

CURRICULUM VITAE

EUNSOOK LEE, RPh, Ph.D.

NAME Eunsook Yu Lee

CITIZENSHIP USA

FOREIGN LANGUAGE Korean

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CURRENT EMPLOYMENT

Associate Professor: Department of Physiology, Meharry Medical College, Nashville, TN

Adjunct Associate Professor: Department of Pharmacology, Vanderbilt University, Nashville, TN

EDUCATION

1994-1999 College of Pharmacy, Florida A&M University, Tallahassee, FL
Ph.D. degree in Pharmacology/Toxicology, December 1999

1981-1985 College of Pharmacy, Hyo-Sung University, Daegu, Korea
B.S. degree in Pharmacy

ACADEMIC APPOINTMENTS

2013-present Associate Professor, Department of Physiology, Meharry Medical College, Nashville, TN

2013-present Adjunct Associate Professor, Department of Pharmacology, Vanderbilt University Medical Center, Nashville, TN

2010-2013 Assistant Professor, Department of Physiology, Meharry Medical College, Nashville, TN

2010-2013 Adjunct Assistant Professor, Division of Pediatric Toxicology, Vanderbilt University Medical Center, Nashville, TN

2007-2010 Assistant Professor, Department of Neurology, Meharry Medical College, Nashville, TN

2007-2010 Visiting Assistant Professor, Department of Pediatrics, Vanderbilt University Medical Center, Nashville, TN

2005-2007 Research Assistant Professor, Division of Neurobiology/Neurotoxicology, Meharry Medical College, Nashville, TN

2001-2005 Adjunct Professor of Organic Chemistry, Department of Chemistry, Florida A&M University

2000-2005 Research Associate, Neuroscience Laboratory, College of Pharmacy, Florida A&M University, Tallahassee, Florida

1995-1999 Research Assistant, College of Pharmacy, Florida A&M University, Tallahassee, Florida

1981-1985 Research Assistant, Hyo-Sung University, Daegu, Korea

PROFESSIONAL EXPERIENCES AS A PHARMACIST IN KOREA

1988-1992 Self-owned Pharmacist in YUHAN Pharmacy, Seoul, Korea

1986-1988 Self-owned Pharmacist in SOMANG Pharmacy, Daegu, Korea

1985-1986 Staff Pharmacist in PATIMA Hospital, Daegu, Korea

INTERNSHIP FOR A PHARMACIST IN USA

2003-2004 Pharmacy Internship in Florida State Hospital, Chatahoochee, Florida

PROFESSIONAL CREDENTIAL (A REGISTERED PHARMACIST IN USA)

License Pharmacist (Florida, #PS38968)

PROFESSIONAL MEMBERSHIPS

1996-Present Member, Experimental Biology

1996-Present Member, Society for Neuroscience

2007-Present Member, Society of Toxicology

PROFESSIONAL AND SERVICE ACTIVITIES

NIH Study section reviewer

2012 NAL (Neurotoxicology and Alcoholism Study Section)

2015 ONES award study section

Journal review service

2005-Present Reviewer, Journal of Neural Transmission

2007-Present Reviewer, Cell Biology and Toxicology

2009-Present Reviewer, Neurosciences

2011-Present Reviewer, Neurobiology of disease

2012-Present Reviewer, Toxicological Sciences

2013-Present Reviewer, Molecular and Cellular Endocrinology

2013-Present Reviewer, Neurotoxicity Research

2013-Present Reviewer, Neurochemistry International

2014-Present Reviewer, Archives of Toxicology

2014-Present Reviewer, Acta Neuropathologica
2014-Present Reviewer, Cell Death & Differentiation

Regional Chapter for Society of Neuroscience service

2013-Present Secretary and Treasurer of Middle Tennessee Chapter of Society for Neuroscience (MTNCSfN)

Service in other institute (Tennessee State University)

2013-Present Research Day Judge at Tennessee state University

Institutional service

2005-Present Member, Radioactivity Safety Committee
2008-2010 Interviewer, Medical School Admissions
2010-Present Departmental APT Committee Member
2012-Present Research Day Judge

HONORS AND AWARDS

1984 Outstanding student scholarship, Hyo-Sung University
1997-98 Outstanding graduate student scholarship, Florida A&M University
2010 Travel award. Glia in health and diseases. Cold Spring Harbor Laboratory.

