March 10, 2016

CURRICULUM VITAE

PERSONAL DATA

Tomás R. Guilarte, PhD
Dean, Robert Stempel College of Public Health & Social Work
Professor, Environmental & Occupational Health
Department of Environmental & Occupational Health
Professor, Cognitive Neuroscience & Imaging
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EDUCATION AND TRAINING

Degree	Year	Institution	Field
B.S.	1974	University of Florida	Zoology
M.S.	1976	University of Florida	Medical Physics
Ph.D.	1980	Johns Hopkins University SHPH (now: Bloomberg School of PH)	Environmental Health

PROFESSIONAL EXPERIENCE

1977 summer: COSTEP Program in Health Physics. National Institutes of Health. Bethesda, MD.

1978-1980: Graduate Assistant, Dept. Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1980-1981: Research Associate, Dept. of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1981-1987: Assistant Professor, Dept. of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1987-2010: Training faculty, NIEHS training grant. Dept. of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1987-1994: Associate Professor, Dept. of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1990-1994: Associate Professor (Joint Appointment), Division of Human Nutrition, Dept. of International Health, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1993-2010: Member, Center for Human Nutrition. Department of International Health, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1990-1993: Associate Director, Neurotoxicology Program, Environmental Health Sciences Center, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.

1993-1996: Director, Neurotoxicology Program, Environmental Health Sciences

	Center, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.
1994-2010:	Professor (Joint Appointment), Division of Human Nutrition, Department of International Health, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.
2006-2009	Director, Program in Molecular Imaging, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.
1994-2010:	Professor, Dept. of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD.
2010-2015	Leon Hess Professor (Inaugural) & Chairman, Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University. New York. NY.
2011-2015	Director, NIEHS training grant – Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University. New York. NY.
2011-2015	Deputy Director, NIEHS Center for Environmental Health in Northern Manhattan. Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University. New York, NY.
2011-present	Adjunct Professor, Department of Radiology – Johns Hopkins Hospital, Baltimore, MD.
2011-2015	Earth Institute Faculty Member (*ex officio*). The Earth Institute, Columbia University, New York, NY.
2016-present	Dean & Professor of Environmental & Occupational Health, Stempel College of Public Health & Social Work. Florida International University, Miami, Florida.
2016-present	Professor, Cognitive Neuroscience & Imaging, Department of Physics, Florida International University. Miami, Florida.

PROFESSIONAL ACTIVITIES

Membership in Professional Societies

1978-1980	American Association of Physicists in Medicine
1978-1986	Health Physics Society
1981-1988	Society of Nuclear Medicine
1980-present	Delta Omega National Public Health Honorary Society
1986-2000	American Institute of Nutrition
1989-present	American Association for the Advancement of Science
1991-present	Society for Neuroscience
1995-present	Society of Toxicology
1997-1998	VP Elect, Neurotoxicology specialty section, Society of Toxicology
1998-1999	Vice-President, Neurotoxicology specialty section, Society of Toxicology
1999-2000	President, Neurotoxicology Specialty Section, Society of Toxicology
2000-2001	Past-President, Neurotoxicology Specialty Section, Society of Toxicology
2008-2010	Member, Institute for NanoBiotechnology at Johns Hopkins Univ.
2003-2010	International Behavioral Neuroscience Society
2004-present	International Neurotoxicology Association
2005-2010	Society for Molecular Imaging

International and National Advisory Panels

1986-1992	Affiliate Staff - Center for the Advancement of Radiation Education and Research (CARER), The Johns Hopkins Univ. School of Hygiene and Public Health
1991	National Institute on Aging - Nutrition Advisory Panel, National Institutes of Health. Bethesda, Maryland.
1992	National Institute of Environmental Health Sciences - Lead Advisory Panel, Research Triangle Park, N.C.
1994	External Reviewer of Graduate Program, Department of Pharmacology & Experimental Therapeutics. University of Maryland School of Medicine. March 3-4, 1994.
1997	Invited panelist "Consequences of Gene Expression in Health and Disease Workshop". Medical Applications and Biophysical Research Division. Department of Energy. San Antonio, Texas, April 1-3, 1997.
1997	Invited Panelist (declined) Panel on Folate and Other B-vitamins workshop. Standing committee on the Scientific Evaluation of Dietary Reference Intakes. Food and Nutrition Board. Institute of Medicine. National Academy of Sciences.
1998	Member, Review committee Division of Neurotoxicology, National Center for Toxicological Research, Food and Drug Administration. January 26-28, 1998.
1995-1999	Member, Science Advisory Board to the National Center for Toxicological Research of the Food and Drug Administration. Little Rock, Arkansas.
1998-1999	Member, External Advisory Panel, Kennedy Krieger Institute Program Project Grant on Lead Neurotoxicity (Dr. Gary Goldstein, PI).
1998	Member, (Ad hoc) Presidential Oversight Board for Department of Defense Investigations of Gulf War Chemical and Biological Incidents.
2000-2002	Member, Search Committee of Neurotoxicology Division Director at the Health Effects Institute, United States Environmental Protection Agency, Research Triangle Park, North Carolina.
2004	External Reviewer, University of Maryland System-Wide Program in Toxicology. April 12-13, 2004.
2004-2010	Member, Steering Committee, Manganese Health Research Program (MHRP-1). Washington DC.
2006-2008	External Advisory Board, Superfund Program Project Grant. Harvard School of Public Health, Boston, MA.
2007	Ad Hoc member, Center for Evaluation of Risk to Human Reproduction (CERHR) Nomination Review-nomination of Lead. National Toxicology Program, Board of Scientific Counselors, Research Triangle Park, NC. December 6, 2007.
2010-2012	Member, Steering Committee, Neurotoxicity Research Program. Paris, France.
2010-present	Member, Science Advisory Board. Strategies for mitigating-Anesthesia-Related NeuroToxicity in Tots (SmartTots). International Anesthesia Research Society.
2013	Board of Scientific Counselors for Review of Toxicology & Pharmacology Laboratory at the National Institute of Environmental Health Sciences, April 14-16, 2013.
2013-present	Member, Advisory Council, National Institute of Environmental

Health Sciences. Research Triangle Park, North Carolina.
2013-present Member, ILSI Health and Environmental Sciences Institute (HESI) Subcommittee on Translational Biomarkers of Neurotoxicity.
2015-present Member, Planning Committee for Manganese Conference, September, 2016.

EDITORIAL ACTIVITIES

Peer Review Activities (peer-reviewed journals): Multiple reviews for many of the journals listed below:

Analytical Biochemistry
Journal of Nutritional Biochemistry
American Journal of Clinical Nutrition
Fundamental and Applied Toxicology
Journal of Clinical Investigation
American Journal of Epidemiology
J Pharmacol Exp Therapeutics
Toxicology and Applied Pharmacology
Pharmacological Reviews
Toxicology Letters
Journal of Biological Chemistry
Neurotoxicity Research
Toxicological Sciences
J. Biological Inorganic Chemistry
Neurochemistry International
Pharmacol, Biochem and Behav.
European Journal of Pharmacology
Thorax
Annals NY Academy of Science
NeuroImage
Synapse
Journal of Pediatrics
Pan American Journal of Public Health
New England Journal of Medicine
Environmental Toxicology
Journal of Neuroendocrinology
Int J Env Res & Public Health
Membrane Biochemistry
Diabetes
NeuroToxicology
Brain Research
Physiology & Behavior
Cancer Research
Neurotoxicology and Teratology
Journal of Neurochemistry
Nutritional Neuroscience
Journal of Nutrition
Life Sciences
Environmental Toxicology
Journal of Neuroscience
Toxicology Letters
Environmental Health Perspectives
Proc Nat Acad Sci (USA)
Journal of Neuroscience Research
Neurobiology of Disease
Molecular Imaging
Molecular Pharmacology
Acta Neurologica Scandinavica
NeuroMolecular Medicine
PLoS ONE
Annals of Neurology
J Medical Case Reports
Toxicology
Chemical Research in Toxicology
Journal of Hepatology
Journal of Clinical Investigation
Neurology
Neurobiology of Disease
BMC Neurology
Molecular Neurobiology
Steroids
Neurobiology of Aging
European Journal of Neurology
Journal of Addiction Medicine
Trends Endocrinology & Metabolism
Clinical Neurology & Neurosurgery

Editorial Board Member: NeuroToxicology (1995-1999; 2006-present); Toxicology and Applied Pharmacology (2002-2014); Current Environmental Health Reports (2013-present); NeuroMetals (2015-present)

Associate Editor: NeuroToxicology (1999-2006)

Reviewer of Research Grant Proposals

1981-1988	Ad Hoc Reviewer - Human Nutrition Grant Section, Competitive Research Grants Office United States Department of Agriculture
1987	Ad Hoc Reviewer - Basic Research Grant Program, March of Dimes Birth Defects Foundation, White Plains, NY
1990	Panel Member (Reviewer) - Human Nutrition Section, Competitive Research Grants, United States Department of Agriculture
1990-1992	Ad Hoc Reviewer - Human Nutrition Grant Section, Competitive Research Grants Office United States Department of Agriculture
1993	Ad hoc reviewer, Toxicology Study Section (subcommittee 2), National Institute of Health, 2/7/93.
1995	Ad Hoc Reviewer, Cooperative Science Program, Division of International Programs, National Science Foundation
1998	Ad Hoc Reviewer - Endocrinology #2 Panel - United States Department of Defense Breast Cancer Research Program.
1995-1999	Member, Toxicology Study Section (subcommittee 2). Renamed ALTX 3 (Alcohol & Toxicology). National Institute of Health, Bethesda, Maryland.
1999	Ad Hoc Reviewer, NIH Special Emphasis Panel (ZRG1-IFCN1). National Institute of Health, Bethesda, MD.
1999-2003	Member, Environmental Health Review Committee, National Institute of Environmental Health Sciences, RTP, NC.
2000	Ad hoc Reviewer, ALTX 3 Study Section, National Institute of Health, Bethesda, Maryland. (February 2000).
2000	Ad Hoc Reviewer, ZRG1 IFCN-1(03) CSR Special Emphasis Panel, National Institute of Health, Bethesda, Maryland. (March 2000).
2000	Chairperson for Ad Hoc Review ZRG1 IFCN-1 Center for Scientific Review Emphasis Panel, National Institutes of Health, Bethesda, Maryland (November 2000).
2001	Ad Hoc Reviewer of research proposals for University Grants Committee, Research Grants Council, Hong Kong, China.
2001	Chairperson for Ad Hoc Review of Conference Grants (R13) ZES1 ZEH-B LV S, October 3, 2001, National Institute of Environmental Health Sciences.
2001	Member, Review Committee Society of Toxicology/American Chemical Council Early Career Awards in Neurotoxicology (October 2001).
2002	Chairperson for Ad hoc Review Committee, Center for Scientific Review Emphasis Panel, National Institutes of Health, Bethesda, Maryland (June 2002).
2002	Member, Ad Hoc reviewer, ZRG1 REB (50) - Fetal Basis of Adult Disease: Role of the Environment, National Institutes of Health, Bethesda, MD. November 14-15, 2002.
2003	Member, Ad hoc reviewer, ZRG1 F02AL, -F02A Fellowship Study Section, National Institutes of Health, March 20, 2003.
2003	Grant Reviewer, Center for Alternative to Animal Testing Grant Applications. Johns Hopkins University. September, 2003.
2003	Grant Reviewer, Netherlands Organization for Health Research and Development. October 2003 (Neuroscience).
2003	Ad Hoc reviewer, Neurotoxicology & Alcohol Study Section, Center for Scientific Review, National Institutes of Health, Bethesda, Maryland (October 20, 2003).
2004	Site visit team, NIEHS Center Grant Review, University of Pennsylvania. June 8-10, 2004.

2004 Reviewer, NIH Review Committee ZMH1-CRB-O-01, Interdisciplinary Research Training: Behavior, environment and biology. July 22, 2004.
2005 Reviewer, Pilot Project Program, Department of Environmental Health, Harvard School of Public Health, June 3, 2005.
2005 Reviewer, ZRG1 F02A (Behavioral Neuroscience Fellowships), National Institutes of Health, Bethesda, Maryland, June 16, 2005.
2005 Reviewer, ZRG1-IFCN-A(02)M, Study Section Member Grant Review, National Institutes of Health, Bethesda, MD. October 24, 2005.
2006 Reviewer, ZRG1-IFCN-A(02)M, Study Section Member Grant Review, National Institutes of Health, Bethesda, MD. June 13, 2006.
2006 Reviewer, Neurotoxicology and Alcohol (NAL) study section, National Institutes of Health, Bethesda, MD. October 2-3, 2006.
2006 Reviewer, Neurotoxicology and Alcohol (NAL) study section (member conflict), National Institues of Health, Bethesda, MD. November 13, 2006.
2007 Reviewer, Michael Smith Foundation for Health Research. Vancouver, British Columbia. Canada. March 15, 2007.
2007 Reviewer, ZRG1-IFCN-A(03), Study Section Member Grant Review, National Institutes of Health, Bethesda, MD. June 6, 2007.
2007 Reviewer, ZRG1-IFCN-K(03), Study Section Member Grant Review, National Institutes of Health, Bethesda, MD. October 24, 2007.
2007 Reviewer, Manganese Health Research Program, December 19, 2007. Washington DC.
2008 Reviewer, ZES1-LWJ-G-CN1, Centers for Neurodegeneration Sciences, NIEHS, Research Triangle Park, North Carolina, February 25-27, 2008.
2008 Reviewer, Clinical Neuroimmunology and Brain Tumors (CNBT) study section, NIH. October 2, 2008.
2009 Reviewer, Neurotoxicology & Alcohol (NAL) Study Section, NIH, San Diego, CA. February 2, 2009.
2009 Reviewer, ZRG1 IFCN-A(58)R. RFA OD-09-003: Challenge grant review panel 8. NIH, Bethesda, MD. June 5, 2009.
2009 Reviewer, ZES1 SET-J-02, NIEHS, Research Triangle Park, North Carolina, July 27, 2009 (by phone).
2009 Reviewer, Multiple Sclerosis Research Australia Office. Department of Neurology & Neurophysiology, Sir Charles Gairdner Hospital, Nedlands, Western Australia. August, 2009.
2009 Reviewer, R13 conference grant review (ZES1 TN-V 02). National Institute of Environmental Health Science, November 20, 2009 by phone.
2010 Reviewer, Grants Program of the Medical Research Council (MRC). United Kingdom, December 17, 2010.
2010 Reviewer, Grants Program of the March of Dimes Foundation. January 14, 2011.
2011 Reviewer, Member Conflict: Learning, Alcohol and Neurotoxicology. ZRG1 IFCN-C(04) M. National Institutes of Health. March 4, 2011.
2012 Reviewer, Member Conflict: Alcohol and Toxicology ZRG1 IFCN-A (02) M. March 1-2, 2012.
2012 Reviewer, Research Council of the United Kingdom, August 7, 2012.
2013 Reviewer, Multiple Sclerosis Research Australia.
2013 Pilot Project Program, University of Wisconsin NIEHS Children's Center.
2014 External Reviewer, Department of Environmental and Occupational Health, George Washington University School of Public Health & Health Sciences. February 26-28, 2014.
2014 Grant Reviewer, National Science Center (NCN panel NZ7). Krakow,

Poland. October 26, 2014.

