#### CURRICULUM VITAE

**Bruce A. Fowler, Ph.D. and Fellow, A.T.S.**

**Office Address** **E-Mail Address and Phone**

5809 Nicholson Lane, Unit 611

Rockville, MD 20852 Email: drtox@earthlink.net

Cell: (240)743-8041

**Born**:

December 28, 1945; Seattle, Washington, U.S.A

**Education**

1968 B.S. University of Washington, Seattle, WA

Fisheries (Marine Biology)

1972 Ph.D. University of Oregon Medical School, Oregon Health Sciences University,

Portland, OR (Pathology)

### **Academic and Administrative Appointments**

2014-Present Federal Legislative and NARFE-PAC Chair-Rockville, MD NARFE Chapter1127

2014-Present Private Consultant

2011- 2014 Senior Fellow/Expert Consultant , ICF International

2009-Present Adjunct Professor, Emory University Rollins School of Public Health,

Department of Environmental Health

2008 – 2011 Acting Scientific Director, ATSDR Computational Toxicology and Methods

Development Laboratory

2006 - Present President’s Professor of Biomedical Research, University of Alaska-Fairbanks, Center for Alaska Native Health Research (NIH COBRE Center)

2003- 2011 Assistant / Associate Director for Science, Division of Toxicology and

Environmental Medicine Agency for Toxic Substances and Disease Registry

(NCEH/ATSDR),

Senior Biomedical Research Service, Public Health Service (2003-2007)

Title 42 Distinguished Consultant (2008- 2011)

2002-2003 Senior Research Advisor, Agency for Toxic Substances and Diseases Registry

(ATSDR), Atlanta, GA

2001-2002 Professor & Director, Laboratory of Cellular and Molecular Toxicology

Dept of Epidemiology and Preventive Medicine

University of Maryland School of Medicine, Baltimore, MD

1987- 2001 Director, University of Maryland Toxicology Program and Professor of Pathology,

University of Maryland at Baltimore, Baltimore, MD

1988- 2001 Director, Office of Collaborative Studies of Adaptive Responses of Estuarine

Species, Baltimore, MD

1994 - 1995 Visiting Sabbatical Professor

Institute of Environmental Medicine, Karolinska Institute

Stockholm, Sweden

1980-1987 Adjunct Associate Professor, Department of Pathology,

University of North Carolina, Chapel Hill, NC

1975-1980 Adjunct Assistant Professor, Department of Pathology, University of North

Carolina Chapel Hill, NC

**Professional Experience**

1985-1987 Research Biologist, Systemic Toxicology Branch National Institute of Environmental Health Sciences Research Triangle Park, NC

1980-1985 Research Biologist, Laboratory of Pharmacology

National Institute of Environmental Health Sciences Research Triangle Park, NC

1979-1980 Research Biologist, Laboratory of Organ Function and Toxicology,

National Institute of Environmental Health Sciences, Research Triangle

Park, NC

1977-1979 Research Biologist, Laboratory of Environmental Toxicology, National

Institute of Environmental Health Sciences, Research Triangle Park, NC

1974-1977 Senior Staff Fellow, Environmental Toxicology Branch, National Institute

of Environmental Health Sciences Research Triangle Park, NC

1. of

1972-1974 Staff Fellow, Environmental Toxicology Branch, National Institute

of Environmental Health Sciences Research Triangle Park, NC

###### Honors

Chairman, National Academy of Sciences/National

Research Council (NAS/NRC), Committee on Measuring Lead Exposure in

Infants, Children and Other Sensitive Populations

National Academy of Sciences/National Research Council (NAS/NRC),

Commission on Life Sciences, Committee on Toxicology (COT)

National Academy of Sciences/National Research Council (NAS/NRC),

Commission on Life Sciences, Toxicology Information Program Committee

(TIPCOM)

National Academy of Sciences/National Research Council (NAS/NRC) Sub-

Committee on Arsenic in Drinking Water of the Committee on Toxicology

Reviewer, USEPA Report to Congress on Mercury

Ad Hoc Member, USEPA Science Advisory Board for White House OSTP

National Academy of Sciences/National Research Council (NAS/NRC) Committee on Women in Science and Engineering

National Academy of Sciences/National Research Council (NAS/NRC), Commission on Life Sciences, Committee on Biological Markers of Urinary Toxicology

National Academy of Sciences/National Research Council (NAS/NRC) Committee on the Evaluation of the Viability of Augmenting Potable Water Supplies with Reclaimed Water

State of Maryland Governor's Council on Toxic Substances (Chairman, 1990-4)

Japan Society for the Promotion of Science (JSPS) Research Fellowship, 1990

Meyer Bodansky Memorial Lecture

Department of Pathology, University of Texas Medical Branch, Galveston, TX,

April 1991

Fulbright Scholarship and Swedish Medical Research Council Visiting Professor Fellowship, Karolinska Institute Stockholm, Sweden, 1994–5

Colgate-Palmolive Visiting Professorship in In Vitro Toxicology, University of Washington, 1998-9

Member, Fulbright Scholarship Review Committee for Scandinavia,

1999- 2001, (Chairman, 2000-1)

Fellow, Academy of Toxicological Sciences (A.T.S.), 2000- Present

Member, Screening and Evaluation Committee for AAAS Court Appointed Scientific Experts (CASE) Demonstration Project 2000-present

Member, National Metals Assessment Panel, USEPA Science Advisory Board,

2002

Member, National Metals Risk Assessment Framework Review Panel USEPA Science Advisory Board, 2003-6

Elected Council Member, Society of Toxicology, 2005-7

Member, All Ages Lead Model Review Panel USEPA Science Advisory Board 2005-6

Member, Clean Air Advisory Committee (CASAC) Lead Review Panel, USEPA Science Advisory Board 2006-8

Member, Particulate Matter (PM) Research Centers Program Advisory

Panel, USEPA Science Advisory Board (SAB), 2008

Elected Bd of Directors, Academy of Toxicological Sciences 2006-9

Visiting Scientist, Nat. Instit. Health Sciences, Sakura, Japan, March 19-31, 2006

Finalist, Charles C. Shepard Science Award, CDC, Atlanta, June 14, 2007

Cash Award and Group Excellence in Collaborative Success Award for

ATSDR 2008 Great Lakes Areas of Concern Report, December 2008

Elected to the Board of Directors, Georgia Chapter of the Fulbright

Association - February 2010-2

Cash Bonus for Superior Performance- February 2010

Elected to Toxicology Expert Committee, U.S. Pharmacopea, 2010-15

NCEH/ATSDR Honor Award for Excellence in Leadership Award (Non-

Supervisory)- December 2010

NCEH/ATSDR Honor Award for Excellence in Quantitative Sciences Cadmium

PbPK Modeling Group Award - December 2010

NCEH/ATSDR Honor Award for Excellence in Emergency Response Deepwater

Horizon Oil Spill ResponseTeam (Domestic) Group Award - December 2010

Finalist, Charles C. Shepard Award, CDC, Atlanta, GA June 10, 2011

2014 USP Award for an Innovative Response to Public Health

Challenges (Group Award).

2014 Cornerstone Montgomery Volunteer of the Year Award

2014-2015 Rotarian of the Year, Rotary Club of North Bethesda

**Societies**

Amer Assn for the Advancement of Science

Amer. Society for Nanomedicine

Sigma Xi (CDC Chapter)

Society of Toxicology (SOT)

Society for Risk Analysis

President, Metals Specialty Section, SOT (1996-1997)

President, In vitro Specialty Section, SOT (2003-2004)

Member, Nominating Committee, SOT (2013-2015)

President, Mixtures Specialty Section, SOT (2014-present)

President, National Capital Area Chapter, SOT (2013-2014)

Councilor, Nat’l Capital Area Chapter, SOT (1995)

Councilor, Mixtures Specialty Section, SOT (2009-2011)

American College of Toxicology (AMCT)

Councilor, AMCT (1995-1998)

International Commission on Occup Health (ICOH)

Chairman, Scientific Committee on the Toxicology of

Metals under ICOH (1996)

Councilor, Society for Risk Analysis (2014-2017)

American Men and Women of Science

Who's Who in the World

Who's Who in America

Who's Who in the East

Who's Who in the South and Southwest

Who's Who in Technology (Biotechnology)

Who's Who in Frontier Science & Technology

Who’s Who in Science and Engineering

Who's Who of Emerging Leaders in America

Who's Who Dir of Prof Resources in Cancer

Who’s Who in Medicine and Health Care

Professional Association of Diving Instructors (PADI)

Rotary International – Paul Harris Multiple Fellow

###### Public Service and Volunteer Activities

Director, International Service Lane, Rotary Club of North Bethesda, MD

Volunteer - Cornerstone Montgomery, Barwood Taxi, Rotary Club of North Bethesda- Taxi – Based Program for Transporting Persons with Disabilities to Jobs.