MAJOR RESEARCH INTERESTS: (2-3 Sentences)

My current research projects can be summarized into three areas: (1) neurotoxicity mechanisms of manganese (Mn) via dysregulation of astrocytic glutamate transporters, (2) neuroprotection mechanisms of estrogenic compounds via enhancing the expression and function of glutamate transporters, and (3) adult neurogenesis associated with Mn-induced neurotoxicity. To study these research projects, I use genetically modified mice, primary cultures, and human astrocytes as well as human stem cells.

TEACHING:

Academic Year

2012-Present

Course and Lectures

Dental Neuroscience (Meharry Medical College)

A Co-course coordinator

Teaching the motor system, upper motor neurons, cranial nerves and eye movements.

2012-Present

Medical Neuroscience (Meharry Medical College)

Teaching the Motor system, Basal Ganglia and Cerebellum, eye movements, brainstem and Cranial Nerves

2003-2005

Pharmacological Techniques (Imaging confocal microscope, for Ph.D. students), Florida A&M Univ.

2003-2005

Pharmacology (Cardiovascular system, for Pharmacy students), Florida A&M Univ.

- 2002-2005 **Organic Chemistry** Lecture (a sole instructor for whole semester, for nursing students), Florida A&M Univ.
- 2001-2005 Organic Chemistry Lab (a sole instructor for whole semester, for Chemistry and Biology students), Florida A&M Univ.

CONTINUING EDUCATION

1. Neuroscience school of advanced studies focusing on glia (July, 2014, Sudtiro, Italy)
2. Grant writing workshop (April, 2004, Jacksonville, FL)
3. Embryonic stem cell workshop (June, 2004, NIH, MD)
4. Stereology workshop (October, 2004, San Diego, CA)

MENTORING

Post-doc:

- 2012-Present, Pratap Karki, Ph.D./ Post-doc / Department of Physiology, Meharry Medical College
- 2011-2012, Ning Wang, Ph.D. / Post-doc / Department of Physiology, Meharry Medical College
- 2007-2011, Marta Sydork, Ph.D. / Post-doc / Department of Pediatrics, Vanderbilt University
- 2011, Sergiy Chornny, Ph.D./ Department of Physiology, Meharry Medical College

Graduate Students:

- 2015-Present, Sudan Loganathan, B.S./Graduate Student/Department of Neuroscience and Pharmacology
- 2014-Present, Aparecio Peggins, B.S./ Graduate Student/Department of Physiology
- 2013-Present, James Johnson Jr., B.S./ Graduate Student/Department of Physiology
- 2012-Present, Keisha Smith, B.S./ Graduate Student/ Department of Physiology
- 2012-2014, Ashley North, B.S./ Graduate Student/ Department of Physiology
- 2012-2014, Margaret DeWitt, B.S./ Graduate Student/Neuroscience, Vanderbilt University
- 2012, Spring, Jessica Sutton, B.S./ Graduate Student/ Department of Physiology
- 2011, Spring, Shelli James, B.S. / Graduate Student / Department of Physiology, Meharry Medical College
- 2006-2007 Jennifer King, B.S. /Graduate Student / Department of Neurobiology, Meharry Medical College
- 2006-2007 Veronica Mackey, B.S. / Graduate Student, Department of Neurobiology, Meharry Medical College

Medical students:

