupational Health & Safety (ANSES), Paris, France, October, 2015

Rapporteur, EPA-NIEHS Workshop, "Strengthening the Scientific Basis for Chemical Safety Assessments," Research Triangle Park, July, 2015

Organizer, "Workshop - Determining Adverse Responses Using In Vitro Assays," 15 international participants from academia, government, and industry, Providence, RI, June, 2015

Expert Reviewer, European Commission Horizon 2020 applications for "New approaches to improve predictive human safety testing," Brussels, Belgium, April, 2015

National Academy of Sciences Expert, EPA Integrated Risk Information System (IRIS) public meeting on phthalates, Washington, D.C., February, 2015

Member, Nominating Committee, Society of Toxicology, 2014-2016

Member, Audit Committee, Society of Toxicology, 2013-2016

Chair, symposium titled "Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures" at the 52nd Annual Society of Toxicology meeting, San Antonio, March, 2013

Member, Board of the Evidence Based Toxicology Consortium, 2011-2012

Member, Organizing Committee, "Future Tox," Contemporary Concepts in Toxicology, 2011-2012

Member, National Advisory Environmental Health Sciences Council, 2011-2015

Group Leader, NTP Workshop: Role of Environmental Chemicals in the Development of Diabetes and Obesity, Research triangle Park, NC, January, 2011

Member, Expert Panel, EPA Cumulative Risk Assessment of Phthalates Workshop, Washington, DC, December, 2010

Member, Advisory Board of the Center for Alternatives to Animal Testing, 2010-present

Organizer, National Academy of Sciences Workshop on *Use of In Utero and Postnatal Indicators to Predict Health Outcomes Later in Life,* Washington, DC, October, 2010

Member, *Standing Committee on Use of Emerging Science for Environmental Health Decisions*, National Academy of Sciences, National Research Council, 2008 - 2011

Member, NTP Reproduction and Development Criteria Working Group, 2008
Chair, Scientific Advisory Committee, CIIT Centers for Health Research (The Hamner), 2008
Member, External Advisory Committee, NYU NIEHS Center, 2007 - 2009
Member, Organizing Committee, 20th Annual Meeting of the Superfund Basic Research Program, 2007
Member, Review Panel, Superfund Basic Research Program, 2007
Chair, Scientific Advisory Committee, CIIT Centers for Health Research (The Hamner), 2007
Councilor, Society of Toxicology, 2007-2009
Member, Special Emphasis Review Panel, NIEHS Outstanding New Environmental Scientist Awards, March, 2007
Member, Bisphenol A Expert Panel of the National Toxicology Program Center for the Evaluation of Risks to Human Reproduction, 2007
Member, Advisory Panel to the Director of NIEHS, Review of the Children's Environmental Health Centers funding mechanism, 2006-2007
Member, Review Panel/Site Visit, EPA Reproductive Developmental Toxicology Division, 2006
Member, Review Panel, Fogarty International Training and Research in Environmental and Occupational Health, 2006
Chair, Scientific Advisory Committee, CIIT Centers for Health Research, 2006
Member (regular), ICER Study Section, 2006 - 2009
Member, Special Emphasis Review Panel, CMIR Study Section, March, 2006
Member, Special Emphasis Review Panel, NIEHS Outstanding New Environmental Scientist Awards, March, 2006
Member (ad hoc), ICER Study Section, February, 2006
Member, Di-(2-ethylhexyl)phthalate Expert Panel of the National Toxicology Program Center for the Evaluation of Risks to Human Reproduction, 2005
Member (ad hoc), ICER Study Section, June, 2005
Member (ad hoc), CMIR Study Section, March, 2005
Member (ad hoc), Board of Scientific Counselors, National Toxicology Program, August, 2005
Participant, High Throughput Screening Assays Workshop, National Toxicology Program, December, 2005
Member, Editorial Board, *Toxicological Sciences*, 2005 - 2007
Member, *Committee on Toxicity Testing and Assessment of Environmental Agents*, National Academy of Sciences, National Research Council, 2004 - 2007
Member, The Scientific Organizing Committee of the 2005 Testis Workshop
Member, Awards Committee, Society of Toxicology, 2004 – 2005
Member, *Subcommittee on Fluoride in Drinking Water*, National Academy of Sciences, National Research Council, 2003 - 2005
Member, Board of Scientific Counselors, National Toxicology Program, 2002 - 2004
Member, Technical Reports Review Subcommittee, Board of Scientific Counselors, National Toxicology Program, 2002 - 2004
Councilor, Reproductive and Developmental Specialty Section, Society of Toxicology, 2003 – 2005
Member, Review Committee for NICHD U54 Cooperative Reproductive Science Research Centers at Minority Institutions, December, 2002
Chair, NIH Center for Scientific Review Special Emphasis Panel, Fetal Basis of Adult Disease: Role of the Environment, November, 2002

Chair, Bromopropane Expert Panel of the NTP Center for the Evaluation of Risks to Human Reproduction, 2001

Vice-Chair, U.S. Consumer Product Safety Commission's Chronic Hazard Advisory Panel on Di-isononyl Phthalate, 2000 - 2001

Member, Phthalates Expert Panel of the NTP Center for the Evaluation of Risks to Human Reproduction, 1999 – 2000

Associate Editor, *Toxicology and Applied Pharmacology*, 1996 - 2001

Member, Parent Committee to review NICHD U54 Center grants, 1999

Member, Superfund Review Panel for NIEHS, 1999

Member, Special Emphasis Panel to review NIEHS ARCH Program applications, 1999

Member, External Advisory Committee, Center in Molecular Toxicology, Vanderbilt University, 1998 - 2003

Member, External Advisory Committee, Border Biomedical Research Center, University of Texas at El Paso, 1998 - 1999

Member, Committee on Gender Differences in Susceptibility to Environmental Factors, Division of Health Sciences Policy, National Academy of Sciences, Institute of Medicine, 1997

Chair, Special Review Committee for RFA 96-003 "Endocrine Disrupting Chemicals and Women's Health" (NIEHS), 1996

Chair, Toxicology Study Section (TOX2), National Institutes of Health, Division of Research Grants, 1993 -1995

Member, Toxicology Study Section (TOX 2), National Institutes of Health, Division of Research Grants, 1990 -1993

Member, Editorial Boards of *Experimental and Molecular Pathology* (1999-present), *Biology of Reproduction* (1999-2003), *American Journal of Pathology* (1996-1999), *Toxicology and Applied Pharmacology* (1989 - 1996), *Journal of Andrology* (1992 - 1994), *Neurotoxicology* (1992 - 1993), and *Chemical Research in Toxicology* (1995 - 1997)

President, Northeast Chapter of the Society of Toxicology, 1998 - 1999

Member, Society of Toxicology Program Committee, 1993 - 1996

Reviewer of Reproductive Assessment by Continuous Breeding (RACB) Reports, National Toxicology Program, National Institute of Environmental Health Sciences, 1990 - present

Member, State of Rhode Island and Providence Plantations Committee on Environmental Health, Governor's Year 2000 Health Objectives Task Force, 1992 - 1993

Member, State of Rhode Island and Providence Plantations Clean Drinking Water and Groundwater Standards Committee, 1987 – 1990

Grants and Contracts

Research Summary: The work in my laboratory concerns the mechanisms of testicular injury induced by toxic industrial and environmental compounds, mixtures of contaminants, and the reproductive/developmental consequences of exposure to endocrine disruptors.

Current:

R01 ES017272 (Boekelheide, PI) 01/14/10-11/30/16 (no cost extension)

NIH/NIEHS
Molecular mechanism of human fetal testis susceptibility to endocrine disruption
This project examines the human fetal testis xenograft response to phthalates.

U01 ES020913 (Boekelheide, PI) 09/19/11-05/31/16 (no cost extension)
NIH/NIEHS
Identification of Molecular Biomarkers in Rat Sperm and Testis Exposed to BPA
This cooperative grant studies male reproductive toxicity in a rat model of bisphenol A exposure using animals from a standard GLP study conducted at the National Center for Toxicologic Research.

1TR01ES020750-05 (Hartung) 09/01/11-03/31/16
NIH/NIEHS (subcontract)
Mapping the Human Toxome by Systems Toxicology
A collaboration with John Hopkins School of Public Health, Boekelheide is P.I. of a subcontract to develop cell line endocrine disruptor test platforms to be used for generating pathway data for toxic risk assessment.

BIPI #130124 (Boekelheide, PI) 01/01/14-12/31/17 (no cost extension)
Boehringer Ingelheim Pharmaceuticals, Inc.
The Effects of Chemotherapy Treatment on Transcriptomic and Epigenomic Profiles in Sperm
This project identifies sperm molecular biomarkers in candidate pharmaceuticals with known testicular effects in rats, and in human (both normal sperm donors and patients exposed to chemotherapy) with the goal of identifying sensitive and reproducible molecular indicators of testicular injury.

5P42ES013660 (Boekelheide) 04/18/05-03/31/20
NIH/NIEHS Superfund Research Program
Toxicant Exposures in Rhode Island: Past, Present and Future
This program has 4 Research Projects and 5 Cores. Boekelheide is overall P.I. and Leader of Research Project 1 and the Administrative Core (Core A).

MA-2015-01887 (Boekelheide, PI) 11/26/15-9/30/18
Unilever
Developing fit-for-purpose predictive biology platforms for in vitro toxicity testing
This research agreement between Brown University and Unilever supports the further development and validation of unique 3-dimensional in vitro predictive biology platforms for toxicity testing.

Past:

IOM-2000004033 (Boekelheide, PI) 11/01/13-06/30/15
National Academy of Sciences Institute of Medicine
Identifying Epigenetic Molecular Biomarkers of Dioxin Exposure in Vietnam Veterans
This project's goal is to identify molecular epigenetic biomarkers of dioxin exposure in Vietnam Veterans.

P20 ES018169 (Boekelheide, PI) 02/15/10-11/30/13
NIH/NIEHS (Co-Sponsored by the U.S. Environmental Protection Agency)
Formative Center for the Evaluation of Environmental Impacts on Fetal Development

This Children's Environmental Health Formative Center was focused on identification of epigenetic biomarkers of exposure of xenografted human fetal tissues.
Role: Overall PI, Research Project 2 Leader, Administrative Core Leader

RD-83459401 (Boekelheide, PI) 02/15/10 -02/14/14
U.S. Environmental Protection Agency (Co-Sponsored by the NIH/NIEHS)
Formative Center for the Evaluation of Environmental Impacts on Fetal Development
This Children's Environmental Health Formative Center was focused on identification of epigenetic biomarkers of exposure of xenografted human fetal tissues.
Role: Overall PI, Research Project 2 Leader, Administrative Core Leader

4317 (Boekelheide) 2/13/2009- 2/31/2013
American Chemistry Council, Inc.
Development of an Inter-Species Bioassay to Test Phthalate Susceptibility
This project used morphologic and immunohistochemical techniques to determine the kinetics of induction, persistence, and fate of multi-nucleated gonocytes following an in utero exposure to Dibutyl phthalate in rats.

Rhode Island Research Alliance, *"A Wound Healing Product for Diabetic Ulcers Containing Choroid Plexus Growth Factors"* ($199,997 01/01/11-03/31/12). This project aimed to characterize, formulate, and assess this early stage product in diabetic mice, representing a stringent wound model.

NSF 1046862 *"SBIR Phase 1: Improving the Healing of Problematic Skin Wounds with Topical Application of Growth Factors Derived from Choroid Plexus"* ($6,333 subcontract 01/01/11-12/31/11). This SBIR Phase I project investigated the composition and efficacy of protein cocktails derived from the choroid plexus formulated into a solid bandage to treat diabetic ulcers.

1R43GM095078-01A1 National Institute of General Medical Sciences, *"SBIR Phase 1: Improving the Healing of Problematic Skin Wounds with Topical Application of Growth Factors Derived from Choroid Plexus"* ($8,460 subcontract 09/20/11-03/19/12). This SBIR Phase I project investigated the composition and efficacy of protein cocktails derived from the choroid plexus formulated into a solid bandage to treat diabetic ulcers.

P42ES013660-05S1 Superfund Research Program (NIEHS) supplement. This is a supplement under ARRA for the collaboration between Brown University (Project 8 Carmen Marsit) and the Dartmouth College (Project 4-PI: Marget Karagas) that will utilize population-based birth cohort studies to examine the impact of environmental exposures at levels commonly observed in the US population and adverse pregnancy outcomes, specifically growth restriction and preterm birth. P.I. Kim Boekelheide (direct costs, ~149,328 per year), 09/06/2009 – 8/31/2011

P42ES013660-05S2 Superfund Research Program (NIEHS) supplement. This is a supplement under ARRA for the collaboration between Brown University (Project 7 –Eric Suuberg) and the Boston University (Translational Core –PI: Madeline

Scammell) to assess vapor intrusion exposure and risk. P.I. Kim Boekelheide (direct costs, ~$138,501 per year), 09/17/09 – 8/31/11

P42ES013660-05S3 Superfund Research Program (NIEHS) supplement. This is an administrative supplement for the collaboration between Brown University Research Translation Core & Project 7 and the US EPA's National Health and Environmental Effects Research Laboratory . P.I. Kim Boekelheide (direct costs, ~83,047 per year), 04/01/09 – 03/31/11

P42ES013660-04S1 Superfund Basic Research Program (NIEHS), Supplement: Supporting the growth of the Environmental Justice League of Rhode Island – Building a new partnership, P.I. Kim Boekelheide, 0% effort (direct costs $24,679), 9/18/08-3/31/09

R21 ES013020 "Phthalate-induced Murine Testicular Dysgenesis and p53," P.I. Kim Boekelheide, 5% effort, (direct costs, $100,000 per year), 05/01/05-02/28/08

P20 RR16457 "Rhode Island Network for Molecular Toxicology," P.I. Zahir Shaihk, Kim Boekelheide is Mentor, 5% effort, 10/01/01-6/30/07 (current year direct cost ~$2,500,000).

P42ES013660-02S1 Superfund Basic Research Program (NIEHS), Supplement: Site Investigation and Remediation Strategies for Hazardous Waste Sites, P.I. Kim Boekelheide, 0% effort (direct costs $44,058), 9/22/06-3/31/07

R01 ES/HD11632 "Cell Interactions in Male Reproductive Phthalate Injury," P.I. Kamin Johnson, Kim Boekelheide is Consultant, 5% effort, 04/01/02-03/31/07 (current year direct cost, $175,000; indirect, $98,978)

Living Cell Technologies Ltd. "Transplant of Encapsulated Hepatocytes into Hemophilic Mice," P.I. Kim Boekelheide, 5% effort, (current year direct costs, $71,232), 09/01/04-013107.

R01 ES05033 (previously numbered R01 OH02191) "Environmental/Industrial Toxicants and Testicular Injury," P.I. Kim Boekelheide, 33.3% effort, 09/27/85-04/30/06

Sertoli Technologies, Inc. "Evaluation of Sertoli Cell Transplants in Nonhuman Primates," P.I. Kim Boekelheide, 5% effort, 08/15/02-6/30/03, current year direct cost $91,670. This project examines survival of xenotransplanted mixtures of Sertoli cells and islet cells in nonhuman primates, testing an approach to treating diabetes mellitus.

R01 ES08956 "Sertoli Cell Toxicity In Vivo: Microtubule Disruption", P.I. Kim Boekelheide, 20% effort, 09/01/97-08/31/02, last year direct cost $160,512. This project uses an adenovirus gene delivery system to test the hypothesis that alterations in microtubule-dependent transport in Sertoli cells is necessary for germ cell survival.

