

CURRICULUM VITAE

Muhammad M. Hossain D.V.M., M.S., Ph.D.

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Citizenship: US citizen by naturalization

Education and Training:

Institution and Location	Degree	Year(s)	Field of Study
Bangladesh Agricultural University, Mymensingh	DVM	1992-1998	Veterinary Sciences
Bangladesh Agricultural University, Mymensingh	MS	1999-2000	Pharmacology
Gifu University, Gifu, Japan	PhD	2001-2005	Neurotoxicology
Iwate Medical University, Morioka, Japan	Post-doc	2005-2006	Molecular Pharmacology
Mississippi State University, Mississippi	Post-doc	2006-2008	Neurotoxicology
University of Medicine and Dentistry of New Jersey	Post-doc	2008-2012	Molecular Neuroscience

Employment History:

2018- : **Assistant Professor**, Department of Environmental Health Sciences, Florida International University

2017-2018: **Graduate Faculty** of Biomedical Sciences, Kent state University, Ohio

2017-2018: **Graduate Faculty** of Integrated Pharmaceutical Medicine, Northeast Ohio Medical University, Ohio

2015-2018: **Assistant Professor**, Department of Pharmaceutical Sciences, Northeast Ohio Medical University, Ohio

2015- : **Adjunct Assistant Professor**, Ernest Mario School of Pharmacy, Rutgers University

2014-2015: **Instructor**, Environmental and Occupational Medicine, Rutgers-Robert Wood Johnson Medical School, New Jersey

2008-2014: **Postdoc/Research Teaching Specialist**, Department of Environmental and Occupational Medicine, Rutgers-Robert Wood Johnson Medical School, New Jersey

2006-2008: **Postdoctoral Research Associate**, Center for the Environmental Health sciences, Mississippi State University, Mississippi

2005-2006: **Postdoctoral Fellow**, Department of Pharmacology, Iwate Medical University, Japan

2001-2005: **Teaching Assistant**, Department of Veterinary Medicine, Iwate University, Japan

1999-2000: **Veterinary Surgeon**, Veterinary Hospital, Kurigram, Bangladesh

Professional Honors and Awards:

2000-2005: Japanese Government Scholarship (**MONBUSHO**) for doctoral study.

2005-2006: Faculty Fund Fellowship - Faculty of Medicine, University of Manitoba, Canada

2012 : SOT Mechanisms Specialty Section Postdoctoral Student Travel Award

2015- : Editorial Board Member Journal of Systems and Integrative Neuroscience

2016- : Editorial Board Member Austin Neurology & Neurosciences

2016 : Outstanding Reviewer – Neurotoxicology and Pesticide Biochemistry and Physiology (**top 10th percentile**, number of reviews completed for in the past two years)

2017 : Outstanding Reviewer – Neurotoxicology and Teratology (**top 10th percentile**, number of reviews completed in the past two years)

Professional Activities:

Ad hoc manuscript reviews:

- Toxicology
- Pesticide Biochemistry and Physiology
- Toxicological Sciences
- Neurotoxicology
- Neurotoxicology and Teratology
- Environmental Toxicology
- Ecotoxicology and Environmental Safety
- Neurotoxicity Research
- Journal of Toxicological Sciences
- Drug and Chemical Toxicology
- Cell Biology and Toxicology
- Journal of Xenobiotics
- Biomedical and Environmental Sciences

Professional Memberships:

2012- : Society of Toxicology (SOT)

2013- : SOT Neurotoxicology Specialty Section

2014- : SOT Mechanisms Specialty Section

Service to the Scientific Community:

Chair, Poster Session: Inflammation in Disease: Society of Toxicology Annual Meeting 2012

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2013

Chair, Poster Session: Pesticide Neurotoxicity: Society of Toxicology Annual Meeting 2014

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2015

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2016

Chair, Poster Session: Pesticide Neurotoxicity: Society of Toxicology Annual Meeting 2017

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2017

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2018

Judge, Society of Toxicology Neurotoxicology Specialty Section Poster Competition 2019

Service on National Advisory Panels:

2015: US Environmental Protection Agency FIFRA Scientific Advisory Panel on “Research to Evaluate the Potential for Juvenile Sensitivity to Pyrethroids (May 19-21, 2015)