- 2013, Joseph Choi, B.S. / Medical Student/ Meharry Medical College
- 2012, Abdelbassat Zerguine, B.S. / Medical Student/ Meharry Medical College
- 2011, Brice Tene Defo, B.S. / Medical Student/ Meharry Medical College
- 2006, Anthony Simm, B.S. Medical Student/ Meharry Medical College

INVITED SEMINARS AND PRESENTATIONS

2015, Department of Pharmacology and Toxicology, Morehouse school of medicine, Atlanta, GA
2014, RCMI meeting, Washington DC, USA
2014, Neuroscience School of Advanced Study, Sudtiro, Italy
2013, Vanderbilt University, MTNCSfN meeting, Nashville, TN
2013, Daegu Catholic University, Daegu, Korea
2013, Florida A&M University, Tallahassee, FL
2013, Department of Microbiology, Meharry Medical College, Nashville, TN
2012, Tennessee Physiology Society meeting, Nashville, TN
2010, International Drug Discovery Science and Technology, Beijing, China

PEER-REVIEWED PUBLICATIONS

1. **Eun-Sook Y. Lee** and Clivel G. Charlton (2001). One-methyl-4-phenylpyridinium (MPP⁺) increases S-adenosyl-L-methionine dependent phospholipid methylation: a possible mechanism of action for MPP⁺. *Pharmacol Biochem Behav.* 70, 105-114.
2. Wang-Quin Zhao, Lekan Latinwo, Xiao-Xiao Liu, **Eun-Sook Lee**, Nazareus Lamango and Clivel G. Charlton (2002). L-dopa upregulates the expression and activities of methionine adenosyl transferase and catechol-O-methyltransferase. *Experimental Neurology* 171, 127-138.
3. Zhao WQ, Williams Z, Shepherd KR, Reuben JS, **Lee ES**, Darling-Reed S, Lamango N, Soliman KF, Charlton CG. (2002). S-adenosyl-methionine-induced apoptosis in PC12 cells. *J Neurosci Res.* 69:519-29.
4. **Eun-Sook Y. Lee**, Hongtao Chen, Kennie R. Shepherd, Nazarius S. Lamango, Karam. F. A. Soliman and Clivel G. Charlton. (2004). The inhibitory role of methylation on the binding characteristics of dopamine receptors and transporter. *Neuroscience Research.* 48, 335-344. →**Corresponding Author**
5. **Eun-Sook Y. Lee**, Hongtao Chen, Kennie R. Shepherd, Nazarius S. Lamango, Karam F. A. Soliman and Clivel G. Charlton (2004). Inhibitory effects of lysophosphatidylcholine on the dopaminergic system. *Neurochemical Research* 29(7):1333-42. →**Corresponding Author**
6. **Eun-Sook Y. Lee**, Karam F. A. Soliman and Clivel G. Charlton (2005). Lysophosphatidylcholine decreases locomotor activities and dopamine turnover rates in rats. *Neurotoxicology.* 26, 27-38. →**Corresponding Author**
7. Nahed S. Elsis, Selina Darling- Reed, **Eunsook Y. Lee**, Ebenezer T. Oriaku, Karam F. A. Soliman (2005). Ibuprofen and apigenin induce apoptosis and cell cycle arrest in activated microglia. *Neuroscience Letters.* 375, 91-6.
8. **Eun-Sook Y. Lee**, Hongtao Chen, Karam F.A. Soliman and Clivel G. Charlton (2005). Effects of homocysteine on the dopaminergic system and behavior in rodents. *NeuroToxicology.* 26, 361-371. →**Corresponding Author**
9. **Eun-Sook Y. Lee**, Hongtao Chen, Clivel G. Charlton and Karam F.A. Soliman (2005). The role of phospholipid methylation in 1-methyl-4-phenyl-pyridinium ion (MPP⁺)-induced neurotoxicity in PC12 cells. *NeuroToxicology* 26, 945-957. →**Corresponding Author**
10. **Eun-Sook Y. Lee**, Hongtao Chen and Karam F.A. Soliman (2006). Phencyclidine suppresses neurite outgrowth and inhibits N-methyl-D-aspartate receptor functions and synthesis of biogenic amines in PC12 cells. *Neurotoxicology.* 27(4):558-66. →**Corresponding Author**
11. K. Raviie Shepherd, **Eun-Sook Y. Lee**, Larry Schmued, Syed F. Ali, Yun Jiao, Nazarius S. Lamango, Karam F.A. Soliman, and Clivel G. Charlton (2006). The potentiating effects of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) on paraquat-induced neurochemical and behavioral changes in mice. *Pharmacol Biochem Behav.* 83(3):349-59.
12. **Eun-Sook Lee**, Hongtao Chen, Jennifer King, Clivel Charlton (2008). The role of 3-O-methyl-dopa in the side effects of L-dopa. *Neurochem Res.* 33(3):401-11. →**Corresponding Author**