Mentor- 2 young Cornerstone Montgomery staff on finding jobs for persons with disabilities

Attending Rotary President Elect Training Courses (PETS)

###### External Advisory Committees for NIH Centers

July, 1987- July, 2007 Member, External Advisory Committee, University of Wisconsin at Milwaukee,

Marine/Freshwater Biomedical Center

October 2005-2010 Member, External Advisory Committee, Mississippi State U, COBRE Center

July 2006 –2011 Member, External Advisory Committee, NIH/NSF Pacific Northwest Center for

Human Health and Ocean Studies, University of Washington

###### Research Interests

Development of molecular biomarkers for evaluating mechanisms of metal-induced cell injury and cell death

Roles of metal-binding and stress proteins in mediating mechanisms of cell injury and cell death in mammals and aquatic organisms

Roles of genetic polymorphisms in mediating susceptibility to chemical toxicity

Biomarkers of nephrotoxicity from therapeutic drugs

Translation of computational toxicology methods for risk assessment

**Research Funding**

RV Percival and BA Fowler, Co-Principal Investigators

Controlling Toxics in the Chesapeake Bay Chesapeake Bay Foundation

$50,000 (12/1/88 -11/30/90)

BA Fowler, Principal Investigator

UMAB/UMBC Special Research Initiative Support (SRIS) and Grad Research Assistant (GRA) Univ of MD Designated Research Initiative Fund (DRIF)

$10,275 (9/1/89-6/30/90)

BA Fowler, Principal Investigator

UMAB/UMBC Univ of MD Designated Research Initiative Fund (DRIF) Funding

$100,000 (8/15/88 - 6/6/30/90)

BA Fowler and EK Silbergeld, Co-Principal Investigators

Molecular Approaches to Low Level Lead Toxicity. Contract from the MD Department of the Environment supported by a grant from the Agency for Toxic Substances and Disease Registry - $932,844 Direct Costs (12/1/89-1/31/93)

BA Fowler, Principal Investigator

Biological Indicators of III-V Semiconductor Toxicity. NIH RO1 National Institute of Environmental Health Sciences

$398,263 Direct Costs (5/16/90-4/30/94)

BA Fowler, Principal Investigator (90-95) and Co-PI (95-2003)

Mechanisms of Aquatic, Neuro and Cellular Toxicology. National Institute of Environmental Health Sciences (T-32)

$408,521 Direct Costs (7/1/90-6/30/95)

BA Fowler, Principal Investigator and MM Lipsky, Co-Principal Investigator

Lead Nephropathy and Carcinogenesis: Molecular Mechanisms. Joint International Lead-Zinc Research Organization Grant - USEPA (Cooperative Agreement)

$852,700 Direct Costs (3/1/90-8/31/94)

BA Fowler, Principal Investigator

Alterations of Lead Biomarkers During Pregnancy, Infancy and the Aging of Monkeys. USEPA (Cooperative Agreement)

$358,955 Direct Costs (8/1/90-6/30/95)

EK Silbergeld and BA Fowler, Co-Principal Investigators

Gene Products Associated with 2,3,7,8-TCDD. USEPA (Cooperative Agreement)

$126,485 Direct Costs (10/1/92 - 9/30/94)

JP Keogh, Principal Investigator and BA Fowler Co-Principal Investigator Biomarkers of Dose and Effect of Lead Poisoning (subcontract) - NIH R01Grant

$120,000 est. Direct Costs (8/1/93-7/31/95)

JP Keogh, Principal Investigator and BA Fowler Co-Principal Investigator

Veterans Sharing Agreement Administration Depleted Uranium Project

$199,488 Direct Costs (10/1/94-9/30/97)

NK Laughlin, Principal Investigator and AR Flegal, BA Fowler, Co- Principal Investigators

Succimer Reduction of Tissue Pb and Toxicity in Monkeys (subcontract) NIH R01

est. $120,000 Direct Costs (9/15/94- 2/15/97)

B Sattler Principal Investigator, BA Fowler Co-Investigator

Environmental Justice Grant NIH R25 Environmental Health Sciences

$386,735 Direct Costs (9/1/95-8/31/99)

BA Fowler, Principal Investigator

Lead Binding Proteins

NIH SBIR (subcontract) Athena Environmental Sciences, Inc.

$23,803 Direct Costs (1/98-6 / 30/99)

BA Fowler, Principal Investigator, Univ of Maryland - Program in Toxicology - Core Funding $280,000 [FY 2001] (1987 – 2001)

BA Fowler, Principal Investigator

Mechanisms of Pb, Cd, As Interactions - USEPA-STAR Grant

$666,653 Direct Costs (11/15/98-11/14/03)

BA Fowler, Principal Investigator (subcontract)

Chronic Ingestion of Lutein and Zeaxanthin in Primates (subcontract)

NIH/NEI -F Khachik, Principal Investigator

$168,785 Direct Costs (10/01/01-9/30/05) Transferred to J.Flaws 1/04

BA Fowler, Principal Investigator

Proteotoxicity Biomarkers for Cisplatin Nephrotoxicity

NCI, 1R21CA097421-01-Transferred to J.Flaws 9/03

$200,000 Direct Costs

# **Supervisory and Administrative Experience**

2011- 2014 Senior Fellow, ICF International

# 2003-2011 Associate Director for Science, Division of Toxicology and Environmental

# Medicine, ATSDR

2001-2003 Director, Laboratory of Cellular and Molecular Toxicology, University

of Maryland School of Medicine, Baltimore, MD

1988-2001 Director, University of Maryland Office of Collaborative Studies on Adaptive Responses of Estuarine Species (CARES)

1987-2001 Director, University of Maryland Toxicology Program and Core-Thrust Laboratory, University of Maryland Biotechnology Center, University of Maryland at Baltimore, Baltimore, MD

* 1. Head, Metals Toxicology, Systemic Toxicology Branch, NIEHS, Research Triangle Park, NC

1985-1986 Senior Scientist, Systemic Toxicology Branch, NIEHS,

Research Triangle Park, NC

* 1. Senior Scientist, Laboratory of Pharmacology, NIEHS,

Research Triangle Park, NC

* 1. Head, Renal and Intracellular Function and Toxicology Work Group, Laboratory of Organ Function and Toxicology, NIEHS, Research Triangle Park, NC
  2. Head, Cellular Toxicology Work Group, Laboratory of Environmental Toxicology, NIEHS

Research Triangle Park, NC

Supervisory and Management Courses

March 19-23, 1979 Introduction to Supervision - 40 hours

March 27-29, 1979 Supervisory and Managerial Effectiveness – 24 hours

January 20-23, 1981 Basic Contract Project Officer Course - 32 hours

November 23, 1981 Property Management Course - 4 hours

March 10, 1982 Employee Performance Management System - 2 hours

May 29-31, 1984 The Role of Supervisors and Managers in EEO- 24 hours

Biotechnology Training Courses

April, 1984 Monoclonal Antibody Training Course (2 days)

Research Triangle Park, NC

July 2-18, 1984 Workshop on DNA Sequencing, University of North Carolina, Chapel Hill, NC

**Continuing Education Courses**

July 15, 2007 Development and Interpretation of Toxicokinetic Data for Risk and Safety

Assessments, ICTXI, Montreal, Canada (3Hrs)

July 15, 2007 “Omics” in Toxicology ICTXI, Montreal, Canada (3Hrs)

April 25, 2011 Crash course in human health risk assessment of environmental chemicals. 2011

3Toxicology and Risk Assessment Conference(TRAC), West Chester Ohio (4 hrs)

May 8-11, 2012 SOT CCT Workshop on “Building for Better Decisions: Multi-Scale Integration of Human Health and Environmental Data”, Research Triangle Park, NC (16 hrs)

April 7, 2014 Advances in OMIC Technologies-Identifying and interpreting biologically relevant

data for risk assessment. Toxicology and Risk Assessment Conferences(TRAC).