2015 Reviewer of Pilot Project Program, Center for Ecogenetics and Environmental Health, University of Washington, March 9, 2015.

2016 Reviewer, Legacy Heritage Biomedical Science Partnership Research Grant Applications. Israel Science Foundation. March, 2016.

HONORS AND AWARDS

1974 President's Honor Roll - University of Florida

1978 Recipient of 1st USDA Student Fellowship Grant Awarded to the Johns Hopkins University School of Hygiene and Public Health

1980 Winning Presentation - First Annual Student Research Day - Delta Omega National Public Health Honorary Society - Johns Hopkins University School of Hygiene and Public Health

1981 Outstanding Young Men of America for 1981

1982 First Prize-Scientific Paper, Mid-Eastern meeting of the Society of Nuclear Medicine

1989 American Men and Women of Science

1992 Recipient of a Faculty Development Fund Award entitled "The Role of the NMDA receptor in lead-induced cognitive dysfunction". The Johns Hopkins University School of Hygiene and Public Health.

1993 First Prize for Best Scientific Poster, Scientific Week in the Klinikum Steglitz of the Free University of Berlin, Berlin, Germany.

2006 Top Ten abstract, Neurotoxicology Specialty Section. Society of Toxicology 45th Annual Meeting, San diego, CA. March, 2006.

2007 BEST ABSTRACT, Neurotoxicology Specialty Section, Society of Toxicology 46th annual Meeting, Charlotte, NC, March 2007.

2010 Inaugural Leon Hess Professorship – Endowed Chair, Department of Environmental Health Sciences, Columbia University-Mailman School of Public Health.

PUBLICATIONS H-index (Web of science)= 41 H-Index (Google Scholar)= 46

Journal Articles (Peer-reviewed)

1. Kertcher JA, **Guilarte TR**, Chen MF, Rider AA, McIntyre PA: A radiometric-microbiologic assay for the biologically active forms of niacin. Journal of Nuclear Medicine 20: 419-423, 1979.
2. **Guilarte TR**, McIntyre PA, Tsan MF: Study on the growth response of the yeasts Saccharomyces uvarum and Kloeckera brevis to the free biologically active forms of vitamin B-6. Journal of Nutrition 110: 954-958, 1980.
3. King CE, Toskes PP, **Guilarte TR**, Lorenz E, We1kos SL: Comparison of the one gram ^{14}C-d-xylose breath test to the ^{14}C-bile salt breath test in patients with small intestine bacterial overgrowth. Digestive Diseases & Science 25: 53-58, 1980.
4. **Guilarte TR**, McIntyre PA: Radiometric-microbiologic assay of vitamin B-6: Analysis of plasma samples. Journal of Nutrition 111: 1861-1868, 1981.
5. **Guilarte TR**, Shane B, McIntyre PA: Radiometric-microbiologic assay of vitamin B-6: Application to food analysis. Journal of Nutrition 111: 1869-1875, 1981.
6. Hill-Zobel RL, Pyeritz RF, Scheffel U, Malpica O, Engin IS, Camargo EE, **Guilarte TR**, Hill J, McIntyre PA, Murphy EA, Tsan MF: Kinetics and biodistribution of ^{111}In-

labeled platelets in patients with homocystinuria. New England Journal of Medicine 307: 781-786, 1982.

7. Knox DL, Chen MF, **Guilarte TR**, Dang CV, Burnette J: Nutritional amblyopia, folic acid, vitamin B-12, and other vitamins. Retina 2: 288-293, 1982.
8. **Guilarte TR**, Burns HD, Dannals RF, Wagner HN Jr: A simple radiometric in vitro assay for acetylcholinesterase inhibitors. Journal of Pharmaceutical Sciences 72: 90-92, 1983.
9. **Guilarte TR**: Radiometric-microbiologic assay of vitamin B-6: Assay simplification and sensitivity studies. Journal of the Association of Official Analytical Chemists 66: 58-61, 1983.
10. **Guilarte TR**, Tsan MF: Microbiological assay of total vitamin B-6 using the yeasts Saccharomyces uvarum and Kloeckrera brevis. Journal of Nutrition 113: 721-724, 1983.
11. **Guilarte TR**, Pravlik K: Radiometric-microbiologic assay of niacin using Kloeckera brevis: Analysis of human blood and food. Journal of Nutrition 113: 2587-2594, 1983.
12. **Guilarte TR**: Effect of NaCl and KCl on the growth response of Saccharomyces uvarum and Kloeckera brevis to free vitamin B-6. Journal of the Association of Official Analytical Chemists 67 (3): 617-620, 1984.
13. Coburn SP, Mahuren JD, **Guilarte TR**: Vitamin B-6 content of plasma of domestic animals determined by HPLC, enzymatic and radiometric-microbiologic methods. Journal of Nutrition, 114: 2269-2273, 1984.
14. **Guilarte TR**: Radiometric-microbiological assay of biotin in human plasma. Presented at the New York Academy of Sciences, International Meeting on Biotin. Annals of the New York Academy of Sciences 447: 398-399, 1985.
15. **Guilarte TR**: Measurement of biotin levels in human plasma using a radiometric-microbiological assay. Nutrition Reports International, 31: 1155-1163, 1985.
16. **Guilarte TR**: Analysis of biotin levels in selected foods using a radiometric microbiological assay. Nutrition Report International 32: 837-845, 1985.
17. Goldstein RM, Hebiguchi T, Luk GL, Taqi F, **Guilarte TR**, Franklin FA, Niemiec PW, Dudgeon PL: Effects of total parenteral nutrition on gastrointestinal growth and development. Journal of Pediatric Surgery 20: 785-791, 1985.
18. **Guilarte TR**, Wagner HN Jr: 3-hydroxykynurenine as a possible mechanism of epileptic seizures associated with neonatal vitamin B-6 deficiency. Transactions Association American Physicians 99: 73-77, 1986.
19. **Guilarte TR**, Wagner HN Jr, Frost JJ: Effect of perinatal vitamin B-6 deficiency on dopaminergic neurochemistry. Journal of Neurochemistry 48: 432-439, 1987.
20. Feldman AM, **Guilarte TR**, DeMent SH, Olson JL, Baughman KL, Gerstenblith G: Functional and metabolic consequences of pyridoxine deficiency in the rat heart. Proceedings of the Society of Experimental Biology & Medicine 184: 31-39, 1987.
21. **Guilarte TR**, Wagner HN Jr: Increased concentration of 3-hydroxykynurenine in vitamin B-6 deficient neonatal rat brain. Journal of Neurochemistry 49: 1918-1926, 1987.
22. **Guilarte TR**, Block LD, Wagner HN Jr: The putative endogenous convulsant 3-hydroxykynurenine decreases benzodiazepine receptor binding affinity: Implications to seizures associated with neonatal vitamin B-6 deficiency. Pharmacology, Biochemistry & Behavior 30: 665-668, 1988.
23. O'Tuama LA, **Guilarte TR**, Dannals RF, et al.: Assessment of ^{11}C-L-methionine transport into the human brain. J Cerebral Blood Flow & Metabolism 8: 341-345, 1988.

24. **Guilarte TR**: A radiometric microbiological assay for pantothenic acid in biological fluids. Analytical Biochemistry 178:63-66, 1989.
25. **Guilarte TR**: Effect of vitamin B-6 nutrition on the levels of dopamine, dopamine metabolites, dopa decarboxylase activity, tyrosine and GABA in the developing rat corpus striatum. Neurochemical Research 14:571-578, 1989.
26. Eastman CL and **Guilarte TR** Cytotoxicity of 3-hydroxykynurenine in a neuronal hybrid cell line. Brain Research 495:225-231, 1989.
27. **Guilarte TR**: Regional concentrations of glutamate, glycine, taurine and GABA in the vitamin B-6 deficient developing rat brain: Association with neonatal seizures. Neurochemical Research 14:889-897, 1989.
28. Eastman CL, **Guilarte TR**: The role of hydrogen peroxide in the in vitro cytotoxicity of 3-hydroxykynurenine. Neurochemical Research 15:1101-1107, 1990.
29. Lever JR, Canella KA, Eastman CL, **Guilarte TR**: Synthesis and enantiomeric resolution of tritiated (D,L)-3-hydroxykynurenine. Journal of Labelled Compounds & Radiopharmaceuticals 28:1331-1339, 1990.
30. **Guilarte TR**: Abnormal endogenous amino acid release in brain slices from vitamin B-6 restricted neonatal rats. Neuroscience Letters 121:203-206, 1991.
31. **Guilarte TR**: Reduced NMDA receptor-ion channel function in the vitamin B-6 restricted neonatal rat brain. Neuroscience Letters 121:207-210, 1991.
32. Coburn SP, Ziegler PL, Costill DL, Mahuren JD, Fink WJ, Schaltenbrand WE, Panly TA, Pearson DR, Conn PS, **Guilarte TR**: Response of vitamin B-6 content of muscle to changes in vitamin B-6 intake in men. American Journal of Clinical Nutrition 53: 1436-1442, 1991.
33. **Guilarte TR**, Micelli R, Moran TH: Developmental effects of vitamin B-6 restriction on the locomotor behavior of rats. Brain Research. Bulletin. 26: 857-861, 1991.
34. **Guilarte TR**: Radiometric-Microbiological Assay of B-vitamins. Part 1. Assay Methods Journal of Nutritional Biochemistry. 2: 334-338, 1991.
35. **Guilarte TR**: Radiometric-Microbiological Assay of B-vitamins. Part 2. Extraction methods. Journal of Nutritional Biochemistry 2: 399-402, 1991.
36. Eastman CL and **Guilarte TR**: Cytotoxicity of 3-hydroxykynurenine: Implications for CNS damage in neonatal vitamin B-6 deficiency. Advances in Experimental Medicine & Biology 294: 625-629, 1991.
37. Eastman CL, **Guilarte TR**, Lever JL: Uptake of 3-hydroxykynurenine measured in rat brain slices and in a neuronal cell line. Brain Research 584: 110-116, 1992.
38. Eastman CL and **Guilarte TR**: Vitamin B-6, Kynurenines, and Central Nervous System Function: Developmental Aspects. Journal of Nutritional Biochemistry 3: 618-632, 1992.
39. **Guilarte TR** and Miceli RC: Age-dependent effects of lead on [^{3}H]-MK-801 binding to the NMDA receptor gated ionophore: *In vitro* and *in vivo* studies. Neuroscience Letters 148: 27-30, 1992.
40. **Guilarte TR** and Eastman CL: Is 3-hydroxykynurenine an endogenous neurotoxin in Huntington's disease? Letter to the editor Journal of the Neurological Sciences 116: 227-228, 1993.
41. Pilachowski J and **Guilarte TR**: Postnatal development and GABA allosteric regulation of benzodiazepine receptor binding in the vitamin B-6 deficient rat brain Neurochemical Research, 18: 1249-1254, 1993.
42. **Guilarte TR**: Vitamin B-6 and cognitive development: Recent research findings from human studies and animal models. Nutrition Reviews 51:193-198, 1993.
43. **Guilarte TR**, Miceli RC, Altmann L, Weinsburg F, Winneke G, and Weigand H: Chronic prenatal and postnatal lead exposure increases [^{3}H]-MK-801 binding sites in

adult rat forebrain. European Journal of Pharmacology - Environmental toxicology and pharmacology section. 248(3): 273-275, 1993.