13. **Eun-Sook Lee**, Hongtao Chen, Chadwick Hardman, Anthony Simm, and Clivel Charlton (2008). Excessive S-Adenosyl-L-Methionine-Dependent Methylation Increases Levels of Methanol, Formaldehyde and Formic Acid in Rat Brain Striatal Homogenates. *Life Sci.* 83(25-26):821-7. →**Corresponding Author**
14. Yun Ding, Aimin Qiao, Ziqing Wang, J. Shawn Goodwin, **Eun-Sook Lee**, Michelle L. Block, Matthew Allsbrook, Michael McDonald, and Guo-Huang Fan (2008). Retinoic Acid Attenuates beta-Amyloid Deposition and Rescues Memory Deficits in an Alzheimer Disease Transgenic Mouse Model. *J Neurosci.* 28(45):11622-34).
15. **Eun-Sook Lee**, Marta Sidoryk, Haiyan Jiang, Zhaobao Yin and Michael Aschner (2009). Estrogen and tamoxifen reverse manganese-induced glutamate transporter impairment in astrocytes. *J Neurochem.* 110(2):530-44. →**Corresponding Author**
16. **Eun-Sook Lee**, Zhaobao Yin, Haiyan Jiang, Dejan Milatovic and Michael Aschner (2009). Estrogen and tamoxifen protect against Mn-induced toxicity in rat cortical primary cultures of neurons and astrocytes. *Toxicol Sci.* 110(1):156-67. →**Corresponding Author**
17. Marta Sidoryk, **Eun-Sook Lee**, Jan Albrecht, Michael Aschner (2009). Altered expression of glutamine transporters and modification of glutamine uptake and release in cultured astrocytes by manganese. *J Neurochem.* 110(3):822-30.
18. Yin Z, Jiang H, **Lee ES**, Ni M, Erikson KM, Milatovic D, Bowman AB, Aschner M (2010). Ferroportin is a manganese-responsive protein that decreases manganese cytotoxicity and accumulation. *J Neurochem.* 112(5):1190-8.
19. Marta Sidoryk, **Eun-Sook Lee**, Ni M and Michael Aschner (2010). Manganese-induced downregulation of astroglial glutamine transporter SNAT3 involves ubiquitin-mediated proteolytic system. *Glia* 58(16):1905-12.