West Chester, Ohio (4hrs)

March 22, 2015 SOT-CE COURSE AM02 ” An Introduction to the Exposome”, San Diego,

California (4hrs)

Contract Experience

1975-1983 Project Officer, Interagency Agreement, National Marine Fisheries Service, NOAA,“Physiological Effects of Arsenic, Cadmium, and Copper on Marine Shellfish"

1976-1980 Co-Project Officer, Contract NO1-ES-7-2101, College of Fisheries, University of Washington, "Carcinogenic Effects of Petroleum Hydrocarbons on Selected Marine and Estuarine Organisms"

1979 Member, Project Advisory Group to the National Marine Fisheries Service, NOAA, "Determination of the Biological Availability/Absorption of Cadmium when Ingested as that Naturally Occurring in Shellfish Tissue Compared to Chemically Defined Cadmium"

1985-1987 Chemical Manager, "Toxicity Studies of Gallium Arsenide and Related Compounds"

1986-1987 Team Leader, "Arsine Gas and Gallium Arsenide Toxicity Studies," NIEHS, Interdisciplinary Working Group

###### Editorial Boards of Scientific Journals

1994-1996 International Journal of Occupational and Environ Health

1988-present Renal Failure

1985-2000 International Archives of Environmental Health

1985-1997 Journal of Toxicology and Environmental Health

1985-1996 Toxicology and Applied Pharmacology

1981-1998 Environmental Health Perspectives

1980-1985 Chemico-Biological Interactions

2000-present Journal of Biochemical and Molecular Toxicology

2007-present The Open Toxicology Journal

2007-present The Open Proteomics Journal

2007-present ACS Chemistry Central Journal

2007- present Associate Editor, Environmental Health Perspectives

2011- present Associate Editor, Toxicology and Applied Pharmacology

National and International Symposia Activities

March 1973 Conference Chairman, Research Triangle Conference on Heavy Metals in the

Environment I

1973-1975 Chairperson, National Institute of Environmental Health Sciences, Equal Employ Opport (EEO) Advisory Com

1973-1977 Chairman, Steering Committee for the Environmental Metals Group

May 1974 Conference Chairman, Research Triangle Conference on Heavy Metals in the Environment II

1974 NIEHS Co-Representative to Federal Interagency Working Group for Energy-Related Research Involving Marine Organisms

1974-1976 Alternative Member, Interagency Collaborative Group in Environmental Carcinogenesis

1974-1976 Alternative Representative, National Advisory Committee on Oceans and Atmosphere (NACOA).

May 1975 Conference Chairman, Research Triangle Conference on Heavy Metals in the Environment III

May 1976 Conference Chairman, Research Triangle Conference on Heavy Metals in the Environment IV

October 1976 Conference Chairman, NIEHS/World Health Organization (WHO) International Conference on Environmental Arsenic, Fort Lauderdale, FL

August 2-6, 1976 Member, Health Effects Panel, ERDA Workshop on Effects of Trace Contaminants from Coal Combustion, Knoxville, TN

March 8-11, 1977 Rapporteur, International Symposium on Air Pollution and Cancer: Risk Assessment Methodology and Epidemiological Evidence, Karolinska Institute, Stockholm, Sweden

July 17-22, 1977 Member, Editorial Committee, Consensus Report from the Karolinska Institute Symposium on "Factors Influencing Metabolism and Toxicity of Metals," Stockholm, Sweden

June 1978 Conference Chairman, NIEHS/World Health Organization (WHO) International Conference on Environmental Cadmium, Bethesda, MD

1977-1978 Coordinator, American Fisheries Society Review of the EPA Water Quality Criteria Document Section on Arsenic

1978-1979 Temporary Advisor, World Health Organization (WHO), Karolinska Institute, Stockholm, Sweden, (UNEP/WHO Health Criteria Document on Arsenic)

1978-1979 Member, Working Group on the Carcinogenic Risk of Chemicals to Humans, International Agency for Research on Cancer (IARC), Lyon, France, (Volume 23, IARC Monograph Series)

1978-1980 Member, Technical Committee, Society of Toxicology

1979-1982 Member, National Institute of Environmental Health Sciences Subcommittee

to the National Toxicology Program (NTP) Chemical Nomination and Selection Process Committee

1979-1982 Member, Animal Experimentation Committee, National Institute of Environmental Health Sciences

July 30- Member, Environmental Considerations Panel,

August 2 Workshop on Health Effects of Solar (Photovoltaic) Energy,

1979 Brookhaven National Laboratory

Feb 20-22 Invited Participant, New York Academy of Sciences Conference on Micro-

1978-1981 Micronutrient Interactions: Vitamins, Minerals, and Hazardous Elements

New York, NY

February 25, 26 Member, Department of Energy (DOE) Review Panel

1980 Panel, Laboratory of Nuclear Medicine and Radiation Biology Univ of California at Los Angeles

March 24-28 Member, Overview Panel, International Workshop

1978-1982 on Metals and Carcinogenesis, Atlanta, GA

November 20-21 Review Participant, Department of Energy (DOE)

1980 Workshop on the "Physiological Ecology of Marine Organisms," Washington, DC, (Declined)

1980-1982 Member, National Institute of Environmental Health Sciences Organizational Task Force on Information and Communications

1981-1983 Councilor, Mechanisms of Toxicology Section, Society of Toxicology

1982-1983 Member, Society of Toxicology Animals in Research Committee 19821

1982-1985 Society of Toxicology Liaison with the American Association of Pathologists

May 23-27, 1982 Co-Chairman, Birth Defects and Perinatal Toxicity of Metals, International Working Group, Fifteenth University of Rochester Conference: "Developmental and Reproductive Toxicity of Metals"

August 1982 and Member, Peer-Review Panel, USEPA Document on Lead,

January 1983 Research Triangle Park, NC

March 20-25, 1983 Rapporteur, Structure, Mechanism and Toxicity of Metals Working Group, Dahlem Conference on "Changing Metal Cycles and Human Health," Berlin, West Germany

April 10-15, 1983 Co-Chairman, Minisymposium on "Mechanisms of Cell Injury," 67th Annual Meeting, Federation of American Societies for Experimental Biology FASEB), Chicago, IL

April 27-29, 1983 Invited Participant, Second International Symposium on Responses of Marine Organisms to Pollutants, Woods Hole, MA

May 16-18, 1983 Chairman, NIEHS/World Organization (WHO) Conference on Metallothionein and Cadmium Nephrotoxicity, National Institute of Environmental Health Sciences, Research Triangle Park, NC

September 30- Invited Participant, Puget Sound Water Quality Conference,

October 1, 1983 Seattle, WA

October 31- Invited Participant, Symposium on “Pollution and

November 3, 1983 Physiology of Marine Organisms," Mystic, CT

April, 1984 Amer Soc for Pharmacology and Exper Therapeutics (ASPET), Representative to the Organizing Committee for the 1984 FASEB Meeting on "Repair of Tissue Injury"

July 30-August 3 Discussion Leader, Mechanisms of Cell Injury in the Injury in the Kidney Session,

1984 Gordon Conference on "Mechanisms of Reversible/Irreversible Cellular Injury, Meridian, NH

September 2-7, 1984 Co-Moderator, Metal Speciation in Systems under Stress Working Group, Dahlem Conference on "The Importance of Chemical Speciation in Environmental Processes," Berlin, West Germany

September 19-21 Conference Chair, International Conference on the Biochemistry of High

1984 Affinity Metal-Binding Proteins in Non-Mammalian Species: Species: Implications for Human Health, Research Triangle Park, NC

April 17-19 Invited Participant, Third International Symposium on

1985 "Responses of Marine Organisms to Pollutants," Plymouth, England

August 1985- Member, International Ad Hoc Committee on

1986 Metallothionein Nomenclature

August 21-24 Invited Participant and Chairman of Symposium on Non-mammalian and Plant

1985 Metallothioneins at the Second International Meeting on “Metallothionein and Other Low Molecular Weight Metal-Binding Proteins," Zurich, Switzerland

October 20-25 Conference Chairman, Dahlem Conference on “Mechanisms of Cell Injury:

1985 Implications for Human Health," Berlin, West Germany

November 14-15 Invited Participant, Symposium on Environmental Toxicology, Southeastern

1985 Section of the Society for Experimental Biology and Medicine, Charleston, SC

December 4-5, 1985 Member, Scientific Peer Review Panel, National Center for Toxicological Research

May 21-23, 1985 Invited Participant, NIEHS Conference on “Aquatic Toxicology: Mechanisms

of Pollutant Action in Aquatic Organisms," Research Triangle Park, NC

June 2-6 Invited Participant, International Meeting on Biological

1986 Monitoring of Toxic Metals, University of Rochester, Rochester, NY

September 1-4 Invited Participant, Tenth Subcellular Methodology Forum “Investigation of