Burroughs Wellcome Fund Toxicology Scholar Award (total direct costs of $380,000 over five years, 09/01/94-08/31/99)

K04 ES00193 "Cytoskeletal Targets of Neuronal/Testicular Toxicants", Research Career Development Award (total direct costs of $325,400 over five years, 07/01/89-6/30/94)

The Johns Hopkins Center for Alternatives to Animal Testing, "Development of Differentiated Sertoli Cell Lines for Testing Male Reproductive Toxicity" (total direct costs of $29,565 over two years, 2/1/92-1/31/94)

International Life Sciences Institute Research Foundation Award in Comparative Toxicology (total direct costs of $100,000 over three years, 7/01/87-6/30/90)

Pharmaceutical Manufacturers Association Foundation, Faculty Development Award in Toxicologic Pathology (total direct costs of $50,000 over two years, 07/01/85-06/30/87)

University Service

Chair, tenure track faculty search committee, Department of Pathology and Laboratory Medicine, 2015-2016

Member, Environment & Society Signature Initiative planning committee, 2012-2015

Member, Search Committee for Pathology & Lab Medicine (open Rank), 2012-2013

Member, Biology Strategic Planning Committee, 2012

Member, Search Committee for Chemical Engineering (open rank), 2011-2012

Chair, Department of Pathology and Laboratory Medicine, tenure track faculty search committee (two positions), 2011-2012

Member, Provost's Knowledge District Advisory Committee, Fall, 2011

Interim Chair, Department of Pathology and Laboratory Medicine, Fall, 2011

Member, Department of Neuroscience Internal Review Committee, 2010

Member, Search Committee for Chemical Engineering (open rank), 2010-2011

Member, Search Committee for two State Agency Liaison Postdoctoral Research Associates (Environmental Health, Engineering), Superfund Research Program, 2010-2011

Member, Search Committee for Mellon Postdoctoral Fellow, Center for Environmental Studies and Department of Pathology and Laboratory Medicine, 2010-2011

Member, Search Committee for Assistant/Associate Professor of Bioinformatics in the Center for Genomics and Proteomics, 2010-2011

Member, Advisory Committee for The Brown/WIH Women's Reproductive Health Research Career Development Program (2K12 HD 050-108-06), 2010 - 2015

Director, Formative Center for the Evaluation of Environmental Impacts on Fetal Development, 2010 - present

Chair, Tenure, Promotion and Appointments Committee, 2008/09

Member, Executive Committee, Center for Clinical and Translational Sciences, Brown University, 2007 - present

Member, Search Committee for Lecturer in the Department of Pathology and Laboratory Medicine, 2007-2008
Member, Green Technology Conference Planning Committee, Brown University, 2007 - 2008
Director, Center for Environmental Health and Technology, Brown University, 2007
Member, CTSA Planning Grant Executive Committee, 2006 - 2008
Vice Chair Tenure, Promotion and Appointments Committee, 2007/08
Member, Tenure, Promotion and Appointments Committee, 2006/07
Member, Division of Biology and Medicine Advisory Committee on Standards for Tenure and Promotion, 2006 - 2007
Chair, Scientific Strategic Planning Committee, Division of Biology and Medicine, 2006
Member, Search Committee for Assistant Professor in the Department of Pathology and Laboratory Medicine, 2006
Member, Steering Committee for *Cutting-edge Medical Technologies and Biotech Research & Discovery Conference*, Brown Forum for Enterprise, 2005-2006
Member, COBRE CCRD Competitive Grant Review, December, 2005
Director, Superfund Basic Research Program, Brown University, 2005 – present
Member, Compliance Monitoring and Facilitation Committee, Division of Biology and Medicine, 2005 - present
Member, Search Committee for Neonatalogist, Department of Pediatrics, 2004 - present
Member, Search Committee for the Dean of Medicine and Biological Sciences, 2003-2004
Member, Search Committee for Genetics, Genomics, and Proteomics (6 positions), 2003-2007
Member, Search Committee for Department of Pathology and Laboratory Medicine , 2003 - 2005
Acting Chair, Department of Pathology and Laboratory Medicine, Spring, 2003
Co-Chair, Strategic Planning Working Group, Division of Biology and Medicine, 2001 – 2002
Leader, Wayland Collegium Superfund Study Group, 2001 - 2003
Member, Affirmative Action Monitoring Committee, 2001 - 2003
Member, Steering Committee, Pathobiology Graduate Program, 1998-present
Director, M.D./Ph.D. Program, 1993 - 2002
Co-Director, Environmental Pathology Training Program, 1996 - present
Member, Department of Pathology and Laboratory Medicine Promotions Committee, 1997 - present
Animal Care Scientific Review Committee, 1995 - present
Member, Environmental Sciences Oversight Committee, 1994 - present
Member, Strategic Planning Subcommittee on Graduate Programs, 1995
Co-Director, Pathobiology Graduate Program, 1988 - 1994
Member, Board of Environmental Studies, 1991 - present
Member, Medical Council, 1990 - 1992
Advisor, Program in Liberal Medical Education, 1985 - 1989 (11 students for 1985-87 and 10 students for 1987-89)
Member, Program in Liberal Medical Education Advisory Selection Board, 1988 - 1989 and 1992 - 1993
Member, Medical Curriculum Committee and Clinical Subcommittee, 1985 - 1988
Member, Integrated Pathology Training Program Executive Committee, 1988 - 1994

Chair, Curriculum Committee, Molecular Biology, Cell Biology and Biochemistry Graduate Program, 1985 - 1989

Member, Ad Hoc Committee on Animal Care, 1986 - present

Member, search committees for pathology (campus- and hospital-based), neurosciences, microbiology and radiation therapy

Teaching

1984/85 - Co-Course Leader, BIOM 379b (Systemic Pathology), 15 lecture hours
BIOM 184 (General Pathology), 1 lecture hour
BIOM 379a (Systemic Pathology), 4 lecture hours
BIOM 105 (Cell Biology), 1 lecture hour

1985/86 - Course Leader, BIOM 379b (Systemic Pathology), 12 lecture hours
BIOM 184 (General Pathology), 3 lecture hours
Basic Science for Urologists, Rhode Island Hospital, 1 lecture hour

1986/87 - Co-Course Leader, BIOM 279a (Systemic Pathology), 7 lecture hours
Course Leader, BIOM 279b (Systemic Pathology), 12 lecture hours
BIOM 184 (General Pathology), 3 lecture hours
BIOM 291 (Tutorial in Toxicology), for Julie Roque, graduate student in Environmental Sciences

1987/88 - Co-Course Leader, BIOM 279a (Systemic Pathology), 2 lecture hours
Course Leader, BIOM 279b (Systemic Pathology), 12 lecture hours
BIOM 184 (General Pathology), 5 lecture hours in Environmental Pathology
BIOM 291 (Tutorial in Toxicology), for Louise House, graduate student in Environmental Sciences

1988/89 - Co-Course Leader, BIOM 279a (Systemic Pathology), 3 lecture hours
Course Leader, BIOM 279b (Systemic Pathology), 6 lecture hours
BIOM 184 (General Pathology), 5 lecture hours in Environmental Pathology

1989/90 - BIOM 279a (Systemic Pathology), 3 lecture hours
Course Leader, BIOM 279b (Systemic Pathology), 6 lecture hours
BIOM 184 (General Pathology), 5 lecture hours in Environmental Pathology

1990/91 - BIOM 279 (Systemic Pathology), 2 lecture hours in renal disease and systemic amyloidosis
Course Leader, BIOM 280 (Systemic Pathology), 8 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 5 lecture hours in environmental pathology
Graduate seminar (2 lecture hours) in reproductive toxicology at The University of Rhode Island

1991/92 - BIOM 279 (Systemic Pathology), 3 lecture hours in renal disease and systemic amyloidosis

Course Leader, BIOM 283 (Environmental Pathology), graduate seminar on teratogenesis, air pollution lung injury, and hepatotoxicity
Co-course Leader, BIOM 280 (Systemic Pathology), 6 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 5 lecture hours in environmental pathology

1992/93 - Course Leader, BIOM 279 (Systemic Pathology), 9 lecture hours in renal vascular diseases, renal and bladder tumors, and case study review
BIOM 280 (Systemic Pathology), 6 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 5 lecture hours in environmental pathology
Graduate seminar, 2.5 lecture hours in the cytoskeleton and toxicology at The University of Connecticut
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island

1993/94 - Course Leader, BIOM 283 (Environmental Hazards and Disease), graduate seminar course
BIOM 280 (Systemic Pathology), 6 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 5 lecture hours in environmental pathology
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island

1994/95 - Course Leader, BIOM 279 (Systemic Pathology), 9 lecture hours in cardiovascular diseases and case study review
BIOM 280 (Systemic Pathology), 6 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 5 lecture hours in environmental pathology
BIOM 83 (Environmental Health), 4 lecture hours in an undergraduate course in Environmental Health
Advanced Toxicology Seminar, 2 lecture hours in the cytoskeleton and toxicology at The University of Connecticut
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Toxicology Seminar, 2 lecture hours in reproductive toxicology at The University of Rhode Island

1995/96 - Course Leader, BIOM 283 (Environmental Hazards and Disease)
BIOM 280 (Systemic Pathology), 3 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 3 lecture hours in environmental pathology
BIOM 83 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

BIOM 293 (Independent Study in Endocrine Disruptors/Reproductive Toxicology)

1996/97 - Course Leader, BIOM 279 (Systemic Pathology), 7.5 lecture hours
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

1997/98 - Course Leader, BIOM 279 (Systemic Pathology), 7.5 lecture hours
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
BIOM 280 (Systemic Pathology), 1.5 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 4 lecture hours in environmental pathology
BIOM 85 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

1998/99 - Course Leader, BIOM 279 (Systemic Pathology), 7.5 lecture hours
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
BIOM 280 (Systemic Pathology), 1.5 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 4 lecture hours in environmental pathology
BIOM 85 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
UC 11 (Hard Choices), 1 lecture hour on "Science and Public Policy"
Advanced Toxicology Seminar, 2 lecture hours in the cytoskeleton and toxicology at The University of Connecticut
Human Embryology, 1 lecture in Teratology at Pfizer
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

1999/00 - Course Leader, BIOM 279 (Systemic Pathology), 7.5 lecture hours
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
BIOM 280 (Systemic Pathology), 4.5 lecture hours in endocrine pathology
BIOM 184 (General Pathology), 4 lecture hours in environmental pathology
BIOM 184 (General Pathology), 8 hours in graduate student seminar
BIOM 85 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
Introductory Pathophysiology for Pharmacy students, 2 lecture hours in female and male reproductive tracts at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

2000/01 - Course Leader, BIOM 279 (Systemic Pathology), 9 lecture hours
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
Course Leader, BIOM 280 (Systemic Pathology), 2.5 lecture hours in reproductive tract pathology
Co-Course Leader, BIOM 284 (Arsenic), graduate seminar course in environmental pathology
BIOM 186 (General Pathology), 3 lecture hours in environmental pathology
BIOM 85 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
BIOM 283 (Stem Cells), 2 lecture hours on testicular stem cell biology
Advanced Toxicology, 2 lecture hours on reproductive toxicology at The University of Rhode Island
Advanced Pathophysiology for Pharmacy students, 4 lecture hours in female and male reproductive tracts at The University of Rhode Island

2001/02 - Leader, Wayland Collegium Superfund Study Group
BIOM 186 (General Pathology), Course Leader, graduate student section, 24 contact hours
BIOM 280 (Systemic Pathology), 3 lecture hours in reproductive tract pathology
BIOM 186 (General Pathology), 3 lecture hours in environmental pathology
BIOM 85 (Environmental Health), 3 lecture hours in an undergraduate course in Environmental Health
BIOM 232 (Developmental Biology Seminar), 2 lecture hours in reproductive biology
Advanced Pathophysiology for Pharmacy students, 6 lecture hours in female and male reproductive tracts at The University of Rhode Island

2002/03 - Course Leader, BIOM 279 (Systemic Pathology)
BIOM 279 (Systemic Pathology), 7.5 lecture hours in pulmonary pathology
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
BIOM 186 (General Pathology), Co-Course Leader of graduate student section, 12 contact hours
Leader, Wayland Collegium Superfund Study Group
BIOM 280 (Systemic Pathology), 1.5 lecture hours in reproductive tract pathology
BIOM 186 (General Pathology), 3 lecture hours in environmental pathology
BIOM 232 (Developmental Biology Seminar), 3 hours in stem germ cell biology
BIOM 32 (Embryology), 1 lecture hour in teratology
Advanced Pathophysiology for Pharmacy students, 6 lecture hours in female and male reproductive tracts at The University of Rhode Island

2003/04 - BIOM 280 (Systemic Pathology), 2.5 lecture hours in reproductive tract pathology
Advanced Toxicology, 2 lecture hours on reproductive toxicology at The University of Rhode Island

2004/05 - Course Leader, BIOM 279 (Systemic Pathology)

BIOM 279 (Systemic Pathology), 7.5 lecture hours in pulmonary and renal pathology
BIOM 279 (Systemic Pathology), 2 hours/week, course review sessions
BIOM 189 (Medical Histology), 1 lecture hour
BIOM 280 (Systemic Pathology), 1.5 lecture hours in reproductive tract pathology
BIOM 186 (General Pathology), 3 lecture hours in environmental pathology
BIOM 286 (General Pathology /Graduate Student section), 2 lecture hours in reproductive toxicology
BIOM 32 (Embryology), 1 lecture hour in teratology
Facilitator, Grant Writing Workshop, 1 hour presentation on Career Development Awards for Advanced Graduate Students and Post-Doctoral Fellows

2005/06 - BIOM 279 (Systemic Pathology), 7 lecture hours in pulmonary and renal pathology
BIOM 280 (Systemic Pathology), 1.5 lecture hours in reproductive tract pathology
BIOM 186 (General Pathology), 2 lecture hours in environmental pathology
Co-Course Leader, BIOM 286 (General Pathology /Graduate Student section), responsible for second half of course
BIOM 182 (Environmental Health and Disease), 1.5 lecture hours on mixture toxicology

2006/07 – BIOM 279 (Systemic Pathology), 1.5 lecture hours in pulmonary pathology
Course Leader, BIOM 286 (Molecular Mechanisms of Human Disease), required course for Pathobiology graduate students, 13 students enrolled
Section Leader, EN292/BIOM284 (Environmental Technologies and Human Health), case study of fluoride in drinking water risk assessment, 4.5 lecture hours
BIOM 280 (Systemic Pathology), 1.5 lecture hours in reproductive tract pathology
BIOM 365 (Brain Sciences), 1.5 lecture hours in basic toxicology/lead neurotoxicity

2007/08 – BIOM 279 (Systemic Pathology), 1.5 lecture hours in pulmonary pathology
BIOM 365 (Brain Sciences), 1.5 lecture hours in basic toxicology/lead neurotoxicity

2008/09 – BIOM 279 (Systemic Pathology), 1.5 lecture hours in pulmonary pathology
BIOM 365 (Brain Sciences), 1.5 lecture hours in basic toxicology/lead neurotoxicity
BIOM 182 (Environmental Health & Disease), 1.5 lecture hours in reproductive toxicology and endocrine disruption

2009/10 – (sabbatic leave)
BIOM 280 (Systemic Pathology), 1.5 lecture hours in reproductive tract pathology
BIOM 365 (Brain Sciences), 1 lecture hour in basic toxicology/lead neurotoxicity

2010/11 – BIOM 279 (Systemic Pathology), 3 lecture hours in reproductive tract and pulmonary pathology