2016: US Environmental Protection Agency Chemical Safety Advisory Sub-committee for “Peer Review of the Draft Risk Assessment for TSCA Work Plan Chemical, 1-bromopropane (May 23-24, 2016)

Academic Services:

Northeast Ohio Medical University

- ***College of Pharmacy Admission Interview:***
 - Interviewing Applicants for Doctor of Pharmacy (Pharm.D.) Program
 - Interviewing Applicants for Integrated Pharmaceutical Medicine Program for Ph.D.
- ***Serves on the Summer Research Poster Judgement***

Teaching Experience:

2015- 2018: Northeast Ohio Medical University: I teach molecular neuroscience laboratory techniques and applications including stereology, isolation of neurons and glial cells for primary culture, stereotaxic surgery, and microdialysis on rodents.

2008-2015: EOHSI-UMDNJ/Rutgers University: I taught molecular pharmacology and toxicology laboratory techniques and applications including stereotaxic surgery in the rodent as well as statistical analysis to undergraduate and graduate students and visiting scientist.

2001-2005: Iwate University-Japan: I presented lectures on central nervous system and pesticide toxicology in the pharmacology and toxicology course offered to 3rd year veterinary students and also taught pharmacology and toxicology laboratory techniques and statistics to undergraduate and graduate students.

Research Trainees:

Undergraduate and Professional Students/postdoc:

Jason Liu (Pharmacy Student, Rutgers University) - Summer Research 2013

Ganeshraj Sivaram (Medical Student, Northeast Ohio Medical University) - Summer Research 2016

Sara Al-Haddad (Medical Student, Northeast Ohio Medical University) - Summer Research 2017

Reha Rabbani (Undergraduate, Youngstown State University) - Summer Research 2017

Matthew Hom (Medical Student, Northeast Ohio Medical University) - Summer Research 2018

Prajit Khooblal (Medical Student, Northeast Ohio Medical University) - Summer Research 2018

Peter Alamir (Undergraduate, Youngstown State University) - Summer Research 2018

Manas Nair (Undergraduate, The University of Akron) - Summer Research 2018

Research Focus:

The goals of my research are to

- a. Determine the role of environmental toxicants and genetic susceptibility in the etiology and pathogenesis of neurodegenerative disorders.
- b. Investigate the potential for environmental exposures, adult neurogenesis, and learning and memory.
- c. Determine the mechanistic links between ER-stress, neuroinflammation, disruption of hippocampal neurogenesis, neurodegeneration, and cognitive dysfunction.
- d. Develop animal and cell-based models to study neurological disease and dysfunction caused by environmental exposures and test therapeutic agents in these models.

More specifically, my research is currently focused on the role of ER-stress on hippocampal neurogenesis and cognitive deficits following environmental exposures. There is growing evidence that adult neurogenesis in the hippocampus is important for learning and memory. Adult neurogenesis comprises several processes, including precursor cell proliferation, survival, migration, and differentiation into mature neurons. This occurs throughout life in the sub-ventricular zone of the lateral ventricle and sub-granular zone of the dentate gyrus (DG) in the hippocampus of most mammals, including humans. Recent studies demonstrate that adult born neurons in the DG functionally integrate into the existing neuronal circuitry and contribute to hippocampal-dependent learning and memory. Further, disruption of adult neurogenesis causes deficits in hippocampal-dependent learning and memory. Thus, the goals my lab are to determine the mechanisms by which environmental exposure impairs hippocampal neurogenesis and causes cognitive deficits and identify pathways responsible for these effects, which may lead to open the door for potential new therapeutic interventions to prevent disruption of adult hippocampal neurogenesis and ameliorate cognitive deficits in humans.

To achieve these goals, we use *in vitro* cell culture models to *in vivo* animal models with a combination of cutting-edge techniques including morphological, behavioral (novel object recognition, fear conditioning, elevated-plus maze, open-field activity, and the Morris water maze), genetic, and pharmacological approaches.