44. Sasaki M, Müller-Gärtner HW, Lever RJ, Ravert HT, Dannals RF, **Guilarte TR**, and Wagner Jr HN: *In vivo* assessment of brain muscarinic cholinergic receptors in living mice using ^{125}I-dexetimide and ^{125}I-levetimide. Neuropharmacology 32: 1441-1443, 1993.
45. **Guilarte TR**, Miceli RC, and Jett DA: Neurochemical aspects of hippocampal and cortical lead neurotoxicity. NeuroToxicology, 15:459-466, 1994.
46. Shirahata M, Schofield B, Chin BY, **Guilarte TR**: Culture of arterial chemoreceptor cells from adult cats in defined medium. Brain Research 658: 60-66, 1994.
47. Shirahata M, Schoefield B, Chin BY, **Guilarte TR**: Culturing carotid body cells of adult cats. Advances in Experimental Medicine and Biology 360: 163-165, 1994.
48. May CH, **Guilarte TR**, Wagner HN Jr, Vogel S: Intrastriatal infusion of Lisuride - A potential treatment for Parkinson's disease?. Behavioral and Autoradiographic Studies in 6-OHDA Lesioned Rats. Neurodegeneration, 3: 305-313, 1994.
49. **Guilarte TR**, Miceli RC, Jett DA. Biochemical evidence of an interaction of Lead at the Zinc allosteric sites of the NMDA receptor complex: Effects of neuronal development. NeuroToxicology, 16: 63-71, 1995.
50. Jett DA, **Guilarte TR**: Developmental Pb exposure alters N-Methyl-D-Aspartate and Muscarinic Cholinergic Receptors in the rat hippocampus: An Autoradiographic Study. NeuroToxicology 16: 7-18, 1995. **[This manuscript selected for journal front cover]**.
51. **Guilarte TR**, Kuhlmann AC, O'Callaghan JP, Miceli RC. Enhanced expression of Peripheral Benzodiazepine Receptors in Trimethltin-exposed Rat Brain: A biomarker of neurotoxicity. NeuroToxicology, 16: 441-450, 1995.
52. Waymire KG, Mahuren JD, Jaje JM, **Guilarte TR**, Coburn SP, MacGregor GR. Mice lacking tissue non-specific alkaline phosphatase die from seizures due to defective catabolism of vitamin B-6. Nature Genetics, 11: 45-51, 1995.
53. Jett DA, Kuhlmann AC, Farmer SJ, **Guilarte TR**: Age-dependent effects of developmental lead exposure on performance in the Morris Water Maze. Pharmacology, Biochemistry, and Behavior 57: 271-279, 1997.
54. Jett DA, Kuhlmann AC, **Guilarte TR**: Intra-hippocampal administration of lead impairs performance of rats in the Morris Water Maze. Pharmacology, Biochemistry, and Behavior 57: 263-269, 1997.
55. **Guilarte TR**: Glutamatergic system and Developmental Lead Neurotoxicity. NeuroToxicology. 18: 665-672, 1997.
56. **Guilarte TR**: Pb^{2+} inhibits NMDA receptor function via high and low affinity sites: Developmental and Regional Brain Expression. NeuroToxicology. 18: 43-52, 1997.
57. Kuhlmann AC, **Guilarte TR**: The peripheral benzodiazepine receptor is a sensitive indicator of domoic acid neurotoxicity. Brain Research 751: 281-288, 1997.
58. Kuhlmann AC, McGlothan JL, **Guilarte TR:** Developmental lead exposure causes spatial learning deficits in adult rats. Neuroscience Letters, 233: 101-104, 1997.
59. **Guilarte TR** McGlothan JL: Hippocampal NMDA receptor mRNA undergoes subunit specific changes during developmental lead exposure. Brain Research 790: 98-107, 1998.
60. Audesirk G, Burbacher T, **Guilarte TR**, Laughlin NK, Lopachin R, Suskiw J, Tilson H: Understanding the NIH Review Process: A brief guide to writing grant proposals in Neurotoxicology. NeuroToxicology 20: 91-98, 1999.
61. Kuhlmann AC, **Guilarte TR**: Regional and temporal expression of the peripheral benzodiazepine receptor in MPTP neurotoxicity. Toxicological Sciences 48: 107-116, 1999.

62. Nihei MK, **Guilarte TR**: NMDAR-2A subunit protein expression is reduced in the hippocampus of rats exposed to Pb^{2+} during development. Molecular Brain Research 66: 42-49, 1999.
63. Hashemzadeh-Gargari H, **Guilarte TR**: Divalent cations modulate NMDA receptor function at the glycine site. Journal of Pharmacology & Experimental Therapeutics 290: 1356-1362, 1999.
64. Nihei MK, Desmond NL, McGlothan JL, Kuhlmann AC, **Guilarte TR**: NMDA receptor subunit changes are associated with Pb^{2+}-induced deficits of LTP and spatial learning. Neuroscience, 99: 233-242, 2000. **[This manuscript received a School of Public Health Press Release]**.
65. **Guilarte TR**, McGlothan JL, Nihei MK: Hippocampal expression of *N*-Methyl-D-Aspartate Receptor (NMDAR-1) splice variant mRNA is altered by developmental exposure to Pb^{2+}. Molecular Brain Research 76: 299-305, 2000.
66. Kuhlmann AC, **Guilarte TR**: Cellular and subcellular localization of peripheral benzodiazepine receptors after trimethyltin neurotoxicity. Journal of Neurochemistry 74: 1694-1704, 2000.
67. Nihei MK, McGlothan JL, Toscano CD, Guilarte TR: Low level Pb^{2+} exposure affects hippocampal PKC-gamma gene and protein expression. Neuroscience Letters 298: 212-216, 2001.
68. Nihei MK, **Guilarte TR**: Molecular changes in glutamatergic synapses induced by Pb^{2+}: Associations with deficits in LTP and spatial learning. NeuroToxicology 22: 635-643, 2001.
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There are 4 other manuscripts in preparation for submission

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Book Chapters

1. Hill-Zobel RL, Pyeritz RF, Scheffel U, Malpica 0, Engin IS, Camargo EE, Abbott

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5. Guilarte TR: The Role of Vitamin B-6 in Central Nervous System Development: Neurochemistry and Behavior. *In: Vitamin B-6 Metabolism in Pregnancy, Lactation, and Infancy*. ed. Daniel J. Raiten CRC Press, pp 77-92, 1995.
6. Guilarte TR: The N-Methyl-D-Aspartate Receptor: Physiology and Neurotoxicology in the Developing Brain. *In: Handbook of Developmental Neurotoxicology* , Slikker and Chang, eds. Academic Press pp 285-304 1998. (Dr. Guilarte also served as Section Editor).
7. Nihei MK and Guilarte TR: Molecular mechanisms of low level Pb^{2+} neurotoxicity. *In*: *Handbook of Neurotoxicology*, Edward J. Massaro, editor, vol 1, pp 105-131, 2002 (Dr. Guilarte also served as Section Editor).
8. Guilarte TR: Peripheral Benzodiazepine Receptors: Molecular Biomarkers of Neurotoxicity. *In: Biomarkers of Environmentally-Associated Diseases*-Technologies, Concepts and Perspectives. Wilson SH and Suk WA, eds., Lewis Publishers, Boca Raton, FLA. Chapter 28, 411-423, 2002.
9. Guilarte TR: Functional implication of NMDAR subunit changes in the rat brain following developmental lead exposure. *In*: Molecular Neurotoxicology-Environmental Agents and Transcription-Transduction Coupling. Edited by Nasser Zawia. CRC press, Boca Raton, Florida. Chapter 5, pp 87-105; 2004.
10. Guilarte TR: Peripheral Benzodiazepine Receptors imaging in glial cells: Sensors of brain pathology. *In*: The role of Glia in Neurotoxicity. Aschner M & Costa L., eds., chapter 12, pp 207-219. CRC Press Boca Raton, FLA (chapter 11, 2004).
11. Guilarte TR: Molecular Imaging: The New Frontier in Neurotoxicology. Comprehensive Toxicology 2nd Edition. Nervous system and Behavioral Toxicology, volume 13. Martin Philbert volume editor. Pp 537-551, 2010.
12. Guilarte TR: A Decade of Studies on Manganese Neurotoxicity in Non-Human Primates: Novel Findings and Future Directions. Chapter 18, *In*: Manganese in Health and Disease – Issues in Toxicology No. 22, Lucio Costa & Michael Aschner, eds., The Royal Society of Chemistry, pp 459-472, 2015 .

CURRICULUM VITAE
(Tomás R. Guilarte)

PART II

ADVISING AND TEACHING

Doctoral Students

Peter Wagner (2013-present) I participated as a member of the doctoral committee for Peter Wagner, Program in Molecular and Integrative Physiological Sciences in the Department of Environmental Health at Harvard School of Public Health. Thesis title: New Insights into the Molecular Mechanisms of Lead Neurotoxicity.

Meredith Loth (2013-present) Meredith is elucidating the function of the biomarker of neurotoxicity protein TSPO in microglia and astrocytes.

Barbara Soares (2011-present) Barbara is doing her doctoral studies in my laboratory related to early life lead exposure, the dopaminergic system and drug addiction.

Judy Choi (2006-2010) Her work was related to the role of the Translocator Protein 18 kDa (TSPO) in glial function and neurotoxicity. Received 2nd Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 48th meeting of the Society of Toxicology Annual Meeting, Baltimore, MD (2009). Received 3rd Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 49th meeting of the Society of Toxicology Annual Meeting, Salt Lake City, Utah (2010). Graduated on May 2010. Position: Post-doctoral fellow with Dr. Anne Regnier-Vigouroux at the German Cancer Research Center in Heidelburg, Heidelberg, Germany. Current Position: Toxicology consultant for Bipro (environmental consultant firm) in Munich, Germany.

April Neal (2005-2009) Received 3st Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 46th meeting of the Society of Toxicology Annual Meeting, Charlotte, NC (2007). Recipient of Travel Award from the National Capital Area Regional chapter of the Society of Toxicology to attend Society of Toxicology Annual Meeting, Charlotte, NC (2007). Recipient of Graduate Student Travel Award from the Society of Toxicology to attend Society of Toxicology Annual Meeting, Seattle, WA (2008). Second Place, Basic Science Category. Delta Omega – Alpha chapter Student Competition, Johns Hopkins Bloomberg School of Public Health (February, 2008). Recipient of travel award to 25th Anniversary of the International Neurotoxicology Conference, Rochester, NY. Oct 12-16, 2008. Second Place, Pre-doctoral student competition at the 25th anniversary of the International Neurotoxicology Conference, Rochester, NY. Oct 12-16, 2008. Received 1st Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 48th meeting of the Society of Toxicology Annual Meeting, Baltimore, MD (2009). Graduated June, 2009. Current Position: Staff Scientist, FDA.

Neal C. Burton (2004-2008) Received 1st Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 45th meeting of the Society of

Toxicology Annual Meeting, San Diego, CA (2006). Recipient of Morgan-James Award in Molecular Imaging, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, 2006. Second Place, Bern Schwetz Travel Award, National Capital Area Chapter of the Society of Toxicology, 2006. Received 1st Place Award-Student Competition of the National Capital Area Chapter of the Society of Toxicology, May 2007. Recipient of Graduate Student Travel Award from the Society of Toxicology to attend Society of Toxicology Annual Meeting, Seattle, WA (2008). Graduated July 2008. Current Position: Staff Scientist, Institute for Biological and Medical Imaging, Helmholtz Center Munich-Munich, Germany.

Ming-Kai Chen, M.D. (2001-2007) Received 2nd Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 41th meeting of the Society of Toxicology Annual Meeting, Nashville, TN (2002). Received 3rd Place Award at the Pre-Doctoral Student Competition of the Delta Omega National Public Health Honorary Society, Johns Hopkins University Bloomberg School of Public Health, March 14, 2003; Third Place, Mid-Atlantic SOT meeting (2003, Pre-doctoral). Received 1st Place Award at the Neurotoxicology Specialty Section Pre-doctoral student competition at the 46th meeting of the Society of Toxicology Annual Meeting, Charlotte, NC (2007). Recipient of Travel Award from the National Capital Area Regional chapter of the Society of Toxicology to attend Society of Toxicology Annual Meeting, Charlotte, NC (2007). Recipient of "BEST ABSTRACT" from the Neurotoxicology Specialty Section at the 46th meeting of the Society of Toxicology Annual Meeting, Charlotte, NC (2007). Received 1st Place Award at the Neurotoxicology Specialty Section Pre-doctoral Student Competition at the 46th annual meeting of the Society of Toxicology, Charlotte, NC (2007). Current Position: Assistant Professor, Department of Radiology, Yale University & Hospital. New Haven, Conn.

Christopher D. Toscano (2000-2004) Received Society of Toxicology Graduate Student Travel Award for 2001 Annual Meeting, March 25-29, San Francisco, CA. Received Third Place Award in the pre-doctoral student competition of the Neurotoxicology Specialty Section at the 40th meeting of the Society of Toxicology, San Francisco, CA. Received Second place Award -Student competition at the Mid-Atlantic Society of Toxicology scientific meeting- May 15, 2001, University of the Sciences, Philadelphia, PA. Received 1st Place and Grand Price Award at the Delta Omega-Alpha Chapter Annual Student Award Competition (2002). Received 1st Place Award at the Neurotoxicology Specialty Section Pre-doctoral competition at the 41th meeting of the Society of Toxicology Annual Meeting, Nashville, TN (2002). Invited to attend Lasker Award ceremonies for 2002 Awards in New York City, NY.; First Place, Mid-Atlantic SOT meeting (2003, Pre-doctoral); First Place, Mid-Atlantic SOT meeting (2004, Pre-doctoral). Graduated in May 2004. (2004-2008): Post-doctoral fellow with Dr. Francesca Bosetti, Brain Physiology and Metabolism Section, National Institute on Aging, NIH, Bethesda, MD. Current position: Staff Scientist, Pharmacology Division of the Food and Drug Administration, Bethesda, Maryland.