BIOM 2840 (Reproductive Biology and Toxicology), Co-Course Leader, 7.5 hrs in basic toxicology and testis toxicology

2011/12 – BIOM 279 (Systemic Pathology), 2.5 lecture hours in reproductive tract and pulmonary pathology

2012/13 – BIOM 286 (Molecular Basis of Disease), 3.0 lecture hours on Fetal Basis of Adult Disease and Toxicity Testing in the 21st Century
BIOM 279 (Systemic Pathology), 2.5 lecture hours in reproductive tract and pulmonary pathology
BIOM 1820 (Environmental Health and Disease), 1.5 lecture hours on toxicity testing in the 21st century
Medical student scholarly concentration (Environmental Health), 1.0 lecture hour on the basic mechanisms underlying developmental origins of health and disease
BIOM 2167 (In Vitro Models of Disease), 1.0 lecture hour on human fetal xenotransplantation models to study mechanisms of environmentally-induced developmental abnormalities

2012/13 – BIOM 286 (Molecular Basis of Disease), Co-Course leader
BIOM 279 (Systemic Pathology), 2.5 lecture hours in reproductive tract and pulmonary pathology

2013/14 – BIOM 2860 (Molecular Basis of Disease), Course leader, responsible for lectures, histopathology training, small group work, and presentation support for half the course
BIOM 279 (Systemic Pathology), 3.0 lecture hours in reproductive tract pathology
BIOM 2167 (In Vitro Models of Disease), 1.0 lecture hour on toxicity testing in the 21st century
BIOM 1820 (Environmental Health and Disease), 1.0 lecture hour on toxicity testing in the 21st century

2014/2015 – BIOM 279 (Systemic Pathology), 2.0 lecture hours in reproductive tract and pulmonary pathology
BIOM 2167 (In Vitro Models of Disease), 1.0 lecture hour on toxicity testing in the 21st century
BIOM 1820 (Environmental Health and Disease), 1.0 lecture hour on toxicity testing in the 21st century

2015/2016 – BIOM 279 (Systemic Pathology), 2.0 lecture hours in male reproductive tract pathology
BIOM 2167 (In Vitro Models of Disease), 1.0 lecture hour on toxicity testing in the 21st century
BIOM 1820 (Environmental Health and Disease), 1.0 lecture hour on toxicity testing in the 21st century

Graduate Trainees

Current:

Marguerite Vantangoli: A Ph.D. candidate in the Pathobiology Graduate Program, Maggie is developing 3-dimensional (3D) models for toxicity testing, focusing on endocrine disrupting chemical exposure of scaffold-free 3D MCF-7 cells.

Past:

Elizabeth Allard: An M.D.-Ph.D. student who received her Ph.D. degree (1995) from the Pathobiology Graduate program for studying growth factors and stem germ cell kinetics in the "irreversibly" injured testis; thesis title - "2,5-Hexanedione-inuced Growth Factor Deficiency Leads to Long-term Testicular Atrophy;" currently a physician practice in Family Medicine.

Linnea Anderson: Received a Master's degree from the Pathobiology Graduate Program (2015) for her work in developing new molecular sperm biomarkers.

Stephanie Beall: An M.D./Ph.D. student who received her Ph.D, degree (2005) from the Pathobiology Graduate Program for studying Flamingo expression in testis in response to phthalate injury; thesis title – "Mono-(2-ethylhexyl)-Phthalate Targeted Disruption of Celsr2 in Rat Testis Results in Germ Cell Detachment from the Sertoli Cell," currently a practicing Reproductive Endocrinologist with Shady Grove Fertility.

Natasha Catlin: A Ph.D. student who received her Ph.D. degree (2013) from the Pathobiology Graduate Program for studying adaptive versus adverse responses of the stage specific effects of exposure to low doses of model testicular toxicant mixtures. Natasha's thesis was titled "The Stage-specific Apoptotic Response of the Rat Testis to low Dose Co-exposures."

Michelle Embree: Received a Ph.D. degree (2001) from the Pathobiology Graduate Program for examining the role of p53 and the Fas system in modulating testicular germ cell injury; thesis title – "p53 and Fas System Deficiencies in Mice Result in Altered Reproduction, Development, and Tumorigenesis," currently teaching part-time.

Shawna Fleming: Received a Ph.D. degree (2001) from the Pathobiology Graduate Program, for examining the molecular mechanism by which microtubule disrupters inhibit Sertoli cell function and lead to germ cell death; thesis title – "γ-Tubulin Overexpression in Sertoli cells In Vivo Leads to Disruption of Spermatogenesis," currently a regulatory toxicologist with the FDA.

Nicholas Heger: Received the Ph.D. degree (2012) from the Pathobiology Graduate Program for studying the effect of endocrine disrupting compounds on the developing male reproductive system, and developing a xenotransplant for human fetal testis in immunodeficient rodents, currently in a Fellowship in Clinical Laboratory Medicine.

Chengyu Jiang: Received a Ph.D. degree (1996) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for cloning the stem cell factor promoter and characterizing its transcriptional regulation in Sertoli cells; thesis title - "Transcriptional Regulation in the Sertoli Cell: Cloning and Characterization of the Stem Cell Factor Promoter Region;" currently a senior faculty member at Peking University.

Kamin Johnson: Received a Ph.D. degree (1994) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for studying the organization of the Sertoli

cell central vacuolar system; thesis title - "Characterization of Two Proteins which Mediate Sertoli Cell Intracellular Trafficking: Kinesin and ADP-Ribosylation Factor;" currently a Staff Scientist with Dow Chemical.

Jeongwu Lee: Received a Ph.D. degree (1997) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for examining the Fas system as a molecular mechanism of apoptosis induction in both normal and injured testis; thesis title - "Elucidation of a Molecular Mechanism of Testicular Germ Cell Apoptosis;" currently Assistant Staff, Department of Stem Cell Biology and Regenerative Medicine, Lerner Research Institute, Cleveland Clinic.

Meng-lin Luo: Received a M.S. degree (1995) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for developing a restriction map of the rat stem cell factor promoter region and testing the activity of transfected deletions constructs of this promoter region in primary Sertoli cell, lost to follow-up.

M. Diana Neely: Received a Ph.D. degree (1990) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for the characterization of testicular and Sertoli cell microtubule associated proteins and the alterations in these proteins produced by toxicants; thesis title - "Sertoli Cell Microtubule-associated Proteins: Isolation and Characterization of an Abundant Microtubule Motor (Cytoplasmic Dynein);" currently a Research Assistant Professor, Vanderbilt University.

Sara Pacheco: Received the Ph.D. degree (2012) in the Pathobiology Graduate Program for developing sperm molecular biomarkers of testicular injury in both rat models and men, currently a Postdoctoral Fellow at the University of Washington.

Reza Rasoulpour : Received a Ph.D, degree (2005) from the Pathobiology Graduate Program for studying the role of ubiquitination and NF-kB in the testicular response to injury; thesis title – "Unmasking Altered Testicular Homeostasis Through Injury," currently North American Leader for Toxicology at Dow AgroSciences.

Zosia K. Rybkowski: Received a Master's degree (1988) for the ultrastructural characterization of testicular alterations induced by 2,5-hexanedione exposure. Currently an Assistant Professor, Department of Construction Science, texas A&M University.

Camelia Saffarini: Received her Ph.D. in the Pathobiology Graduate Program (2014) for evaluating the effects of endocrine disrupting exposures on xenografted human fetal prostates carried by immunodeficient rodents.

Rahul Seth: Received a Master's degree (1995) for characterizing the infertility associated with expression of an altered dominant negative retinoic acid receptor in a transgenic mouse model. Now in private practice in Internal Medicine.

Tracy M. Sioussat: Received a Ph.D. degree (1990) in the Molecular Biology, Cell Biology and Biochemistry Graduate Program for determining the biophysical and biochemical characteristics of 2,5-hexanedione-modified tubulin which explain its altered microtubule assembly behavior; thesis title - "Structural and Functional Characteristics of 2,5-Hexanedione-treated Tubulin;" currently a patent expert in the biotech industry.

Postdoctoral Trainees

Current:

Enrica Bianchi: A joint postdoctoral research associate trainee with Kat Hwang, Enrica began in 2014 working on ghrelin effects in ameliorating adhesions.

Edward Dere: A postdoctoral research associate who began in October, 2010, Ed received his Ph.D. from Michigan State University working with Tim Zacharewski. Ed is working on human sperm DNA methylation, and mRNA and microRNA content using high density array techniques and bioinformatics approaches.

David Klein: A postdoctoral research associate who began October 1, 2015, David received his Ph.D. from the University of Arizona. David is working on developing sperm biomarkers that reflect testicular injury working with rat models.

Daniel Spade: A postdoctoral research associate who began July, 2011, Dan received his Ph.D. from the University of Florida in 2011. Dan is working on human fetal testis xenotransplant and the epigenetic changes associated with development and toxicant exposure.

Past:

Theresa Allio: As a postdoctoral fellow from 1999 – 2001, Theresa used p53 deficient mice and radiation exposure to evaluate male germline mutations which arise following testicular injury; she is currently a Staff Scientist at the FDA.

Kerry Blanchard: As a postdoctoral research associate from 1994 - 1996, Kerry developed a method for adenovirus gene transfer into the testis; he is currently Vice President for Nonclinical Drug Safety at Boehringer Ingelheim Pharmaceuticals, Inc.

Sarah Campion: A postdoctoral fellow from 2008 - 2010, Sarah received her Ph.D. at UConn. She used pathway analysis to examine the effects of mixed exposures to testicular toxicants. She is currently a Study Director at Pfizer.

Eric S. Hall: As a postdoctoral research associate from 1989 - 1993, Eric studied the immunohistochemical distribution of microtubule motors in testis and toxicant-induced alterations in this distribution; he is currently Associate Professor and Chair, Department of Biology, Rhode Island College.

Mary Hixon: In her postdoctoral research, Mary examined the role of the serine/threonine kinase Akt in germ cell survival; she is currently a Principle Environmental Consultant at Gradient.

Kamin Johnson: Returning to this lab after doing postdoctoral work with Harold Erickson at Duke University, Kam began an independent project identifying cell-specific expression of cadherin family members in the testis and analyzing their role in toxicity; currently a Staff Scientist at Dow Chemical.

Jeongwu Lee: As a postdoctoral research associate from 1997-1998, Jeongwu continued his work on the Fas system and germ cell apoptosis; lost to follow-up. He is currently a Staff Scientist at the NIH.

Jeffrey Moffit: A postdoctoral fellow from 2006 – 2007, Jeffrey studied the phenotypic and molecular basis of the testicular injury response to exposures to complex mixtures. Currently Director of Toxicology at EnVivo Pharmaceuticals.

Darlene M. Redenbach: As a postdoctoral research associate from 1992 - 1993, Darlene showed that the kinesin-dependent movement of 2,5-hexanedione-treated microtubules was slowed using video-enhanced differential interference contrast microscopy; she is currently Senior Instructor, University of British Columbia.

John Richburg: As a postdoctoral research associate and Research Assistant Professor in the lab from 1993 - 1997, John developed a refined method for measuring seminiferous tubule fluid formation in isolated single tubules and studied the mechanism of germ cell apoptosis following phthalate-induced testicular injury; he is currently Professor and Chair, Division of Toxicology, School of Pharmacy, The University of Texas at Austin.

Elizabeth Shipp: As a postdoctoral research associate from 1997-1998, Elizabeth examined the role of the TRAIL system in germ cell apoptosis; she is currently a staff scientist with Rhone Poulenc

Heidi Schoenfeld: Heidi began her postdoctoral training in September, 1998, studying changes in testis associated with post-injury recovery of spermatogenesis; currently a staff scientist at Schering Plough.

Marcy Thompson: A postdoctoral research associate from August, 2011, to August, 2014, Marcy was the State Agency Liaison for Environmental Health for the Superfund Research Program and studied the effects of mixed exposures on women of childbearing age. She currently has a tenure track appointment as Assistant Professor in the University of Rhode Island School of Nursing.

Hideki Yamasaki: A Visiting Scientist from Takeda Pharmaceuticals in Japan (2007-2008), Hideki is a veterinary pathologist who further developed his expertise in male reproductive toxicology and biology using histopathology, laser capture microdissection and quantitative RT-PCR. Returned to his position as a Veterinary Pathologist at Takeda Pharmaceuticals.

Undergraduate Trainees

Current:

Jeremy Wortzel (’16): A Royce Scholar, Jeremy is working with the community on hazardous exposures in an aging housing stock, and in the lab on effects of phthalates on the developing testis.

Past:

Jon Ashman ('91): Studied tau mRNA expression in testis and brain

Catherine Auriemma (’08): Co-exposure to 2,5-hexanedione and carbendazim: testicular effects

Andrea Barnes (’08): Development of sperm mRNA as a marker of toxicant exposure

Carl Berliner ('95): Investigated the mechanism of slowed microtubule motor transport of 2,5-HD-treated microtubules using computer-enhanced video microscopy

Bronwyn Bryant (’05): Used quantitative RT-PCR to evaluate expression of important downstream targets of NF-kB and AKT1

Daniel,Chiou (’14): Molecular characterization of sperm biomarkers of testicular dysfunction.

Matt Dai (’14): p53 knockout rat testis characterization

Rich Diesso (’14): Tamoxifen effects on 2D vs 3D cultures of MCF-7 cells

Bamboo Dong (’06): Evaluated the differentiation state of porcine choroid plexus epithelial cells in long-term culture and following alginate encapsulation

Rachel Fox ('99): Studied the expression pattern of stem cell factor in human testicular biopsies

Rob Glenn (’08): Co-exposure to 2,5-hexanedione and mono-(2-ethylhexyl) phthalate: testicular effects

Michael Graves (’06): Studied the apoptosis-inducing effects of exposure to complex mixtures in the testis

James Haddad ('86): Developed techniques for the immunoflourescent and ultrastructural characterization of testis microtubules

Eun Ji Kwon (’01): Eun Ji studied the expression of protocadherin-α3 in testis and made a polyclonal antibody to study its function and distribution

Jae-Woo Lee ('93): Studied the characteristics of SV40*ts*255 infected Sertoli cell lines

Robert Markelewicz (’04): studied co-exposures to testicular tosxicants

Alka Mittal ('98): Examined the telomerase catalytic subunit as a potential marker for stem germ cells

Sutchin Patel ('00, M.D. ‘04): Sutchin is examining the expression of the testicular cadherin cad-10

Cecilia Springer (’11): Studied the toxicity of a potentially toxic metabolite of the flame retardant Firemaster 550, 2-ethylhexyl-2,3,4,5-tetrabromophthalate, with a focus on its anti-androgenic effects on the fetal rat testis

Robert West ('90): Evaluated species variability of testicular cytoplasmic dyneins and has compared the protein components of flagellar and cytoplasmic dyneins

Shelby Wilson (’15): Worked with MARC partners from Mount Saint Vincents to develop drosophila models of testicular toxicity.