20. Le TM, Jiang H, Cunningham GR, Magarik JA, Barge WS, Cato MC, Farina M, Rocha JB, Milatovic D, **Lee E**, Aschner M, Summar ML (2011). γ -Glutamylcysteine Ameliorates Oxidative Injury in Neurons and Astrocytes In Vitro and Increases Brain Glutathione In Vivo. *Neurotoxicology.* 32(5):518-25.
21. Sidoryk-Węgrzynowicz M, Węgrzynowicz M, **Lee E**, Bowman A, Aschner M (2011). Role of Astrocytes in Brain Function and Disease. *Toxicol Pathol.* 39(1):115-23.
22. Yin Z, **Lee E**, Ni M, Jiang H, Milatovic D, Rongzhu L, Farina M, Rocha JB, Aschner M (2011). Methylmercury-induced alterations in astrocyte functions are attenuated by ebselen. *Neurotoxicology.* 32(3):291-299.
23. Sidoryk-Węgrzynowicz M, **Lee E**, Mingwei N, Aschner M (2011). Disruption of astrocytic glutamine turnover by manganese is mediated by the protein kinase C pathway. *Glia.* 59(11):1732-43.
24. **Eunsook Lee**, Zhaobao Yin, Marta Sidoryk-Węgrzynowicz, Haiyan Jiang and Michael Aschner (2012). 15d-PGJ2 modulates manganese-induced activation of NF- κ B, Nrf2 and PI3K pathways in astrocytes. *Free Radical Biology & Medicine.* 52(6):1067-74.
25. **Eunsook Lee**, Marta Sidoryk-Węgrzynowicz, Zhaobao Yin, Anton Webb, Deok-Soo Son and Michael Aschner (2012). Transforming Growth Factor- α Mediates Estrogen-Induced Upregulation of Glutamate Transporter GLT-1 in Rat Primary Astrocytes. *Glia.* 60(7):1024-36. →**Corresponding Author**
26. **Eunsook Lee**, Sidoryk-Węgrzynowicz M, Wang N, Webb A, Son DS, Lee K, Aschner M (2012). GPR30 regulates glutamate transporter GLT-1 expression in rat primary astrocytes. *J Biol Chem.* 287(32):26817-28. →**Corresponding Author**
27. Sidoryk-Węgrzynowicz M, **Lee E**, Aschner M (2012). Mechanism of Mn(2+) - mediated dysregulation of glutamine -glutamate cycle: focus on glutamate turnover. *J Neurochem.* 122(4):856-67.
28. Son DS, Kabir SM, Dong YL, **Lee E**, Adunyah SE (2012). Inhibitory Effect of Tumor Suppressor p53 on Proinflammatory Chemokine Expression in Ovarian Cancer Cells by Reducing Proteasomal Degradation of I κ B. *PLoS One.* 7(12):e51116.

