CURRICULUM VITAE

Kim Boekelheide
May, 1998

Date and Place of Birth
February 4, 1952; Iowa City, Iowa

Social Security Number
[redacted]

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 Pharmacology and Toxicology, 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
Rhode Island #6430

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

Awards and Honors
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

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

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

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

Associate Editor, *Toxicology and Applied Pharmacology*, 1996 - 2000

Member, Special Emphasis Panel to review NIEHS ARCH Program applications, 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* (1999-2002), *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, and mechanisms of post-injury recovery.

Current:

R01 ES05033 (previously numbered R01 OH02191) "Environmental/Industrial Toxicants and Testicular Injury", P.I. Kim Boekelheide, 33.3% effort, 09/27/85-8/31/98 (no cost extension from 09/01/98-04/01/99)

R01 ES08956 "Sertoli Cell Toxicity In Vivo: Microtubule Disruption", P.I. Kim Boekelheide, 20% effort, 09/01/97-08/31/02 (current year direct cost $160,512; indirect $90,786)

Burroughs Wellcome Fund Toxicology Scholar Award, P.I. Kim Boekelheide, 50% effort, 09/01/94-08/31/99 (current year direct cost $80,000; no indirect)

Pending:

R01 ES05033-14A1 "Environmental/Industrial Toxicants and Testicular Injury", P.I. Kim Boekelheide, 33.3% effort, 4/01/99-3/31/03 (received a 12 2% at review)

Past:
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
Director, M.D./Ph.D. Program, 1993 - present
Co-Director, Environmental Pathology Training Program, 1996 - present
Animal Care Scientific Review Committee, 1995 - present
Neuroscience Faculty Search Committee, 1995 - 1996
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), neurobiology, 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
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 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 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

Graduate Trainees
Current:

Michelle Embree A second year graduate student in the Pathobiology Graduate Program, Michelle is examining the role of p53 and the Fas system in modulating testicular germ cell injury following toxicant

Shawna Fleming: A third year graduate student in the Pathobiology Graduate Program, Shawna is examining the molecular mechanism by which microtubule disrupters inhibit Sertoli cell function and lead to germ cell death

Lisa Williams: A first year graduate student in the Molecular, Cell Biology and Biochemistry graduate program, Lisa is studying the role of the Fas system in modulating testicular injury induced by radiation

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 resident in Family Medicine, University of Massachusetts.

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 postdoc with Dr. Seeds, Harvard Univeristy.

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 postdoc in my lab.

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 a postdoc with Dr. Fine, Harvard University.

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 cells, currently a graduate student in business, Columbia University.

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 postdoc with Dr. Graham, Vanderbilt University.

Zosia K. Rybkowski: Received a Master's degree (1988) for the ultrastructural characterization of testicular alterations induced by 2,5-hexanedione exposure; lost to follow-up.

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; currently finishing his medical training.

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 Senior Researcher at a biotechnology company.

Postdoctoral Trainees

Current:

Theresa Allio: A first year postdoctoral fellow, Theresa is studying male germline mutations which arise following testicular injury

Kamin Johnson: Recently returned to this lab after doing postdoctoral work with Harold Erickson at Duke University, Kam is identifying cell-specific expression of cadherin family members in the testis and analyzing their role in toxicity

Heidi Schoenfeld: After receiving her Ph.D. in Toxicology from Rutgers in July, 1998, Heidi began her postdoctoral training in September, 1998; Heidi is studying changes in testis associated with post-injury recovery of spermatogenesis

Past:

Jeongwu Lee: As a postdoctoral research associate from 1997-1998, Jeongwu is continued his work on the Fas system and germ cell apoptosis; he is currently a postdoc with Dr. Fine, Harvard University

Elizabeth Shipp: As a postdoctoral research associate from 1997-1998, Elizabeth examined the role of the TRAIL system in germ cell apoptosis looking for another postdoc position

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

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 Assistant Professor, Rhode Island College

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 Assistant Professor, 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 Assistant Professor, The University of Texas at Austin

Undergraduate Trainees

Current:

Rachel Fox ('99): Rachel is studying the expression pattern of stem cell factor in human testicular biopsies for her undergraduate thesis work

Sutchin Patel ('00): Sutchin is just beginning to study tyhe role of testicular cadherins in germ cell apoptosis for his undergraduate thesis project

Past:

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

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

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

Jae-Woo Lee ('93): Studied the characteristics of SV40*ts255* infected Sertoli cell lines

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

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

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
Lori Chapman, Ph D., Biology
Robert Crausman, M.M S., Medical Science
Joe DeGiorgis, Ph.D , Biology
Glen Feinstein, B.A., Biology
Lizeth Fowler, M S., Biology
Marjory Gomez, B.S , Biology
Bryan Hoffman, Ph D., Biology
Jeffrey Orringer, B.S., Biology
Darlene Redenbach, Ph.D., University of British Columbia (worked in my laboratory for approximately 5 months)
Nick Rhind, B.S., Biology
Julia Roque, Ph.D., Environmental Sciences
Nabeel Yaseen, Ph.D., Biology

Current Laboratory Personnel
Theresa Allio, postdoctoral research associate
Michelle Embree, graduate student
Shawna Fleming, graduate student
Rachel Fox, undergraduate
Sue Hall, senior research assistant
Kamin Johnson, postdoctoral research associate
Sutchin Patel, undergraduate
Heidi Schoenfeld, postdoctoral research associate
Deborah Venturini, research asistant
Lisa Williams, graduate student

Address and Telephone Number
Work:
Department of Pathology and
Laboratory Medicine
Division of Biology and Medicine
Brown University, Box G-B518
Providence, RI 02912
Tele: (401) 863-1783
Fax: (401) 863-9008
email: Kim_Boekelheide@Brown.edu

Home:
[redacted]
Wakefield, RI 02879
Tel[redacted]

PUBLICATIONS

Full Length Papers

1. 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.

2. **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.

3. **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.

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.

5. **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.

6. 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.

7. 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.