Sarah Younkin ('97): Explored physiologic and toxicant-induced apoptosis in the testes of Fas system deficient mice (*gld* and *lpr* mutants)

Student Thesis Committee Memberships

Adeola Adebayo, Ph.D., Pathobiology
Caitlin Brown, Ph.D., Pathobiology
Lori Chapman, Ph.D., Biology
Robert Crausman, M.M.S., Medical Science
Joe DeGiorgis, Ph.D., Biology
Anna Marie Dragoi, Ph.D., Biology
Glen Feinstein, B.A., Biology
Lizeth Fowler, M.S., Biology
Marjory Gomez, B.S., Biology
Elizabeth Hagan, Ph.D., Biology
Bryan Hoffman, Ph.D., Biology
Xiaolan Hu, Ph.D., Biology
Ben Moyer, Ph.D., Pathobiology
Jeffrey Orringer, B.S., Biology
Elizabeth Peterson, Ph.D., Biology
Darlene Redenbach, Ph.D., University of British Columbia
Nick Rhind, B.S., Biology
Julia Roque, Ph.D., Environmental Sciences
Jeena Santos-Ahmed, Ph.D., Pathobiology
Nabeel Yaseen, Ph.D., Biology
Yunxia Sui, Ph.D., Epidemiology

Current Laboratory Personnel
Enrica Bianchi, postdoctoral fellow
Ed Dere, postdoctoral fellow
Sue Hall, lab manager
David Klein, postdoctoral fellow
Samantha Madnick, research assistant
Dan Spade, postdoctoral research associate
Maggie Vantangoli, graduate student
Shelby Wilson, research assistant
Jeremy Wortzel, undergraduate

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PUBLICATIONS

Full Length Peer-Reviewed Papers

1) Patt, S.L., Baldo, J.H., **Boekelheide, K.**, Weisz, G., Sykes, B.D. (1978). The nuclear magnetic resonance determination of the conformation of saccharides bound in subsite D of lysozyme. *Can. J. Biochem.* **56,** 624-9.

2) Vogel, F.S., Kemper, L.A.K., **Boekelheide, K.**, Graham, D.G., Jeffs, P.W. (1979). Intracellular activation of γ-L-glutaminyl-4-hydroxybenzene by tyrosinase, a mechansim for selective cytotoxicity against melanocarcinoma. *Cancer Res.* **39,** 1490-1493.

3) **Boekelheide, K.**, Patt, S.L., Weisz, G., Baldo, J.H., Sykes, B.D. (1979) Lysozyme catalysis: kinetics of the hydrolysis of cell wall oligosaccharides. *Can. J. Biochem.* **57,** 785-88.

4) **Boekelheide, K.**, Graham, D.G., Mize, P.D., Anderson, C.W., Jeffs, P.W. (1979). Synthesis of γ-L-glutaminyl-[3,5-^{3}H]4-hydroxybenzene and the study of reactions catalyzed by the tyrosinase of *Agaricus bisporus*. *J. Biol. Chem.* **254,** 12185-12191.

5) **Boekelheide, K.**, Graham, D.G., Mize, P.D., Jeffs, P.W. (1980). The metabolic pathway catalyzed by the tyrosinase of *Agaricus bisporus*. *J. Biol. Chem.* **255,** 4766-4771.

6) 4. **Boekelheide, K.**, Graham, D.G., Mize, P.D., Koo, E.H. (1980). Melanocytotoxicity and the mechanism of activation of γ-L-glutaminyl-4-hydroxybenzene. *J. Invest. Dermatol.* **75,** 322-327.

7) **Boekelheide, K.**, Graham, D.G., Mize, P.D., Vogel, F.S. (1980). The role of γ-glutamyl transpeptidase in the nephrotoxicity of an *Agaricus bisporus* metabolite. *Am. J. Pathol.* **100,** 651-662.

8) Mize, P.D., Jeffs, P.W., **Boekelheide, K.** (1980). Structure determination of the active sulfhydryl reagent in gill tissue of the mushroom *Agaricus bisporus*. *J. Org. Chem.* **45,** 3540-3543.

9) Graham, D.G., Anthony, D.C., **Boekelheide, K.**, Maschmann, N.A., Richards, R.G., Wolfram, J.W., Shaw, B.R. (1982). Studies of the molecular pathogenesis of hexane neuropathy. II. Evidence that the pyrrole derivatization of lysyl residues leads to protein crosslinking. *Toxicol. Appl. Pharmacol.* **64,** 415-422.

10) Blumenkopf, B., **Boekelheide, K.** (1982). Neck paraganglioma with a pituitary ademona. *J. Neurosurg.* **57,** 426-429.

11) Graham, D.G., Anthony, D.C., **Boekelheide, K.** (1982). *In vitro* and *in vivo* studies of the molecular pathogenesis of *n*-hexane neuropathy. *Neurobehav. Toxicol. Teratol.* **4,** 629-634.

12) Anthony, D.C., **Boekelheide, K.**, Graham, D.G. (1983). The effect of 3,4-dimethyl substitution on the neurotoxicity of 2,5-hexanedione. I. Accelerated clinical neuropathy is accompanied by more proximal axonal swellings. *Toxicol. Appl. Pharmacol.* **71,** 362- 371.

13) Anthony, D.C., **Boekelheide, K.**, Anderson, C.W., Graham, D.G. (1983). The effect of 3,4-dimethyl substitution on the neurotoxicity of 2,5-hexanedione. II. Dimethyl substitution accelerates pyrrole formation and protein crosslinking. *Toxicol. Appl. Pharmacol.* **71,** 372-382.

14) Graham, D.G., Anthony, D.C., Szakal-Quin, Gy., Gottfried, M.R., **Boekelheide, K.** (1985). Covalent crosslinking of neurofilaments in the pathogenesis of *n*-hexane neuropathy. *Neurotoxicol.* **6,** 55-64.

15) Graham, D.G., Anthony, D.C., Szakal-Quin, Gy., Gottfried, M.R., **Boekelheide, K.** (1985). Covalent crosslinking of neurofilaments in the pathogenesis of *n*-hexane neuropathy, in *The Neurofilamentous Axonopathies: The Neurotoxicology of Acrylamides, IDPN, Hexacarbons, and Carbon Disulfide* (eds, Graham, D.G., Lowndes, H.E., Cranmer, J.M.). Intox Press, Little Rock.

16) **Boekelheide, K.** (1987). 2,5-Hexanedione alters microtubule assembly. I. Testicular atrophy, not nervous system toxicity, correlates with enhanced tubulin polymerization. *Toxicol. Appl. Pharmacol.* **88,** 370-382.

17) **Boekelheide, K.** (1987). 2,5-Hexanedione alters microtubule assembly. II. Enhanced polymerization of crosslinked tubulin. *Toxicol. Appl. Pharmacol.* **88,** 383-396.

18) **Boekelheide, K.**, Eveleth, J., Tatum, A.H., Winkelman, J.W. (1987). Microtubule assembly inhibition by porphyrins and related compounds. *Photochem. Photobiol.* **46,** 657-662.

19) **Boekelheide, K.** (1988). Rat testis during 2,5-hexanedione intoxication and recovery. I. Dose response and the reversibility of germ cell loss. *Toxicol. Appl. Pharmacol.* **92,** 18-27.

20) **Boekelheide, K.** (1988). Rat testis during 2,5-hexanedione intoxication and recovery. II. Dynamics of pyrrole reactivity, tubulin content and microtubule assembly. *Toxicol. Appl. Pharmacol.* **92,** 28-33.

21) **Boekelheide, K.**, Eveleth, J. (1988). The rate of 2,5-hexanedione intoxication, not total dose, determines the extent of testicular injury and altered microtubule assembly in the rat. *Toxicol. Appl. Pharmacol.* **94,** 76-83.

22) **Boekelheide, K.**, Anthony, D.C., Giangaspero, F., Gottfried, M.R., Graham, D.G. (1988). Aliphatic diketones: influence of dicarbonyl spacing on amine reactivity and toxicity. *Chem. Res. Toxicol.* **1,** 200-203.

23) Neely, M.D., **Boekelheide, K.** (1988). Sertoli cell processes have axoplasmic features: an ordered microtubule distribution and an abundant high molecular weight microtubule associated protein (cytoplasmic dynein). *J. Cell Biol.* **107,** 1767-1776.

24) Sioussat, T., **Boekelheide, K.** (1989). Selection of a nucleation-promoting element following chemical modification of tubulin. *Biochemistry* **28,** 4435-4443.

25) **Boekelheide, K.**, Eveleth, J., Hall, S.J. (1990). Experimental cryptorchidism protects against long-term 2,5-hexanedione-induced testicular germ cell loss in the rat. *J. Androl*. **11,** 105-112.

26) Sioussat, T.M., Miller, F.J., **Boekelheide, K.** (1990). 2,5-Hexanedione-treated tubulin microinjected into sea urchin zygotes induces mitotic abnormalities. *Toxicol. Appl. Pharmacol.* **104,** 36-46.

27) Neely, M.D., Erickson, H.P., **Boekelheide, K.** (1990). HMW-2, the Sertoli cell cytoplasmic dynein from rat testis, is a dimer composed of nearly identical subunits. *J. Biol. Chem.* **265,** 8691-8698.

28) **Boekelheide, K.**, Hall, S.J. (1991). 2,5-Hexanedione exposure in the rat results in long-term testicular atrophy despite the presence of residual spermatogonia. *J. Androl.* **12,** 18-26.

29) Johnson, K.J., Hall, E.S., **Boekelheide, K.** (1991). 2,5-Hexanedione exposure alters the rat Sertoli cell cytoskeleton. I. Microtubules and seminiferous tubule fluid secretion. *Toxicol. Appl. Pharmacol.* **111,** 432-442.

30) Hall, E.S., Eveleth, J., **Boekelheide, K.** (1991). 2,5-Hexanedione exposure alters the rat Sertoli cell cytoskeleton. II. Intermediate filaments and actin. *Toxicol. Appl. Pharmacol.* **111,** 443-453.

31) Ashman, J.B., Hall, E.S., Eveleth, J., **Boekelheide, K.** (1992). Tau, the neuronal heat stable microtubule-associated protein, is also present in the cross-linked microtubule network of the testicular spermatid manchette. *Biol. Reprod.* **46,** 120-129.

32) Hall, E.S., Eveleth, J., Jiang, C., Redenbach, D.M., **Boekelheide, K.** (1992). The distribution of the microtubule-dependent motors cytoplasmic dynein and kinesin in rat testis. *Biol. Reprod.* **46,** 817-828.

33) **Boekelheide, K.**, Arcila, M.E., Eveleth, J. (1992). *cis*-Diamminedichloroplatinum (II) (cisplatin) alters microtubule assembly dynamics. *Toxicol. Appl. Pharmacol.* **116,** 146-151.

34) Hall, E.S., Hall, S.J., **Boekelheide, K.** (1992). Sertoli cells isolated from adult 2,5-hexanedione-exposed rats exhibit atypical morphology and actin distribution. *Toxicol. Appl. Pharmacol.* **117,** 9-18.

35) Redenbach, D.M., **Boekelheide, K.**, Vogl, A.W. (1992). Binding between mammalian spermatid-ectoplasmic specialization complexes and microtubules. *Eur. J. Cell Biol.* **59,** 433-448.

36) Allard, E. K., Johnson, K. J., **Boekelheide, K.** (1993). Colchicine disrupts the cytoskeleton of rat testis seminiferous epithelium in a stage-dependent manner. *Biol. Reprod.* **48,** 143-153.

37) Johnson, K.J., **Boekelheide, K.** (1993). Visualization of Golgi complexes and spermatogonial cohorts of viable, intact seminiferous tubules. *J. Histochem. Cytochem.* **41,** 299-306.

38) **Boekelheide, K.**, Lee, J.-W., Hall, S.J., Rhind, N.R., Zaret, K.S. (1993). A tumorigenic murine Sertoli cell line that is temperature-sensitive for differentiation. *Am. J. Pathol.* **143,** 1159-1168.

39) Redenbach, D.M., Richburg, J.H., **Boekelheide, K.** (1994). Microtubules with altered assembly kinetics have a decreased rate of kinesin-based transport. *Cell Mot. Cytoskel.* **27,** 79-87.

40) McBurney, M.W., Staines, W.A., **Boekelheide, K.**, Parry, D., Jardine, K., Pickavance, L. (1994). Murine *PGK*-1 promoter drives widespread but not uniform expression in transgenic mice. *Dev. Dynamics* **200,** 278-293.

41) Weist, P.M., Dong, K.L., Johnson, J.H., Tzipori, S., **Boekelheide, K.**, Flanigan, T.P. (1994). Effect of colchicine on microtubules in *Cryptosporidium parvum*. *J. Euk. Microbiol.* **41,** 66S.

42) Richburg, J.H., Redenbach, D.M., **Boekelheide, K.** (1994). Seminiferous tubule fluid secretion is a Sertoli cell microtubule-dependent process inhibited by 2,5-hexanedione exposure. *Toxicol. Appl. Pharmacol.* **128,** 302-309.

43) Redenbach, D.M., **Boekelheide, K.** (1994). Microtubules are oriented with their minus-ends directed apically before tight junction formation in rat Sertoli cells. *Eur. J. Cell Biol.* **65,** 246-257.

44) Hall, E.S., Hall, S.J., **Boekelheide, K.** (1995). 2,5-Hexanedione exposure alters microtubule motor distribution in adult rats. *Fundam. Appl. Toxicol.* **24,** 173-182.

45) Allard, E.K., Hall, S.J., **Boekelheide, K.** (1995). Stem cell kinetics in rat testis after irreversible injury induced by 2,5-hexanedione. *Biol. Reprod.* **53,** 186-192.

46) Redenbach, D.M., Hall, E.S., **Boekelheide, K.** (1995). Distribution of Sertoli cell microtubules, microtubule-dependent motors and the Golgi apparatus before and after tight junction formation in developing rat testis. *Microsc. Res. Tech.* **32,** 504-519.

47) Johnson, K.J., Hall, E.S., **Boekelheide, K.** (1996). Kinesin localizes to the trans-Golgi network regardless of microtubule orientation. *Eur. J. Cell Biol.* **69,** 276-287.

48) Richburg, J.H., **Boekelheide, K.** (1996). Mono-(2-ethylhexyl) phthalate rapidly alters both Sertoli cell vimentin filaments and germ cell apoptosis in young rat testes. *Toxicol. Appl. Pharmacol.* **137,** 42-50.

49) Blanchard, K.T., Allard, E.K., **Boekelheide, K.** (1996). Fate of germ cells in 2,5-hexanedione-induced testicular injury. I. Apoptosis is the mechanism of germ cell death. *Toxicol. Appl. Pharmacol.* **137,** 141-148.

50) Allard, E.K., **Boekelheide, K.** (1996). Fate of germ cells in 2,5-hexanedione-induced testicular injury. II. Atrophy persists due to a reduced stem cell mass and ongoing apoptosis. *Toxicol. Appl. Pharmacol.* **137,** 149-156.

51) Allard, E.K., Blanchard, K.T., **Boekelheide, K.** (1996). Exogenous stem cell factor (SCF) compensates for altered endogenous SCF expression in 2,5-hexanedione-induced testicular atrophy. *Biol. Reprod.* **55,** 185-193.

52) Blanchard, K.T., **Boekelheide, K.** (1997). Adenovirus-mediated gene transfer to rat testis *in vivo*. *Biol. Reprod.* **56,** 495-500.

53) Jiang, C., Hall, S.J., **Boekelheide, K.** (1997). Cloning and characterization of the 5′ flanking region of the stem cell factor gene in rat Sertoli cells.*Gene* **185,** 285-290.

54) Costa, S.L., **Boekelheide, K.**, Vanderhyden, B.C., Seth, R., McBurney, M.W. (1997). Male infertility caused by epididymal dysfunction in transgenic mice expressing a dominant negative mutation of retinoic acid receptor α. *Biol. Reprod.* **56,** 985-990.

55) Lee, J., Richburg, J.H., Younkin, S.C., **Boekelheide, K.** (1997). The Fas system is a key regulator of germ cell apoptosis in the testis. *Endocrinology* **138,** 2081-2088.