29. **Eunsook Lee**, Sidoryk-Wegrzynowicz M, Farina M, Rocha JB, Aschner M (2013). Estrogen Attenuates Manganese-Induced Glutamate Transporter Impairment in Rat Primary Astrocytes. *Neurotox Res.* 23(2):124-30. →**Corresponding Author**
30. Karki P, **Eunsook Lee**, Aschner M (2013). Manganese neurotoxicity: a focus on glutamate transporters. *Ann Occup Environ Med.* 25(1):4. PMID: 24472696.
31. Karki P, Webb A, Smith K, Lee K, Son DS, Aschner M and **Eunsook Lee** (2013). CREB and NF- κ B mediate the tamoxifen-induced upregulation of GLT-1 in rat astrocytes. *J Biol Chem.* 288:28975-86. PMID: 23955341. →**Corresponding Author**
32. Son DS, Kabir SM, Dong Y, **Eunsook Lee**, Adunyah SE (2013). Characteristics of chemokine signatures elicited by EGF and TNF in ovarian cancer cells. *J Inflamm.* 10(1):25. PMID: 23800251.
33. Yuanlin Dong, Syder, Kabir, **Eunsook Lee**, Deok-Soo Son (2013). CXCR2-driven Ovarian Cancer Progression Involves Upregulation of Proinflammatory Chemokines by Potentiating NF- κ B Activation via EGFR-transactivated Akt Signaling. *PLoS One.* 8(12):e83789. PMID: 24376747
34. Karki P, Smith K, Johnson Jr. J, **Eunsook Lee** (2014). Astrocyte-derived growth factors and estrogen neuroprotection. *Mol and Cell Endocrinol.* S0303-7207(14)00014-8. PMID: 24447465. →**Corresponding Author**
35. Karki P, Webb A, Smith K, Johnson Jr. J, Lee K, Son DS, Aschner M and **Eunsook Lee** (2014). Yin Yang 1 is a Repressor of EAAT2 and it Mediates Manganese-induced Decrease of EAAT2 Expression in Astrocytes. *Mol Cell Biol.* 34(7):1280-9. PMID: 24469401. →**Corresponding Author**
36. Karki P, Webb A, Zerguine A, Choi J, Son DS and **Eunsook Lee** (2014). Mechanism of Raloxifene-induced Upregulation of Glutamate Transporter GLT-1 in Rat Primary Astrocytes. *Glia* 62(8):1270-83. PMID: 24782323. →**Corresponding Author**
37. Syeda M Kabir, **Eunsook Lee**, Deok-Soo Son (2014). Chemokine network during adipogenesis in 3T3-L1 cells: Differential response between growth and proinflammatory factor in preadipocytes vs. adipocytes. *Adipocyte.* 3(2):97-106. PMID: 24719782
38. Exil V, Ping L, Yu Y, Chakraborty S, Caito SW, Wells KS, Karki P, **Lee E**, Aschner M (2014). Activation of MAPK and FoxO by Manganese (Mn) in Rat Neonatal Primary Astrocyte Cultures. *PLoS One.* 9(5):e94753. PMID: 24787138.
39. Karki P, Smith K, Johnson Jr. J, Aschner M and **Eunsook Lee** (2014). Role of transcription factor yin yang 1 in manganese-induced reduction of astrocytic glutamate transporters: Putative mechanism for manganese-induced neurotoxicity. *Neurochem Int.* S0197-0186(14)00185-5. PMID: 25128239. →**Corresponding Author**
40. Karki P, Smith K, Johnson Jr. J, Aschner M and **Eunsook Lee** (2015). Genetic dys-regulation of astrocytic glutamate transporter EAAT2 and its implications in neurological disorders and manganese toxicity. *Neurochem Res.* 40(2):380-8. PMID: 25064045. →**Corresponding Author**
41. Chen P, Mukhopadhyay S, Bowman A, Karki P, Lee E and Aschner M (2015). Manganese Homeostasis in the Nervous System. *J Neurochem.* 134(4):601-10.
42. Karki P, Kim C, Smith K, Son D, Aschner M and **Lee E** (2015). Transcriptional regulation of the astrocytic excitatory amino acid transporter 1 (EAAT1) via NF- κ B and Yin Yang 1 (YY1). *J Biol Chem.* In press. →**Corresponding Author**