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

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. **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.

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

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

17. **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.

18. **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.

19. **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.

20. **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.

21. 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.

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

23. **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.

24. 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.

25. 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.

26. **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.

27. 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.

28 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.

29. 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.

30. 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.

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

32. 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.

33. 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.

34. 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.

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

36. **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.

37. 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.

38. 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.

39. 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.

40. 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.

41. 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.

42. 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.

43. 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.

44. 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.

45. 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.

46. 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.

47. 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.

48. 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.

49. 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.

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

51. 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.

52. 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.

53. 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.

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

55. 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.

56. **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.

57. 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.

58. **Boekelheide, K.**, Lee, J., Shipp, E.B., Richburg, J.H., Li, G. (1999). Expression of Fas system-related genes in the testis during development and after toxicant exposure *Toxicol. Lett.* **102-103,** 499-504.

59. 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.

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.

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.

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, 1998.

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

Kenneth T. Bogen

Education

A.B.	Princeton University, Princeton, New Jersey; Biology, 1978
M.A.	George Washington University, Washington, DC, Science, Technology, and Public Policy, 1979
M.P.H.	University of California, Berkeley, California, Environmental Health Science, 1982
Dr.P.H.	University of California, Berkeley, California, Environmental Health Science, 1986

Employment

1980-1981	Science Policy Analyst, U.S. Library of Congress, Congressional Research Service, Science Policy Research Division, Washington, DC.
1982-1982	Program Analyst, U.S. Environmental Protection Agency Region 9, Office of Policy, Technical and Resource Management, San Francisco, California.
1983-1986	Consultant in Environmental Health Risk Assessment, Kenneth T. Bogen, Consultant, Berkeley, California
1986-Present	Senior Environmental Scientist, Health and Ecological Assessment Division, Lawrence Livermore National Laboratory, University of California, Livermore, California.

Areas of Expertise

Carcinogen risk assessment,Regulatory toxicology, Uncertainty analysis, Environmental health policy.

Experience

As a senior environmental health scientist in LLNL's Health and Ecological Assessment Division, Dr. Bogen's research focuses on cancer risk assessment methods for chemicals and radiation, regulatory toxicology, biodosimetric and pharmacokinetic modeling, quantitative uncertainty analysis, and dermal exposure assessment. He has been a principal and co-investigator on related research projects funded by the U.S. Department of Energy, the U.S. Environmental Protection Agency, the National Cancer Institute, the California Environmental Protection Agency, and other agencies. Dr. Bogen served on the National Research Council committee that, at the request of Congress, issued the 1994 report, *Science and Judgment in Risk Assessment*. He also served as the 1995 President of the Northern California Chapter of the Society for Risk Analysis, was the author of *Uncertainty in Environmental Health Risk Assessment* (Garland, New York, 1990), and has authored and coauthored numerous scientific journal articles and reports concerning cancer risk assessment methods and related science-policy issues.

Selected Publications

Bogen, K.T., and R.C. Spear. 1987. Integrating uncertainty and interindividual variability in environmental risk assessment. *Risk Anal.* 7, 427–436.

Bogen, K.T. 1988. Pharmacokinetics for regulatory risk analysis: The case of trichloroethylene. *Regul. Toxicol. Pharmacol.* 8, 447–466.

Bogen, K.T., and T.E. McKone. 1988. Linking indoor air and pharmacokinetic models to assess tetrachloroethylene risk. *Risk Anal.* 8, 509–520.

Bogen, K.T. 1989. Cell proliferation kinetics and multistage cancer risk models. *J. Natl. Cancer Inst.* 81, 267–277.

Bogen, K.T., and L.C. Hall. 1989. Pharmacokinetics for regulatory risk analysis: The case of 1,1,1-trichloroethane (methyl chloroform). *Regul. Toxicol. Pharmacol.* 10, 26–50.

Lichtenberg, E , D. Zilberman, and K Bogen 1989 Regulating environmental health risks under uncertainty groundwater contamination in California. *J Environ Econ. Management* **17**, 22-34.

Bogen, K.T. 1990. *Uncertainty in Environmental Risk Assessment* Garland Publishing, Inc , New York, NY, 195 p.

Bogen, K.T. 1990. Risk extrapolation for chlorinated methanes as promoters vs initiators of multistage carcinogenesis *Fund Appl Toxicol* **15**, 536-557.

Bogen, K.T., L C. Hall, and T.E. McKone 1992. *Health Risk Assessment of Chloroform in California Ground Water*, Lawrence Livermore National Laboratory, Livermore, CA, UCRL-21170.

Bogen, K.T., B.W. Colston and L.K. Machicao. 1992. Dermal absorption of dilute aqueous chloroform, trichloroethylene and tetrachloroethylene in hairless guinea pigs. *Fund. Appl. Toxicol.* **18**, 30–39.

Bogen, K.T. 1993. An intermediate-precision approximation of the inverse cumulative normal distribution. *Commun Statist. Simulat* **22**, 797–801.

Bogen, K.T. 1993. Reassessment of human peripheral T-lymphocyte lifespan deduced from cytogenetic and cytotoxic effects of radiation. *Int. J Radiat Biol* **64**, 195–204.

Bogen, K.T. 1994. Cancer potencies of heterocyclic amines found in cooked foods. *Fd. Chem.Toxicol.* **32**, 505-515.

Bogen, K.T. 1994. A note on compounded conservatism. *Risk Anal.* **14**, 379-381.

Bogen, K.T. 1994. Models based on steady-state *in vitro* dermal permeability data underestimate short-term *in vivo* exposures to organic chemicals in water. *J. Expos. Anal. Environ Epidemiol.* **4**, 457-476.

Bogen, K.T. 1994. Applicability of alternative models of variance in replicate ames-revertants measured for 121 mutagenic rodent carcinogens. *Mutat. Res.* **322**, 265-273.

Bogen, K.T. 1995 Improved prediction of carcinogenic from mutagenic potencies for chemicals positive in rodents and the Ames test. *Molec. Environ. Mutagen.* **25**, 37-49.