56) Jiang, C., Hall, S.J., **Boekelheide, K.** (1997). Development and characterization of a tumorigenic rat Sertoli cell line, 93RS2. *J. Androl.* **18,** 393-399.

57) Blanchard, K.T., Lee, J., **Boekelheide, K.** (1998). Leuprolide, a gonadotropin-releasing hormone agonist, reestablishes spermatogenesis after 2,5-hexanedione-induced irreversible testicular injury in the rat resulting in normalized stem cell factor expression. *Endocrinology* **139,** 236-244.

58) **Boekelheide, K.**, Hall, S.J., Richburg, J.H. (1998). *In vitro* evaluation of Sertoli cell toxicants which target microtubules and decrease seminiferous tubule fluid formation. *In Vitro Toxicol.* **11,** 309-314.

59) **Boekelheide, K.**, Lee, J., Shipp, E.B., Richburg, J.H., Li, G. (1998). Expression of Fas system-related genes in the testis during development and after toxicant exposure. *Toxicol. Lett.* **102-103,** 499-504.

60) Varmuza, S., Jurisicova, A., Okano, K., Hudson, J., **Boekelheide, K.**, Shipp, E.B. (1999). Spermiogenesis is impaired in mice bearing a targeted mutation in the protein phosphatase 1cγ gene. *Dev. Biol.* **205,** 98-110.

61) Lee, J, Richburg, J.H., Shipp, E.B., Meistrich, M.L., **Boekelheide, K.** (1999). The Fas system, a regulator of testicular germ cell apoptosis, is differentially upregulated in Sertoli cell *versus* germ cell injury of the testis. *Endocrinology* **140,** 852-858.

62) Richburg, J.H., Nañez, A., Williams, L.R., Embree, M.E., **Boekelheide, K.** (2000). Sensitivity of testicular germ cells to toxicant-induced apoptosis in *gld* mice that express a non-functional form of FasL. *Endocrinology* **141,** 787-793.

63) Johnson, K.J., Patel, S.R., **Boekelheide, K.** (2000). Multiple cadherin superfamily members with unique expression profiles are produced in rat testis. *Endocrinology* **141,** 675-683.

64) Fox, R.A, Sigman, M., **Boekelheide, K** (2000). Transmembrane versus soluble stem cell factor expression in human testis. *J. Androl*. **21,** 579-585.

65) Roehl, H.H., Leibbrandt, M.E.I., Greengard, J.S., Kamantigue, E., Glass, W.G., Giedlin, M., **Boekelheide, K.**, Johnson, D.E., Jolly, D.J., Sajjadi, N.C. (2000). Analysis of testes and semen from rabbits treated by intravenous injection with a retroviral vector encoding the human factor VIII gene—no evidence for germline transduction. *Hum. Gene Ther.* **11,** 2529-2540.

66) Schoenfeld, H.A., Hall, S.J., **Boekelheide, K.** (2001). Continuously proliferative stem germ cells partially re-populate the aged, atrophic rat testis after GnRH agonist therapy. *Biol. Reprod.* **64,** 1273-1282.

67) Johnson, K.J., **Boekelheide, K.** (2002). Dynamic testicular adhesion junctions are immunologically unique. I. Localization of p120 catenin in rat testis. *Biol. Reprod.* **66,** 983-991.

68) Johnson, K.J., **Boekelheide, K.** (2002). Dynamic testicular adhesion junctions are immunologically unique. II. Localization of classic cadherins in rat testis. *Biol. Reprod.* **66,** 992-1000.

69) Embree-Ku, M.E., Venturini, D., **Boekelheide, K.** (2002). Fas is involved in the p53-dependent apoptotic response to ionizing radiation in mouse testis. *Biol. Reprod.* **66,** 1456-1461.

70) Embree-Ku, M.E., **Boekelheide, K.** (2002). Absence of p53 and FasL has sexually dimorphic effects on both development and reproduction. *Exp. Biol. Med.* **227,** 545-553.

71) Embree-Ku, M.E., **Boekelheide, K.** (2002). FasL deficiency enhances the development of tumors in p53+/- mice. *Toxicol. Pathol.* **30,** 705-713.

72) McBurney M.W., Yang, X., Jardine, K., Hixon, M.L., **Boekelheide, K.**, Webb, J., Lansdorp, P.M., Lemeiux,M. (2003). The mammalian Sir2 alpha protein has a role in embryogenesis and gametogenesis. *Mol. Cell Biol.* **23,** 38-54.

73) Fleming, S.L., Shank, P.R., **Boekelheide, K.** (2003). γ-Tubulin overexpression in Sertoli cells in vivo. I. Localization to sites of spermatid head attachment and alterations in Sertoli cell microtubule distribution. *Biol. Reprod.* **69,** 310-321.

74) Fleming, S.L., Shank, P.R., **Boekelheide, K.** (2003). γ-Tubulin overexpression in Sertoli cells in vivo. II. Retention of spermatids, residual bodies, and germ cell apoptosis. *Biol. Reprod.* **69,** 322-330.

75) Hixon, M.L., **Boekelheide, K.** (2003). Expression and localization of total Akt1 and phosphorylated Akt1 in the rat seminiferous epithelium. *J. Androl.* **24,** 891-898.

76) Rasoulpour, R.J., Schoenfeld, H.A., Gray, D.A., **Boekelheide, K.** (2003). Animal Model – Expression of a K48R mutant ubiquitin protects mouse testis from cryptorchid injury and aging. *Am. J. Pathol.* **163,** 2595-2603.

77) Markelewicz, R.J., Hall, S.J., **Boekelheide, K.** (2004). 2,5-Hexanedione and carbendazim co-exposure synergistically disrupts rat spermatogenesis despite opposing molecular effects on microtubules. *Tox. Sci.* **80,** 92-100.

78) **Boekelheide, K.** (2004). Highlight—Cracking the nut. *Tox. Sci.* **81,** 1-2.

79) **Boekelheide, K.**, Schoenfeld, H.A., Hall, S.J., Weng, C.C., Shetty, G., Leith, J., Harper, J.S., Sigman, M., Hess, D.L., Meistrich, M.L. (2005). Gonadotropin-releasing hormone antagonist (Cetrorelix) therapy fails to protect non-human primates (*Macaca arctoides*) from radiation-induced spermatogenic failure. *J. Androl.* **26,** 222-34.

80) Rasoulpour, R.J., **Boekelheide, K**. (2004). NF-κB is activated in the rat testis following exposure to mono-(2-ethylhexyl) phthalate. *Biol. Reprod.* **72,** 479-486.

81) Augustine, L.M., Markelewicz, R.J., **Boekelheide, K**., Cherrington, N.J. (2005). Xenobiotic and endobiotic transporter mRNA expression in the blood-testis barrier. *Drug Metab. Dispos.* **33,** 182-189.

82) **Boekelheide, K**. (2005). Mechanisms of toxic damage to spermatogenesis. *J. Natl. Cancer Inst. Monogr.* **34,** 1-3.

83) Beall, S.A., **Boekelheide, K.**, Johnson, K.J. (2005). Hybrid GPCR/cadherin (Celsr) proteins in rat testis are expressed with cell type-specificity and exhibit differential Sertoli-germ cell adhesion activity. *J. Androl.* **26,** 529-538.

84) Kleymenova, E., Liu, K., Swanson, C., **Boekelheide, K**., Gaido, K.W. (2005). Exposure in utero to di(n-butyl)phthalate alters the vimentin cytoskeleton of fetal rat Sertoli cells and disrupts Sertoli cell-gonocyte contact. *Biol. Reprod.* **73,** 482-490.

85) Bercovitch, R.S., Januario, J.A., Terry, S.F., **Boekelheide, K.**, Podis, A.D., Dupuy, D.E., Bercovitch, L.G. (2005). Testicular microlithiasis in association with pseudoxanthoma elasticum. *Radiology* **237,** 550-554.

86) Rasoulpour, R.J., **Boekelheide, K.** (2006). The Sycp-1Cre transgenic mouse and male germ cell inhibition of NF -κB. *J Androl.* **27,** 729-733. PMID: 16775250

87) Emerich, D.F., Thanos, C.G., Goddard, M., Skinner, S.J., Geany, M.S., Bell, W.J., Bintz, B., Schneider, P., Chu, Y., Babu, R.S., Borlongan, C.V., **Boekelheide, K.**, Hall, S., Bryant, B., Kordower, J.H. (2006). Extensive neuroprotection by choroid plexus transplants in excitotoxin lesioned monkeys. *Neurobiol. Dis.* **23,** 471-80. PMID: 16777422

88) Rasoulpour, R.J., **Boekelheide, K.** (2007). NF-κB activation elicited by ionizing radiation is pro-apoptotic in testis. *Biol. Reprod.* **76,** 279-85. PMID: 17123945

89) Bryant, B.H., **Boekelheide, K.** (2007). Time-dependent changes in post-mortem testis histopathology in the rat. *Toxicologic Pathol*. **35,** 665-71.

90) Moffit, J.S., Bryant, B.H., Hall, S.J., **Boekelheide K.** (2007). Dose-dependent effects of Sertoli cell toxicants 2,5-hexanedione, carbendazim, and mono-(2-ethylhexyl) phthalate in adult rat testis. *Toxicologic Pathol.* **35,** 719-27.

91) Gaido, K.W., Hensley, J.B., Liu, D. Wallace, D.G., Borghoff, S., Johnson, K.J., Hall, S.J., **Boekelheide, K.** (2007). Fetal mouse phthalate exposure shows that gonocyte multinucleation is not associated with decreased testicular testosterone. *Tox. Sci.* **97,** 491-503. PMID: 17361019

92) **Boekelheide, K.** (2007). Highlight—Mixed Messages. *Tox. Sci.* **99**, 1-2. PMID: 15384182

93) Moffit, J.S., **Boekelheide, K.**, Sedivy, J.M., Klysik, J. (2007). Mice lacking Raf Kinase Inhibitor Protein-1 (RKIP-1) have altered sperm capacitation and reduced reproduction rates with a normal response to testicular injury *J. Androl.* **28,** 883-90.

94) Klysik, J., Theroux, S., Sedivy, J.M., Moffit, J.S., **Boekelheide, K**. (2008). Signaling crossroads: The function of Raf Kinase Inhibitory Protein in cancer, the central nervous system and reproduction. *Cell. Signal.* **20,** 1-9.

95) Bryant, B.H., Yamasaki, H., Sandrof, M., **Boekelheide, K**. (2008). Spermatid head retention as a marker of 2,5-hexanedione-induced testicular toxicity in the rat. *Toxicologic Pathol.* **36**, 552-559.

96) Ryu, K.-Y. Sinnar, S.A. Reinholdt, L.G., Vaccari, S., Hall, S., Garcia, M.A., Zaitseva, T.S., Bouley, D.M., **Boekelheide, K.**, Handel, M.A., Conti, M., Kopito, R.R. (2008). The mouse polyubiquitin gene Ubb is essential for meiotic progression. *Mol. Cell, Biol.* **28,** 1136-46. PMID: 18070917

97) **Boekelheide, K.**, Sigman, M. (2008). Is gene therapy for the treatment of male infertility feasible? *Nat. Clin. Pract. Urol.* **5,** 590-3. PMID: 18852706

98) **Boekelheide, K.**, Kleymenova, E., Liu, K., Swanson, C., Gaido, K.W. (2009). Dose-dependent effects on cell proliferation, seminiferous tubules, and male germ cells in the fetal rat testis following exposure to di (*n*-butyl) phthalate. *Micro. Res. Tech.* **72,** 629-38. PMID: 19165735

99) Paul, E., Cronan, R., Weston, P. J., **Boekelheide, K.**, Sedivy, J.M., Lee, S.Y., Wiest, D.L., Resnick, M.B., Klysik, J.E. (2009). Disruption of Supv3L1 damages the skin and causes sarcopenia, loss of fat, and death. *Mamm. Genome* **20,** 92-108.

100) Thanos C, Emerich D, Bintz B, Goddard M, Mills J, Jensen R, Lombardi M, Hall S, and **Boekelheide, K.** (2009). Secreted products from the porcine choroid plexus accelerate the healing of cutaneous wounds. *Cell Transplant.* **18,** 1395-1409. PMID: 19660181

101) Krewski D, Acosta D Jr, Andersen M, Anderson H, Bailar JC 3rd, **Boekelheide K**, Brent R, Charnley G, Cheung VG, Green S Jr, Kelsey KT, Kerkvliet NI, Li AA, McCray L, Meyer O, Patterson RD, Pennie W, Scala RA, Solomon GM, Stephens M, Yager J, Zeise L. (2010). Toxicity testing in the 21st century: a vision and a strategy. J Toxicol Environ Health B Crit Rev **13,** 51-138. PMID: 20574894

102) **Boekelheide, K.**, Campion, S.N. (2010). Toxicity Testing in the 21st Century: Using the New Toxicity Testing Paradigm to Create a Taxonomy of Adverse Effects. *Tox. Sci.* **114,** 20-24. PMID: 20026472

103) Yamasaki, H., Sandrof, M.A., **Boekelheide, K.** (2010). Suppression of Radiation-induced Testicular Germ Cell Apoptosis by 2,5-Hexanedione Pretreatment. I. Histopathological Analysis Reveals Stage-Dependence of Attenuated Apoptosis. *Tox. Sci.* **117,** 449-456. PMID 20616207

104) Campion, S.N., Houseman, E.A., Sandrof, M.A., Hensley, J., Sui, Y., Gaido, K.W., Wu, Z., **Boekelheide, K.** (2010). II. Suppression of Radiation-induced Testicular Germ Cell Apoptosis. II. Gene Array Analysis Reveals Adaptive Changes in Cell Cycle and Cell Death Pathways. *Tox. Sci.* **117,** 457-465. PMID 20616210

105) Campion, S.N., Sandrof, M.A., Yamasaki, H., **Boekelheide, K.** (2010). Suppression of Radiation-induced Testicular Germ Cell Apoptosis. III. Candidate Gene Analysis Identifies a Role for Fas in the Attenuation of X-ray-induced apoptosis. *Tox. Sci.* **117,** 466-474. PMID 20616204

106) **Boekelheide, K.**, Andersen, M.E. (2010). A Mechanistic Re-definition of Adverse Effects – A Key Step in the Toxicity Testing Paradigm Shift. *Altex* **27,** 243-252.

107) Pacheco, S.E., Houseman, E.A., Christensen, B.C., Marsit, C.J., Kelsey, K.T., Sigman, M., **Boekelheide, K.** (2011). Integrative DNA methylation and gene expression analyses identify DNA packaging and epigenetic regulatory genes associated with low motility sperm. *PLoS ONE* **6,** e0020280. PMCID: PMC3107223

108) Thanos, C., Bintz, B., Goddard, M., **Boekelheide, K.**, Hall, S., Emerich, D. (2011). Functional modulation of choroid plexus epithelial clusters in vitro for tissue repair applications. *Cell Transplant* **20,** 1659-72.

109) Bhattacharya, S., Zhang, Q., Carmichael, P.L., **Boekelheide, K.**, Andersen, M.E. (2011). Toxicity Testing in the 21st Century: Defining New Risk Assessment Approaches Based on Perturbation of Intracellular Toxicity Pathways. *PLoS ONE* 6(6): e20887. doi:10.1371/journal.pone.0020887

110) Andersen, M.E., Clewell, H.J., III, Carmichael, P.L., **Boekelheide, K.** (2011). Can Case Study Approaches Speed Implementation of the NRC Report: "Toxicity Testing in the 21st Century: A Vision and a Strategy?" *Altex* **28,** 175-182.