Angela S. Howard (1999-2000). Received second place award in the pre-doctoral research competition of the Neurotoxicology Specialty Section at the 39th Annual Meeting of the Society of Toxicology, Philadelphia, PA. March 19-23, 2000. Change advisor after passing Departmental Written Exam.

Anthony C. Kulhmann (1993-1998) Thesis title: "Modulation of Peripheral Benzodiazepine Receptor Expression in Brain Following Neurotoxicant Exposure". Received second

place pre-doctoral award from the Neurotoxicology Specialty Section, Society of Toxicology at the 35th annual meeting, Anaheim, CA. March, 1996. 2) Received the Ninth Annual First Award to the best student paper at the American College of Toxicology Annual Meeting November, 1996. 3) Received second place pre-doctoral award from the Neurotoxicology Specialty Section, Society of Toxicology at the 36th annual meeting, Cincinnati, Ohio. March 1997. 4) Received second place pre-doctoral award from the Neurotoxicology Specialty Section, Society of Toxicology at the 37th annual meeting, Seattle, WA. March 1998. 1999-2001: Scientist, Vector Phamaceuticals, Cambridge MA. Obtained Law degree from Suffolk University Law School with specialization in patent law. Current Position: Associate, Foley & Lardner, LLP.

Stacey J. Farmer (1992-1996) Thesis title: "The Effects of Developmental Lead Exposure on Protein Kinase C in the Rat Hippocampus". Went to Santa Clara University Law School following PhD degree and is a practicing attorney. Current Position: UK Solicitor, England & Wales; US Patent Attorney; US Attorney at Law with the GRUND Intellectual Property Group.

Joanne Pilachowski-(1989-1994) Thesis title: "Developmental Effects of Marginal Vitamin B-6 Deficiency on GABAergic Neurotransmission in the Rat Brain". Current Position: Biology Teacher, Essex Community College, Baltimore MD.

Clifford L. Eastman (1987-1991) Thesis title: "The in vitro cytotoxicity of 3-hydroxykynurenine: Implications for Neonatal Vitamin B-6 Deficiency" Co-recipient of the HARRY D. KRUSE AWARD in nutrition research, Johns Hopkins University. Current Position: Unknown

Masters of Science

Manuel J. Oropeza-Torres, M.D. (1983) Thesis title: Radiometric Assay of Cholinesterases. Present Position: Nuclear Medicine Physician in Venezuela.

Amanda Garton (July 2009 – August 2010) "Role of Translocator Protein 18kDa (TSPO) in Acute Coxsackievirus B3 (CVB3)-Induced Myocarditis in Males and Females".

Post-doctoral Fellows

Lorcan O'Tuama, M.D. (1985-1987) "Large neutral amino acid transport in the human brain using a probe system".

Ester Fride, Ph.D. (1986-1987) "Studies on the effect of 3-hydroxykynurenine on the GABAergic system".

Christian Woiciechowsky, M.D. (1991-1992) "Striatal dopamine infusion as a treatment for Parkinson's disease in a rodent model". Fellow, Humboldt-Universität zu Berlin, Charité Hospital, Dept. of Neurosurgery, Berlin. Germany.

Christiane May, M.D. (1992-1994) Infusion of dopamine receptor agonist as a potential treatment for Parkinson's disease in a rodent model". Fellow, Humboldt-Universität zu Berlin, Charité Hospital, Dept. of Neurosurgery, Berlin, Germany.

David Jett, Ph.D. (1992-1995) National Research Fellowship Award (F32 NS09573-01 BNS-2) entitled: "Cholinergic receptors and behavior in lead neurotoxicity" sponsor: Dr. TR Guilarte. Received post-doctoral fellow award for best paper from the Neurotoxicology Specialty Section, Society of Toxicology at the 35th annual meeting,

Anehiem, CA. March 1996. Current position: Program Director NIH CounterACT Research. NIH-NINDS, Bethesda, MD.

Michelle Nihei Shaw, Ph.D. (July 1997-June 2001). 1) Dr. Nihei-Shaw obtained a National Research Fellowship Award (F32 ES05869) entiled: "Phosphorylation of NMDAR subunits in Pb exposure" sponsor: Dr. TR Guilarte. 2) Received first place award ($500) in the post-doctoral research competition of the Neurotoxicology Specialty Section at the 38th Annual Meeting of the Society of Toxicology, New Orleans, LA. March 14-18, 1999. 3) Received second place award ($300) in the post-doctoral research competition of the Neurotoxicology Specialty Section at the 39th Annual Meeting of the Society of Toxicology, Philadelphia, PA. March 19-23, 2000.

Current position: Research Associate position at University of Kentucky.

Aaron Hilliard, Ph.D. (July 1998-July 1999) "Effect of Pb on protein kinase C isoforms" Current position: Assistant Director, Environmental Health and Disease Control, Duvall County Health Dept. Jacksonville, Florida.

Anthony Kuhlmann, Ph.D. (Sept 1998-June 1999) "Peripheral benzodiazepine receptor expression in microglia and astrocytes following neurotoxicant exposure". Present position: Scientist, Vector Phamaceuticals, Cambridge MA. Attended law school and practices with Brown, Rudnick, Berlack attorney firm in Boston, MA. (patent law).

Matthew Hardwick, Ph.D. (August 2000-March 2002) Presently doing post-doc with Dr. Donald Coffey, Johns Hopkins Medical Institutions. Current position: last know as Assistant Professor at Loyola College, Baltimore, MD.

Susan Lassig, Ph.D. (January 2001 – February 2001) Left Department because it did not match research interests.

Deanna Wormley, Ph.D. (August 2003-2004) Involved in studying the effects of lead exposure on pre-synaptic proteins. Also studying the effects of lead exposure on susceptibility to dioxin. Current position: Medical Scientist with Proctor & Gamble.

Marzena Karcz-Kubicha, Ph.D (September, 2004-April 2006) Current position: Research Director position for pharmaceutical firm in Poland.

Yuzhao Zhou, Ph.D. (May 2007 – 2008) involved in studying the effects of enrichment strategies on lead-induced cognitive deficits and underlying neurobiology. Relocated to Iowa due to her husband obtaining a faculty position.

Judy Choi, Ph.D. (September 2010 – 2011) studies the effects of TSPO ligands on glial cells.

Kirstie Stansfield, Ph.D. (January 2009 – 2012) involved in studying the effects of living experience and lead exposure on learning ability and epigenetics. She is also studying the effect of lead exposure on BDNF synthesis and release in hippocampal neuron cultures.

Kalynda K. Gonzalez, Ph.D. (November 2013 - present). She will examine the effects of chronic manganese exposure in basal ganglia GABAergic interneurons in the striatum and dopaminergic neurons in the substantia nigra of non-human primates utilizing stereological counting techniques.

Ingrid Reverte Soler, Ph.D. (October 1, 2014 – present). She will examine the effects of developmental lead exposure and stress on parvalbumin-positive GABAergic interneurons in the rat brain.

Undergraduate Students:

Summer 2006- Rocio Puentes, University of Miami, Florida

Summer 2007- Ron Saul, St. Mary's College of Maryland, St. Mary's City, Maryland.

Fall semester 2008 – Rory O'Rourke, Johns Hopkins University.

Spring semester 2009 - Rory O'Rourke, Johns Hopkins University.

Summer 2009 - Rory O'Rourke, Johns Hopkins University.

Fall 2009 - Rory O'Rourke, Johns Hopkins University.

Spring semester 2010 – Rory O'Rourke, Johns Hopkins University.

Christina Chung 2011 – Columbia University Post-graduate study program

Annerys Guzman 2015 – John Jay College of Criminal Justice, New York, NY

MPH Students –Mailman School of Public Health at Columbia University:

Kristen Ruby – Fall semester 2010 to Spring semester 2012 (MPH thesis advisor)

Tania Das Banerjee PhD – Fall semester 2010 Spring semester 2012

Fatima Alikhan – Fall semester 2010 to Spring Semester 2012 (MPH thesis advisor)

Nada Zaidan – Fall semester 2012 to present (MPH thesis advisor)

Sunny Jeong – Spring semester 2012 to present (MPH thesis advisor)

Vrinda Kalia – Spring semester 2013 to present (MPH thesis advisor)

Fellows – College of Physician & Surgeons

Meredith Wagner MD – Fellow, Anesthesiology – 2011, 2012

Faculty Mentoring at Columbia University:

Diane Berenger Re, PhD (aka Gourion-Arsiquaud) – Assistant Professor

Sara Guariglia, PhD – Associate Research Scientist

Kirstie Stansfield, PhD – Associate Research Scientist

National and International Awards to mentored students (during their stay at the Guilarte lab): NTSS-SOT=Neurotoxicology Specialty Section of the Society of Toxicology

1996

David A. Jett, Ph.D.	First Place, Post-Doctoral competition (NTSS-SOT)
Anthony C. Kuhlmann	Second Place, Pre-Doctoral competition (NTSS-SOT)

1997

Anthony C. Kuhlmann	Second Place, Pre-Doctoral competition (NTSS-SOT)

Anthony C. Kuhlmann	First Place, American College of Toxicology (NTSS-SOT)

1998

Anthony C. Kuhlmann	Second Place, Pre-Doctoral competition (NTSS-SOT)

1999

Michelle K. Nihei, Ph.D,	First Place, Post-Doctoral competition (NTSS-SOT)

2000

Michelle K. Nihei, Ph.D,	Second Place, Post-Doctoral competition (NTSS-SOT)
Angela S. Howard	Second Place, Pre-Doctoral competition (NTSS-SOT)

2001

Christopher D. Toscano	Third Place, Pre-Doctoral competition (NTSS-SOT)
Christopher D. Toscano	Second Place, Mid-Atlantic SOT meeting (Pre-doctoral)

2002

Christopher D. Toscano	First Place, Delta Omega Student competition
Christopher D. Toscano	First Place, Pre-Doctoral competition (NTSS-SOT)
Ming-Kai Chen	Second Place, Pre-Doctoral competition (NTSS-SOT)

2003

Ming-Kai Chen	Third Place, Delta Omega Student competition
Christopher D. Toscano	First Place, Mid-Atlantic SOT meeting (Pre-doctoral)
Ming-Kai Chen	Second Place, Mid-Atlantic SOT meeting (Pre-doctoral)

2004

Christopher D. Toscano	First Place, Mid-Atlantic SOT meeting (Pre-doctoral)

2005

Ming-Kai Chen	Society of Toxicology Travel Award
Christopher D. Toscano	First Place, National Capital Area SOT (Post-doctoral)

2006

Neal C. Burton	First Place, Pre-Doctoral competition (NTSS-SOT)
Neal C. Burton	Second Place, Bern Schwetz Travel Award-National Capital Area Chapter, SOT.
Neal C. Burton	Recipient of Morgan-James Award for Molecular Imaging, Dept. Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.

2007

Ming-Kai Chen	First Place, Pre-Doctoral competition (NTSS-SOT)
Ming-Kai Chen	BEST ABSTRACT, NTSS-SOT
Ming-Kai Chen	Travel Award-National Capital Area Chapter-SOT
April Neal	Third Place, Pre-Doctoral competition (NTSS-SOT)
April Neal	Travel Award-National Capital Area Chapter-SOT
Neal C. Burton	First Place, National Capital Area SOT (Pre-doctoral)

2008

April Neal	Graduate Student Travel Award-Society of Toxicology Annual Meeting.
Neal C. Burton	Graduate Student Travel Award-Society of Toxicology Annual Meeting.
April Neal	Second Place, Basic Science Category. Delta Omega (Alpha chapter) National Public Health Honorary Society. Johns Hopkins School of Public Health.
April Neal	Travel Award, 25th anniversary of the International Neurotoxicology Conference.
April Neal	Second Place, Pre-doctoral student competition, 25th Anniversary of the International Neurotoxicology Conference.

2009

April Neal	First Place, Pre-Doctoral competition (NTSS-SOT).
Judy Choi	Second Place, Pre-Doctoral competition (NTSS-SOT).

2010

Judy Choi	Third Place, Pre-Doctoral competition (NTSS-SOT).
Judy Choi	SOT student travel award

2011

Judy Choi	First Place, Post-Doctoral competition (NTSS-SOT)
Bagrat Abazyan (Johns Hopkins)	Competitive travel award (post-doc) 27th International Neurotoxicology Conference, RTP, North Carolina.

2012

Kirstie Stansfield, PhD	Second Place, Post-Doctoral competition (NTSS-SOT)

2014

Meredith K. Loth, MPH	First Place Award, TSPO Function Category, Mitochondrial Stress Response Pathways: Functions and Applications of TSPO International Meeting. Royal Veterinary College, London, England. December 17-17, 2014.