D.W. Layton, K.T. Bogen, M.G. Knize, F.T. Hatch, V.M. Johnson, and J. Felton 1995. Cancer risk assessment of heterocyclic amines in cooked foods: An analysis and implications for research. *Carcinogenesis* **16**, 39-52.

Bogen, K.T. 1995. Methods to approximate joint uncertainty and variability in risk. *Risk Anal.* **15**, 411-419.

Bogen, K.T., and L. Swirsky Gold. 1997. Trichloroethylene cancer risk: Simplified calculation of pbpk-based mcls for cytotoxic endpoints. *Regul. Toxicol. Pharmacol.* **25**, 26-42.

Bogen, K.T., C.L. Conrado, and W.L. Robison. 1997 Uncertainty and variability in updated estimates of potential dose and risk at a U.S. nuclear test site—Bikini Atoll. *Health Phys.* **73**, 115-126.

Bogen, K.T. 1997. Do u.s. county data disprove linear no-threshold predictions of lung cancer risk for residential radon?—a preliminary assessment of biological plausibility. *Human Ecol. Risk Assess.* **3**, 157-186.

Bogen, K.T., G.A. Keating, S. Meissner, and J.S. Vogel. 1998. Initial uptake kinetics in human skin exposed to dilute aqueous trichloroethylene *in vitro*. *J. Expos Anal. Environ. Epidemiol.* **8**, 253-271.

Bogen, K.T. 1998. Mechanistic model predicts a U-shaped relation of radon exposure to lung cancer risk reflected in combined occupation and U.S. residential data. *Human Exper. Toxicol.* **17**, 691-696.

CURRICULUM VITAE

KENNETH T. BOGEN

Environmental Health Scientist, Health and Ecological Assessment Division,
Lawrence Livermore National Laboratory, University of California, Livermore, CA

BIRTH	New York City, New York, 28 February 1956	
FAMILY	Wife:	Married (1985) Deborah Rose Moraga, CA
	Children:	Miranda (1988), Benjamin (1993)
ADDRESS	Residence:	[redacted] Walnut Creek, CA 94596
	Business:	Lawrence Livermore National Laboratory University of California 7000 East Avenue, L-396 Livermore, CA 94550-9900
	Tel.	(925) 422-0902
	Fax	(925) 424-3255
	Net	bogen@LLNL.gov

EDUCATION

Princeton University, Princeton, New Jersey
A.B. (Biology), 1978
George Washington University, Washington, DC
M.A. (Science, Technology, and Public Policy), 1979
University of California, Berkeley, CA
M.P.H. (Environmental Health Science), 1982
Dr.P.H. (Environmental Health Science), 1986

POSITIONS

Graduate Student Assistant, U.S. Environmental Protection Agency, Office of Radiation Programs, Crystal City, VA, 1979

Science Policy Analyst, U.S. Library of Congress, Congressional Research Service, Science Policy Research Division, Washington, DC, 1980-1981

Program Analyst, U.S. Environmental Protection Agency Region 9, Office of Policy, Technical and Resource Management, San Francisco, CA, 1982-1982

Consultant in Environmental Health Risk Assessment, Kenneth T. Bogen, Consultant, Berkeley, CA, 1983-1986

Environmental Scientist, Health and Ecological Assessment Division, Lawrence Livermore National Laboratory, University of California, 1986-Present

RESEARCH FOCUS: Cancer risk assessment; Regulatory toxicology, Biological modeling of carcinogenesis, Physiologically based pharmacokinetic models for volatile organic compounds; Uncertainty analysis; *In vivo* dermal absoprtion; Health-risk policy analysis

HONORS: George Washington University School of Public and International Affairs Fellowship

Member, Cancer Dose-Response Working Group of the International Life Sciences Institute, 1991-1992

Member, National Research Council (NRC) Committee on Risk Assessment of Hazardous Air Pollutants, 1991-1994, which issued the report, *Science and Judgment in Risk Assessment* (1994; student ed. Taylor & Francis, Washington DC, 1996)

Scientific Advisor, American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Value Committee, MISCO Subcommittee, 1992-1993

President, Northern California Chapter of the Society for Risk Analysis, 1995

PROF. SOCIETIES: American Association for the Advancement of Science
Society for Risk Analysis, and its Northern California Chapter

PATENTS: Lucas, JN, T Straume, KT Bogen. 1997. Detection and isolation of nucleic acid sequences using competitive hybridization probes. U.S. Patent No. 5,616,465; April 1, 1997.

Lucas, JN, T Straume, KT Bogen. 1998. Identification of random nucleic acid sequence aberrations using dual capture probes which hybridize to different chromosome regions. U.S. Patent No. 5,731,153; March 24, 1998.

Lucas, JN, T Straume, KT Bogen. 1998. Method for identifying and quantifying nucleic acid sequence aberrations. U.S. Patent No. 5,783,387; July 21, 1998.

PUBLICATIONS

1. Bogen, K.T. 1979. Managing technical dissent in private industry. *Indust. Labor Relations Forum* 13, 3–32.

2. Bogen, K.T. 1980. High voltage electric power transmission lines: Impact on public and environmental health. U.S. Library of Congress, Congressional Research Service, Washington, DC, Report No. 80–199.

3. Bogen, K.T. 1980. Public policy and technological risk. *IDEA: J. Law Technol.* 21, 37–74.

4. U.S. Congress, Committee on Science and Technology, Subcommittee on Science Research and Technology. 1981. *The National Bureau of Standards: A Review of its Organization and Operations 1971–1980*, report by Blankenship, V.L., and Bogen, K.T. U.S. Government Printing Office, Washington, DC.

5. Bogen, K.T., and Goldin, A.H. 1981. Population Exposure to External Natural Radiation Background in the United States. Technical Note ORP/SEPD-80-12. U.S. Environmental Protection Agency, Office of Radiation Programs, Washington, DC.