1986 Cellular Derangements," University of Surrey, Guilford, Surrey, United Kingdom

October 27-29 Co-Chairman, Conference on "Mechanisms of Chemical-Induced

1986 Porphypathies," New York Academy of Sciences, Rye, NY

November 2-5 Invited Participant, Annual Meeting Society for Environmental

1986 Toxicology and Chemistry, Alexandria, VA

November 9-14 Invited Participant, International Conference on “Water and Human

1986 Health," Atlanta, GA

November 21-22 Invited Speaker, International Conference on Bone and

1986 Renal Failure, University of Antwerp, Antwerp, Belgium

December 1-5 Invited Speaker, Annual Meeting American College of

1986 Veterinary Pathologists, New Orleans, LA

1986-1987 Member, National Ocean Pollution Policy Board Task Force

1987 Member, Kidney, Urologic and Hematologic Diseases - Interagency Coordinating Committee

April 22-24 Invited Participant, Fourth International Symposium on “Responses of Marine

1987 Organisms to Pollutants," Woods Hole, MA

September 21-23 Invited Participant, Workshop on "Risk Assessment in Reproductive

1987 and Developmental Toxicology," Little Rock, AR

October 20-22 Invited Participant, Conference on “Hazard Assessment and Control

1987 Technology in Semiconductor Manufacturing,” Cincinnati, OH

May 21-29 Invited Participant, Conference on Marine Life

1988 Resources for Biomedical Research, Beaufort, NC

June 7-8 Invited Participant, International Symposium on Chemical Mixtures:

1988 Risk Assessment and Management, Cincinnati, OH

September 8-9 Invited Participant, Workshop on "Toxics in the California

1988 Coastal Environment," UCLA, Los Angeles, CA

September 19-22 Invited Participant, "First International Meeting on Molecular

1988 Mechanisms of Metal Toxicity and Carcinogenicity" Urbino, Italy

September 25-30 Invited Participant, American Chemical Society Symposium on

1988 Biological Markers of Environmental Contaminants, Los Angeles, CA

October 20-21 Invited Participant, Conference on the Chesapeake at Risk:

1988 Toward a Toxic Strategy, Richmond, VA

November 13-17 Invited Participant, Kidney Disease Epidemiology:

1988 American Public Health Association Meeting, Boston, MA

January 21-23 Invited Participant, Workshop on “Occupational Health in the 1990’s:

1989 Developing a Platform for Disease Prevention," New York Academy of Sciences, Washington, DC

March 14-16 Co-Chairman, International Workshop on "Lead in Bone:

1989 Implications for Dosimetry & Toxicology," Columbia, MD

April 12-14 Invited Participant, Fifth International Symposium on Responses

1989 of Marine Organisms to Pollutants, Plymouth, United Kingdom

July 23-28 Invited Participant, Society for Environmental Toxicology and Chemistry

1989 Workshop on "The Existing and Potential Value of Biomarkers in Evaluating Exposure and Environmental Effects of Toxic Chemicals," Keystone, CO

September 15-16 Invited Participant, Conference on “Global Environment:

1989 Are We Over-reacting," Smithsonian Institute, Washington, DC

November 26- Member and Rapporteur, World Health Organization

December 1, 1989 (WHO) Task Group on Cadmium, Geneva, Switzerland

1989-present Member, Toxics Advisory Subcommittee of the Scientific and Technical Advisory Committee on the Chesapeake Bay

December 10-17 Invited Participant, U.S. - Japan Meeting on “Metallothionein

1989 in Biology and Medicine,” Honolulu, Hawaii

May 16-17 Invited Participant, NAS/NRC Symposium on "Frontiers in

1990 Assessing Human Exposure to Environmental Toxicants"

June 21-23 Ad Hoc Member, Toxicology Study Section, National

1990 Institutes of Health, Bethesda, MD

October 7-10 Invited Participant, Annual Meeting of the Society for Risk

1990 Analysis, New Orleans, LA

October 29 Invited Participant, Annual Meeting of the

1989 American College of Toxicology, Orlando, FL

May 8-9 Invited Participant, Symposium on Getting the Lead-Out: Priorities for the

1991 1990's. University of Medicine and Dentistry of New Jersey, New Brunswick, NJ

May 14-15 Invited Participant, National Academies of Sciences/National Research

1991 Council Symposium on Seafood Safety, Washington, DC

September 25-27 Invited Participant, International Agency for Research against Cancer

1991 (IARC) Symposium on the Carcinogenicity of Cadmium, Gargano, Italy

May 25-29 Invited Participant, Internatl Conference on Trace Elements

1992 in Health and Disease, Stockholm, (Huddinge), Sweden

December 8-10 Invited Participant and Member of the Organizing Committee for

1992 the Third International Meeting on Metallothionein, Tsukuba, Japan

Jan 10-17 Invited Participant and Member of the Advisory Committee for the

1993 Second International Meeting on Molecular Mechanisms of Metal Toxicity and Carcinogenesis, Madonna di Campiglio, Italy

July 3-5, 1993 Invited Participant, Eurotox Meeting, Uppsala Sweden

July 20-25 Invited Participant, International Conference on Environmental Arsenic,

1993 New Orleans, LA

June 30-July 3 Invited Participant and Speaker, Eurotox, Use of Mechanistic Information

1993 in Risk Assessment, in Cooperation with the Swedish Society of Toxicology, Uppsala, Sweden

July 27-30 Invited Participant and Speaker, International Conference on

1993 Arsenic Exposure and Health Effects, Society of Environmental Geochemistry and Health (SEGH), New Orleans, LA

October 3-6 Invited Participant, Annual Meeting American College of

1993 Toxicology, New Orleans, LA

November 13-14 Invited Participant, Sixth International Conference on Environmental

1993 and Industrial Arsenic, Kawasaki City, Japan

October 24-27 Invited Participant, WHO Working Group on Inorganic

1994 Air Pollutants, Dusseldorf, Germany

July 9-13, 1995 Invited Participant, International COMTOX Meeting, Vancouver, Canada

September 15-17 Invited Participant, Joint U.S./European Union Workshop on Biomarkers

1995 for Environmental and Occupational Nephrotoxins Atlanta, GA

November 19-23 Invited Participant, Third Congress on Toxicology in

1995 Developing Countries, Cairo, Egypt

December 4-6 Invited Participant, NAFTA & Health International

1995 Conference, Galveston, TX

1995-2003 Member, Environmental Programs Coordinating Council, University of Maryland System

1996 Member, Organizing Committee 4th International Metallothionein Conference, Kansas City, KS

1996-1997 Member, Scientific Committee for the International Conference on Human Health Effects of Mercury Exposure June 22-26, 1997 Torshavn, The Faroe Islands

June 29-July 3, Invited Plenary Lecturer, 6th Nordic Trace Element Conference, Roskilde, 1997 Denmark

October 8-10, 1997 Ad hoc Reviewer, NIH ALTOX -1 Study Section, Chevy Chase, MD

July 20-22 Invited Participant, SEAK 19th Annual National Workers’

1998 Compensation and Occupational Medicine Seminar, Hyannis, MA

October 6-10 Organizing Committee, International Conference on Metal-Binding

1998 Proteins in Gene Expression, Cell Injury and Death, Banff, Canada

April 13 Conference on Topics on Toxicology and Risk Assessment,

1999 Wright-Patterson Air Force Base, Dayton, OH

April 14 Keynote Speaker, California Environmental Health Association -

1999 Annual Educational Symposium, San Diego, CA

June 7-9 Member, Scientific Committee, IARC Conference on Lead Exposure,

1999 Reproductive Toxicity and Carcinogenicity, Gargano, Italy

July 1999-2002 Society of Toxicology Liaison to the American Institute of Biological Sciences

May 1998- Member, Scientific Advisory Committee-26th International

August 2000 Congress on Occupational Health - Singapore

May 7-10 Member International Scientific Committee, 6th International

2000 Symposium on Metal Ions in Biology and Medicine, San Juan, Puerto Rico

November 2, 2000 Ad Hoc Reviewer, SBIR Special Study Section 3, Chevy Chase, MD

November 14, 2000 Member, Peer Review Panel for USEPA Reference Dose for Methyl Mercury

April 23-24 Ad Hoc Reviewer, NIEHS, University of Michigan Program

2000 Project Site Visit, Ann Arbor, MI

June 18-19, 2001 Ad Hoc Reviewer, AlTox-1 Study Section, Arlington, VA

September Ad Hoc Reviewer, US EPA Hazardous Substance Centers Program,

2001 Washington DC

September 6-10 Member, Organizing Committee and Invited Speaker, Third

2001 International Meeting on Metals and Cancer, Stintino, Sardina, Italy

October 6 Invited Speaker on Lead, Cadmium and Arsenic Interactions,

2001 International Symposium for the Retirement of Professor Robert Lauwerys,

Catholic University de Louvain, Brussels, Belgium

October 22, 2001- Chair, Fulbright Committee for Scandinavia, Center for International