Preliminary Oral Exam Participation – Johns Hopkins School of Public Health

Department and/or Graduate Board Preliminary Doctoral Oral Exam

Rosemarie Booze	(NeuroToxicology - EHS)
Marc Kaufman	(NeuroToxicology; alternate - EHS)
Kwamena Baidoo	(Rad Health - EHS)
Joanne Sweeney	(NeuroToxicology - EHS)
Clifford Eastman	(NeuroToxicology - EHS)
Joann Lee	(NeuroToxicology - EHS)
Dean Wong	(Rad Health - EHS)
Joann Pilachowski	(Rad Health - EHS)
John Musachio	(Rad Health - EHS)
Julie Price	(Rad Health - EHS)
Judy Van Vuren	(Kellog Program - EHS, 1993)

David Schauer	(Rad Health - EHS, 1993)
Medhat Osman	(Rad Health - EHS, 1993)
Virginia Worthington	(International Health - Human Nutrition, 1993)
Chung-Long Chou	(Physiology - EHS, 1994)
Stacey Farmer	(Neurotoxicology - EHS, 1994)
Daryl Burkhardt	(Rad Health - EHS, 1994)
Pornchai Sithisarankul	(Occup. Med - EHS, 1994)
Kana Wu	(Epidemiology - 1995)
Laundette P. Knight	(Toxicology - EHS - 1995)
Virgil Cooper	(Rad Health -EHS -1995)
Hongshi He	(Tox. Sci. - EHS - 1995)
Anthony Kuhlmann	(Tox Sci. - EHS - 1995)
Daniela Stricklin	(Rad. Hlth - EHS - 1996)
Firas Mortada	(Rad. Hlth - EHS - 1996)
Mark Melanson	(Rad. Hlth - EHS - 1997)
Bruce Ruscio	(Env. Eng. - EHS - 1998)
Katarzyna Piech	(Human Nutrition (IH) - 1999; **Chair**)
Kuo-Shyan Lin	(Rad. Hlth – EHS – 2000)
Angela Howard	(Tox. Sci. – EHS – 2000)
Rosemary Schue	(Tox. Sci. – EHS – 2000)
Dustin Simenson	(Rad. Hlth – EHS – 2001)
Christopher Toscano	(Tox. Sci. – EHS – 2001)
Ming-Kai Chen	(Rad. Hlth – EHS – 2002)
Kenneth Brenneman	(Rad. Hlth – EHS – 2002)
Trish Turk	(Biostatistics –MS – 2003)
Lisa Davis-McGuire	(Human Nutrition (IH)-PhD-2004; **Chair**)
Benjamas Chuaychoo	(Physiology, EHS - 2003)
Bill Osburn	(Tox Sci, EHS – 2004)
Denise Johnson	(Tox Sci, EHS – 2004)
Jody B. Girouard	(Tox Sci EHS – 2004 [dept] & 2005 [grad. board])
Neal Burton	(Tox Sci EHS – 2005 -dept)
Neal Burton	(Tox Sci EHS – 2005 – graduate board)
Amornrat Naranuntarat	(Tox Sci EHS – 2005 – dept)
Julie D. Richman	(Env. Eng. EHS – 2006 –dept)
April Neal	(Toxicology, EHS – 2006 –graduate board)
Leah Scharf	(Toxicology, EHS – 2007 –graduate board)
Judy Choi	(Toxicology, EHS – 2007 –graduate board)
Talibah Metcalf	(MMI -2007 – graduate board; **Chair**)
Katie Provost-Javier	(MMI -2007 – graduate board; **Chair**)
Tina Marie Liu	(Physiology, EHS – 2008 dept. exam)
Talia Chalew	(Env Hlth Eng, EHS – 2010 dept. oral exam)

Final Oral Thesis Dissertation Defense – Johns Hopkins School of Public Health:

Michael Kadan - Biology, JHU Homewood (1987)
Clifford Eastman - Toxicological Sciences, EHS (1992)
Ernest Lyons - Toxicological Sciences, EHS (1993)
Joann Pilachowski - Rad Health, EHS (1994)
Stacey Farmer - Toxicological Sciences, EHS (1996)
Anthony Kuhlmann - Toxicological Sciences, EHS (1998)
Daniela Stricklin - Radiation Health, EHS (1998)

Rachael Stolzenberg-Solomon, Epidemiology (1998), **Committee Chair**
Kuo-Shyan Lin (Rad Health –2001 – Alternate)
Katarzyna Kordas (Dept. International Health (2003), **Committee Chair**
Christopher D. Toscano – Toxicological Sciences, EHS (2004)
Benjamas Chuaychoo – Physiology, EHS (2005-alternate)
Ming-Kai Chen – Radiation Health/Molecular Imaging, EHS (2007)
Neal C. Burton – Toxicology, EHS (2008)
April Neal – Toxicology, EHS (2009)
Judy Choi – Toxicology, EHS (2010)

Classroom Instruction (Johns Hopkins Bloomberg School of Public Health)

222.651	Advanced Nutrient Metabolism (Lecturer)
187.610	Public Health Toxicology (Neurotoxicology lecture)
187.661	Fundamentals of Neurotoxicology (director 92-98;co-dir 2003)
180.610	Principles of Environmental Health (lecturer, 2004-2005)

Classroom Instruction (Columbia University Mailman School of Public Health)

Neurotoxicology lecture in Fundamentals of Toxicology course
Neurotoxicology lecture in Environmental Determinants of Health II

ACADEMIC SERVICE

Division and/or Department-– Johns Hopkins School of Public Health

1987-1988	Reorganization Planning Committee - Department of Environmental Health Sciences, Johns Hopkins University School of Public Health
1988-1989	Member, Advisory Committee - Department of Environmental Health Sciences, Johns Hopkins University School of Public Health
1998-2010	Member, Faculty Affairs Committee, Department of Environmental Health Sciences, Johns Hopkins University School of Public Health
2008-2010	Chair, Faculty Affairs Committee, Department of Environmental Health Sciences, Johns Hopkins University School of Public Health
2003-2010	Member, Mentoring Committee, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.
2007-2010	Member, Educational Programs Committee, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.
2008-2010	Member, Research Program Committee, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.
2009-2010	Chair, PhD Program Review Sub-committee of the Educational Programs Committee, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health.

Department – Columbia University Mailman School of Public Health

2011-2015	Director, NIEHS Training Grant. Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University.

2011-2015 Deputy Director, NIEHS Center for Environmental Health in Northern Manhattan. Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University.

Columbia University School of Public Health

2010-2011 SPIRE task force

2012 Member, Search Committee for Chair of the department of Biostatistics, Columbia University Mailman School of Public Health.

2014-2015 Chair, Search Committee for Chair of Epidemiology, Mailman School of Public Health, Columbia University.

Columbia University

2012 Member, Search Committee for Dean of the Fu School of Engineering and Applied Sciences, Columbia University.

Johns Hopkins School of Public Health

1986-1989 Executive Committee Member at Large - Delta Omega National Public Health Honorary Society (Alpha Chapter)

1987-1989 Vice Chairman - Program Committee - Delta Omega (Alpha Chapter) National Public Health Honorary Society

1990-1993 Pilot Project Review Committee - Environmental Health Sciences Center, Department of Environmental Health Sciences. Johns Hopkins University, School of Hygiene and Public Health.

1991-1992 Ad Hoc Committee on Minority Scholarship.

1992 Membership Committee - Alpha Chapter, Delta Omega National Public Health Honorary Society

1996-2000 Member, Animal Care and Use Committee - The Johns Hopkins University School of Hygiene and Public Health

1993-1995 Member, Faculty Senate - The Johns Hopkins University School of Hygiene and Public Health

1996 Ad Hoc Member, Professional Conduct Committee - The Johns Hopkins University School of Hygiene and Public Health.

1999 Chair, Animal Care and Use Committee - The Johns Hopkins University School of Hygiene and Public Health.

1999-2002 Member, Committee on Appointments and Promotions - The Johns Hopkins University Bloomberg School of Public Health.

2003 Member, Review Committee for the Department of Mental Health, The Johns Hopkins University Bloomberg School of Public Health.

2004-2008 Affirmative Action Committee, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

2006 Search Committee to select the new director for the Center for Alternative to Animal Testing. Johns Hopkins Bloomberg School of Public Health.

2009-2010 Member, Committee on Appointments and Promotions - The Johns Hopkins University Bloomberg School of Public Health.

Johns Hopkins University

1985-1989 Radiation Control Committee

1985-1989 Radioactive Drug Research Committee

1985-1989 Clinical Radiation Research Committee
2004-2010 Radiation Control Committee
2004 Interview Committee to select Laboratory Animal Management Position for the Johns Hopkins Medical Institutions

Florida International University

2016-present Member, Cuba Council

PRESENTATIONS

Annual Scientific Meetings

Too numerous to outline. Essentially for every abstract in the publications section, there has been a scientific presentation.

Co-chair, Advance course in Neurotoxicology: "Biomarkers and Mechanisms of Oxidative Stress Induced Neurotoxicity" 39th Annual meeting of the Society of Toxicology, Philadelphia, PA. March, 2000.

Chair, Student competition Awards, Neurotoxicology Specialty Section, Society of Toxicology. 40th Annual Meeting of the Society of Toxicology, March, 2001.

Session Chair, General Neurotoxicology, Society of Toxicology. 42th Annual Meeting of the Society of Toxicology, March, 2003.

Co-chair of workshop on "Neuroimaging strategies for application to Neurotoxicology and Risk Asssessment. 44th Annual Meeting of the Society of Toxicology, New Orleans, Lousiana. March, 2005.

Symposium Co-chair: Determinants of manganese neurotoxicity: From worms to man. 45th Annual Meeting of the Society of Toxicology, San Diego, California. March, 2006.

Symposium Co-chair: Neurotoxicant-induced alterations in developmental and adult neurogenesis: structure-function studies and clinical relevance. 47th Annual Meeting of the Society of Toxicology, San Diego, California. March, 2008.

Invited Seminars & Presentations at National and International Meetings

1985 ***Quantitative Imaging of Neuroreceptors in the Living Human Brain*** - Johns Hopkins Medical Institutions, Baltimore, MD.
1985 ***Developmental Disabilities VII: Early Intervention - Issues of Treatment of "At Risk" and Developmentally Disabled Infants*** - Kennedy Institute, Baltimore, MD.
1987 ***Neurotransmission and Nutrition - Imaging of Living Brain Chemistry: Neuroreceptors*** - April 18-19, The Johns Hopkins Medical Institutions, Baltimore, MD.
1988 ***Diet and Brain Chemistry: Positron Emission Tomography and the Chemistry of Mental Illness*** - March 12-13, The Johns Hopkins Medical Institutions, Baltimore, MD.
1988 ***Nutrition and Brain Function*** - Summer Research Conference August 2-7, FASEB, Saxtons River, VT.

1989 ***Ontogeny of Neurotransmitter System and Vitamin B-6 Nutrition*** - Environmental Health Sciences Training Seminar Series - January 11, Johns Hopkins Univ. S.H.P.H.

1989 ***Neurotoxicity of tryptophan metabolites*** - April 10, Department of Developmental Pediatrics, Kennedy Institute for Handicapped Children, Baltimore, MD.

1991 ***Neonatal Vitamin B-6 Deficiency: Endogenous Toxins and Neurological Consequences.*** Department of International Health, Division of Human Nutrition. The Johns Hopkins University School of Hygiene and Public Health. Baltimore, MD

1991 ***Maternal Vitamin B-6 Deficiency: Neurochemical and Behavioral Consequences in the Developing Rat.*** Presented to NIH Nutrition Coordinating Committee, National Institutes of Health, Bethesda, MD

1991 ***Lead and NMDA receptor function. Limbic System and Hippocampus: Neurotoxicological and Neurobehavioral Aspects.*** International Mini-symposium. Medical Institute of Environmental Hygiene. Heinrich-Heine-Universitat Düsseldorf, Düsseldorf, Germany.

1991 ***Lead inhibits NMDA receptor ion channel function: A potential target for lead neurotoxicity***, USEPA, Washington, D.C.

1991 ***Vitamin B-6 Nutrition and CNS function.*** Invited lecture, United States Department of Agriculture, Human Nutrition Research Center on Aging at Tufts University. Boston, MA. November 18, 1991.

1992 ***Lead inhibits NMDA receptor activation: Developmental sensitivity and implications for learning deficits***. National Institutes of Environmental Health Sciences, Research Triangle, N.C. January 6, 1992.

1992 ***Study on the Neurotoxicity of Lead.*** Presented at the First NIEHS Center Pilot Project Symposium, April 29, 1992.

1992 ***NMDA receptor function in Lead Neurotoxicity*** - November 12-13, 1992. Invited lecture, Program in Neurotoxicology, Medical Institute of Environmental Hygiene. Heinrich-Heine-Universitat Düsseldorf, Düsseldorf, Germany.

1992 ***Vitamin B-6 and Cognitive Development: Recent research findings from human studies and animal models. A New Look at the B-vitamins*** (Invited lecture). International Life Sciences Institute. Washington D.C. December 2, 1992.

1993 ***Does the NMDA receptor play a role in lead-induced cognitive dysfunction?*** Invited Lecture, Department of Pharmacology & Experimental Therapeutics, University of Maryland School of Medicine, Baltimore, Maryland.

1993 ***Neurochemical Aspects of Hippocampal and Cortical Lead Neurotoxicity***. Invited lecture, 4th Meeting of the International Neurotoxicology Association, Helsingør, Denmark. June 6-11, 1993.

1994 ***Molecular effects of Lead on the developing brain***. Department of maternal and Child Health seminar series, Johns Hopkins University, October 5, 1994.

1995 ***Glutamatergic System and Developmental Lead Neurotoxicity*** (Invited Lecture) Environmental Neurotoxicology International Minisymposium. From Molecular Biology to Behavior. Medical Institute of Environmental Hygiene. Heinrich-Heine-Universitat Düsseldorf, Düsseldorf, Germany. September 11-15, 1995.

1995 ***Developmental lead neurotoxicity***. Co-Chair, Synaptogenesis section, Developmental Neurotoxicology Workshop. National Institute of Environmental Health Sciences, Research Triangle, North Carolina, September 7-9, 1995.

1996 ***NMDA receptor function in Developmental Lead Neurotoxicity***. Mechanisms of Brain Injury, 5th Annual Symposium, Oklahoma Center for Neuroscience, University of Oklahoma Health Sciences Center. Oklahoma City, OK. October 10, 1996.