6. Bogen, K.T. 1982. Coordination of regulatory risk analysis: current framework and legislative proposals. *Environ. Econ. J.* 1, 53–84.

7. U.S. Congress, Committee on Science and Technology, Subcommittee on Science Research and Technology. 1983. *The National Science Board: Organization and Activities, 1968–1981*, report by Knezo, G.K., and Bogen, K.T. U.S. Government Printing Office, Washington, DC.

8. Bogen, K.T. 1983. Quantitative risk-benefit analysis in regulatory decision making: A fundamental problem and an alternative proposal. *J. Health Politics, Policy and Law* 8, 120–143.

9. Zweig, G., Gao, R., Witt, J.M., Poppendorf, W., and Bogen, K.T. 1984. Dermal exposure to carbaryl by strawberry harvesters. *J. Agricul. Food Chem.* 32, 1232–1236.

10. Zweig, G., Gao, R., Witt, J.M., Poppendorf, W., and Bogen, K.T. 1985. Exposure of strawberry harvesters to carbaryl. In: *Dermal Exposure Related to Pesticide Use: Discussion of Risk Assessment*, N.N. Ragsdale, Ed. American Chemical Society, Washington, DC, pp. 123–138.

11. Bogen, K.T. 1986. *Uncertainty in Environmental Health Risk Assessment: A Framework for Analysis and an Application to a Chronic Exposure Situation Involving a Chemical Carcinogen*, Doctoral dissertation, University of California Berkeley, School of Public Health, Berkeley, CA.

12. Bogen, K.T., and McKone, T.E. 1987. Prediction of risk from indoor exposure to tetrachloroethylene: pharmacokinetic considerations under steady-state and dynamic exposure conditions. In: *Proc. 80th Annu. Meet., Air Pollut. Cont.*

Assoc., New York City, NY, June 21–26, 1987 Air Pollution Control Association, Pittsburgh, PA, paper #87–41 2.

13. Bogen, K.T , Hall, L.C., McKone, T.E., Layton, D.W., and Patton, S.E. 1987. *Health Risk Assessment of Tetrachloroethylene (PCE) in California Drinking Water.* UCRL-15831. Lawrence Livermore National Laboratory, Livermore, CA, 188 p.

14. Reed, N.R., Olsen, H.E., Marty, M., Beltran, L.M., McKone, T.E., and Bogen, K.T., Tablante, N.L., and Hsieh, D.P.H. 1987. *Health Risk Assessment of 1,2-Dibromo-3-Chloropropane (DBCP) in California Drinking Water.* Department of Environmental Toxicology, University of California, Davis, CA, 151 p.

15. Bogen, K.T , and Spear, R C. 1987. Integrating uncertainty and interindividual variability in environmental risk assessment. *Risk Anal.* 7, 427–436.

16. Layton, D., Mallon, B., Mitchell, W., Hall, L., Fish, R., Perry, L., Snyder, G., Bogen, K., Malloch, W., Ham, C., and Dowd, P. 1987. *Conventional Weapons Demilitarization: A Health and Environmental Effects Data Base Assessment, Explosives and Their Co-Contaminants, Final Report, Phase II.* UCRL-21109. Lawrence Livermore National Laboratory, Livermore, CA.

17. Bogen, K.T., Hall, L.C., L. Perry, R. Fish, McKone, T.E , P. Dowd, S.E. Patton, and B. Mallon. 1988. *Health Risk Assessment of Trichloroethylene in California Drinking Water.* Lawrence Livermore National Laboratory, Livermore, CA UCRL-21007, 297 p.

18. Bogen, K.T. 1988. Pharmacokinetics for regulatory risk analysis: The case of trichloroethylene. *Regul. Toxicol. Pharmacol.* 8, 447–466.

19. Bogen, K.T., and McKone, T.E. 1988. Linking indoor air and pharmacokinetic models to assess tetrachloroethylene risk. *Risk Anal.* 8, 509–520.

20. Bogen, K.T. 1989. Cell proliferation kinetics and multistage cancer risk models. *J. Natl. Cancer Inst.* 81, 267–277.

21. Bogen, K.T., and Hall, L.C. 1989. Pharmacokinetics for regulatory risk analysis: The case of 1,1,1-trichloroethane (methyl chloroform). *Regul. Toxicol. Pharmacol.* 10, 26–50.

22. Lichtenberg, E., Zilberman, D., and Bogen, K. 1989. Regulating environmental health risks under uncertainty: groundwater contamination in california. *J. Environ. Econ. Management* 17, 22-34.

23. Bogen, K.T., and McKone, T.E. 1989. Tetrachloroethylene metabolism resulting from domestic respiratory exposure: Pharmacokinetic considerations relevant to risk assessment. In: Bonin, J.J., and Stevenson, D.E., Eds. *Risk Assessment in Setting National Priorities.* Plenum, New York, NY, pp. 593–608.

24. Bogen, K.T. 1989. Letter to the editor. *J. Natl. Cancer Inst.* 82, 320.

25. Bogen, K.T. 1990. Of apples, alcohol, and unacceptable risk [guest editorial]. *Risk Anal.* **10**, 199–200.

26. Bogen, K.T. 1990. CKM carcinogenesis models: Response. *J Natl. Cancer Inst.* **82**, 1723–1724.

27. McKone, T.E., and Bogen, K.T. 1990 Uncertainty in Exposure and Health-Risk Assessment: An Integrated Approach. In: *Proceedings Eighty-Third Annual Meeting and Exhibition* (Air and Waste Management Association, Pittsburgh, PA, pp. 90–186.2–1 to 90–186.2–16.

28. Bogen, K.T. 1990. Risk extrapolation for chlorinated methanes as promoters vs initiators of multistage carcinogenesis. *Fund. Appl. Toxicol.* **15**, 536-557.

29. Bainer, R., Bogen, K., Carlsen, T., et al 1990. *CERCLA Remedial Investigations Report for the LLNL Livermore Site.* UCAR-10299. Lawrence Livermore National Laboratory, Livermore, CA.