2002 Exchange of Scholars, Washington DC

February 6-7, 2002 Ad Hoc Reviewer, AlTox-4 Study Section, Chevy Chase, MD

April 3-5 Ad Hoc Member, NIEHS Program Project Site Visit, University of

2002 Rochester Medical Center, Rochester, NY

May 1-3 Ad Hoc Member, NIEHS Center Grant Site Visit Team, Dartmouth

2002 College, Hanover, NH

May 30-June 1, 2002 Ad Hoc Reviewer, NIEHS Center Grant Site Visit, Harvard Univ, Boston, MA

Dec 10-11 Ad Hoc Reviewer, NCI Special Emphasis Panel on Innovative Toxicology,

2002 Bethesda, MD

May 2003 Member, NTP Expert Panel on the Reproductive and Developmental Toxicity of

Ethylene Glycol/Propylene Glycol

Aug 4-6 Ad Hoc Reviewer, NIEHS Center for Children’s Environmental Health &

2003 Disease Prevention, Harvard University, Boston, MA

October 7-14 Working Group Member, IARC Monographs on the Evaluation

2003 Carcinogenic Risks to Humans, Lyon, France Vol. 86 IARC Monograph Series

November 15-18 Invited Speaker, International Symposium on Cadmium Exposure in China

2003 and Its Prevention, Shanghai, China

Jan 2004 - ATSDR Representative, National Federal Interagency Working Group on

present Endocrine Disruptors, US EPA, Washington, DC

Feb 1 Invited Speaker, “Developing and Using Biomarkers for Environmental Health 2004 Studies, ASIATOXIII, Bangkok, Thailand

Feb 13-14,2004 Invited Speaker at the International Symposium for the Retirement of Professor 2004 Sten Orrenius, Karolinska Institute, Stockholm, Sweden

Feb 24-25, 2004 Ad Hoc Reviewer, NCRR, NIH COBRE Centers, Bethesda, MD

March 15-17 Conference Chairman, International Conference on “Biomarkers for

2004 Toxicology and Molecular Epidemiology – New Tools for 21st Century

Problems”, Atlanta, GA

May 14-18 Lecturer, Continuing Education Course, 8th International Symposium on Metal 2004 Ions in Biology and Medicine, Budapest, Hungary

August 16-20 Invited Speaker, The Fifth Princess Chulabhorn International Science Congress, 2004 Bangkok, Thailand

August 28-29 Invited Speaker, 21st Century Approaches for Risk Analysis of Chemicals in

2004 the Environment, Bangkok, Thailand

October 15-16 Keynote Speaker, International Conference on Heavy Metal Toxicology

2004 Taipei, Taiwan

Feb 23-24, 2005 Ad Hoc Reviewer, NCRR, NIH COBRE Centers, Bethesda, MD

May 31-Jun3 Invited Speaker, Arsenic, International Workshop on Environmental Health Impacts 2005 from Exposure to Metals, Shimla, India

June 13-14 Invited Speaker, Arsenic, International Symposium on Risk Assessment of Metals

2005 Copenhagen, Denmark

October 10-13 Invited Speaker and Member of Organizing Committee, International

1. Conference on Metal and Metallothionein in Health, Beijing, China

2005- present ATSDR, Representative to DOD/ECOS Interagency Working Group

February 20-21 Member, NIH, NIDDKD Pathobiology of Kidney Disease (PBKD) Study

2006 Section , Washington, DC

April 24-27 2006 Co-Chair, Genome Based Risk Assessment Adversity in Sensitive

Populations; Presenter, Gender Differences in Proteomic Responses to III-IV Semiconductor Particles; Presenter, Molecular Biomarkers for Evaluating Metal/Metalloid Interactions: An Overview, 2006 Toxicology and Risk Assessment Conference, Cincinnati, Ohio

May 2006 Lecturer, Hazardous Chemicals in Health Care: Role for Medical Monitoring, American Occupational Health Conference, Los Angeles

May 16-18, 2006 Co-Chair, Poster/Platform Session, EPA Science Forum, Washington, DC

May 2006-present Member, 2007 Organizing Committee 2007 Toxicology and Risk Assessment Conference, Cincinnati, Ohio

June 8, 2006 Ad hoc Reviewer, NIH, Integrative Physiology of Obesity and Diabetes, NIDDKD Study Section

November 2006 –2008 Co-Chair, Assistant Directors for Science Development Working Group,

Office of the Chief Science Officer, CDC

February 8-9, 2007 Ad Hoc Reviewer, Clinical and Integrative Diabetes & Obesity Study

Section (CIDO)-NIH/NIDDKD, Washington, DC

March 4-6, 2008 Invited Plenary Lecturer, GeoHealth I Conference: Building Bridges Across the Geological and Health Sciences. U.S. Geological Survey Headquarters, Reston, VA

June 12, 2008 Ad hoc Reviewer, Pathobiology of Kidney Disease Study Section (PBKD) NIH /NIDDKD, Washington, DC

July 2008 Member, U.S. Environmental Protection Agency, Science Advisory Board Particulate Matter (PM) Research Centers Program Advisory Panel

July 2008-present Member, National Toxicology Program (NTP) Interagency Committee for Chemical Evaluation and Coordination (ICCEC)

February 4-7, 2008 Invited Plenary Lecture, lst International Conference on Drug Design and

Discovery, Dubai, UAE

March 4-6, 2008 Invited Plenary Lecture, GeoHealth I Conference: Building Bridges Across

The Geological and Health Sciences, U.S. Geological Survey Headquarters

Reston, VA

March 16-20, 2008 Invited Lecture, Mixture Exposures to Metals/Metalloids and Related Health Effects Workshop, Society of Toxicology Meeting, Seattle, WA

March 16-20, 2008 Invited Lecture, Molecular Mechanisms and Molecular Biology of Metal Carcinogenesis Workshop, Society of Toxicology Meeting, Seattle, WA

May 7-8, 2008 Ad hoc Reviewer, NIH COBRE Review Panel, Section ZRR1-R1-2(01), NIH/NCRR, Bethesda, MD

June 12, 2008 Ad hoc Reviewer, Pathobiology of Kidney Disease Study Section, NIH/NIDDKD, Washington, DC

August 26-27, 2008 Invited Speaker, National Academies of Science/ Institute of Medicine / USP Heavy Metals Workshop, Washington, DC

September 9, 2008 Invited Speaker, International Symposium on Kidney Toxicity of Metals, University of Umea, Umea, Sweden

October 29, 2008 NTP Interagency Scientific Review Group (ISRG) for the NTP Report on Carcinogens

December 2008- 2011 ATSDR, Agency Liaison to the U.S. Pharmacopea (USP) Metal Impurities Advisory Panel

March 17-24 Member, International Agency for Research Against Cancer (IARC)

2009 Workgroup for Volume 100C: A Review of Human Carcinogens Metals, Particles, and Fibres. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Lyon France

March 2009 – 2011 Elected Councilor, Mixtures Specialty Section, Society of Toxicology

April 27-30 Toxicology and Risk Assessment Conference (TRAC) Organizing

2009 Committee, Cincinnati, OH and Computational Toxicology Session Co-Chair

June Invited peer review for Objective Review –Division of Laboratory Sciences,

2009 State –Based Public Health Laboratory Biological Monitoring Programs

(CDC RFA-EH09-902)

June 11, 2009 Overview presentation, Inter-agency COMPTOX III Colloquium, USEPA

Headquarters Research Triangle Park, NC.

June 12 Ad hoc peer reviewer for NIH PBKD Study Section, Recovery Act

2009 Limited Competition: NIH Challenge Grants in Health and Science

Research (RC1)

June 30- July 3 Member, International Agency for Research Against Cancer (IARC)

2009 Workgroup for Identification of Research Needs to Resolve the

Carcinogenicity of High-Priority IARC Carcinogens, Lyon France

July 21 Invited presentation “Global Health Effects of Mercury” U.S.