1996 ***Peripheral Benzodiazepine Receptor: A Biomarker of Neurotoxicity***. Toxicology Program. University of Oklahoma Health Sciences Center, Oklahoma City, OK. October 9, 1996.

1996 ***Molecular mechanisms of Pb neurotoxicity: The role of the NMDA receptor***. Division of Environmental Health Sciences, Columbia University in the City of New York, New York, N.Y. December 3, 1996.

1997 ***Developmental lead exposure causes spatial learning deficits in the adult rat.*** 6th International Neurotoxicology Association Meeting. June 29-July 4, 1997. Szeged, Hungary.

1997 ***Lead (Pb), NMDA receptors and Cognitive Development.*** Dept. of Pharmacology and Toxicology. University of Arkansas Medical Sciences Center, Little Rock, AR. September 12, 1997.

1998 ***Peripheral Benzodiazepine Receptors mark the spot.*** Division of Physiology, Dept. Environmental Health Sciences, The Johns Hopkins University SHPH. January 15, 1998.

1998 ***Development and validation of an in vivo biomarker of neurotoxicity***. Neurotoxicology division, United States Environmental Protection Agency, Research Triangle Park, North Carolina, April 2, 1998.

1999 ***Cellular and sub-cellular localization of peripheral benzodiazepine receptors after brain injury***. Division of Toxicological Sciences, The Johns Hopkins University School of Hygiene, Baltimore, MD.

1999 ***Do molecular changes in NMDA receptors form the basis for Pb-induced deficits in LTP and learning?*** Dept. of Pharmacology and Experimental Therapeutics, University of Maryland School of Medicine. Baltimore, MD. September 23, 1999.

1999 ***Molecular basis of Pb-induced deficits in LTP and learning***. Neuroscience seminar series, Thomas Jefferson University School of Medicine, Philadelphia, PA. October 6, 1999.

1999 ***NMDA Receptors in the developing brain: A target for neurotoxicant changes in LTP and learning***. 17th International Neurotoxicology Conference, Children's Health and the Environment: Mechanisms and consequences of developmental neurotoxicology. Little Rock, Arkansas. October 17-20, 1999.

2000 ***Molecular Basis of Pb-induced impairment in LTP and Spatial Learning***. Department of Environmental Medicine. University of Rochester School of Medicine, Rochester, New York. (June 19, 2000).

2000 ***Imaging Brain Injury with PBR***. Brain Imaging Group, Merck Pharmaceutical, West Point, PA. August 7, 2000.

2000 ***Is Methamphetamine use a risk factor in Parkinson's disease?*** 18th International Neurotoxicology Conference. Children's Health and the Environment. September 23-26, 2000. Colorado Springs, Colorado.

2000 ***Molecular Effects of Low Level Lead Exposure***. 18th International Neurotoxicology Conference. Children's health and the environment.

September 23-26, 2000. Colorado Springs, Colorado. (Co-Presenter with Dr. Michelle K. Nihei).

2000 ***Molecular Imaging in Neurotoxicology: Molecular Basis of Environmental Disease***. DERT Science Retreat. National Institute of Environmental Health Sciences, Research Triangle Park, NC, December 4-5, 2000.

2001 ***Molecular mechanism of developmental Pb^{2+} neurotoxicity: Correlation with deficits in synaptic plasticity and spatial learning***. Joint symposium of the Neurobehavioral Teratology Society and the Research Society for Alcoholism. June 25, 2001. Montreal, Canada.

2001 ***Monoaminergic neuronal markers and glial responses in methamphetamine neurotoxicity: Implications for Parkinson's disease***. 8th International Neurotoxicology Meeting. Estoril, Portugal. June 17-22, 2001.

2001 ***Environmental enrichment reverses cognitive deficits induced by Pb^{2+}.*** Department of Physiology and Pharmacology, Wake Forest University School of Medicine, November 8, 2001.

2002 ***Brain Imaging in Toxicology: Lessons learned***. Presented at the "Small animal Neuroimaging workshop: Defining strategies to illuminate environmental-disease linkages. National Institutes of Environmental Health Sciences, April 17, 2002.

2002 ***Lead Neurotoxicity: Molecular Basis of Behavioral Dysfunction***. Featured Speaker, US Army Physiology/Neuroscience Course. Aberdeen Proving Ground, Maryland. May 21, 2002.

2002 ***Lead Neurotoxicity: Molecular Basis and Reversal of Behavioral Dysfunction by Environmental Enrichment***. Western Michigan University. NIH/NSF Program in Minority Students in Science. Kalamazoo, Michigan. June 14, 2002.

2002 ***Environmental Enrichment, Cognitive Function and molecular mechanism associated with lead-induced neurotoxicity***. Department of Neuroscience, University of New Mexico Medical School, Albuquerque, NM. Oct 10, 2002.

2002 ***The Aging Brain-Early Determinants of Neurotoxicant Susceptibility***. Differential Susceptibility of Older People to Environmental Hazards Workshop. National Academy of Sciences. Washington, D.C. December 5-6, 2002.

2003 ***Imaging of Brain Inflammation and Injury Using Peripheral Benzodiazepine Receptors***. Presented at *"Imaging and Targeting Receptors: Two decades of Progress"*, CME program sponsored by the Dept of Radiology and Radiological Sciences and Nuclear Medicine, Johns Hopkins Medical Institutions, Baltimore, MD (March 14-15, 2003).

2003 ***Environmental Enrichment and Lead Poisoning in Children***. Presented to the Partnership of the Coalition to End Childhood Lead Poisoning, Baltimore, MD. January 15, 2003.

2003 ***In vivo imaging of dopamine transporters following acute manganese exposure in non-human primates***. International Society of Neurochemistry satellite symposium, "Metal-Induced Neurodegeneration: From global exposure to individual susceptibility". Xi'an, China. August 10-12, 2003. Canceled because of SARS epidemic in China.

2003 ***Lead poisoning research update***-EnviroHealth Connections Summer Institute. Partnership of Maryland Public Television and Johns Hopkins Bloomberg School of Public Health- July 22, 2003.

2003 ***Lead Neurotoxicity: From Behavior to Molecules***. *Distinguished Neuroscientists Seminar Series*, Institute of Neurobiology and Department of Biology, University of Puerto Rico, San Juan Puerto Rico, October 8-13, 2003.

2003 ***Environmental Enrichment Studies in Rodents: Functional Outcomes***. Presented as part of the "Enhancing Humane Science Course", Center for Alternative to Animal Testing, Johns Hopkins University Bloomberg School of Public Health, October 2003.

2004 ***Current Approaches in Neurotoxicology: From Molecular Imaging to Behavior***. Division of Comparative Medicine, Johns Hopkins Medical Institutions, January 30, 2004.

2004 ***Manganese: An essential nutrient with neurotoxic potential***. Division of Human Nutrition, Dept. International Health, Johns Hopkins Bloomberg School of Public Health, February 26, 2004.

2004 ***Environmental Enrichment in Rodents***. Presented at the Scientist Center for Animal Welfare workshop. Johns Hopkins Medical Institutions, Baltimore. MD. March 5, 2004.

2004 ***Impairment of LTP and spatial learning are associated with disruption of glutamatergic synaptic function by environmental-type exposure to lead***. Invited speaker at "Environmental Agents and Ion Channel Function" symposium. American Society for Pharmacology & Experimental Therapeutics, Experimental Biology 2004 meeting, Washington D.C. April 21, 2004.

2004 ***Effects of lead neurotoxicity and environmental enrichment on synaptic plasticity***. Dept. of Neuroscience seminar series, University of Medicine and Dentistry of New Jersey School of Medicine, May 5, 2004.

2004 ***Biomarker of Safety/Toxicity for CNS effects***. Invited speaker at IBC Life Sciences 3rd International Preclinical Development Forum. Predictive and Translational Medicine: From discovery to the Clinic, October 5, 2004, San Diego, CA.

2004 ***Environmental Enrichment: An approach to reverse lead-induced neurotoxicity***. Invited speaker at Annual Northeast Chapter of the Society of Toxicology, October 8, 2004 in Portland, Maine.

2005 ***Imaging chemical-induced neurodegeneration/inflammation in the brain: Can it work in the lungs***? Division of Physiology, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, April 6, 2005.

2005 ***Peripheral Benzodiazepine Receptor imaging in glial cells: Marker of brain injury & inflammation with therapeutic potential***. Neuroimmunology Seminar Series, Department of Neurology, Johns Hopkins School of Medicine, Baltimore, MD. May 17, 2005.

2005 ***Neurochemical changes in the non-human primate brain following Manganese exposure***. 22nd International Neurotoxicology Conference, Research Triangle Park, NC. Sept 11-15, 2005.

2006 ***Neuroimaging and pathological findings in the non-human primate brain by chronic manganese exposure***. Invited presentation, Annual Meeting of the American Society for Neurochemistry, Portland, OR. March 14, 2006.

2006 ***In vivo imaging of nigrostriatal dopamine system dysfunction in the manganese-exposed non-human primate***. The Parkinson's Institute, Sunnyvale, CA. May 30, 2006.

2006 ***Imaging inflammation in the central nervous***. Research Advisory Committee on Gulf War Veteran's Illness, Washington D.C., August 14-15, 2006.

2006 ***Molecular imaging and neuropathological effects of chronic manganese exposure in non-human primates***. Center in Molecular Toxicology, Vanderbilt University School of Medicine. Nashville, Tennessee. September 8, 2006.

2006 ***Chronic manganese exposure in non-human primates and risk of neurological disease***. Division of Toxicology, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. September 26, 2006.

2006 ***Imaging the peripheral benzodiazepine receptor response in brain and lung injury-inflammation***. Radiation Oncology, Johns Hopkins Hospital, Baltimore, MD. December 13, 2006.

2007 ***Lead Neurotoxicity: Experiences from behavior to molecules***. Children's Environmental Health Research: Past, Present and Future Workshop. NIEHS. Research Triangle Park, NC. January 22, 2007.

2007 ***Dopaminergic and glial cell markers in a chronic MPTP model of Parkinson's disease: pathophysiological implications***. 4th International Meeting Steroids and Nervous System. February 17-21, 2007. Torino, Italy.

2007 ***In vivo imaging studies in a non-human primate model of manganese neurotoxicity***. US Army Center for Health Promotion & Preventive Medicine, Directorate of Toxicology, Aberdeen, Maryland. April 4, 2007.

2007 Environmental enrichment, cognitive function and lead neurotoxicity. Integrated Toxicology and Environmental Health Program, Duke University, April 13, 2007.

2007 ***Lead: what it can do to your children's brain***. Maryland Department of the Environment, Baltimore, MD. April 18, 2007.

2007 ***Lead Neurotoxicity: Molecular Effects & Therapeutic Strategies***. Department of Environmental Health Sciences, Harvard School of Public Health, Boston, MA. September 19, 2007.

2008 ***Environmental Enrichment reverses learning and molecular deficits induced by lead neurotoxicity***. St. Mary's College-Neuroscience Program. St. Mary's City, Maryland. March 6, 2008.

2008 ***Manganese neurotoxicity: A behavioral and neuroimaging perspective***. Invited presentation. Toxicology and Risk Assessment Conference, Cincinnati, OH. April 15, 2008.

2008 ***Disruption of developing glutamatergic synapses by lead***. Presented at the Wierzba IV meeging: Glutamate and the tripartite synapse-Functional and metabolic relations in norm and pathology. Polish National Academy of Sciences- Wierzba, Poland. August 23-27, 2008.

2008 ***Neurodegenerative changes in manganese-exposed non-human primates***. Invited presentation at the 25th International Neurotoxicology Conference, Rochester, NY. October 12-16, 2008.

2008 ***Neuroimaging strategies in Neurotoxicology***. Invited presentation at the America College of Toxicology Annual Meeting, Tucson, Arizona. November 9, 2008.

2008 ***Lead neurotoxicity: A behavioral, molecular and therapeutic perspective***. Featured speaker at the 14th International Conference on Heavy Metals in the Environment. GIS International Convention Center,

National Taiwan University, Taipei, Taiwan. November 16-23, 2008.

2009 ***Nanoparticles in the brain: Toxic endpoints***. Invited presentation at the 2009 Johns Hopkins NanoBio symposium. Nanoscience for Neuroscience and Neurosurgery. Baltimore, Maryland. May 18, 2009.

2009 ***APLP1 signaling, Alzheimer's pathology and α-synuclein aggregation in the frontal cortex of manganese-exposed non-human primates***. Invited presentation. 12th meeting of the International Neurotoxicology Association. Gene-Environment Interactions in Neurotoxicology. Ma'ale Hachamisha, Israel. June 7-12, 2009.

2009 ***Translocator protein 18 kDa/Peripheral Benzodiazepine Receptor expression in the brain of animals with various forms of liver disease.*** Centro de Investigacion Principe Felipe. Valencia, Spain. June 13, 2009.

2009 ***Gordon Research Conference: Excitatory synapses & Brain function***. Les Diablerets, SWITZERLAND. September 6-11, 2009. [Did not attend]

2010 ***Neurotoxicity of Manganese in non-human primates***. Invited presentation at the International Symposium on Disturbances of Cerebral Function by Food and Water Contaminants. Valencia, Spain. March 23-25, 2010.

2010 ***Lead Neurotoxicity: From Behavior to Molecules***. External Advisory Meeting of the NIEHS Center for Environmental Health in Northern Manhattan. Columbia University, May 24, 2010.

2010 ***Heavy Metals in the Brain: Behavioral, Cellular and Molecular Effects***. Department of Cell Biology and Anatomy. New York Medical College. Valhalla, New York, June 2, 2010.