30. Bogen, K.T. 1990. *Uncertainty in Environmental Risk Assessment.* Garland Publishing, Inc., New York, NY, 195 p.

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Michael L. Cunningham, Ph.D., D.A.B.T.

Date and Place of Birth: October 24, 1953; Grants Pass, Oregon.
Marital Status: Married, one son and one daughter.

Education

June 1975 B.A. (Biochemistry and Molecular Biology) University of California, Santa Barbara, CA.
June 1976 B.A. (Pharmacology) University of California, Santa Barbara, CA.
May 1981 Ph.D. (Pharmacology and Toxicology) University of Arizona, Tucson, AZ

Professional Employment

1981-1983 Postdoctoral Fellow, Sandoz Pharmaceutical Corporation, Vienna, Austria.
1983-1985 Postdoctoral Fellow, Argonne National Laboratory, Argonne, Illinois.
1985-1986 Member of the Technical Staff, Chemical and Biological Systems, MITRE Corporation, McLean, Virginia.
1987-1991 Senior Staff Fellow, National Institutes of Health (NIEHS), Research Triangle Park, NC.
1991-present Toxicologist and Chemist, NIEHS.
1992-present Project Officer "Chemical Disposition in Mammals" NIEHS.
1995-present Executive Secretary, Interagency Committee for Chemical Evaluation and Coordination (ICCEC).
1995-present Project Leader, Peroxisome Proliferation Initiative, NIEHS.
1996-present Adjunct Professor, UNC School of Public Health.
1996-present Adjunct Professor, NCSU College of Veterinary Medical Sciences.

Certification

American Board of Toxicology; 1983; 1988; 1993; 1999.

Professional Societies

Society of Toxicology National & NC chapters (President, NCSOT 1998-99); Environmental Mutagen Society National & NC chapters(GEMS Board of Directors 1992-1995; President-elect 1999); International Society for the Study of Xenobiotics American Association for Cancer Research; Sigma Xi, Research Triangle Park chapter (Nomination Committee, 1998-2000); RTP *In Vitro* Discussion Group (Board Member 1994-1999); North Carolina Regulatory Affairs Forum.

Professional Development

Radioisotope Techniques, School of Nuclear Engineering, NCSU, Dec. 1987.
Concepts in Molecular Biology, CIIT, RTP, NC, Oct-Nov, 1988.
Biotransformation Short Course, April 1989, CIIT, RTP, NC,
Symposium on the Significance of Foci of Cellular Alteration in the Rat Liver, NIEHS, May, 1989.
International Conference on Critical Target Genes in Chemical Carcinogenesis, NIEHS, Sept, 1989.
Workshop on Cell Replication, CIIT, RTP, Sept., 1989.
Transgenic Mice in Developmental Biology and Toxicology, NIEHS, April, 1991.
Gordon Conferences, Genetic Toxicology, 1991; Drug Metabolism, 1994.
Project Officer Training, NIEHS, 1992
Workshop on Use of Transgenic Mice in In Vivo Mutagenesis Testing (Big Blue®), Stratagene, Inc. La Jolla, CA, 1993.
Capillary Electrophoresis Course, Beckman Instruments, April, 1994
Civil Rights Contract Compliance training, May, 1994
Mechanism-Based Toxicology in Cancer Risk Assessment, Jan, 1995.
Advanced Project Officer Training, NIEHS, 1995
Intermediate Mass Spectral Interpretation, 7/95.
Grant Application, Review, and Funding Process, 7/95
Organizer, Quantitative PCR workshop, 8/95, FISH workshop, 6/96
Electrochemical Detection School, ESA, Inc., Boston, 10/96.
Laws of Science Workshop, NC Bar Association, 3/97.
UNC Mini-Medical School, 1999.
Mentoring, NIEHS, 1999.
In Vitro Human Tissue Models in Risk Assessment Workshop, 1999.
NeuroLinguistic Programming (NLP), NIEHS, 1999-2000.

SOT Continuing Education Courses

Regulatory Toxicology, 1989; Advanced Metabolism, 1990; Advanced Hepatotoxicity, 1990; Renal Toxicology, 1992; Development and Safety Evaluation of Recombinant Products for Pharmaceutical and Agricultural Use, 1992; Toxicokinetics, 1994. Integration of Mechanistic, Pathologic, and Toxicokinetic Data in Safety Assessment, 1998. Gene Regulation by Reactive Oxygen Species, 1999.

Session Chairmanships

Hepatotoxicity II, SOT, 1990; Mixtures, SOT, 1991; Drugs and Devices, SOT, 1993; Molecular Methods and Models, SOT, 1995; Carcinogenesis, SOT, 1996; Carcinogenesis and Anticarcinogenesis, SOT, 2000.

Service

Granville County Summer Science Camp volunteer, July, 1992.
Animal Care and Use Committee, NIEHS, 1994-present; deputy chair 1997-present.
Scientist mentor, UNC School of Education, 1995-present.
SOT Risk Assessment Task Force, 1999-present.

Editorial Boards

Associate Editor of Quintessence for Carcinogenesis section, 1994-1996.
Editorial Board of Mutation Research, 1997-2000.
Editorial Board of Fundamental and Applied Toxicology, 1997-2000.
Editorial Board of InScight, Daily Internet Science News Service by Science magazine, 1998-present.

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Book Chapters

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Manuscripts

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Tharappel, J.C., Cunningham, M.L., Spear,B.T. and Glauert, H.P.: Differential activation of hepatic NF-κB in rats and hamsters by the peroxisome proliferators Wy-14,643, gemfibrozil, and dibutyl phthalate, submitted to Carcinogenesis.

Abu-Shakra, A., McQueen, E.T., Warren, S.H., and Cunningham, M.L.: Rapid analysis of base-pair substitutions induced by mutagenic drugs through their oxygen radical or epoxide derivatives, submitted to Mutation Research.