111) Saffarini, C.M., Heger, N.E., Yamasaki, H., Liu, T., Hall, S.J., **Boekelheide, K.** (2012). Induction and persistence of abnormal testicular germ cells following gestational exposure to di-(n-butyl) phthalate in p53-null mice. *J. Androl.* **33,** 505-513.

112) Stephens, M.L., Barrow, C., Andersen, M.E., Boekelheide, K., Carmichael, P.L., Holsapple, M.P., Lafranconi, M. (2012). Accelerating the Development of 21st Century Toxicology: Outcome of a Human Toxicology Project Consortium Workshop. *Tox. Sci.* **125,** 327-334.

113) Seifert,E.L., Caron,A.Z., Morin,K., Coulombe, J.E., He, X.H., Jardine, K., Dewar-Darch, D., Boekelheide, K., Harper, M.E., McBurney, M.W. (2012). SirT1 catalytic activity is required for male fertility and metabolic homeostasis in mice. *FASEB J* **26,** 555-566.

114) Pacheco, S.E., Anderson, L.M., Boekelheide, K. (2012). Optimization of a filter-lysis protocol to purify rat testicular homogenates for automated spermatid counting. *J. Androl.* **33,** 811-816.

115) Campion, S.N. Catlin, N., E., Houseman, E.A., Hensley, J., Sui, Y., Gaido, K.W., Wu, Z., Boekelheide, K. (2012). Molecular Alterations Underlying the Enhanced Disruption of Spermatogenesis by 2,5-Hexanedione and Carbendazim Co-exposure. *Reprod. Toxicol.* **33,** 382-389.

116) Heger, N.E., Hall, S.J., Sandrof, M.A., McDonnell, E.V., Hensley, J.B., McDowell, E.N., Martin, K.A., Gaido, K.W., Johnson, K.J., Boekelheide, K. (2012). Human Fetal Testis Xenografts Are Not Sensitive To Phthalate-Induced Endocrine Disruption. *Environ. Health Perspect.* **120,** 1137-1143.

117) Boekelheide, K., Blumberg, B., Chapin, R.E., Cote, I., Joseph H. Graziano, J.H., Janesick, A., Lane, R., Lillycrop, K., Leslie Myatt, L., States, J.C., Thayer, K., Waalkes, M.P., Rogers, J.M. (2012). Predicting Later-Life Outcomes of Early-Life Exposures. *Environ. Health Perspect.* **120,** 1353–136.

118) Boekelheide, K., Schuppe-Koistinen, I. (2012). SOT/EUROTOX Debate: Biomarkers from Blood and Urine Will Replace Traditional Histopathological Evaluation to Determine Adverse Responses. *Tox. Sci.* **129,** 249-255.

119) Johnson, K.J., Heger, N.E., Boekelheide, K. (2012). Of mice and men (and rats): phthalate-induced fetal testis endocrine disruption is species-dependent. *Tox. Sci.* **129,** 235-248.

120) Pacheco, S.E., Anderson, L.M., Sandrof, M.A., Vantangoli, M.M., Hall, S.J., Boekelheide, K. (2012). Sperm mRNA transcripts are indicators of sub-chronic low dose testicular injury in the Fischer 344 rat. *PLoS ONE* **7,** e44280. doi:10.1371/journal.pone.0044280.

121) Springer, C., Dere, E., Hall, S.J., McDonnell-Clark, E., Roberts, S.C., Butt, C.M., Stapleton, H.M., Watkins, D.J., McClean, M.D., Webster, T.F., Schlezinger, J.J., Boekelheide, K. (2012). Rodent thyroid, liver, and fetal testis toxicity of the monoester metabolite of bis-(2-ethylhexyl) tetrabromophthalate (TBPH), a novel brominated flame retardant present in indoor dust. *Environ. Health Perspect.* 120:1711–1719.

122) Blaubooer, B.J., Boekelheide, K. et al. (2012). The Use of Biomarkers of Toxicity for Integrating *In Vitro* Hazard Estimates Into Risk Assessment for Humans. *Altex* **29,** 411-425.

123) Thompson, M.R., Boekelheide, K. (2013). Multiple environmental chemical exposures to lead, mercury and polychlorinated biphenyls among childbearing-aged women (NHANES 1999–2004): Body burden and risk factors. *Env. Res.* **121,** 23-30.

124) Stephens ML, Andersen M, Becker RA, Betts K, **Boekelheide K**, Carney E, Chapin R, Devlin D, Fitzpatrick S, Fowle JR 3rd, Harlow P, Hartung T, Hoffmann S, Holsapple M, Jacobs A, Judson R, Naidenko O, Pastoor T, Patlewicz G, Rowan A, Scherer R, Shaikh R, Simon T, Wolf D, Zurlo J. (2013). Evidence-based toxicology for the 21st century: opportunities and challenges. *Altex* **30,** 74-103.

125) Davis M, **Boekelheide K**, Boverhof DR, Eichenbaum G, Hartung T, Holsapple MP, Jones TW, Richard AM, Watkins PB. (2013). The new revolution in toxicology: The good, the bad, and the ugly. *Ann N Y Acad Sci.* **1278,** 11-24.

126) Chapin RE, **Boekelheide K**, Cortvrindt R, van Duursen MB, Gant T, Jegou B, Marczylo E, van Pelt AM, Post JN, Roelofs MJ, Schlatt S, Teerds KJ, Toppari J, Piersma AH. (2013). Assuring safety without animal testing: The case for the human testis in vitro. *Reprod. Toxicol.* **39,** 63-8.

127) Saffarini, CM, McDonnell-Clark, EV, Amin, A, Spade, DJ, Huse, SM, Kostadinov, S, Hall, SJ, **Boekelheide, K**. (2013). Maturation of the developing human fetal prostate in a rodent xenograft model. *Prostate* 73 **16,** 1761-75.

128) Campion, S.N., Aubrecht, J., **Boekelheide, K.**, et al. (2013). The Current Status of Biomarkers for Predicting Toxicity. *Expert Opin Drug Metab Toxicol* **9,** 1391-408.

129) Thompson, M.R., Burdon, A., Boekelheide, K. (2013). Practice-based evidence informs environmental health policy and regulation: A case study of residential lead-soil contamination in Rhode Island. *Sci Total Environ.* **468-469,** 514-522. PMCID: PMC3858391

130) Dere, E., Anderson, L.M., Coulson, M., McIntyre, B.S., Boekelheide, K., Chapin, R.E. (2013). SOT Symposium Highlight: Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs and Sperm Signatures. *Toxicol Sci.* **136,** 265-73. PMCID: PMC3858194

131) Dere, E., Anderson, L.M., Hwang, K., Boekelheide, K. (2013). Biomarkers of chemotherapy-induced testicular damage. *Fertil. Steril.* **100,** 1192-202. PMCID: PMC3840355

132) Rider, C., Boekelheide, K., Catlin, N., Gordon, C., Morata, T., Sexton, K., Simmons, J. (2013). Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors. *Toxicol. Sci.*, in press.

133) Rowlands JC, Sander M, Bus JS; FutureTox Organizing Committee. (2014). FutureTox: building the road for 21st century toxicology and risk assessment practices. *Toxicol Sci.* **137,** 269-77.

134) Spade, D.J., Hall, S.J., Saffarini, C., Huse, S.M., McDonnell-Clark, E.V., **Boekelheide, K**. (2014). Differential response to abiraterone acetate and di-n-butyl phthalate in an androgen-sensitive human fetal testis xenograft bioassay. *Toxicol Sci.* **138,** 148-169.

135) Catlin N, Huse SM, **Boekelheide K.** (2014). "The stage-specific testicular germ cell apoptotic response to low dose x-irradiation and 2,5-hexanedione combined exposure. I. Validation of the laser capture microdissection method for qRT-PCR array application." *Toxicol Pathol.* **42,** 1221-8.

136) Catlin N, Huse SM, **Boekelheide K.** (2014). "The stage-specific testicular germ cell apoptotic response to low dose x-irradiation and 2,5-hexanedione combined exposure. II. qRT-PCR array analysis reveals dose dependent adaptive alterations in the apoptotic pathway." *Toxicol Pathol.* **42,** 1229-37.

137) Spade DJ, McDonnell EV, Heger NE, Sanders JA, Saffarini CM, Gruppuso PA, De Paepe ME, **Boekelheide K**. (2014). Xenotransplantation models to study the effects of toxicants on human fetal tissues. *Birth Defects Res B Dev Reprod Toxicol.* **101,** 410-22.

138) Saffarini CM, McDonnell-Clark EV, Amin A, **Boekelheide K**. (2015). A Human Fetal Prostate Xenograft Model of Developmental Estrogenization. *Int J Toxicol.*, **34:** 119-128.

139) Saffarini CM, McDonnell-Clark EV, Amin A, Huse, SM, **Boekelheide K**. (2015). Developmental exposure to estrogen alters differentiation and epigenetic programming in a human fetal prostate xenograft model. *PLoS ONE* 10(3):e0122290. doi: 10.1371/journal.pone.0122290. PMCID PMC4370592

140) Bouhifd M, Andersen ME, Baghdikian C, **Boekelheide K**, Crofton KM, Fornace Jr AJ, Kleensang A, Li H, Livi C, Maertens A, McMullen PD, Rosenberg M, Thomas R, Vantangoli M, Yager JD, Zhao L, Hartung T. (2015). The Human Toxome Project. *ALTEX* **32,** 112-124.

141) Curran, S., Achilli, T-M, Leary, E., Wilks, B., Vantangoli, M.M., Boekelheide, K., and Morgan, J.R. A 3D Spheroid System to Evaluate Inhibitors of the ABCG2 Transporter in Drug Uptake and Penetration. *TECHNOLOGY* 3: 54-63, 2015.

142) Vantangoli, M.M., Madnick, S.J., Huse, S.M., Weston, P., Boekelheide, K. (2015). MCF-7 Human Breast Cancer Cells Form Differentiated Microtissues in Scaffold-Free Hydrogels. *PLoS One* 10:e0135426.

143) Spade, D.S., Hall, S.J., Wilson, S., Boekelheide, K. (2015). Di-*n*-butyl phthalate induces multinucleated germ cells in the rat fetal testis through a non-proliferative mechanism. *Biol. Reprod.* 93:110, 1-10.

144) Curran S, Vantangoli MM, Boekelheide K, Morgan JR. (2015). Architecture of Chimeric Spheroids Controls Drug Transport. Cancer Microenviron. 8:101-9.

145) Pranita K. Kabadi*, Marguerite M. Vantangoli*, April L. Rodd, Elizabeth Leary, Samantha J. Madnick, Jeffrey R. Morgan, Agnes Kane, and Kim Boekelheide. (2015). Into the depths: Techniques for in vitro three-dimensional microtissue visualization. BioTechniques 59:279–286. *contributed equally

Reviews, Chapters, Letters to the Editor

1. **Boekelheide, K.**, Neely, M.D., Sioussat, T. (1989). The Sertoli cell cytoskeleton: A target for toxicant-induced germ cell loss. *Toxicol. Appl. Pharmacol.* **101,** 373-389.

2. **Boekelheide, K.**, Eveleth, J., Neely, M.D., Sioussat, T.M. (1991). Microtubule assembly is altered following covalent modification by the *n*-hexane metabolite 2,5-hexanedione. *Adv. Exp. Med. Biol.* **283,** 433-442.

3. **Boekelheide, K.** (1993). Sertoli Cell Toxicants. In *The Sertoli Cell* (eds. Russell, L.D., Griswold, M.D.). Cache River Press, Clearwater FL, pp. 551-575.

4. Cohen, S.D., Pumford, N.R., Khairalah, E.A., **Boekelheide, K.**, Pohl, L.R., Amouzadeh, H.R., Hinson, J.A. (1997). Selective protein covalent binding and target organ toxicity. *Toxicol. Appl. Pharmacol.* **143,** 1-12.

5. Richburg, J.H., Blanchard, K.T., and **Boekelheide, K.** (1997). Sertoli Cell. In *Comprehensive Toxicology*, *Volume 10: Reproductive and Endocrine Toxicology, Section i: Male Reproductive Toxicology* (eds., Sipes, I.G., McQueen, C.A., and Gandolfi, A.J.). Elsevier Science, Oxford, pp. 127-138.

6. **Boekelheide, K.** (1998). Letter to the Editor: Response to Guest Editorial by Philip G. Watanabe. *Toxicol. Sci.* **46,** 418-419.

7. **Boekelheide, K.**, Fleming, S.L., Johnson, K.J., Patel, S.R., Schoenfeld, H.A. (2000). Role of Sertoli cells in injury-associated testicular germ cell apoptosis. *Proc. Soc. Exptl. Biol. Med.* **225,** 105-115.

8. Embree, M.E., **Boekelheide, K.** (2000). Germ cell apoptosis. In *Testis, Epididymis and Technologies in the Year 2000; 11th European Workshop on Molecular and Cellular Endocrinology of the Testis* (eds., Jegou, B. et al.). Springer, Berlin, pp. 141-163.

9. **Boekelheide, K.**, Schoenfeld, H.A. (2001). Spermatogenesis by Sisyphus: Proliferating stem germ cells fail to repopulate the testis after 'irreversible' injury. In *Biological Reactive Intermediates VI: Chemical and Biological Mechanisms in Susceptibility to and Prevention of Environmental Disease* (eds., Dansette, P.M., et al.). Plenum Publishing, New York, pp. 421-428.

10. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of butyl benzyl phthalate. *Reprod. Toxicol*. **16,** 453-487.

11. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di-*n*-butyl phthalate. *Reprod. Toxicol*. **16,** 489-527.

12. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di(2-ethylhexyl) phthalate. *Reprod. Toxicol*. **16,** 529-653.

13. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di-isodecyl phthalate. *Reprod. Toxicol*. **16,** 655-678.

14. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di-isononyl phthalate. *Reprod. Toxicol*. **16,** 679-708.

15. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di-*n*-hexyl phthalate. *Reprod. Toxicol*. **16,** 709-719.

16. Kavlock, R., **Boekelheide, K**., Chapin, R.E., Cunningham, M. Faustman, E. et al. (2002). NTP Center for the Evaluation of Risks to Human Reproduction: phthalates expert panel report on the reproductive and developmental toxicity of di-*n*-octyl phthalate. *Reprod. Toxicol*. **16,** 721-734.

17. **Boekelheide, K**., Fleming, S.L., Allio, T., Embree-Ku, M.E., Hall, S.J., Johnson, K.J., Kwon, E.J., Patel, S.R., Rasoulpour, R.J., Schoenfeld, H.A., Thompson, S. (2002). 2,5-Hexanedione-induced testicular injury. *Ann. Rev. Pharmacol. Toxicol.* **43,** 125-147.

18. **Boekelheide, K**., Darney, S.P., Daston, G.P., David, R.M., Luderer, U., Olshan, A.F., Sanderson, W.T., Willhite, C.C., Woskie, S. (2004). NTP-CERHR Expert Panel Report on the reproductive and developmental toxicity of 2-bromopropane. *Reprod. Toxicol.* **18,** 189-217.

19. **Boekelheide, K.**, Johnson, K.J., Richburg, J.H. (2005). Sertoli Cell Toxicants. In *Sertoli Cell Biology* (eds. Griswold, M.D., Skinner, M.K.). Elsevier Inc, San Diego, pp. 345-382.