2010 ***Manganese in the Brain: Heavy Metal Music in Symphony Hall***. Grand Rounds, Division of Child & Adolescent Psychiatry at Columbia University/New York State Psychiatric Institute. October 13, 2010.

2010 ***A review of the Science of Drug Abuse and Addiction***. Conference at the Catholic University of Santo Domingo, Dominican Republic. Invited by the National Council of Drugs of the Dominican Republic. October 28, 2010.

2010 ***Manganese Neurotoxicity: Behavioral, Neuroimaging and Neuropathological Perspectives***. Division of Translational Imaging - Department of Psychiatry. Columbia University Medical Center, New York***, NY. November 12, 2010.***

2010 ***Molecular Imaging: The New Frontier in Neurotoxicology***. 12th RCMI International Symposium on Health Disparities, Neurologic and Neuropsychiatric Disorders. Nashville, TN. December 7, 2010.

2011 ***Developmental Lead Exposure & Cognitive Function: Does Context Matters?*** 26th Annual Mortimer D. Sackler Winter Conference in *Developmental Psychobiology*. Herradura, Costa Rica. January 5-8, 2011.

2011 ***Behavioral, Cellular, & Molecular Effects of Early Life Lead Exposure***. Department of Anesthesiology & Pediatrics. College of Physicians and Surgeons, Columbia University. March 11, 2011.

2011 ***Lead Neurotoxicity: Cognition, Neurogenesis & the Benefit of an Enriched Environment.*** Neuroscience Series Seminar, Department of Psychology and the Gene Research Center. Hunter College. New York, NY. March 16, 2011.

2011 ***Dysregulation of in vivo dopamine release in the striatum of manganese-exposed non-human primates measured by Positron***

Emission Tomography. 13th International Neurotoxicology Association Meeting. Neurotoxicology and Neurodegeneration: Local Effect and Global Impact. June 5-10. Xi'An, China.

2011 ***TSPO: A Biomarker of Brain Injury & Inflammation-Preclinical & Clinical Studies.*** Invited speaker, Gordon Research Conference. Neuroinflammation: Cellular & Molecular Mechanisms. August 7-12, 2011.

2011 ***Dysregulation of NMDA receptor-dependent BDNF-TrkB signaling in hippocampal neurons by Pb^{2+}.*** Department of Environmental Health, Harvard University School of Public Health. Boston, MA. August 18, 2011.

2011 ***TSPO: A biomarker of brain injury for screening chemicals with neurotoxic potential.*** National Toxicology Program/NIEHS, Research Triangle Park, North Carolina. October 31, 2011.

2011 ***Early Life Lead Exposure and Schizophrenia: Neurobiological connections and testable hypotheses.*** 27th International Neurotoxicology Conferences, Research Triangle Park, North Carolina, October 30-November 2, 2011. [I also served as section Chair for section VII-A entitled: Schizophrenia]

2012 ***The Public Health Legacy of Lead in the Environment: A Historical, Social and Biological Perspective.*** Columbia University Mailman School of Public Health Grand Rounds with Dr. David Rosner. January 18, 2012.

2012 ***Synaptic and Cellular Mechanisms of Lead Neurotoxicity.*** Distinguished Scholars in Toxicology Lecture Series, Center for Integrated Toxicology and Neuroscience Program at Michigan State University. East Lansing, Michigan. March 29, 2012.

2012 ***TSPO: Preclinical studies in animal models of neurodegenerative disease.*** Johns Hopkins University *In vivo* Cellular and Molecular Imaging Center. Johns Hopkins Medical Institutions, Baltimore, MD. April 11, 2012.

2012 ***Translational studies of TSPO as a biomarker of neurotoxicity.*** Anesthesia & Neurodevelopment in Children Symposium. Columbia University Medical Center, New York, NY. April 21, 2012.

2012 ***New Perspectives in Manganese Neurotoxicity: Cognitive, neuroimaging and neuropathological findings in non-human primates.*** Toxicology Scholars Colloquium Series - Pharmacology and Toxicology Program. Center for Biochemical Toxicology at the University of Connecticut, Storrs, Connecticut. May 4, 2012.

2012 ***TSPO: A Biomarker of Traumatic Brain Injury***. Boston University, Dr. Lee Goldstein Pathology and Traumatic Brain Injury Group, July 27, 2012.

2012 ***Toxins & Genes: A Gene-Environment Interaction in Schizophrenia***. Department of Psychiatry & Behavioral Sciences, Johns Hopkins School of Medicine and Hospital. Baltimore, MD. November 20, 2012.

2013 ***Manganese Neurotoxicity in Non-Human Primates: Cognitive, Neuroimaging and Neuropathological Findings.*** Department of Neurology, Vanderbilt University Medical Center. January 30, 2013.

2013: ***Toxins & Genes: An Animal Model of Gene-Environment Interaction in Schizophrenia.*** Department of Epidemiology, Columbia University – Mailman School of Public Health, New York, NY. February 19, 2013.

2013 ***Toxins & Genes: A New Perspective of Gene-Environment Interaction in Schizophrenia.*** Division of Developmental Neuroscience, New York State Psychiatric Institute, New York, NY. March 7, 2013.

2013 ***TSPO in Human Neurotoxicity Evaluation.*** European Commission Joint Research Center. Workshop on using mechanistic information in

developing the concept of adverse outcome pathways (AOP) relevant to human neurotoxicity evaluation. Ispra, Italy. March 21-22, 2013.

2013 ***The use of non-human primates in Neurotoxicology Research.*** In vivo and in vitro neurotoxicological approaches to study pathways of neurodegeneration. 14th International Neurotoxicology Association Meeting: Neurodevelopmental Basis of Health and Disease. Egmond aan Zee, The Netherlands. June 9-13, 2013.

2013* ***Neuroimaging studies of manganese neurotoxicity in non-human primates.*** Preclinical imaging as an approach to enhance translational regulatory science. XIII International Congress of Toxicology. Seoul, Korea. June 30-July 4, 2013. (*did not attend)

2013 ***Toxins & Genes: A New Perspective in Gene-Environment Interactions in Schizophrenia.*** Duke University Integrative Toxicology and Environmental Health Program. September 20, 2013.

2013 ***Molecular Imaging: The New Frontier in Neurotoxicology.*** Environmental & Occupational Health Sciences Institute. Rutgers University & University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School. October 17, 2013.

2013 ***Neurological consequences of chronic manganese exposure: A behavioral, neuroimaging and neuropathological perspective.*** Department of Pediatrics and Preventive Medicine, Mount Sinai School of Medicine, New York, NY. November 18, 2013.

2013 ***TSPO: A Molecular Biomarker of Brain Injury & Repair***. Department of Developmental Neurobiology. Division of Brain Tumor Research. St. Jude's Children Research Hospital. Memphis, TN. December 4, 2013.

2014 ***Lead in our neighborhoods: the real killer amongst us*****.** John Jay College for Criminal Justice, March 2014. New York, NY.

2014 ***Manganese-induced Parkinsonism: Dopaminergic neuron dysfunction or degeneration?*** Movement Disorder Division, Department of Neurology. Columbia University Medical Center. April 22, 2014.

2014 ***Impact of manganese exposure on the brain: A behavioral, neuroimaging and molecular perspective***. Division of Environmental Health, Keck School of Medicine. University of Southern California. May 29, 2014.

2014 ***TSPO: A Biomarker Injury & Repair in the Brain and other Organ Systems***. Inflammation Group. National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina, September 10, 2014.

2014 ***Cuddling and the Epigenome: Early Mothering and Chronic Disease Risk***. Dean's Seminar on Chronic Disease Series. Mailman School of Public Health, Columbia University. Drs. Michael Meany and Tomás Guilarte. September 24, 2014.

2014 ***Early Life lead exposure recapitulates the selective loss of parvalbumin-positive GABAergic interneurons and subcortical dopamine system hyperactivity present in schizophrenia*****.** 24th Neuropharmacology Conference-GABAergic Signaling in Health and Disease. Pentagon City, Virginia. November 14, 2014.

2014 ***A Putative interaction of TSPO with NADPH Oxidase in primary microglia*****.** Mitochondria Stress Response Pathways: Functions and Applications of the 18 kDa protein TSPO. Royal Veterinary College, London, United Kingdom. December 16-17, 2014.

2014 ***Translocator Protein 18 kDa (TSPO) in Sandhoff mice: An early***

***preclinical biomarker of neurodegeneration in Sandhoff disease*.** Mitochondria Stress Response Pathways: Functions and Applications of the 18 kDa protein TSPO. Royal Veterinary College, London, United Kingdom. December 16-17, 2014.

2015 ***TSPO in Brain: From Biomarker to Function.*** Department of Biochemistry and Molecular Biophysics, Columbia University. February 13, 2015.

2015 ***Air Pollution in Our Brains: Molecular Imaging Approaches to Understand Effects***. Section on Air Pollution and Our Mind: Health Effects Institute 2015 Annual Conference, Philadelphia, PA. May 3-5, 2015.

2015 ***Manganese-induced parkinsonism does not involve degeneration of nigrostriatal dopaminergic neurons: Evidence from genetic mutations and environmental exposure in humans and non-human primates*** International Neurotoxicology Association Meeting (INA-15). June 27-July 1, 2015 in Montreal, Canada.

2015 ***Early life lead exposure and Schizophrenia: Selective loss of parvalbumin-positive GABAergic interneurons and hyperactive subcortical dopamine system activity.*** International Neurotoxicology Association Meeting (INA-15). June 27-July 1, 2015 in Montreal, Canada.

2015 ***Lead Neurotoxicity: From Behavior to Molecular Mechanisms and Novel Therapeutic Approaches.*** Grand Rounds-Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health. October 9, 2015.

2015 ***Lead Neurotoxicity: From Behavior to Molecules***. 9th Congress of Toxicology in Developing Countries/XIX Congreso Brasileiro de Toxicologia. November 7-10, Natal, Brazil.

2016 ***Early Life Lead Exposure: From Behavior to Molecules & More***. MHC Grand Rounds, FIU-Stempel College, Florida International University. March 24, 2016.

2016 ***TSPO: A Biomarker of Neuroinflammation looking for a function*.** Department of Biochemistry & Molecular Biology, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland. April 25th, 2016.

2016 ***Molecular & Cellular Mechanisms of Manganese-Induced Parkinsonism***: Dr. Herbert and Nicole Wertheim Leadership in Healthcare and Medicine Lectureship Series. Florida International University College of Medicine. May 18th, 2016.

RESEARCH GRANT PARTICIPATION

ACTIVE GRANTS

1) 5 R01 ES06189-21A (P.I.: Guilarte, TR) 08/01/15 – 06/30/20 1.8 cal. mos.
NIH/NIEHS $2,978,963
NMDA Receptor Function in Lead Neurotoxicity: The major goal of this project is to investigate the role of the NMDA receptor complex in lead-induced neuropathology, gamma-oscillations and behavioral deficits relevant to schizophrenia.

2) 5 R01 ES10975-10 (P.I.: Guilarte, TR) 05/01/09-4/30/15 0.6 cal. mos.
NIH/NIEHS $3,423,385

Molecular and Behavioral Effects of Low Level Manganese Exposure

The goal of this project is to determine the behavioral and brain anatomical and biochemical changes using Positron Emission Tomography (PET), Magnetic Resonance Imaging (MRI) and Magnetic Resonance Spectroscopy (MRS) associated with chronic low-level manganese exposure in non-human primates.
[under a one-year-no-cost extension; competitive renewal was submitted July 2015]

3) 5R01 ES07062-16 (P.I.: Guilarte, TR) 09/01/13-05/31/18 1.8 cal. mos.
NIH/NIES $1,500,000

Peripheral Benzodiazepine Receptor: A Biomarker of Neurotoxicity

The major goal of this project is to validate the use of the peripheral benzodiazepine receptor as a quantitative biomarker of chemical-induced neurotoxicity using *in vitro* and *in vivo* Positron Emission Tomography (PET) techniques.

4) 1R01 ES020465-04 (P.I.: Guilarte, T.R.) 4/1/12-3/31/17 1.8 cal. mos.
NIH/NIEHS $3,184,210
Presynaptic Mechanism of Lead Neurotoxicity.
The goal of this proposal is to examine a novel mechanism by which lead exposure alters neurotransmitter release and presynaptic plasticity via modification of NMDA receptor-dependent BDNF-TrkB trans-synaptic signaling. [This proposal received an outstanding score of 18 with a 2% ranking]

Department of Defense project number W81XWH-14-1-0375 (Gurion-Arsequoud, Diane P.I.; Guilarte TR co-Inv) 9-30-14 to 09-29-16 $375,736 (year 1) 0.6 cal. Months
Preclinical testing of a TSPO ligand for the treatment of ALS
The goal of this project is to test the therapeutic potential of a TSPO ligand in an animal model of ALS.

PREVIOUSLY FUNDED GRANTS

5 P30 ES009089-16 (Santella, R., P.I.) 4/1/13-3/31/18 1.2 cal. mos.
NIH/NIEHS (Guilarte, T.R., Deputy Dir.) $1,116,598/year
Center for Environmental Health in Northern Manhattan
Deputy Director, NIEHS Center with research programs on cancer and pulmonary and neurodegenerative disease. Co-director of Integrative Health Sciences Core for processing blood and urine samples and assaying for PAH exposure.

5 T32 ES007322-13 (P.I.:Guilarte, T.R.) 7/1/13-6/30/2018 1.2 cal. mos.
NIH/NIEHS $899,839 In-kind
Interdisciplinary Training in Environmental Health.