Shane, B.S., Cunningham, M.L. and Tindall, K.R : Effect of partial hepatectomy on the mutant frequency of *lacI* in transgenic mice treated with N-ethyl-N-nitrosourea, in preparation.

Shane, B. S., Smith-Dunn, D. L., de Boer, J. G., Glickman, B.W. and Cunningham, M.L.: Comparison of the mutant frequencies and mutation spectra of dimethylnitrosamine (DMN) at the *lacI* and *cII* loci in the liver of Big Blue® transgenic mice, Mutation Research, in press, 2000.

Johnson, J.D., Ryan, M.J., Toft, J.D., II, Graves, S.W., Hejtmancik, M.R., Cunningham, M.L., Herbert, R. and Abdo, K.M.: Two-year toxicity and carcinogenicity study of methyleugenol in F344/N rats and B6C3F1 mice, in preparation.

Cunningham, M.L., Ganesh, L. and Shane, B.S.: The hepatocarcinogenic peroxisome proliferator Wyeth 14,648 induces mutations in vivo by an indirect oxidative mechanism, in preparation.

Schecter,A., Lucier,G.W., Cunningham,M.L., Abdo,K.M., Blumenthal,G., Silver,A., Melnick,R., Portier,C., Barr,D.B., Barr,J.B., Ashley,D.L., Patterson,D., Needham, L.L., Sampson,E.J., Stopford,W., Masten, S. and Mignogna, J.: Methyleugenol metabolism in humans, in preparation.
Cunningham, M.L., Price, H.C., O'Connor, R.W., Moorman, M.P., Mahler, J.F. and Morgan, D.L.: The α,β–unsaturated ketones: 2-Cyclohexen-1-one, in preparation.

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Cunningham, M.L.: NTP toxicity report on toxicity studies of methapyrilene hydrochloride administered in feed to male F344/N rats, NTP Toxicity Report Series, in preparation.

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Invited Presentations

Metabolism and mutagenicity of the carcinogen-noncarcinogen pair: 2,4- and 2,6-diaminotoluene. Eighth Annual Burroughs Wellcome Liquid Chromatography Symposium, Research Triangle Park, NC, November, 1988.

Methylazomethanol acetate (MAMoAC), A stable form of the ultimate mutagen from cycasin is activated by porcine liver esterase. Fifth International Conference on Environmental Mutagens, Cleveland, OH, July, 1989
Panel member, Ad Hoc Risk Assessment Committee on Breast Implants, Center for Devices and Radiological Health, US Food and Drug Administration, July, 1991.

Technical Evaluation Committee, RFP 91-14, "Role of Enhanced Cell Proliferation in Chemical Carcinogenesis", 5/91.

Correlation of cell proliferation with chemical carcinogenesis induced by mutagenic carcinogens vs. mutagenic noncarcinogens. North Carolina State University, October, 1991.

Measurement of cell proliferation in rodent bioassays: Limitations and interpretations. Annual meeting of the Society for Risk Analysis, Baltimore, MD, December, 1991.

Mutagenic noncarcinogens. Duke University Marine Laboratory, Beaufort, NC, May, 1992.

Panel member, International Workshop on Human *in vitro* Liver Preparations for Metabolism Studies in Drug Development, University of Utrecht, The Netherlands, September, 1994.

Cell proliferation as a determining factor for the carcinogenicity of chemicals: Studies with mutagenic carcinogens and mutagenic noncarcinogens. International Congress of Toxicology VII, Seattle, WA, July, 1995.

Keynote speaker, Elliott-Nowell-White Science Symposium, Delta State University, Cleveland, MS, 1995.

Differential *in vivo* mutagenicity of the carcinogen-noncarcinogen pair 2,4- and 2,6-diaminotoluene, 2nd International Conference on Environmental Mutagens in Human Populations, Prague, Czech Republic, 1995

Role of cell proliferation in chemical-induced carcinogenicity, Michigan State University, 1997.

Reviewer, RFP-97-30, "NIEHS Interagency Center for the Evaluation of Alternative Toxicological Methods" March, 1997.

Cunningham, M., Durnford, J., Hejtmancik, M., Kurtz, P., Renne, R., Gideon, K., Marsman, D., Vallant, M. and Chhabra, R.: Peroxisomal enzyme activity and cell proliferation in rats, mice, and hamsters exposed for 13-weeks to Wy-14,643 and gemfibrozil. Seventh International Conference on Environmental Mutagens, Toulouse, France, 1997.

Watson, D., Burka, L.T., Kohn, M., Melnick, R. and Cunningham, M.: Kinetics of adduct formation and spontaneous release by C2, C3 and C4 epoxides with DNA in aqueous solution. Seventh International Conference on Environmental Mutagens, Toulouse, France, 1997.

Mechanisms of Chemical Toxicology, American Chemical Society seminar series, Delta State University, Cleveland, MS, 1997.

USEPA FIFRA Scientific Advisory Panel member, 1998.

DNA Damage Produced by Oxidative Stress, American Chemical Society Lecture Series, Delta State University, Cleveland, MS, 1999.

Society of Toxicology Risk Assessment Task Force, 1999-2003.

Consumer Product Safety Commission Phthalate Panel, 5/99.

Member, Expert Panel, The Center for the Evaluation of Risks to Human Reproduction (CERHR) "Review of Phthalate Acid Esters", 1999.

Technical Evaluation Committee, RFP 263-99-P(BN)-0055, NICHHD, "Toxicology and Carcinogenicity Studies on Two New Compounds" 9/99.

Mechanisms of Hepatocarcinogenicity, "Plasticizers: Scientific Issues in Blood Collection, Storage, and Transfusion" USFDA, October, 1999

"Metabolism and Toxicology of Isoeugenol" USFDA, November, 1999.

Abstracts

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Cunningham, M.L. Gandolfi, A.J., Brendel, K. and Sipes, I.G.: Covalent binding of halogenated solvents to subcellular macromolecules in hepatocytes. Society of Toxicology Meeting, New Orleans, LA, 1979.