Research Support:

Current

1R01-ES027481-01A1 (received 7th percentile)
NIH/NIEHS

08/15/2017- 7/31/2022

Total Direct Costs: \$ 1,150,000

Pesticide Exposure and Adult Neurogenesis: Role of ER Stress

The goal of this project is to investigate mechanisms by which long-term adult exposure to low-levels of a pyrethroid pesticide impair hippocampal neurogenesis and cause deficits in learning and memory in mice.

Role: **Principal Investigator**

Effort: 6 calendar months

U54AR055073
NIH/NIEHS

09/30/2018- 09/29/2023

Advanced Development of Drugs to Mitigate Parathion Intoxication (*Richardson, PI; Laskin, PI*)

The overall objective of this proposal is to identify and developing of second generation drug products with improved effectiveness against organophosphate insecticide that is considered a high priority chemical threat.

Role: **Co-Investigator**

Effort: 1.2 calendar months

To be Re-submitted

1R01-ES029506

07/05/2019

Age-dependent neurotoxicity of pyrethroids (*Charles Vorhees, PI*)

Role: **Co-Investigator**

Effort: 3 calendar months

Completed

1R21-NS072097
NIH/NINDS

09/30/10-8/31/13

Development of Drugs to Mitigate Parathion Intoxication (*Laskin, PI; Richardson, co-PI*)

The goal of this project is to develop a novel class of therapeutics that will mitigate mortality and morbidity caused by acute exposure to parathion, an organophosphate insecticide that is also considered a high priority chemical terrorism threat.

Role: **Co-Investigator**

Michael J Fox Foundation for Parkinson's Disease Research
No Number

11/01/13-10/31/15

Targeting the Voltage-Gated Proton Channel Hv1 for Neuroprotection (*Richardson, PI*)

The goal of this project is to validate the voltage-gated proton channel Hv1 as a target to reduce microglial activation and subsequent dopaminergic neurodegeneration in acute and chronic pre-clinical models of PD.

Role: **Co-Investigator**

Peer-Reviewed Publications:

1. **Hossain, M.M.***, Sivaram, G., and Richardson, J.R. (2019). Regional susceptibility to ER stress and protection by salubrinal following a single exposure to deltamethrin. *Toxicol. Sci.* 167(1):249-257
2. **Hossain, M.M.**, Sonsalla, P.K., Weigand, B., Reuhl, K., Gearing, M., Wu, L and Richardson, J.R. (2018). The Anti-Parkinsonian Drug Zonisamide reduces neuroinflammation: role of microglial Nav 1.6. *Exp. Neurol.* 308:111-119.
3. **Hossain, M.M.**, Liu, J., and Richardson, J.R. (2017). Pyrethroid insecticides directly activate microglia through interaction with voltage-gated sodium channels. *Toxicol. Sci.* 155(1):112–123.
4. Genskow, K.R., Brander J.M., **Hossain, M.M.**, Richardson, J.R., and Caudle W.M. (2015). Selective damage to dopaminergic transporters following exposure to the brominated flame retardant, HBCDD. *Neurotoxicol. Teratol.* 52:162-169.
5. Green, A.L., **Hossain, M.M.**, Tee, S.C., Zarbl, H., Guo G.L., and Richardson, J.R. (2015). Epigenetic regulation of dopamine transporter mRNA expression in human neuroblastoma cells. *Neurochem. Res.* 40:1372–1378.
6. Richardson, J.R., Taylor, M.M., Shalat, S.L., Guillot, T.S., Caudle, W.M., **Hossain, M.M.**, Mathews, T.A., Jones, S.R., Cory-Slechta, D.A., and Miller, G.W. (2015). Developmental Pesticide Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder (ADHD). *FASEB J.* 29:1960-1972.
7. Yang, S., Jan Y.H., Mishin, V., Richardson, J.R., **Hossain, M.M.**, Heindel, N.D., Heck, D.E., Laskin, D.L., and Laskin, J.D. (2015). Sulfa drugs inhibit sepiapterin reduction and chemical redox cycling by sepiapterin reductase. *J. Pharmacol. Exp. Ther.* 352:529-540.
8. **Hossain, M.M.**, DiCicco-Bloom, E., and Richardson, J.R. (2015). Hippocampal ER stress and deficits in learning following repeated pyrethroid exposure. *Toxicol. Sci.* 143 (1): 220-228.
9. Masoud, S.T., Vecchio L.M., Bergeron, Y., **Hossain, M.M.**, Bermejo, M.K., Kile, B., Sotnikova, T.D, Siesser, W.B, Gainetdinov, R.R., Wightman, R.M., Caron, M.G., Richardson, J.R., Miller, G.W., Ramsey, A.J., Cyr, M., and Salahpour, A. (2015). Increased expression of the dopamine transporter induces degeneration of dopamine neurons. *Neurobiol. Dis.* 74:66-75.
10. Yochum, C., Doherty-Lyon, S., Hoffman, C., **Hossain, M.M.**, Zelikoff, J.T., and Richardson, J.R. (2014). Prenatal cigarette smoke exposure causes hyperactivity and aggressive behavior: role of altered catecholamines and BDNF. *Exp. Neurol.* 254:145-152.
11. Richardson, J.R., Roy, A., Shalat, S.L., von Stein, R.T., **Hossain, M.M.**, Buckley, B, Gearing, M., Levey, A.I., and German, D.C. (2014). Elevated serum pesticide levels and risk for Alzheimer disease. *JAMA Neurology.* 7 (3): 284-290.
12. Inamdar, A.A., Masurekar, P., **Hossain M.M.**, Richardson, J.R., and Bennett, J. (2014) Signaling pathways involved in 1-octen-3-ol-mediated neurotoxicity in drosophila melanogaster: implication in parkinson's disease. *Neurotox. Res.* 25:183–191.
13. Inamdar, A.A., **Hossain, M.M.**, Bernstein, A.I., Miller, G.W., Richardson, J.R., and Bennet, J.W. (2013). The fungal derived semiochemical 1-octen-3-ol disrupts dopamine packaging and causes neurodegeneration. *Proc. Nat. Acad. Sci.* 110(48):19561-19566.
14. **Hossain, M.M.**, Sonsalla P. K., and Richardson, J.R. (2013). Coordinated role of voltage-gated sodium channels and the Na⁺/H⁺ exchanger in sustaining microglial activation during inflammation. *Toxicol. Appl. Pharmacol.* 273(2): 355-364.
15. Richardson, J.R., and **Hossain, M.M.**, (2013) Microglial ion channels as potential targets for neuroprotection in Parkinson's disease. *Neural Plasticity* 2013:1-7.
16. Kita, M., Watanabe T., Suzuki, T., Sato I., **Hossain, M.M.**, and Kobayashi, H. (2013). Effects of repeated administration of inhaled anesthetics on anesthesia, brain muscarinic receptors, and dopaminergic receptors in mice. *Adv. Biomed. Eng. Res.* 1(2):24-32.
17. **Hossain, M.M.***, Suzuki, T., Kobayashi, H., and Richardson, J.R. (2013). Acute effects of pyrethroids on serotonin neurotransmission in the striatum of awake rats: *in vivo* microdialysis study. *J. Biochem. Mol. Toxic.* 27(2):150-156.
18. Gibson, C.J., **Hossain, M.M.**, Richardson, J.R., and Aleksunes, L.M. (2012). Inflammatory regulation of ABC efflux transporter expression and function in microglia. *J. Pharmacol. Exp. Ther.* 343(3):650-660.