Book Chapter

1. Karki P, Smith K, Aschner M and **Eunsook Lee** (2015), Mechanism of manganese-induced impairment of astrocytic glutamate transporters. Book Chapter. Issues in Toxicology, Manganese in Health and Disease. Edited by Lucio G Costa and Michael Aschner. →**Corresponding Author**

Abstracts and presentations

1. Eun-Sook Y. Lee and C. G. Charlton. Phospholipid Methylation in Parkinson's Disease and as a Mechanism of Action for MPP⁺. Society for Neuroscience. November 1998.
2. Eun-Sook Y. Lee and C. G. Charlton. The Modulatory Role of Lysophosphatidylcholine on Dopamine Neurotransmission: Role of Methylation in Parkinson's Disease. FASEB. April 1999.
3. Clivel G. Charlton and Eun-Sook Y. Lee. One-methyl-4-phenyltetrahydropyridinium (MPP⁺) enhances the methylation of phospholipids: A possible new mechanism for the action of MPP⁺. Neurodegenerative Disorders: Common Molecular Mechanisms. Tobago, West Indies, April 8-14, 2000.
4. Eun-Sook Y. Lee, N. Lamango, W. Zhao, K. Shepherd and C. G. Charlton. MPP⁺-enhanced methylation of phospholipid may play a role in MPP⁺-induced parkinsonism. Society for Neuroscience. November 2000.
5. Lilly Huynh, Eun-Sook Y. Lee, Hongtao Chen, Kennie Shepherd, Wang-Quin Zhao, Nazareus Lamango and Clivel G. Charlton. Effects of metabolites of excess methylation, 3-O-methyldopa, homocysteine, and adenosine on the locomotor activities and catecholamine levels. MBRS symposium. October 2001.
6. Eun-Sook Y. Lee, Hongtao Chen, Lilly Huynh, Kennie Shepherd, Wang-Quin Zhao, Nazareus Lamango and Clivel G. Charlton. S-adenosyl-L-methionine dependent excessive methylation may alter and impair dopaminergic functions. Society for Neuroscience. November 2001.
7. Eun-Sook Y. Lee, Lilly Huynh, Hongtao Chen, and C. Charlton. Effects of the metabolites of S-adenosylmethionine, 3-O-methyldopa, homocysteine, and adenosine, on the locomotor activities and catecholamine levels. Society for Neuroscience. November 2002.
8. Eun-Sook Y. Lee, Hongtao Chen, C. Charlton and K. F. A. Soliman. Homocysteine decreases dopamine turnover rate in striatal region in rodents. Society for Neuroscience. November 2003.
9. Eun-Sook Y. Lee, H. Chen, Z. Williams, M. Viera, P. Kalu, Y. Soliman, C.G. Charlton, K. F. Soliman. The Role of Phospholipid Methylation in 1-Methyl-4-Phenyl-Pyridinium ion (MPP⁺)-induced Neurotoxicity in PC12 cells. Society for Neuroscience. October 2004.
10. Eun-Sook Lee, Jennifer King, Hongtao Chen and Clivel Charlton. The Role of 3-O-Methyldopa in the Side Effects of L-dopa. Society for Neuroscience. October 2006.
11. Eunsook Lee, Haiyan Jiang, Zhaobao Yin and Michael Aschner. Mechanisms of estrogen-mediated neuroprotection in manganese-induced neurotoxicity. Society of Toxicology. March 2008.
12. Eunsook. Y. Lee, H. Jiang, Z. Yin, and M. Aschner. Estrogen-neuroprotection in manganese-induced neurotoxicity. SNRP, August 2008
13. Marta Sydoryk, Eunsook Lee, Haiyan Jiang, Jan Albrecht, Michael Aschner. Altered expression of glutamine transporters and modification of glutamine uptake and release in cultured astrocytes by manganese. Society of Toxicology. March 2009.
14. Eunsook Lee, Zhaobao Yin, Haiyan Jiang, Dejan Milatovic and Michael Aschner. Estrogen and tamoxifen protect against Mn-induced toxicity in rat cortical primary cultures of neurons and astrocytes. Society for Neuroscience. October 2009.
15. Haiyan Jiang, Z. Yin, E. Lee, J. Rocha, J. Cai and M. Aschner. Methylmercury-induced oxidative stress in cultured astrocytes leads to NRF2 activation and nuclear translocation. Society of Toxicology. March 2009.
16. Eunsook Lee, Haiyan Jiang, Zhaobao Yin, Marta Sidoryk and Michael Aschner. Estrogen attenuates manganese-induced glutamate transporter impairment in rat brain astroglial cultures. Society of Toxicology. March 2009.
17. Z. Yin, D. Milatovic, H. Jiang, E. Lee and M. Aschner. Antioxidants influence methylmercury-induced oxidative reaction primary cultured astrocytes. Society of Toxicology. March 2009.