Cunningham, M.L., Chang, S.Y. and Sipes, I.G.: Structural identification of carbon tetrachloride adducts to fatty acids in a model system by GC-MS. American Society of Pharmacology and Experimental Therapeutics Meeting, Rochester, MN, 1980. (ASPET Graduate Student Travel Awardee).

Cunningham, M.L. and Ringrose, P.S.: Griseofulvin mutagenicity in the CHO/HGPRT forward mutation assay. Federation Proceedings 42:622, 1983.

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Cunningham, M.L., Kirchner, F.R. and Reilly, Jr., C.A.: Comparison of in vitro tests for carcinogenicity of complex mixtures. Toxicologist 4:34, 1984.

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Swanson, M.S., Cunningham, M.L., Haugen, D.A., and Reilly, Jr., C.A.: Relative roles of mutagenicity and carcinogenicity in the effects of complex organic mixtures. Toxicologist 5:22, 1985.

Cunningham, M.L. and Peak, M.J.: Pyridine nucleotides generate superoxide anion from groundstate molecular oxygen upon irradiation with 270-405 nm ultraviolet light. Toxicologist 5:207, 1985.

Peak, M.J., Peak, J.G., and Cunningham, M.L.: Solar UV Radiation generates superoxide anion after interaction with naturally occurring cellular photosensitizers. American Society for Photobiology Annual Meeting, New Orleans, LA, 1985.

Cunningham, M.L., Dornfeld, S.S., Haugen, D.A. and Reilly, Jr., C.A.: Improvements in the CHO/HGPRT assay and sample preparation for the mutagenesis testing of complex mixtures. Twenty-Fourth Hanford Life Science Symposium on Health and Environmental Research on Complex Organic Mixtures, Richland, WA, 1985.

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Sanders, J. M., Burka, L. T., Shelby, M. D., Newbold, R. R. and Cunningham, M. L. Separation of tamoxifen and metabolites in serum by capillary electrophoresis (CE) chromatography. SOT, 1997.

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Giometti, C. S., Tollaksen, S. L. and Cunningham, M. L. Liver protein changes in male B6C3F1 mice and Syrian hamsters in response to the peroxisome proliferators 2,4-dichlorophenoxyacetic acid, dibutyl phthalate, gemfibrozil and Wy-14,643. SOT, 1997.

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Wang, D. X., Cunningham, M. L., Sauer, J.-M. and Sipes, I. G.: *In vitro* dermal absorption of C.I. Direct Black 80 in Fischer 344 rats. SOT, 1997.

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Watson, DE, Cunningham, ML, and Tindall, KR; Spontaneous and ENU-induced mutational spectra at the *cII* locus in the Big Blue® rat2 embryonic fibroblast cell line. EMS, 1998.

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Shane, B.S. and Cunningham, M.L.: Comparison of the mutant frequency (MF) of *lacI* and of *cII* in the liver of Big Blue® transgenic mice treated with diethylnitrosamine (DEN). EMS, 1998.

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Morgan, D.L., Price, H.C., O'Connor, R.W., Mahler, J.F., Ward, S.M., Wilson, R.W. and Cunningham, M.L.: Inhalation toxicity studies of methylvinyl ketone in rats and mice, SOT, 1999.

Cunningham, M.L., Price, H.C., Nold, J.B., O'Connor, R.W., Moorman, M.P. and Morgan, D.L.: 13 Week inhalation toxicity studies of 2-cyclohexene-1-one, SOT, 1999.

Shane, B.S., Smith, D.L., de Boer, J.G, Glickman, B.W. and Cunningham, M.L.: Comparison of the mutant frequency (MF) and mutation spectrum (MS) of dimethylnitrosamine (DMN) at the *lacI* and *cII* loci from the liver of Big Blue® transgenic mice, EMS, 1999.

Singh, V.K., Ganesh, L., Cunningham, M.L. and Shane, B.S.: Can the mutagenicity of weak or nonmutagenic carcinogens be detected at the *cII* locus in Big Blue® transgenic mice?, EMS, 1999.

Shane, B.S., Smith-Dunn, D.L., Ganesh, L., and Cunningham, M.L.: Mutagenicity of Wyeth-14,643 *in vivo* in the liver of Big Blue® transgenic mice, AACR, 1999.

Ge, R., Fernstrom, M., Tao, L., Cunningham, M.L., Ruch, R.J, and Pereira, M.A.: Effect of Wy-14,643 on the methylation and expression of c-*myc* and connexins-26 and -32 in the liver of B6C3f1 mice and Sprague-Dawley rats. SOT, 2000.

Holmes,E.W., Bingham, C.M., Keshavarzian, A. and Cunningham, M.L. : Hepatic expression of DNA polβ, ref-1, bcl-2 and bax proteins in peroxisome proliferator(pp)-treated rats and hamsters. SOT, 2000.

Tyrrell, S.P., Zhang, X., Cunningham, M.L., Shane, B.S.: Comparison of the mutagenicity of methyleugenol (ME) *in vivo* in the liver of Big Blue transgenic rats and mice. SOT, 2000.

Shane, B.S. and Cunningham, M.L.: Non-genotoxic carcinogens (NGC) cause mutations in vivo by oxidative stress. SOT, 2000.

Sanders, J.M., Alford, K.L., Schupp, P.J., Rebold, R.R. and Cunningham, M.L.: Determination of tamoxifen and metabolites in rodent fetal tissue using capillary electrophoresis (CE) chromatography. SOT, 2000.

Snell, M.L., Abdo, K.M., Herbert, R.A., Eldridge, S. and Cunningham, M. L.: Subchronic toxicity of methyleugenol administered by gavage to F344 rats and B6C3f1 mice. SOT, 2000.

Singh, V.K., Ganesh, L., Shane, B.S. and Cunningham, M.L.: Assessment of the mutagenicity of three nongenotoxic hepatocarcinogens at the *cII* locus in Big Blue® transgenic mice, EMS, 2000.