2009 Department of State, Washington DC

July 28-30 Invited participant, Health and Environmental Sciences Institute (HESI),

2009 Scientific Mapping Meeting, Reston, VA

September 21-22 ATSDR Representative to the NAS/NRC Standing Committee on “Use of

2009 Emerging Science for Environmental Health Decisions” for the Workshop on Computational Toxicology

September 22-23, 2009 Ad hoc reviewer for NIH/NCRR COBRE -1 Study Section, Bethesda, MD

December 7-10 Member, Organizing Committee for SOT International Symposium on

2009 Co-chair Session on Mechanisms and Pathway and Regulatory Approaches

January 15-17 Invited speaker, International Symposium on Cadmium in Food and Health,

2010 Phitsanulok, Thailand

March 22-24 Invited agency representative, World Health Organization meeting on Risk

2010 Assessment, and 8the Meeting of the Risk Assessment Steering Group, Geneva,

Switzerland

March 10 Invited lecturer, Workshop on “Omics” Profiling of Cell and Tissue Interactions

2010 of Nanomaterials:Insight into Mechanisms of Action. Society of Toxicology

Annual Meeting,Salt Lake City, Utah

April 26-28 Conference Co-Chair, Toxicology and Risk Assessment Conference on

2010 Computational Toxicology: Application to Risk Assessment, Cincinnati, Ohio

July 14, 2010 Invited Speaker, Indo-US Collaboration on Environmental and

Occupational Health, Atlanta, GA

August 18, 2010 Member, Metals Impurities Panel, US Pharmacopea Meeting, Rockville, MD

Septermber 23-24, 2010 Invited panel member, Workshop on Assessment of Consistency in Epidemiologic

Data. Johns Hopkins University, Baltimore, MD

September 2010 –2011 NCEH/ATSDRLiaison to Standing Committee on “Use of Emerging Science

for Environmental Health Decisions”

November 1-3, 2010 NCEH/ATSDR Reprsentative to EPA/NIEHS Workshop on “ Advancing

the Next Generation(NexGen) of Risk Assessment- the Prototypes”,

Research Triangle Park, NC

November 7-10, 2010 Invited Symposium Speaker – American College of Toxicology,

Baltimore,MD “ Molecular biomarkers for metal and metalloid toxicity”

November 13-14 Invited Speaker, US Pharmacopea Workshop on Pharmaceutical Impurities,

2010 New Orleans, LA

November 19, 2010 Chair, Inter-agency Computational V Colloquium, Atlanta, GA

December 1, 2010 -2015 Member, US Pharmacopea Meeting of Experts in Toxicology Committee

April 25-28, 2011 Co-Chair, 2011 Toxicology and Risk Assessment Conference: New Methods and

New Hazards in Toxicology and Risk Assessment, West Chester, Ohio

December 4-7, 2011 Invited Speaker, Society for Risk Analysis Annual Meeting, Charleston, SC

March 15-19, 2012 Co-Chair, Society of Toxicology Meeting Information Session on “Global Health

and Environmental Impacts of E-Waste Recycling”, San Francisco, CA

March 26-30, 2012 Invited Speaker and Session Co\-Chair, VIth International Conference on

Environmental Mutagens in Human Populations, Doha-Qatar (Declined)

May 14, 2012 Keynote Lecturer, Annual Meeting, National Capital Area Chapter, Society of

Toxicology, Bethesda, MD

October-November, 2012 Invited Peer –Reviewer, EC-WHO Project” Evidence of Health Aspects of Air

Pollution to Review EU Policies- REVIHAAP”

February 14-18, 2013 Co-Chair, Symposium on “Global Health and Environmental Impacts of E-Waste”,

Annual Meeting, AAAS, Boston, MA

April, 2013 -2015 Elected member, Society of Toxicology Nominating Committee

October 6-9, 2013 Keynote Speaker, Toxicology Summit (II) Conference, Las Vegas, Nevada

November 6-7, 2013 Invited Participant, American Chemistry Council, 2013 Center for Advancing Risk

Assessment Science and Policy Workshop Informing Risk Assessment:

Understanding and Communicating Uncertainty in Hazard Assessment,

Washington, DC

October 14-15, 2014 Member, US Pharmacopea, Elemental Impurities Expert Panel, Rockville, MD

**Invited Seminar Presentations (Since 2002)**

March 2002 Seminar Series, Agency for Toxic Substances and Diseases Registry, Atlanta, GA

April 2002 Seminar Series, National Center for Environmental Health, CDC, Atlanta, GA

June 2003 Seminar Series, ATSDR/CDC Quarterly Seminar Series, Atlanta, GA

September 2004 Seminar Series, Institute of Environmental Medicine, Karolinska Institute,

Stockholm, Sweden

September 2004 Seminar Series, University of Umea, Umea, Sweden

June 2005 Seminar Series, Institute of Environmental Medicine, Karolinska, Institute,

Stockholm Sweden

June 2005 Seminar Series, COBRE Center, University of Alaska, Fairbanks, Alaska

March 2006 Seminar Series, National Institute for Environmental Studies, Tsukuba, Japan

March 2006 Seminar Series, National Institute for Health Studies, Sakura, Japan

March 2006 Invited Lecture, Japan Food Safety Commission, Tokyo, Japan

February 2009 Seminar Series, Environmental Health Sciences Center, Emory University

July 2009 Invited Lecture on Mercury, U.S. Department of State, Washington D.C.

January 18, 2010 Invited Lecture on Cadmium, Thailand National Science and Technology

Development Agency, Bangkok, Thailand

April 8, 2010 Invited Presentation on Cadmium, Consumer Product Safety Commission, Bethesda, MD

April 29, 2010 Invited Lecture, USFDA. CE Course on “Metal Impurities in Pharmaceuticals”

Silver Spring, MD

May 14, 2012 Invited Keynote Lecture, National Capital Area Chapter -SOT meeting,Bethesda,

MD

May 16, 2012 Invited Seminar, School of Public Health,University of Washington, Seattle,WA

**Webinars**

February 22, 2012 ICF International Webinar, Computational Toxicology 2012: What can we now, Fairfax,VA

July 20, 2012 ICF International Webinar, NOAA, Natural Resource Damage Assessment (NRDA): Computational Toxicology 2012: Potential Applications to Marine Mammals

July 25, 2012 ICF International Webinar, North Carolina Science Advisory Board,”Cadmium Risk Assessment and General toxicology: A Brief Overview

**Teaching and Academic Committees**

April 1980 - Doctoral Thesis Committee, A Wiedow, Dept of Biology, NY University:

May 1981 "Distribution and Binding of Cadmium in the Blue crab (Callinectes sapidus): Implications in Human Health"

October 1981 Invited Lecturer, Applied Physiology and Toxicology (ENV143), School of Public Health, University of NC, Chapel Hill, NC

1984 & 1986 Course Director, Toxic Cell Injury (Path 150/Toxi 150), University of NC, Chapel Hill, NC, Spring Semesters

1984 Doctoral Thesis Committee, RD Drinkwater, Dept of Zoology, School of Biological Sciences, Flinders University of South Australia [Thesis: "The metabolism of lead by the Australian desert rodent Notomys alexis and the laboratory mouse Mus musculus (Swiss albino)"]

October 23, 1984 Invited Lecturer, Short Course on "Current Research in Toxicology," Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC

March 18, 1985 Invited Lecturer, Short Course on "Effects of Metals on the Kidney," Short Course on "Renal Toxicology," Annual Meeting, Society of Toxicology, San Diego, CA

1985 Doctoral Thesis Committee, Donita Frazier, DVM, School of Veterinary Medicine, NC State University

July, 1986- Lab Preceptor, William Bakewell & Greg Bercowy (grad students),

September, 1987 Curriculum in Toxicology, University of NC, Chapel Hill, NC

1989-1991 Member, University of Maryland at Baltimore/Baltimore County Graduate Council

1987-1989 Course Director, General Toxicology (Toxicology 601/602), University of MD, Baltimore, MD

1987-1990 Course Director, Toxicology Seminars (Toxicology 618), School of Medicine, University of Maryland, Baltimore, MD

1990 Member, Search Committee, Assistant and Associate Professor Positions, Department of Medicinal Chemistry, School of Pharmacy, University of Maryland, Baltimore, MD

March 1990 Lecturer, PREV 789, School of Medicine, University of Maryland, Baltimore, MD

1990-1991 Member, University of Maryland at Baltimore/Baltimore County Graduate Council Research Subcommittee

1990-2003 Course Director, Toxic Cell Injury (Toxicology 615), School of Medicine, University of Maryland, Baltimore, MD