19. Imanishi, T., **Hossain, M.M.**, Suzuki, T., Xu, P., Sato, I., and Kobayashi, H. (2012). Effect of a CNS sensitive anticholinesterase methane sulfonyl fluoride on hippocampal acetylcholine release in freely-moving rats. *Adv. Pharmacol. Sci.* 2012:1-5.
20. **Hossain, M.M.**, and Richardson, J.R. (2011). Mechanism of pyrethroid pesticide-induced apoptosis: role of calpain and the ER stress pathway. *Toxicol. Sci.* 122:512-525.
21. Unno, T., Iida, R., Okawa, M., Matsuyama, H., **Hossain, M.M.**, Kobayashi, H., and Komori, S. (2009). Tributyltin-induced Ca²⁺ mobilization via L-type voltage-dependent Ca²⁺ channels in PC12 cells. *Environ. Toxicol. Pharmacol.* 28: 70-77.
22. **Hossain, M. M.**, and Filipov, N.M. (2008). Alteration of dopamine uptake into rat striatal synaptic vesicles and synaptosomes caused by an in vitro exposure to atrazine and its metabolites. *Toxicology.* 248: 52-58.
23. **Hossain, M.M.***, Suzuki, T., Unno, T., Komori, S., and Kobayashi, H. (2008). Differential presynaptic actions of pyrethroid insecticides on glutamatergic and GABAergic neurons in the hippocampus. *Toxicology.* 243:155-163.
24. **Hossain, M.M.***, Suzuki, T., Sato, N., Sato, I., Takewaki, T., Suzuki, K., Tachikawa, E., and Kobayashi, H. (2006). Differential effects of pyrethroid insecticides on extracellular dopamine in the striatum of freely moving rats. *Toxicol. Appl. Pharmacol.* 217: 25-34.
25. **Hossain, M.M.***, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., and Kobayashi, H. (2005). Neuromechanical effects of pyrethroids, allethrin, cyhalothrin and deltamethrin on the cholinergic processes in rat brain. *Life Sciences* 77 (7): 795-807.
26. Kobayashi, H., Rahman, M.H., **Hossain, M.M.**, Suzuki, T., Inoue, T., and Saiga, S. (2004). Application of experimental animals to toxicological study of feed poisoning in livestock -a preliminary scrutiny of diet. *Japanese Journal of Animal Hygiene* 30(2): 103-109.
27. **Hossain, M.M.***, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., and Kobayashi, H. (2004). The modulatory effect of pyrethroids on acetylcholine release in the hippocampus of freely moving rats. *NeuroToxicology* 25(5):825-833.
28. Kobayashi, H., Uchida, M., Suzuki, T., Sato, I., **Hossain, M.M.**, and Suzuki, K. (2003). Neurotoxicity and regional distribution of manganese in mouse brain. *J. Toxicol., Toxin Review* 22: 677-690.
29. **Hossain, M.M.***, Awal, M.A., Kobayashi, H., and Talukder, M.H. (2001). Therapeutic evaluation of cypermethrin against ticks and lice with their haemato-biochemical changes in cattle. *Bangladesh Vet. J.* 35 (1-2): 39-43.
30. Rafiq, K., Mostofa, M., Awal, M.A., and **Hossain, M.M.** (2000). Effect of medicated block licks on the performance of indigenous dairy cows of Bangladesh. *Asian-Aus. J. Anim. Sci.* 13 (6): 774 -780.
31. Karim, M.M., Mostofa, M., and **Hossain, M.M.***. (1999). Efficacy of Teniazole[®] against gastrointestinal nematodes in calves of Bangladesh Agricultural University dairy farm. *The Bangladesh Veterinarian* 16 (2): 72-75.

***denotes corresponding author**

Manuscripts Under Review:

1. **Hossain, M.M.**, Winnik, B., Richardson, T.A., Cory-Slechta, D.A., Taylor, M.M., Buckley, B., and Richardson J.R. (2018) Sex Differences in the pharmacokinetic and pharmacodynamic properties of methylphenidate following oral administration in mice. *Behav. Brain Res.*

Manuscripts to be submitted soon:

1. **Hossain, M.M.***, Al-Haddad, S., and Richardson, J.R. (2019). Deltamethrin exposure inhibits adult hippocampal neurogenesis and causes deficits in learning and memory in mice. *Mol. Neurobiol.*
2. **Hossain, M.M.***, and Richardson, J.R. (2019). Nerve growth factor protects against deltamethrin-induced apoptosis in primary hippocampal neurons. *J. Neurosci.*

Manuscripts in Preparation:

1. **Hossain, M.M.***, Rabbani, R., and Richardson, J.R. (2019). Age-related hippocampal vulnerability to adult neurogenesis following pyrethroid exposure. *Toxicol. Sci.*
2. Belkadi, A., **Hossain M.M.*** (2019) ER Stress Inhibitor Salubrinal Attenuates Deltamethrin-induced Reduction of Hippocampal Neurogenesis in Adult Mice. *Mol. Neurobiol.*
3. Hom, M., **Hossain M.M.*** (2019). Inhibition of ER stress attenuates deltamethrin induced-hippocampal neuroinflammation in Mice. *Toxico. Sci.*