The goal of this grant is to train the next generation of doctoral students as leaders in the field of environmental health sciences.

5 P42 ES016454 (P.I.: Wright, RO) 04/01/10-03/3/14 1.2 cal. mos.
NIH/NIEHS $75,976
Harvard University (Guilarte, TR-Project 3, Subcontract)
Superfund chemical mixtures, biomarkers and neurodevelopment
The purpose of this superfund application is to understand is assess the relationship of metal exposure and biomarkers of exposure on the effects of metal exposure on neurodevelopmental processes.

VICTER SUPPLEMENT
3 R01 ES06189-17S1 (P.I.: Guilarte, TR) 09/20/10 – 05/31/13 1.2 cal. mos.
NIH/NIEHS $250,342

NMDA Receptor Function in Lead Neurotoxicity - Supplement

The major goal of this project is to examine gene-environment interaction in schizophrenia and allied mental disorders. We are examining the combined effect of an environmental factor, early life lead exposure, in a transgenic DISC-1 (Disrupted in Schizophrenia 1) mouse model. We are examining how this gene-environment interaction alters behavioral endpoints and neurobiology relevant to schizophrenia and allied mental disorders.

NASA (Sutton, J.,P.I.) 5/1/11-4/30/12 0.12 cal. mos.
Baylor University (Guilarte, T.: Subcontract) $18,368
Detection and Prevention of Neurobehavioral Vulnerability to Space Radiation.
The goal of this study is to assess whether TSPO can be used as a biomarker of radiation-induced brain injury.

"A new approach to gene-environment interaction in schizophrenia and associated mental disorders" Pilot project funded by the Center in Urban Environmental Health, Johns Hopkins Bloomberg School of Public Health. September 2009-September 2010. PI: Guilarte TR and Pletnikov M.

Institute for Nanobiotechnology at Johns Hopkins University. July 2008 to June 2009. Pilot Project Funding….Total Cost $25,000 (Guilarte TR and Howard K, PIs).

US Army Contract. TSPO levels in RDX treated animals. December 2007 – July 2008…..Total cost $10,000 (Guilarte TR, PI)

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: Michael J. Fox Foundation for Parkinson's Research
PROJECT TITLE: Peripheral Benzodiazepine Receptor: An *in vivo* Biomarker of Parkinson's disease
(b) PERCENT EFFORT: 10%
(c) ENTIRE PERIOD OF SUPPORT: 12/01/02 – 11/30/05 (Total cost: $463,000)
(d) BRIEF DESCRIPTION OF PROJECT: To determine in a non-human primate model of Parkinsonism whether the peripheral benzodiazepine receptor is an early biomarker of disease.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIH R21ES11717

PROJECT TITLE: Role of Genomic Imprinting in Developmental Neurotoxicity

PRINCIPAL INVESTIGATOR: E. Silbergeld; TR Guilarte is Co-PI

(b) PERCENT EFFORT: 5%
(c) ENTIRE PERIOD OF SUPPORT: 04/01/02 – 03/31/04 ($316,205)
(d) ANNUAL DIRECT COSTS: $100,000
(e) BRIEF DESCRIPTION OF PROJECT: To investigate the role of genomic imprinting as a mechanism of developmental neurotoxicity associated with preconception exposure to paternal germ cells.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIEHS Center Pilot Project PROJECT TITLE: Modulation of PBR and Neurosteroid synthesis by PCBs. PRINCIPAL INVESTIGATOR: TR Guilarte

(b) PERCENT EFFORT:
(c) ENTIRE PERIOD OF SUPPORT: $15,000 (April 2000 – March 2001) BRIEF DESCRIPTION OF THE PROJECT: The goal of this pilot project is to obtain preliminary data on the effects of polychlorinated biphenyls (PCB's) on neurosteroid synthesis and regulation of the peripheral benzodiazepine receptor.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NCI CA 32845-40 PROJECT TITLE: Nuclear Instrumentation and chemistry in medicine PRINCIPAL INVESTIGATOR: H.N. Wagner, Jr. (Co-PI: TR Guilarte)
(b) PERCENT EFFORT: 5%
(c) ENTIRE PERIOD OF SUPPORT: 3/97-3/02
(d) ANNUAL DIRECT COSTS: $554,994

(d) BRIEF DESCRIPTION OF PROJECT: Development of radiochemical and instrumentation techniques for single photon and positron emitting tracers.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIH EHS 03819 PROJECT TITLE: Environmental Health Sciences Center Grant PRINCIPAL INVESTIGATOR: Dr. Morton Corn
(b) PERCENT EFFORT: 10%
(c) ENTIRE PERIOD OF SUPPORT: 9/1/91-8/31/96
(e) BRIEF DESCRIPTION OF PROJECT: The goal of the Johns Hopkins Environmental Health Sciences Center is to integrate current disciplinary environmental health research for multilevel study of the basic mechanisms of the health effects of environmental agents in defined human populations. Dr. Guilarte is the director of the Neurotoxicology Program.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIEHS Pilot Project PROJECT TITLE: PK11195 binding to peripheral-type benzodiazepine receptors in brain: A potential biomarker for neurotoxin-induced damage. PRINCIPAL INVESTIGATOR: T.R. Guilarte & J.R. Lever
(b) PERCENT EFFORT: N/A

(c) ENTIRE PERIOD OF SUPPORT: 4/94-3/95
(d) ANNUAL DIRECT COSTS: $6,700
(e) BRIEF DESCRIPTION OF PROJECT: To develop a sensitive and general biomarker for CNS damage. We propose to use the *in vivo* measurement of 125I-PK11195 in brain as a biomarker for neurotoxin-induced neuronal damage.

Project Title: Maternal Vitamin B-6 Deficiency: Effects on Offspring Development (NIH RO1 HD-20939) PRINCIPAL INVESTIGATOR: TR Guilarte (50%)

ENTIRE PERIOD OF SUPPORT: 7/1/89 - 3/31/95. The goal of this project is to determine the neurochemical changes associated with the neurological and behavioral deficits present in vitamin B-6 deficient developing animals.

USDA/SE grant no. 81-CRCR-1-0667, PI: T.R. Guilarte; title: Radiometric Microbiologic Assay of B-vitamins in Food: A New Approach; total award: $210,000 7/01/81 - 6/30/84.

USDA/SE grant no. 81-CRCR-1-0667, PI: T.R. Guilarte; title: Radiometric-microbiological Assay of B-vitamins in Human Blood and Food; total award: $75,000 7/1/84 - 6/30/85.

US Army grant no. DAMD 17-83-C-3182, PI: W. Ehrlich; title: Mechanism by which Sublethal Concentrations of Cholinesterase Inhibitor Agents Compromise Vital Functions in Awake Dogs; Award: 11/84-10/85

Environmental Health Sciences Center Grant Pilot Project, title: Studies on the Neurotoxicity of 3-Hydroxykynurenine, PI: TR Guilarte. $7,980, 10/87 - 8/88

USDA/SE grant no. 85-CRCR-1-1827, PI: T.R. Guilarte; title: Maternal Vitamin B-6 Nutrition: Effects on the Dopaminergic System of Progeny; total award: $80,000 9/1/85 - 8/31/88.

NIH assignment no. 1 ROI HD20939-01, PI: T.R. Guilarte; title: Maternal B6 Deficiency: Effects on Offspring Development; total direct costs: $160,210 7/1/86 - 6/30/89.

NIH contract no. NO1-HD-6-2921, PROJECT TITLE: Development of Methods of Analysis of Human Colostrum and Milk; PRINCIPAL INVESTIGATOR: TR Guilarte, PERCENT EFFORT: 30% ENTIRE PERIOD OF SUPPORT: 2/1/86-6/30/90; BRIEF DESCRIPTION OF THE PROJECT: Development of radiometric-microbiological assays of B-vitamins in human milk.

NIH NIEHS, ES 03819, PROJECT TITLE: Environmental Health Sciences Center Grant, PRINCIPAL INVESTIGATOR: GM Green, PERCENT EFFORT: 10% - TR Guilarte ENTIRE PERIOD OF SUPPORT: 9/1/85-8/31/91; BRIEF DESCRIPTION: The goal of the Johns Hopkins Environmental Health Sciences Center is to integrate current disciplinary environmental health research for multilevel study of the basic mechanisms of the health effects of environmental agents in defined human populations.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIH 1 P01 HD23540, PROJECT TITLE: Rett Syndrome: Genetics, Pathogenesis and Search for Marker;
(b) PRINCIPAL INVESTIGATOR: Hugo W. Moser, M.D.

(b) PERCENT EFFORT: T.R. Guilarte 10% effort;
(c) ENTIRE PERIOD OF SUPPORT: 10-1/87-11/30/90;
(d) ANNUAL DIRECT COSTS: $532,967; (12-1-88-11/30/89)

(e) BRIEF DESCRIPTION OF THE PROJECT: Measurement of biogenic amines and vitamins in CSF of Rett syndrome and control patients.

Environmental Health Sciences Center Grant Pilot Project, title: Study on the neurotoxicity of 3-hydroxykynurenine. PI: TR Guilarte, $7980, 10/87-8/88.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: R. W. Johnson Pharmaceutical Res. Inst. PROJECT TITLE: Effects of enoxacin and ciprofloxacin on the GABA-mediated chloride-36 uptake in rat brain synaptoneurosomes. PRINCIPAL INVESTIGATOR: TR Guilarte, Ph.D.
(b) PERCENT EFFORT: 5%
(c) ENTIRE PERIOD OF SUPPORT: 1/1/91 - 12/31/91
(e) BRIEF DESCRIPTION OF THE PROJECT: Study the effects of antibacterial quinolones on the GABAa receptor using the chloride-36 influx assay.

(a) SOURCE OF SUPPORT & IDENTIFYING NUMBER: NIH NINCDS, NS15080-11, PROJECT TITLE: Program for Study of Neuroreceptor Binding in Man, PRINCIPAL INVESTIGATOR: HN Wagner Jr.
(b) PERCENT EFFORT: 5% effort
(c) ENTIRE PERIOD OF SUPPORT: 12/1/89-11/30/94.
(d) ANNUAL DIRECT COSTS: Year 11 - $2,065,888. (12/1/89-11/30/90).
(e) BRIEF DESCRIPTION OF THE PROJECT: Studies of dopamine and opiate receptors in neuropsychiatric disorders.

Recipient of a Faculty Development Fund Award entitled: The Role of the NMDA receptor in lead-induced cognitive dysfunction ($28,160) Johns Hopkins University- 4/1/92-3/31/93. To purchase equipment for behavioral studies of lead neurotoxicity.

Research Interest:

My laboratory is interested in understanding the role of environmental pollutants on neurological/neurodegenerative diseases and mental health. Members of my laboratory are trained in environmental health sciences with a specialization in neurotoxicology and the neurosciences. We currently work in four different funded projects related to environmental metals neurotoxicology, a biomarker of brain injury and inflammation, and are beginning studies on the role of air pollution on the brain.

One major area of research is to elucidate the central nervous system (CNS) effects produced by exposure to low levels of lead (Pb) during development, and the role of the NMDA subtype of ionotropic glutamate receptors. We study the molecular mechanisms by which Pb produces impairments in cognitive function and those processes that are NMDA receptor-dependent. We use molecular, cellular and behavioral approaches to address specific questions. We are also interested in assessing intervention strategies that can

ameliorate or modify the effects of developmental Pb exposure on cognitive function. In this regard, we have recently shown that environmental enrichment reverses the cognitive and molecular deficits induced by Pb. This project has evolved to examine the potential role of early life Pb exposure and mental disease, specifically schizophrenia. We are also examining the impact of early life Pb exposure on sensitization to drug use, for example cocaine, and how the social environment can impact these interactions.

A second major focus of our research is to validate and apply an *in vivo* biomarker of brain injury that is applicable to assess the effects of environmental chemicals on the CNS as well as to assess the onset and progression of neurodegenerative diseases. We are interested in understanding and measuring the response of a biomarker protein, the peripheral benzodiazepine receptor (PBR), recently named Translocator Protein 18 kDa (TSPO). TSPO is located exclusively in glial cells, not in neurons, making it a biomarker of gliosis and indirectly of brain injury. We have demonstrated that following neurotoxicant-exposure this protein is selectively increased in brain regions that are damaged. Our goal is to use this biomarker in human studies since the PBR response to brain injury can be monitored using non-invasive imaging techniques such as Positron Emission Tomography. More recently our work has focus on the function(s) of TSPO in glial cells and we have identified a novel interaction of TSPO with NADPH Oxidase in microglia.

A third major focus of our research is to understand the mechanism(s) of CNS effects resulting from chronic manganese exposure. Exposure to high levels of manganese results in a Parkinsonian-like syndrome but the CNS effects of chronic low-level exposures is not known. In this regard, we are also interested in understanding the interaction between environmental and genetic factors in the etiology of Parkinson's disease. More recent works is focused on the potential role of chronic manganese exposure on Alzheimer's disease risk and pathogenesis.

Our work is multidisciplinary in that we use methods ranging from behavior, to neuronal systems, cellular and molecular approaches including molecular imaging. We use different molecular imaging platform from Positron Emission Tomography to Magnetic Resonance Imaging to interrogate effects of environmental pollutants on the living brain in experimental animals and in humans.

Our ultimate goal is for our basic science studies to be translational and utilize the scientific findings to devise strategies to mitigate environmentally-induced neurological disease in the public health context and to change policy for the benefit of the public at large.

Key Words: Neurotoxicology - glutamate receptors - heavy metals - biomarkers – brain injury and inflammation - neurodegenerative disease – learning and memory – neuroprotection – molecular imaging -