March 1990 Lecturer, Law 440/Toxi 620 - Lead Seminar Series

**Postdoctoral Fellows**

Name Current Address

JW Ridlington, PhD Research Assoc, Sch. of Veterinary Medicine

Nat Res Serv Award Oregon State University

NG Carmichael, PhD Aventis Crop Science

NIH Visiting Fellow, UK Sophia Antipolis, France

RM Kardish, PhD Canadian Center for Occupational Health

NIH Visiting Fellow, Canada Hamilton, Ontario, Canada

KS Squibb, PhD Professor, Department of Epidemiology

Nat Res Serv Award Univ of MD, Baltimore, MD

CT Post, PhD Research Scientist, Astra Pharmaceutical Co

NIH Visiting Fellow with Sodertalje, Sweden

Dr. GER Hook – Collaborator

A Oskarsson, PhD Professor, Food Toxicology, Agricultural

NIH Visiting Fellow University of Sweden, Uppsala, Sweden

WW Victery, PhD US Environmental Protection Agency,

Research Triangle Park, NC

P Mistry, PhD Research Fellow, Imperial Cancer Research

NIH Visiting Fellow, UK Center, Surrey, UK

PL Goering, PhD Research Scientist, Food & Drug Admin

Nat Res Serv Award Rockville, MD

GE DuVal, PhD Staff Scientist, Richmond Water Control Bd

Nat Res Serv Award Richmond, VA

DEO Gilg, PhD Cilag, Ltd

NIH Visiting Fellow Schaffhausen, Switzerland

Y Aoki, PhD Nat Inst for Environ Studies

Toxi Prog Fellow Tsukuba, Ibaraki, Japan

AC Todd, PhD Department of Community Medicine

Toxi Prog Fellow, UK Mount Sinai Medical Center, NY, NY

FE McNeill, PhD Dept of Physics & Astronomy, McMaster Univ

Toxi Prog Fellow, UK Hamilton, Ontario, Canada

DR Smith, PhD Professor, Dept of Biology, Univ of California

NIH Postdoc Fellow Santa Cruz, CA

X-Q Chen, PhD Research Scientist, MD Dept. Environment, Baltimore, MD

Toxi Prog Fellow, Japan

**Sabbatical Fellows**

Name Current Address

GF Nordberg, MD, PhD Chair, Dept of Environ Medicine, University of

Umea (Karolinska Institute), Sweden (Retired)