18. Yin Z, Jiang H, Lee E, Ni M, Milatovic D, Bowman AB and Aschner M. Ferroportin is a manganese-responsive protein that decreases manganese cytotoxicity and accumulation. Society of Toxicology. March 2010.
19. Eunsook Lee, Marta Sidoryk, Haiyan Jiang, Zhaobao Yin and Michael Aschner. Estrogen and tamoxifen attenuate manganese-induced glutamate transporter GLT-1 impairment in rat primary astrocytes. Society of Toxicology. March 2010.
20. Eunsook Lee, Marta Sidoryk, Haiyan Jiang, Zhaobao Yin and Michael Aschner. Estrogen reverses manganese-induced impairment of astrocytic glutamate transporters by the enhancement of TGF- α signaling via the GPR30 pathway. *Glia in health and diseases*. Cold Spring Harbor Laboratory. July 2010.
21. Eun-Sook Lee, Zhaobao Yin, Marta Sydork, and Michael Aschner. Novel approach to treat neurodegenerative diseases. *An Invited Speaker*. International Drug Discovery Sciences and Technology The annual Congress of 2010. October.
22. Eun-Sook Lee, Zhaobao Yin, Marta Sydork, and Michael Aschner. G1, a GPR30 agonist, enhances astrocytic glutamate transporter function. Society for Neuroscience. November 2010.
23. B.Griffin, N. Wang, A. Webb, D. Son, M. Sidoryk, M. Aschner, E. Lee. GPR30 regulates GLT-1 and GLAST expression in primary rat astrocytes. Society for Neuroscience. November 2011.
24. A. North, A. Webb, K. Smith, P. Karki, D. Son, M. Aschner, E. Lee. Role of CREB pathway in tamoxifen-enhanced GLT-1 expression via TGF- α . Society for Neuroscience. October 2012.
25. A. Webb, A. North, P. Karki, D. Son, M. Aschner, E. Lee. Raloxifene enhances astrocytic glutamate transporter GLT-1 expression in rat primary astrocytes. Society for Neuroscience. October 2012.
26. P. Karki, A. Webb, K. Smith, J. Johnson Jr, A. North, D. Son, M. Aschner, E. Lee. Yin yang 1 is a critical mediator in manganese-induced down-regulation of glutamate transporter 1 (glt-1). Society for Neuroscience. October 2013.
27. P. Karki, K. Smith, J. Johnson Jr, D. Son, M. Aschner, E. Lee. Transcriptional regulation of human transforming growth factor- α by NF- κ B, Sp1 and YY1. Society for Neuroscience. November 2014.

RESEARCH SUPPORTS

Research Grants:

Ongoing Research Support

R01 R01 ES024756 Lee (PI) \$1,606,469 08/15/2015 -06/30/2020

Title: Mechanism of manganese-induced impairment of astrocytic glutamate transporters.

Goal: to elucidate the mechanism of manganese (Mn)-induced neurotoxicity via dysregulation of glutamate transporters at the transcriptional level.

SC1 SC1 GM089630 Lee (PI) \$1,450,492 06/10/2010 – 05/31/2016

Title: Estrogen-neuroprotection due to astroglial Glu transporters occurs via TGF- α / β 1.

Goal: to elucidate the neuroprotective mechanisms of 17 β -estradiol (E2) and selective estrogen receptor modulators (SERMs) and develop strategies for the discovery of suitable SERMs that can be used as neuroprotectants without risks of cancer for women or of feminizing effects for men.

Role: PI

VICTR Pilot grant VR9584 \$10,000 06/01/2014-11/30/2015

Title: Mechanism of Tamoxifen-Induced Suppression of Malignant Brain Tumor Growth by Inhibiting PKC-Dependent Translocation of FGF/FGFR1 to the Nucleus

Goal: to identify the molecular target for the Treatment of Malignant Brain Tumors.

Role: PI

Completed Research Support

S11 ES014156-04 Hood (PI) \$50,000 07/01/2009-06/30/2010
Advanced Research Cooperation in Environmental Health (ARCH)
Role: Pilot project PI (Mechanism of BaP-induced glutamate transporter impairment)

REFERENCES

Michael Aschner, PhD

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