Published Abstracts and Poster Presentations:

1. Hom, M., Nair, M., Khooblall, P. Alamir, P., Belkadi, A, Richardson, J.R., and **Hossain, M.M.** (2019). Inhibition of ER stress attenuates deltamethrin induced-hippocampal neuroinflammation in Mice. Submitted to International Congress of Toxicology (ICTXV) 2019
2. **Hossain, M.M.**, and Belkadi, A. (2019). ER stress inhibitor salubrinal attenuates deltamethrin-induced reduction of hippocampal neurogenesis in adult mice. SOT 2019, Abstract #1424
3. **Hossain, M.M.**, Rabbani, R., and Richardson, J.R. (2018). Age-related hippocampal vulnerability to adult neurogenesis following pyrethroid exposure. *Toxicologist* 162:108.
4. Boyle, A., Neal, M., **Hossain, M.M.**, Wu L.J., and Richardson, J.R (2018). The role of microglial proton channel Hv1 in paraquat-induced neuroinflammation. *Toxicologist* 162:299.
5. **Hossain, M.M.**, Sivaram, G., and Richardson, J.R. (2017). Regional differences in ER-stress and apoptosis in the brain of adult mice following a single exposure to deltamethrin. *Toxicologist*.156:441
6. Ghasemahmad, Z., Zampino, A., **Hossain, M.M.**, Richardson., J.R., Wenstrup, J.J. (2017). Differential release of neurochemicals in mouse basolateral amygdala in response to negative and positive social vocalization. ARO MWM Abstract Book 40:323
7. Darvesh, A.S., Geldenhuys, W.J., **Hossain, M.M.**, Sadana, P., Prus, A.P., Berger, S.P., and Richardson, J.R. (2016). Effect of nitric oxide synthase inhibitors on methamphetamine-induced hyperthermia and dopaminergic neurotoxicity in mice. *Society for Neuroscience Abstract* 318.11
8. **Hossain, M.M.**, and Richardson, J.R. (2016). Deltamethrin exposure inhibits adult hippocampal neurogenesis and causes deficits in learning and memory in mice. *Toxicologist* 150: 334.
9. You D., Gibson C.J., **Hossain M.M.**, Wen X., Yang I., Buckley B., Richardson, J.R. and Aleksunes L.M. (2016). MDR1 transporter protects against paraquat-induced dopaminergic neurodegeneration. *Toxicologist* 150: 324.
10. **Hossain M.M.**, and Richardson, J.R. (2015). Nerve growth factor protects against deltamethrin-induced apoptosis in primary hippocampal neurons. *Toxicologist* 144:459.
11. Beier, E.E., **Hossain, M.M.**, and Richardson, J.R. (2015). Farnesoid X receptor deficiency in mice enhances MPTP-induced neuroinflammatory response. *Toxicologist* 144:328.
12. Liu, J., **Hossain, M.M.**, and Richardson, J.R. (2014). Pyrethroid pesticides directly activate microglia through voltage-gated sodium channels leading to increased TNF-alpha release. *Toxicologist* 138:485.
13. **Hossain, M.M.**, DiCicco-Bloom, E., and Richardson, J.R. (2014). Repeated pesticide exposure causes hippocampal ER stress, neuroinflammation, and cognitive deficits in mice. *Toxicologist* 138:485
14. Richardson, J.R., **Hossain, M.M.**, Shalat, S. L., Buckley, B. Levey, A. I., Gadad, B., and German, D.C. (2013). Pesticide exposure is associated with increased risk of Alzheimer's disease. *Society for Neuroscience Abstracts* 45.13/K9.
15. **Hossain, M.M.**, and Richardson, J.R. (2013). Sub-chronic exposure to deltamethrin causes hippocampal neuroinflammation and deficits in learning and memory. *Toxicologist* 132:55.
16. Inamdar, A.A., **Hossain, M.M.**, Richardson, J.R., and Bennett, J. (2013). Fungal volatile organic compound(s): Potential environmental agent(s) for the pathogenesis of Parkinson's disease? *Toxicologist* 132:392.