Rusyn, I., Thurman, R.G., Cunningham, M.L. and Swenberg, J.A.: Expression of base excision repair enzymes in rat and mouse liver is induced by peroxisome proliferators and is dependent upon carcinogenic potency, AACR, 2000.

September 10, 1999

CURRICULUM VITAE

Name: Frank J Gonzalez

Date and Place of Birth: November 30, 1953, Tampa, Florida

Address: Laboratory of Metabolism
National Cancer Institute
National Instutes of Health
Building 37, Room 3E-24
Bethesda, MD 20892
ph (301) 496-9067
fax (301) 496-8419
e-mail, fjgonz@helix.nih.gov

[redacted]
Bethesda, MD 20814
[redacted]

Education:

1975 - B.A., Biology, University of South Florida, Tampa, Florida
1977 - M.A., Microbiology, University of South Florida, Tampa, Florida
1981 - Ph.D , Oncology, University of Wisconsin, Madison, Wisconsin

Brief Chronology of Employment:

1973-1975	Undergraduate and Post-Graduate Research, Department of Biology, University of South Florida, Tampa, Florida
1975-1977	Graduate Student, Graduate Research Associate, Department of Microbiology, University of South Florida, Tampa, Florida
1977-1981	Graduate Student, Department of Oncology, McArdle Laboratory for Cancer Research, University of Wisconsin, Madison, Wisconsin
1981-1982	Postdoctoral Fellow, McArdle Laboratory for Cancer Research
1982-1984	Staff Fellow, Laboratory of Developmental Pharmacology, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland
1984-1988	Senior Staff Fellow, Laboratory of Molecular Carcinogenesis, National Cancer Institute, National Institutes of Health
1986-1996	Acting Chief (1986-88) and Chief, Nucleic Acids Section, Laboratory of Molecular Carcinogenesis
1988-1990	Supervisory Research Chemist, GM-14 (academic tenure equivalent)
1990-1996	GM-15 (academic full professor equivalent)
1996-	Senior Biomedical Research Service
1996-	Chief, Laboratory of Metabolism, Division of Basic Sciences, NCI

Professional Societies:

American Society of Biochemistry and Molecular Biology, since 1983
International Society for the Study of Xenobiotics, since 1986

Editorial Boards:

The New Biologist, 1989-1992
Molecular Toxicology, 1990-1991
Chemical Research in Toxicology, 1992-1995
DNA and Cell Biology, 1987-Date
Molecular Pharmacology, 1989-Date
Journal of the National Cancer Institute, 1992-Date
Drug Metabolism and Disposition, 1993-Date
Pharmacogenetics, Co-Founder and Executive Editor, 1991-Date
Carcinogenesis, 1999-Date

Committees:

Ad Hoc Member, Physical Biochemistry Study Section, NIH, June, 1986

Ad Hoc Member, Physical Biochemistry Study Section, NIH, June, 1988

Fellow of the Institute, Environmental Health Institute, Pittsfield, MA, 1988-1992

Ad Hoc Member, Biochemistry Study Section, National Institute on Drug Abuse, February, 1989

Advisory Committee, Pharmacology Research Associate Training Program, National Institutes of Health, 1990-1994

Ad Hoc Member, Promotions Review Committee, NIEHS, NIH, 1989

Ad Hoc Reviewer, Chemical Pathology Study Section, NIH, October, 1989

Ad Hoc Member, Carcinogenesis and Nutrition Study Section, American Cancer Society, June, 1991

International Advisory Committee, 9th International Symposium on Microsomes and Drug Oxidations, 1992

Search Committee, Deputy Director of NIH, Director of Intramural Research, National Institutes of Health, 1991

Ad Hoc Reviewer, Neurological Sciences 2 Study Section, NIH, October 1991

Promotions Review Board, Division of Cancer Etiology, NCI, 1991-Date

NCI Trans-Institute Gene Therapy Initiative Study Group, 1991

Reviewer, United States-Isreal Binational Science Foundation, 1991-1993

International Advisory Committee, 8th International Conference on Biochemistry and Biophysics of Cytochrome P450, Lisbon Portugal, October 1993

Committee on the Status of Intramural Minority Scientists, NIH, 1992-1993

International Advisory Committee, 10th International Symposium on Microsomes and Drug Oxidations, Toronto, 1994

Scientific Advisory Board, Oklahoma Medical Research Foundation, 1993-1996

International Advisory Committee, 14th International Symposium on Cancer, Sapporo Japan, 1993

Ad Hoc Member, Physical Biochemistry Study Section, NIH, 1993

US Organizer, US-Japan Workshop on Effects of Genetic Polymorphism of Drug Metabolism on Cancer Susceptibility, Hawaii, 1994

Ad Hoc Member, Promotions Review Committee, NIEHS, NIH, 1994

Grant Review Committee, US Army Breast Cancer Research Program, 1994

International Scientific Committee, 9th International Conference on Cytochrome P450, Zurich, 1995

International Advisory Committee, 11th International Symposium on Microsomes and Drug Oxidations, Los Angeles, 1996

Ad hoc Member, Metabolic Pathology Study Section, NIH, 1994

Advisory Committee for Recruitment of Minorities and Women, National Institutes of Health, 1994

Co-organizer, First International Pharmacogenetics Symposium, Bethesda, 1995

U.S. Organizer, US-Japan Workshop on Transgenic Animals and Carcinogenesis, Honolulu, 1995

Advisory Committee for New Investigator Awards in the Basic Pharmacological Sciences, The Burroughs Wellcome Fund, 1995-1997

Promotion Review Panel, Division of Clinical Sciences, NCI, 1995-present

Promotion Review Panel, Division of Basic Sciences, NCI, 1995-present

Tenure and SBRS review panel, NCI, 1995-present

Co-organizer, Second International Pharmacogenetics Symposium, Crystal City, 1996

Consultant to Board of Scientific Councilors, Division of Intramural Research, National Institute of Environmental Health Science, 1996-

Ad hoc Review Panel for Mentored Research Scientist Development Awards, NIAMS, 1996-1997.