20. Kavlock, R., Barr, D., **Boekelheide, K.**, Breslin, W., Breysse, P., Chapin, R., Gaido, K., Hodgson, E., Marcus, M., Shea, K., Williams, P. (2006). NTP-CERHR Expert Panel Update on the Reproductive and Developmental Toxicity of di(2-ethylhexyl) phthalate. *Reprod. Toxicol.* **22**, 291-399.

21. Bailey, J., et al (**Boekelheide, K.** listed as 13th author). (2006). Synopsis: 2006 Annual Meeting of the American Society of Andrology. *J. Androl.* **27,** 712-719.

22. Chapin, R.E., Adams, J., **Boekelheide, K.**, et al. (2008). NTP-CERHR expert panel report on the reproductive and developmental toxicity of bisphenol A. *Birth Defects Res B Dev Reprod Toxicol.* **83,** 157-395.

23. **Boekelheide, K.** (2008). A Paradigm Shift in Toxicity Testing Is Inevitable. *Altweb*.

24. **Boekelheide, K.**, Campion, S.N. (2010). Reframing the Risk Assessment Paradigm: Towards a Systems Biology Approach. In *Application of Toxicogenomics in Safety Evaluation and Risk Assessment* (eds., Boverhof, D., Gollapudi,B.). Wiley, Hoboken, NJ.

25. **Boekelheide, K.** (2011). Commentary on "Incidence and Nature of Testicular Toxicity Findings in Pharmaceutical Development," *Birth Defects Research Part B: Developmental and Reproductive Toxicology* **92,** 501-503.

26. Campion, S., Catlin, N., Heger, N., McDonnell, E.V., Pacheco, S.E., Saffarini, C., Sandrof, M.A., Boekelheide, K. (2012). "Male Reprotoxicity and Endocrine Disruption**,"** *Molecular, Clinical and Environmental Toxicology Experientia Supplementum* **101,** 315-360.

Edited Books

1. **Boekelheide, K.**, and Chapin, R.E. (1997). Editors of *Section 1: Male Reproductive Toxicology*. In *Comprehensive Toxicology, Volume 10: Reproductive and Endocrine Toxicology* (eds., Sipes, I.G., McQueen, C.A., and Gandolfi, A.J.). Elsevier Science, Oxford, pp. 1-247.

2. **Boekelheide, K.**, and Chapin, R.E. (2002). Guest Editors of *Chapter 16: Male Reproductive Toxicology.* In *Current Protocols in Toxicology* (ed., Maines, M.D.). Wiley, New York.

Expert Panel Reports/Monographs

1. Gender Differences in Susceptibility to Environmental Factors: A Priority Assessment (eds., Setlow, V.P., Lawson, C.E., and Woods, N.F.). 1998, National Academy Press, Washington, D.C.

2. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di-n-Butyl Phthalate (DBP). 2000, NTP-CERHR-DBP-00.

3. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of 1-Bromopropane. 2003, NIH Publication No. 03-4479.

4. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of 2-Bromopropane. 2003, NIH Publication No. 03-4480.

5. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di-Isononyl Phthalate (DnIP). 2003, NIH Publication No. 03-4484.

6. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di-Isodecyl Phthalate (DIDP). 2003, NIH Publication No. 03-4485.

7. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Butyl Benzyl Phthalate (BBP). 2003, NIH Publication No. 03-4487.

8. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di-n-Octyl Phthalate (DnOP). 2003, NIH Publication No. 03-4488.

9. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di-n-Hexyl Phthalate (DnHP). 2003, NIH Publication No. 03-4489.

10. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Di(2-Ethylhexyl) Phthalate (DEHP). 2006, NIH Publication No. 06-4476.

11. Flouride in Drinking Water. A Scientific Review of EPA's Standards. National Research Council. 2006, National Academy Press, Washington, D.C.

12. Toxicity Testing in the Twenty-first Century: A Vision and a Strategy. National Research Council. 2007, National Academy Press, Washington, D.C.

13. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Bisphenol A. 2008, NIH Publication No. 08-5994.

Invited Seminars

1. "A covalent modification which promotes microtubule assembly: biochemistry and toxicology," SUNY Health Sciences Center at Syracuse, Syracuse, New York, March, 1986.

2. "The time course and dose dependence of 2,5-hexanedione-induced testicular injury in the rat," Program in Toxicology, Duke University, Durham, North Carolina, November, 1986.

3. "Experimental Toxicologic Pathology and Environmental Hazards," Urban Environmental Laboratory, Brown University, Providence, Rhode Island, March, 1987.

4. "The Sertoli cell cytoskeleton: A target in testicular injury," Department of Pathology, Boston University School of Medicine, Boston, Massachusetts, October, 1987.

5. "Health effects of the environmental hazard *n*-hexane," Program in Liberal Medical Education, Brown University, Providence, Rhode Island, November, 1987.

6. "The 'conduit' hypothesis: explaining selective neuronal/testicular toxicity," Department of Environmental and Community Medicine of the University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School, Rutgers University, Piscataway, New Jersey, December, 1988.

7. "2,5-Hexanedione exposure and Sertoli cell dysfunction: A complex model of toxicant-induced testicular atrophy," Department of Pharmacology and Toxicology, The University of Rhode Island, October, 1990.

8. "The Sertoli cell is a testicular neuron," Pathology Grand Rounds, Duke University Medical Center, November, 1990.

9. "Do spermatids modulate Sertoli cell function at ectoplasmic specializations?" Department of Anatomy, University of British Columbia, March, 1992.

10. "Microtubules and 2,5-hexanedione-induced testicular injury: Cell biological techniques applied to toxicology," Center for Environmental Studies, Mississippi State University, February, 1993.

11. "Development of Sertoli cell lines temperature-sensitive for differentiation and their use in toxicology," Department of Cell and Molecular Toxicology, Johns Hopkins University, April, 1993.

12. "Stem germ cell dynamics in a model of 'irreversible' testicular injury," Department of Obstetrics, Gynecology and Reproductive Sciences, University of Texas Houston Medical School, February, 1994.

13. "Is recovery possible after 'irreversible' testicular injury by 2,5-hexanedione?" Graduate Program in Toxicology, Texas A & M University, October, 1994.

14. "2,5-Hexanedione targets microtubules and disrupts seminiferous tubule fluid secretion," Department of Physiology and Biophysics, Brown University, February, 1995.

15. "Apoptosis and growth factors in toxicant-induced testicular injury," Department of Pharmacology/Toxicology, Michigan State University, October, 1995.

16. "Apoptosis and growth factors in toxicant-induced testicular injury," Program in Toxicology, Vanderbilt University, December, 1995.

17. "Apoptosis and growth factors in toxicant-induced testicular injury," Department of Pharmacology/Toxicology, University of Arizona, January, 1996.

18. "Molecular mechanisms of acute and long-lasting testicular injury induced by microtubule disruptors," Department of Pathology, University of Texas Medical Branch at Galveston, September, 1996.

19. "Molecular mechanisms of acute and long-lasting testicular injury induced by microtubule disruptors," Department of Pathology, University of Texas at Houston, September, 1996.

20. "Molecular mechanisms of acute and long-lasting testicular injury induced by microtubule disruptors," Department of Biology, Tufts University, November, 1996.

21. "Molecular mechanisms of acute and long-lasting testicular injury induced by microtubule disruptors," Interdisciplinary Program in Environmental Toxicology, University of California at Davis, February, 1997.

22. "Spermatogenesis by Sisyphus: Germ cell apoptosis and 'irreversible' testicular injury," Department of Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill, March, 1998.

23. "Spermatogenesis by Sisyphus: Germ cell apoptosis and 'irreversible' testicular injury," Merck Research Laboratories, West Point, PA, July, 1998.

24. ”Testicular toxicology and response to injury,” EPA, Research Triangle Park, NC, October, 1999.

25. “Recovery from Irreversible Testicular Injury,” Population Council, New York, NY, September, 2000.

26. “Spermatogenesis by Sisyphus and Thanatos,” Toxicology Program, University of Michigan, Ann Arbor, MI, November, 2000

27. “Finding the Testis Phthalate Target,” Toxicology Scholars Symposium, University of Connecticut, Storrs, CT, March, 2001

28. “Testicular Toxicity: Paracrine Interactions, Germ Cell Apoptosis, and Monitoring the Injury Response,” Roche Global Safety Retreat, Santa Cruz, CA, April, 2005

29. “Signaling the Toxicant-induced Testicular Injury Response,” Boston University, Boston, MA, November, 2005

30. “Testicular Dysgenesis Syndrome and Animal Models of Endocrine Disruption,” Pediatric Research Conference, WIHRI, Providence, RO, December, 2005

31. “Signaling the Toxicant-induced Testicular Injury Response,” Brown University, Liver Research Center, February, 2006

32. “A Mouse Model for Endocrine Disruptor-induced Testicular Germ Cell Cancer,” Brown University, Department of Pathology and Laboratory Medicine, February, 2006.

33. “Toxicity Testing for Risk Assessment in the 21st Century,” Woods Hole Oceanographic Institute, October, 2007.

34. “Preclinical Testicular Toxicity Signals (…..and what to do about them),” Johnson & Johnson, Spring House, PA, October, 2007

35. “2,5-Hexanedione and Sertoli Cell Microtubules: From Crosslinking Chemistry to Altered Function,” AstraZeneca, Waltham, MA, May, 2008

36. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Boston University, October, 2008

37. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Rutgers University, February, 2009

38. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Dartmouth College, March, 2009

39. “Novel Genome-wide and Xenotransplant Approaches to Assessing Male Reproductive Toxicity,” AstraZeneca, Wilmington, DE, June, 2009

40. “Novel Genome-wide and Xenotransplant Approaches to Assessing Male Reproductive Toxicity,” Johnson & Johnson, Raritan, NJ, July, 2009

41. “Endocrine Disruptors and Fetal Male Reproductive Tract Development,” Marine Biological Laboratories, Woods Hole, MA, August, 2009

42. “Toxicity Testing in the 21st Century: Adaptive versus Adverse Effects,” AstraZeneca, Stockholm, Sweden, August, 2009

43. “Novel Genome-wide and Xenotransplant Approaches to Assessing Male Reproductive Toxicity,” AstraZeneca, Stockholm, Sweden, August, 2009

44. “Toxicity Testing in the 21st Century: Adaptive versus Adverse Effects,” Danish EPA and the Technical University of Denmark, Copenhagen, Denmark, September, 2009

45. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Danish EPA and the Technical University of Denmark, Copenhagen, Denmark, September, 2009

46. “Toxicity Testing in the 21st Century: Adaptive versus Adverse Effects,” SanofiAventis, Northumberland, United Kingdom, September, 2009

47. “Novel Genome-wide and Xenotransplant Approaches to Assessing Male Reproductive Toxicity,” SanofiAventis, Northumberland, United Kingdom, September, 2009

48. “Endocrine Disruptors and Fetal Male Reproductive Tract Development,” University of Zurich, Zurich, Switzerland, October, 2009

49. “Novel Genome-wide and Xenotransplant Approaches to Assessing Male Reproductive Toxicity,” AstraZeneca, Alderley Park, United Kingdom, October, 2009

50. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Harvard School of Public Health, Boston, MA, January, 2010

51. “Toxicity Testing in the 21st Century,” Tufts University Cummings School of Veterinary Medicine, North Grafton, MA, February, 2010

52. “Human Relevant Toxicity Testing: Redefining Adversity and Xenografts of Human Fetal Tissues,” USEPA, Research Triangle Park, NC, February, 2010

53. “Human Fetal Testis Xenotransplants and Endocrine Disruption,” Iowa City, IA, April, 2010

54. “Human Relevant Toxicity Testing: Redefining Adversity and Xenografts of Human Fetal Tissues,” NCTR, Little Rock, AR, June, 2010

55. “Human Relevant Toxicity Testing: The Human Fetal Testis Response to Phthalates,” Washington State University, Pullman, WA, September, 2010

56. “Toxicity Testing in the 21st Century – The Vision and Distignusihing Adaptive from Adverse Responses,” Brown University Superfund Research Program, Providence, RI, April, 2011

57. “Human fetal testis xenotransplants and endocrine disruption,” University of Pennsylvania, Philadelphia, PA, April, 2011

58. “Male Reprotoxicity and Endocrine Disrupting Chemicals,” Nemours Biomedical Research, Alfred I. DuPont Hospital for Children, April, 2012

59. “Testicular Dysgenesis Syndrome as an Example of Developmental Origins of Later Life Disease,” Rhode Island College, September, 2012

60. “Center for the Evaluation of Environmental Impacts on Fetal Development,” web seminar for the Children’s Environmental Health Centers, March, 2013

61. “Species differences in the developing male reproductive tract response to phthalates: Implications for human risk assessment,” ExxonMobil Biomedical Sciences, Inc., September, 2013

62. “Attenuation of x-ray-induced germ cell apoptosis in a rat model of co-exposure testicular toxicity,” Boston University School of Public Health, November, 2013

63. “Response of human fetal testis xenotransplants to environmental toxicants: Implications for risk assessment,” University of Connecticut, May, 2014

64. "Assessing human susceptibility to environmental exposures with biomarkers, xenotransplants, and in vitro tools," University of Wisconsin, March, 2015

65. “The Brown University Center to Advance Predictive Biology: Using Digital Molecular Pathology to Identify Adverse Responses and Update Toxicity Testing,” Department of Pathology and Laboratory Medicine, Rhode Island Hospital, May, 2015

Invited Presentations at Meetings and Workshops

1. "Shared cytoskeletal features may explain selective toxicant-induced neuronal and testicular injury," International Life Sciences Institute Nutrition Foundation Annual Meeting, Paradise Island, Bahamas, January, 1989.

2. "Shared cytoskeletal features may explain the tissue selectivity of combined nervous system and testicular toxicants," Frontiers in Toxicology General Platform Session, Society of Toxicology Annual Meeting, Atlanta, Georgia, March, 1989.

3. "Reproductive Toxicology," Workshop on Principles of Environmental and Industrial Toxicology, The Institute of Chemical Toxicology and the Department of Occupational and Environmental Health, Wayne State University, Detroit, Michigan, September, 1989.

4. "The Sertoli cell cytoskeleton: A target for toxicant-induced germ cell loss," Fall Symposium of the Mid-Atlantic Chapter of the Society of Toxicology, Princeton, New Jersey, November, 1989.

5. "Microtubule assembly is altered following covalent modification by the *n*-hexane metabolite 2,5-hexanedione," 4th International Symposium on Biological Reactive Intermediates, Tucson, Arizona, January, 1990.

6. Co-Chair of the Cytoskeleton Poster-Discussion session at the 31st Annual Meeting of the Society of Toxicology, Seattle, Washington, February, 1992.

7. "The testicular cytoskeleton: Cell biology and toxicology," Symposium on Reproductive Health and the Environment, 25th Annual Meeting of the Society for the Study of Reproduction, Raleigh, North Carolina, July, 1992.

8. "Can 'irreversible' testicular injury be reversed by stem cell factor (SCF)?" Workshop on The Role of SCF in Fertility and Embryogenesis, sponsored by Amgen, Inc., Santa Monica, California, July, 1994.

9. "2,5-Hexanedione targets microtubules and disrupts seminiferous tubule fluid secretion," Symposium on Selective Protein Covalent Binding and Target Organ Toxicity, 34th Annual Meeting of the Society of Toxicology, Baltimore, Maryland, March, 1995.

10. "Paracrine signaling of testicular germ cell apoptosis: The Fas system as an environmental sensor," Symposium on Mechanisms of Toxicant-induced Apoptosis: Insights from Reproduction and Development, organized and chaired by K. Boekelheide, 36th Annual Meeting of the Society of Toxicology, Cincinnati, Ohio, March, 1997.