DH Petering, PhD Professor of Chem, Dir, Freshwater/Marine, Biomedical Center

Nat Res Serv Award University of Wisconsin, Milwaukee, WI

H Yamauchi, PhD Professor, Kitasato University, Tokyo,

NIH Fellow Japan

###### Graduate Students

Name Current Address

EA Conner Lab of Experimental Carcinogenesis

National Cancer Institute, Bethesda, MD

MB Quintanilla-Vega Dept of Pharmacology and Toxicology, CINVESTAV, Mexico City

J Liu Department of Chemistry, Dartmouth Univ

Dartmouth, NH

E Madden Covance Laboratories, Madison, WI

M Whittaker President and Chief Scientist, Tox Services LLC, Washington, DC

G Wang Research Scientist, Lovelace Respiratory Research Institute, Albuquerque,

NM

L Gallicchio Instructor, Mercy Medical Center, Baltimore, MD

###### Peer-Reviewed Publications

1. Fowler BA. Ruthenium red staining of rat glomerulus: Perfusion of ruthenium red into normal and nephrotic rat kidney. Histochemie 22:155-162, 1970.
2. Fowler BA, Brooks RE. Effects of the herbicide paraquat on the ultrastructure of mouse kidney. Amer J Pathol 63:505-520, 1971.
3. Fowler BA. Ultrastructural evidence for nephropathy induced by long-term exposure to small amounts of methyl mercury. Science 175:780-781, 1972.
4. Fowler BA. The morphologic effects of dieldrin and methyl mercuric chloride on pars recta segments of rat kidney proximal tubules. Amer J Pathol 69:163-174, 1972.
5. Fowler BA, Parker P. Observations on the preparation of epoxy embedded tissue samples for energy-dispersive x-ray analysis. Stain Technology 8:333-335, 1973.
6. Fowler BA, Brown HW, Lucier GW, Beard ME. .Mercury uptake by renal lysosomes of rats ingesting methyl mercury hydroxide: Ultrastructural observations and energy-dispersive x-ray analysis. Arch Pathol 98:297-301, 1974.
7. Fowler BA, Weissberg JB. Arsine poisoning. New Engl J Med 291:1171-1174, 1974.
8. Fowler BA, Brown HW, Lucier GW, Krigman MR. The effects of chronic oral methyl mercury exposure on the lysosome system of rat kidney Morphometric and biochemical studies. Lab Invest 32:313-322, 1975.
9. Fowler BA, Lucier GW, Mushak P. Phenobarbital protection against methyl mercury nephrotoxicity. Proc Soc Exp Biol Med 149:75-79, 1975.
10. Fowler BA, Goyer RA. Bismuth localization within nuclear inclusions by x-ray microanalysis: Effects of accelerating voltage. J Histochem Cytochem 23:722-726, 1975.
11. Fowler BA, Wolfe DA, Hettler WF. Mercury and iron uptake by cytosomes in mantle epithelial cells of Quahog clams (Mercenaria) exposed to mercury. J Fish Res Bd Canada 32:1767-1775, 1975.
12. Fowler BA, Jones HS, Brown HW, Haseman JK. The morphologic effects of chronic cadmium administration on the renal blood vasculature of rats given a low and normal calcium diet. Toxicol Appl Pharmacol 34:233-252, 1975.
13. Brown MM, Rhyne BC, Goyer RA, Fowler BA. The intracellular effects of chronic arsenic administration on renal proximal tubule cells. J Toxicol Env Health 1:507-516, 1976.
14. Fowler BA, Woods JS. The transplacental toxicity of methyl mercury to fetal rat liver mitochondria: Morphometric and biochemical studies. Lab Invest 36:122-130 1977.
15. Faeder E, King L, Chaney S, Bruce R, Hinners T, Fowler BA. Biochemical and ultrastructural changes in livers of cadmium-treated rats. Toxicol Appl Pharmacol 39:473-487, 1977.
16. Woods JS, Fowler BA. Renal porphyrinuria during chronic methyl mercury exposure. J Lab Clin Med 90:266-272, 1977.
17. Fowler BA, Woods JS. Ultrastructural and biochemical changes in renal mitochondria during chronic oral methyl mercury exposure: The relationship to renal function. Exper Molec Pathol 27:403-412, 1977.
18. Fowler BA, Hook GER, Lucier GW. Tetrachloro-dibenzo-p-dioxin induction of renal microsomal enzyme systems: Ultrastructural effects on pars recta (S3) proximal tubule cells. J Pharm Exp Therap 20:712-721, 1977.
19. Woods JS, Fowler BA. Altered regulation of mammalian hepatic heme biosynthesis and urinary porphyrin excretion during prolonged exposure to sodium arsenate. Toxicol Appl Pharmacol 43:361-371, 1978.
20. Schiller CM, Fowler BA, Woods JS. Pyruvate metabolism after in vivo exposure to oral arsenic. Chem-Biol Interact 22:25-33, 1978.
21. Fowler BA, Nordberg GF. The renal toxicity of cadmium metallothionein: Morphometric and x-ray microanalytical studies. Toxicol Appl Pharmacol 46:609-624, 1978.
22. Ridlington JW, Fowler BA. Isolation and partial characterization of a cadmium-binding protein from the American oyster (Crassostrea virginica). Chem-Biol Interact 25:127-138, 1979.
23. Woods JS, Carver GT, Fowler BA. Altered regulations of hepatic heme metabolism by indium chloride. Toxicol Appl Pharmacol 49:455-461, l979.
24. Fowler BA, Woods JS. The effects of prolonged oral arsenate exposure on liver mitochondria of mice: Morphometric and biochemical studies. Toxicol Appl Pharmacol 50:177-187, l979.
25. Carmichael NG, Fowler BA. Effects of separate and combined chronic mercuric chloride and sodium selenite administration in rats: Histologic ultrastructural and x-ray microanalytical studies of liver and kidney. J Env Pathol Toxicol 3:399-412, l979.
26. Carmichael NG, Squibb KS, Fowler BA. Metals in the molluscan kidney: A comparison of two closely related species (Argopecten) using x-ray microanalysis and atomic absorption spectroscopy. J Fish Res Bd Canada 36:1149-1155, l979.
27. Fowler BA, Woods JS, Schiller CM. Studies of hepatic mitochondrial structure and function: Morphometric and biochemical evaluation of in vivo perturbation by arsenate. Lab Invest 41:313-320, l979.
28. Carmichael NG, Squibb KS, Engel DW, Fowler BA. Metals in the molluscan kidney: Uptake and subcellular distribution of 109Cd 54Mn and 65Zn by the clam Mercenaria. Comp Biochem Physiol 65A:203-206, l980.
29. Ghafghazi T, Ridlington JW, Fowler BA. The acute and subacute effects of sodium arsenite administration on in vivo carbohydrate metabolism . Toxicol Appl Pharmacol 55:126-130, l980.
30. Fowler BA, Kimmel CA, Woods JS, McConnell EE, Grant LD. Chronic low level lead toxicity in the rat III An integrated toxicological assessment with special reference to the kidney. Toxicol Appl Pharmacol 56:59-77, l980.
31. Baker EL Jr, Goyer RA, Fowler BA, Khettry U, Barnard DB, Adler S, White RD, Babayan R, Feldman RG. Occupational lead exposure nephropathy and renal cancer. Amer J Indus Med 1:139-148, l980.
32. Schiller CM, Walden R, Fowler BA. Interaction between arsenic and alloxan-induced diabetes: Rat urinary enzyme levels. Biochem Pharmacol 30:168-170, l981.
33. Ridlington JW, Winge DR, Fowler BA. Long-term turnover and stability of cadmium-metallothionein following an initial low dose in rats. Biochem Biophys Acta 673:177-183, l981.
34. Mahaffey KR, Capar SG, Gladen BC, Fowler BA. Concurrent exposure to lead cadmium and arsenic: effects on toxicity and tissue metal concentrations in the rat. J Lab Clin Med 98:463-481, l981.
35. Carmichael NG, Fowler BA. Cadmium accumulation and toxicity in the kidney of the bay scallop (Argopecten irradians). Marine Biol 65:35-43, l981.
36. Woods JS, Kardish R, Fowler BA. Studies on the action of porphyrinogenic trace metals on the activity of hepatic uroporphyrinogen decarboxylase. Biochem Biophys Res Commun 103:264-271, l981.
37. Oskarsson A, Squibb KS, Fowler BA. Intracellular binding of lead in the kidney: Partial isolation and characterization of post-mitochondrial supernatant lead-binding components. Biochem Biophys Res Commun 104:290-298, 1982.
38. Woods JS, Fowler BA. Selective inhibition of renal ALA dehydratase by indium: Biochemical and ultrastructural studies. Exper Molec Pathol 36:306-315, 1982.
39. Post C, Squibb KS, Fowler BA, Gardner DE, Illing J, Hook GER. Production of low-molecular weight cadmium-binding proteins in rabbit lung after inhalation of CdCl2-aerosol and after intratracheal instillation of CdCl2. Biochem Pharmacol 31:2969-2975, 1982.
40. Fowler BA, Woods JS, Squibb KS, Davidian NM. Alteration of hepatic mitochondrial aldehyde dehydrogenase activity by sodium arsenate: The relationship to mitochondrial-microsomal oxidative interactions. Exper Molecular Pathol 37:351-357, 1982.
41. Fowler BA, Kardish R, Woods JS. Alteration of hepatic microsomal structure and function by acute indium administration: Ultrastructural morphometric and biochemical studies. Lab Invest 48:471-478, 1983.
42. Woods JS, Fowler BA, Eaton DL. Studies on the mechanisms of thallium-mediated inhibition of hepatic mixed function oxidase activity: Correlation with inhibition of NADPH-cytochrome c (P-450) reductase. Biochem Pharmacol 33:571-576, 1984.
43. Squibb KS, Pritchard JB, Fowler BA. Cadmium metallothionein nephropathy: Ultrastructural/biochemical alterations and intracellular cadmium binding. J Pharmacol Exper Therap 229:311-321, 1984.
44. Goering PL, Fowler BA. Regulation of lead inhibition of δ-aminolevulinic dehydratase by a high affinity renal lead-binding protein . J Pharmacol Exp Therap 231:66-71, 1984.
45. Victery WW, Miller CR, Fowler BA. Lead accumulation by rat renal brush border membrane vesicles. J Pharmacol Exp Therap 231:589-596, 1984.
46. Mistry P, Lucier GW, Fowler BA. High affinity lead-binding proteins from rat kidney cytosol: Mediate cell-free nuclear translocation of lead. J Pharmacol Exp Therap 232:462-469, 1985.
47. Goering PL, Fowler BA. Mechanisms of renal lead-binding protein protection against lead-inhibition of δ- aminolevulinic acid dehydratase. J Pharmacol Exp Therap 234:365-371, 1985.
48. Oskarsson A, Fowler BA. Effects of lead inclusion on subcellular distribution of lead in rat kidney: The relationship to mitochondrial function. Exper Molec Pathol 43:409-417, 1985.
49. Oskarsson A, Fowler BA. Effects of lead on the heme biosynthetic pathway in rat kidney. Exper Molec Pathol 43:397-408, 1985.
50. Mistry P, Mastri C, Fowler BA. Influence of metal ions on renal cytosolic lead-binding proteins and nuclear uptake of lead in the kidney. Biochem Pharmacol 35:711-713, 1986.
51. Goering PL, Mistry P, Fowler BA. A high affinity lead-binding protein in brain attenuates lead inhibition of δ- aminolevulinic acid dehydratase: Comparison with a renal lead-binding protein. J Pharmacol Exper Therap 237:220-225, 1986.
52. Woods JS, Fowler BA. Alterations of hepatocellular structure and function by thallium chloride: Ultrastructural morphometric and biochemical studies. Toxicol Appl Pharmacol 83:218-229, 1986.
53. Chen B, Burt CT, Goering PL, Fowler BA, London RE. In vivo 31P nuclear magnetic resonance studies of arsenite-induced changes in hepatic phosphate levels. Biochem Biophys Res Comm 139:228-234, 1986.
54. Goering PL, Fowler BA. Mechanism of kidney metallothionein reversal of lead inhibition of δ-aminolevulinic acid dehydratase. Arch Biochem Biophys 253:48-55, 1987.
55. Goering PL, Fowler BA. Metal constitution of metallothionein influences inhibition of δ-aminolevulinic acid dehydratase (porphobilinogen synthase) by lead. Biochem J 245:339-345, 1987.
56. Woods JS, Fowler BA. Alteration of mitochondrial structure and heme biosynthetic parameters in liver and kidney cells by bismuth . Toxicol Appl Pharmacol 90:274-283, 1987.
57. Fowler BA, Gould E. Ultrastructural and biochemical studies of intracellular metal-binding patterns in kidney tubule cells of the scallop Placopecten magallanicus following prolonged exposure to cadmium or copper. Marine Biol 97:207-216, 1988.
58. Goering PL, Maronpot RR, Fowler BA. Effect of intratracheal administration of gallium arsenide administration on δ-aminolevulinic acid dehydratase in rats: Relationship to urinary excretion of aminolevulinic acid. Toxicol Appl Pharmacol 92:179-193, 1988.
59. Hong H-HL, Fowler BA, Boorman GA. Hematopoietic effects in mice exposed to arsine gas. Toxicol Appl Pharmacol 97:173-182, 1989.
60. DuVal GE, Fowler BA. Preliminary purification and characterization studies of a low molecular weight high affinity cytosolic lead-binding protein in rat brain. Biochem Biophys Res Comm 159:177-184, 1989.
61. Rosenthal GJ, Fort MM, Germolec DR, Ackermann ME, Lamm KR, Thomas PH, Blair PC, Fowler BA, Luster MI. The effects of subchronic arsine inhalation on immune function and host resistance. Inhalation Toxicology 1:113-127, 1989.
62. Blair PC, Thompson MB, Morrissey RE, Moorman MP, Sloane RA, Fowler BA. Comparative toxicity of arsine gas in B6C3F mice Fischer 344 rats and Syrian golden hamsters: System organ studies and comparison of clinical indices of exposure. Fund Appl Toxicol 14:776-787, 1990.
63. Blair PC, Thompson MB, Bechtold M, Wilson RE, Moorman MP, Fowler BA. Evidence for oxidative damage to red cells in mice induced by arsine gas. Toxicology 63:25-34, 1990.
64. Morrissey RE, Fowler BA, Harris MW, Moorman MP, Jameson CW, Schwetz BA. Arsine: Absence of developmental toxicity in rats and mice, Fundament Appl Toxicol 15:350-356, 1990.
65. Aoki Y, Lipsky MM, Fowler BA. Alteration of protein synthesis in primary cultures of rat kidney epithelial cells by exposure to gallium indium and arsenite. Toxicol Appl Pharmacol 106:462-468, 1990.
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