11. "Sertoli cell microtubules and testicular injury," 1997 CAAT - IIVTG Symposium on Mechanisms of Toxicity, Johns Hopkins University, Baltimore, Maryland, September, 1997.

12. "New innovations in preserving and restoring fertility," Society for the Study of Male Reproduction, San Diego, California, May, 1998.

13. "Molecular and genetic aspects of toxicant-induced apoptosis in the male germline," VIIIth International Congress of Toxicology, Symposium on Genotoxic Agents and Apoptosis, Paris, July, 1998.

14. "Does germ cell apoptosis play a role in clinical andrology?" Postgraduate Course, 24th Annual Meeting of the American Society of Andrology, Louisville, Kentucky, April, 1999.

15. "Consequences of excessive and deficient testicular germ cell apoptosis," 25th Annual Meeting of the American Society of Andrology, Boston, MA, April, 2000.

16. "Germ cell apoptosis," 11th European Testis Workshop on Molecular and Cellular Endocrinology of the Testis, St. Malo, France, May, 2000.

17. "Intercellular signaling in the testis," Gordon Research Conference on Mammalian Gametogenesis and Embryogenesis, New London, CT, July, 2000.

18. "Spermatogenesis by Sisyphus: Proliferating stem germ cells fail to repopulate the testis after 'irreversible' injury," 6th International Symposium on Biological Reactive Intermediates, Paris, France, July, 2000.

19. "Finding the testis phthalate target: The next step," Symposium on Gender Differences in Reproductive Biology and Toxicology, Tucson, AZ, November, 2000.

20. "Apoptosis of testicular germ cells: Mechanisms and effects," The 2nd International Symposium on Male Reproduction and Andrology, Tel-Aviv, Isreal, January, 2001.

21. Panel Discussion – "Move over PCBs: The new gang of chemical contaminants," Boston-to-Baltimore Regional Briefing, Society of Environmental Journalists, Piscataway, NJ, January, 2002.

22. Co-Chair, Symposium on Defining the Cellular and Molecular Mechanisms of Toxicant Action in the Testis, 41st Annual Meeting of the Society of Toxicology, Nashville, TN, March, 2002.

23. "Hypothesis testing in male reproductive toxicology using mutant mice," Workshop on Transgenic Models in Reproductive Toxicology, 41st Annual Meeting of the Society of Toxicology, Nashville, TN, March, 2002.

24. "Double deficient mice lacking both p53 and Fas ligand have abnormalities in development, reproduction, and parturition," The 1st Brown-Linkoping

Conference on Basic and Clinical Aspects of Reproductive Immunology, Providence, RI, November, 2002.

25. "Endocrine disruption—Teaching the science and finding a target," North Carolina Society of Toxicology, Chapel Hill, NC, October, 2002.

26. "Sertoli cell microtubules: From morphology to function," American Society of Andrology, Phoenix, AZ, March, 2003.

27. "Reprogramming Gene Expression in Response to Insult," Session Co-Chair, Society of Toxicology, Baltimore, MD, March, 2004.

28."Mechanisms of toxic damage to spermatogenesis," for a workshop entitled "Parenthood after Cancer," Houston, TX, March, 2004.

29. "Signals in primates—Reversible and irreversible injury," for a Continuing Education Course, Annual Meeting Society of Toxicology, New Orleans, LA, March, 2005.

30. "Testicular Dysgenesis Syndrome and Animal Models of Endocrine Disruption," Annual Meeting Northeast Society of Toxicology, Danbury, CT, October, 2005.

31. Presentation at the *Cutting-edge Medical Technologies and Biotech Research & Discovery Conference*, Brown Forum for Enterprise, February, 2006

32. "Sertoli Cell Toxicants—Theory and Practice," American Society of Andrology, Chicago, IL, April, 2006.

33. Session Chair, Cell-Cell Interactions that Mediate Organ System Toxicity, Mechanisms of Toxicity Gordon Research Conference, Colby College, ME, July, 2006

34. "Basic Toxicology," Metcalf Institute for Marine and Environmental Reporting, Brown University, RI, September, 2007

35. "Toxicity Testing for Risk Assessment in the 21st Century," Nutmeg Conference, Woods Hole Oceanographic Institute, Woods Hole, MA, October, 2007

35. "Toxicity Testing for Risk Assessment in the 21st Century," 20th Annual SBRP Meeting, Durham, NC, December, 2007

36. "Greening Brownfield Redevelopment," Session Moderator, 2008 Green Technology Conference, Brown Forum for Enterprise, Providence, RI, February, 2008

37. "Toxicity Testing for Risk Assessment in the 21st Century," Scientific Advisory Committee on Alternative Toxicological Methods (SACATM) Meeting, National Toxicology Program, Durham, NC, June, 2008

38. "Bisphenol A—Center for the Evaluation of Risks to Human Reproduction," Tox Forum, Aspen, CO, July, 2008

39. "Toxicology Basics," Toxic Remediation Panel, 2008-2009 Diversity Fellowships in Environmental Reporting, Metcalf Institute for Marine and Environmental Reporting, September, 2008

40. "Toxicity Testing in the 21st Century," Plenary Lecture, Annual Meeting of the PANWAT Regional Chapter of the Society of Toxicology, Corvallis, OR, September, 2008

41. "Toxicity Testing in the 21st Century: Promises and Conundrums," Keynote Address, TestSmart Developmental Neurotoxicity 2, Reston, VA, November, 2008

42. "Toxicity Testing in the 21st Century", National Research Council Symposium of the Standing Committee on Risk Analysis Issues and Reviews entitled "Toxicity Pathway-based Risk Assessment: Preparing for Paradigm Change," Washington, DC, May, 2009

43. "Toxicity Testing in the 21st Century", EPA Webinar on "Computational Toxicology: An Introduction to Key Concepts and Approaches," May, 2009

44. Panel Member discussing "Improving the State of the Science: Questions About Epigenetic Effects of Chemicals," National Academies Workshop of the Standing Committee on Use of Emerging Science for Environmental Health Decisions entitled "Use of Emerging Science and Technologies to Explore Epigenetic Mechanisms Underlying the Developmental Basis of Disease," Washington, DC, July, 2009

45. "Toxicity Testing in the 21st Century: The Vision and Distinguishing Adaptive *versus* Adverse Effects," IVTIP-21C Autumn Meeting, Antwerp (Edegem), Belgium, November, 2009

46. "Human Fetal Testis Xenografts and Antiandrogens," PPTOX-II, Miami, FL, December, 2009

47. "Toxicity Testing in the 21st Century: The Vision and Some Questions," Society of Toxicology, Keynote Address, In Vitro Luncheon, Salt Lake City, UT, March, 2010

48. "Redefining Adversity for the New Toxicity Testing Paradigm," Society of Toxicology, Issues Session on the National Academy of Sciences Vision for Toxicity Testing in the 21st Century, Salt Lake City, UT, March, 2010

49. "Toxicity: An Interactive Panel Discussion," Brown University series on Nature and Legacy: Humanists, scientists, and the Environment, Providence, RI, March, 2010.

50. "Current and emerging chemical exposure science," RI Bar Association Continuing Legal Education Workshop on "Environmental Health and Chemical Exposures: Law and Science," Providence, RI, March, 2010

51. "Toxicology Basics" and "Case Study – Bisphenol A: Scientific Uncertainty," Science Seminar for Journalists, Workshop on "Reporting on the Science & Impacts of Toxic Chemicals," Providence, RI, March, 2010

52. "Plenary Lecture: Adaptive versus Adverse Changes in Toxicology," Applied Pharmaceutical Toxicology Discovery Workshop 2010, Boston, MA, May, 2010

53. "Toxicity Testing in the 21st Century – A U.S. Perspective," AXLR8-1 Workshop, Potsdam, Germany, June, 2010

54. "A Mechanistic Re-definition of Adverse Effects – A Key Step in the Toxicity testing Paradigm Shift," 21st Century Validation Strategies for 21st Century Tools, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, July, 2010

55. "Overview of the Brown University Superfund Research Program," NUTMEG Conference, Woods Hole, MA, October, 2010

56. "Objectives of the Workshop," National Academy of Sciences Workshop on *Use of In Utero and Postnatal Indicators to Predict Health Outcomes Later in Life*, Washington, DC, October, 2010

57. "Overview of the Brown University Children's Environmental Health Formative Center," Children's Environmental Health Conference, Washington, DC, October, 2010

58. "The Human Testis Response to Phthalates," Children's Environmental Health Conference, Washington, DC, October, 2010

59. "Human Relevant Toxicity Testing: Defining Adversity," Conference of the Human Toxicology Project Consortium entitled *Accelerating Implementation of the NRC Vision,"* Washington, DC, November, 2010

60. "Toxicology for the 21st Century: Applications for the SRP," Annual Meeting of the Superfund Research Programs, Portland, OR, November, 2010

61. "Toxicity Testing for the 21st Century – Implementing a Pathway-based Approach," Transatlantic Think Tank for Toxicology (T4), Utrecht, Netherlands, January, 2011

62. "Toxicity Testing for the 21st Century - State of the Science and Research Base….Identifying and Filling the Gaps," Agilent Toxicity Testing Strategy Session, Santa Clara, CA, February, 2011

63. "Biomarkers from blood and urine will replace traditional histopathological evaluation to determine adverse responses," SOT/Eurotox Debate, Society of Toxicology, Washington, DC, March, 2011

64. "Toxicity Testing in the 21st Century − Non-validated Rodent Gold Standards Are Inappropriate Reference Tests," Evidence-Based Toxicology Consortium, Washington, DC, March, 2011

65. "Systems biology approaches in toxicology: identification of adverse effects for risk assessment," DNT3 (Developmental Neurotoxicology, Workshop #3), Varese, Italy, May, 2011

66. "Recent developments and insights in the role of xenobiotics in male reproductive toxicity," ASAT (Assuring Safety Without Animal Testing) Workshop, Lunteren, The Netherlands, June, 2011

67. "Biomarkers from blood and urine will replace traditional histopathological evaluation to determine adverse responses," SOT/Eurotox Debate, Eurotox, Paris, France, September, 2011

68. "The big picture of defining toxicity pathways: Asking the right questions, doing the right tests, and acknowledging our limitations," Toxicity Pathway Workshop, Ispra, Italy, September, 2011

69. "Toxicity Testing in the 21st Century − A Toxicologic Pathology Perspective Using Testis Toxicity as an Example," New York Academy of Sciences Workshop entitled "The Good, Bad, and Ugly of the New Revolution in Toxicology," New York, NY, October, 2011

70. "Phthalate-Induced Discordant (Endocrine Disruption) and Concordant (Multinucleated Germ Cells) Effects Across Species Following Fetal Exposure," Consumer products Safety Commission, Washington, DC, November, 2011

71. "Case Studies of Past and Current Evidence-based Toxicology-related Activities," Evidence-based Toxicology Consortium Workshop, USEPA, Research Triangle Park, NC, January, 2012

72. "Epigenetics Overview," Children's Environmental Health Centers Annual Meeting, Bethesda, MD, March, 2012

73. "Developmental Origins of Male Reproductive Tract Disorders," EPA/NIEHS Children's Centers 2012 Webinar Series, April, 2012.

74. "The Process of Transformation in Toxicity Testing," National Academy of Sciences Systems Biology-Informed Risk Assessment Workshop, Washington, D.C., June, 2012

75. “Sperm Molecular Alterations Are Biomarkers of Testicular Injury and Dysfunction,” Northeast Society of Toxicology Annual Meeting, Salve Regina University, Newport, RI, October, 2012

76. “Developing the MCF-7 model for mapping the estrogen pathway for the Human Toxome Project,” Hamner Institute TT21C: Toxicity Pathway and Network Biology Program, Research Triangle Park, NC, October, 2012

77. “Sperm mRNA transcripts and DNA methylation marks as indicators of testicular injury,” presentation at a symposium titled “Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures” at the 52nd Annual Society of Toxicology meeting, San Antonio, TX, March, 2013

78. “Modulation of X-Ray Mediated Testicular Toxicity by Chemical Exposure,” presentation at a workshop titled “Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors” at the 52nd Annual Society of Toxicology meeting, San Antonio, TX, March, 2013

79. “Academic-Government-Community Partnerships and the Brown University Superfund Research Program,” presentation at a workshop organized by the Environmental Design Research Association, Providence, RI, May, 2013

80. “Endocrine Disruptors and Reprotoxicity,” 20th International Plasticizers Meeting, Brussels, Belgium, May, 2013

81. “Defining Adversity Using In Vitro Approaches,” presentation at a t4 workshop entitled “Adversity vs Adaptation: Determining the most appropriate point-of-departure based on in vitro toxicity data,” Utrecht, Netherlands, June, 2013

82. "Sperm molecular alterations as biomarkers of testicular dysfunction," presentation at an NICHD/ASRM workshop entitled “Determinants of Gamete and Embryo Quality,” Boston, MA, October, 2013

83. “When is an exposure toxic, and what is toxicity?” Workshop on “Communicating Risk to the Public,” sponsored by NEWMOA and the Brown Superfund Research Program, Westford, MA, March, 2014

84. “When is an exposure toxic, and what is toxicity?” Workshop on “Communicating Risk to the Public,” sponsored by NEWMOA and the Brown Superfund Research Program, Providence, RI, March, 2014

85. “Response of Human Fetal Testis Xenotransplants to Environmental Toxicants: Implications for Risk Assessment,” symposium presentation at the 39th Annual Meeting of the American Society of Andrology, Atlanta, GA, April, 2014

86. “Maintaining and measuring male germ line integrity,” keynote presentation at a symposium sponsored by the Beta Beta Beta Honor Society to support undergraduate research, Mount Saint Vincent’s College, Bronx, NY, April, 2014

87. “Human-relevant toxicity testing: Safety factors or human tissues, cells, and molecules?” presentation at a Workshop titled “Windfall or Pitfall: Is There a Need for Modification of Developmental and Reproductive Toxicology Studies When Endocrine Disruption is the Mode of Action?” at the 54th Annual Society of Toxicology meeting, San Diego, CA, March, 2015

88. “Arsenic, fluoride, and trichloroethylene: Why is it important to work towards global water cleanliness?” Rainwater for Humanity Panel Discussion, Brown University, RI, April, 2015

88. “Trichloroethylene Toxicology Basics,” *TCE Vapor Intrusion: State of the Science, Regulations, & Technical Options NEWMOA Workshop,* Brown University, RI, April, 2015

89. “Trichloroethylene Toxicology Basics,” *TCE Vapor Intrusion: State of the Science, Regulations, & Technical Options NEWMOA Workshop,* UMass Lowell, MA, April, 2015

90. “Trichloroethylene Toxicology Basics,” *TCE Vapor Intrusion: State of the Science, Regulations, & Technical Options NEWMOA Workshop,* Lebanon, NH, May, 2015

91. Rapporteur for Breakout Group B, "Strengthening the Scientific Basis for Chemical Safety Assessments," workshop held jointly by USEPA and NIEHS to strategize and prioritize research needs for improving chemical risk assessment, Research triangle Park, NC, July, 2015

92. “The 21st Century Toxicity Testing Strategy: Optimizing the Test Platforms to Identify Integrated Adverse Responses,” Plenary Lecture, China Society of Toxicology, Xi’an, China, July, 2015

93. “Human-relevant toxicity testing: Safety factors or human tissues, cells, and molecules?” presentation at a workshop on phthalates and fetal anti-androgen effects sponsored by ANSES (French regulatory agency), Paris, France, October, 2015