17. Lauterstein, D.E., Hoffman C., **Hossain, M.M.**, Richardson, J.R., Ganey, F., and Zelikoff, J.T. (2013). Effects of a smokeless tobacco, gutkha on neurotransmitter levels and associated parameters in the mouse brain. *Toxicologist* 132:195.
18. Inamdar, A.A., **Hossain, M.M.** Richardson, J.R., and Bennett, J. (2012). Fungal volatile organic compound(s): Potential environmental agent(s) for the pathogenesis of Parkinson's disease? *Society for Neuroscience Abstracts* 757.04/J4.
19. **Hossain, M.M.**, and Richardson, J.R. (2012). Lipopolysaccharide activates microglia through Na⁺ channel- and Na⁺/H⁺ exchanger-dependent mechanism. *Toxicologist* 126:150.
20. Gibson,C.J., **Hossain, M.M.**, Richardson, J.R., and Aleksunes, L.M. (2011). Differential expression of ATP-Binding cassette transporters in activated microglia: Implications for cell signaling during neuroinflammation. *Society of Toxicologic Pathology (STP) abstract # 74*
21. **Hossain, M.M.**, and Richardson, J.R. (2011). Lipopolysaccharide increases sodium influx and down-regulates voltage gated sodium channel mRNA expression in activated microglia. *Toxicologist* 120:36.
22. Gibson, C.J., **Hossain, M.M.**, Richardson, J.R., and Aleksunes, L.M. (2011). Lipopolysaccharide activation of microglia differentially regulates mRNA expression of abc efflux transporters. *Toxicologist* 120:36.
23. Tachikawa, E., Shiina, M., Kutsukake, M., Yoshie, M., Tamura, K., Taira, H., Yoshioka, Y., **Hossain, M.M.**, Nakagawa, S., and Yamato, S. (2011). Role of geranylgeraniols in adrenal catecholamine secretion. *Society for Neuroscience Abstracts* 741.4/D22.
24. **Hossain, M.M.**, and Richardson, J.R. (2010). Pyrethroid pesticide-induced apoptosis: role of the ER stress pathway. *Toxicologist* 114:274.
25. **Hossain, M.M.**, and Richardson, J.R. (2010). Mechanism of pyrethroid pesticide-induced apoptosis: role of the ER stress pathway and calpain activation. *Neurotoxicology*
26. **Hossain, M.M.**, and Richardson, J.R. (2009). Deltamethrin exposure causes caspase-3 mediated apoptosis in SK-N-AS neuroblastoma cells. *Toxicologist* 108: 444.
27. **Hossain, M.M.**, and Filipov, N.M. (2008). Effects of atrazine and its metabolites on the uptake of dopamine into rat striatal synaptic vesicles and synaptosomes. *Toxicologist* 102:470.
28. Tachikawa, E., Taira, H., **Hossain, M.M.**, Yoshioka, Y., Mizuma, K., Kondo, Y., Goto, S., Irie, Y., Taira, E., and Nakagawa, H. (2007). Geranylgeranyl pyrophosphate is required for calcium-dependent catecholamine secretion. *Society for Neuroscience Abstract* 676.20/E37.
29. **Hossain, M.M.**, Sistrunk, S.C., and Filipov, N.M. (2007). Acute effects of atrazine exposure on extracellular dopamine levels in the striatum of conscious mice. *Toxicologist* 96:188.
30. Tachikawa,E., Takahashi,T., **Hossain, M.M.**, Yoshioka, Y., Mizuma, K., Kondo,Y., Goto, S., and Taira, E. (2006). Role of isoprenoids in adrenal catecholamine secretion *Society for Neuroscience abstract* 723.1/C70.
31. Kawamoto, R., Kobayashi, H., **Hossain, M.M.**, Suzuki, T., and Sato, I. (2006). Effects of repeated administration of rotenone and MPTP on CNS dopaminergic system in mice. *The Journal of Pharmacological Sciences* 100:64.
32. Tachikawa, E., **Hossain, M.M.**, Yoshioka, Y., Mizuma, K., Kudo, K., Kondo, Y. Miyate, Y., Kakizaki, A., and Taira, E. (2006). Inhibitory effects of statins on catecholamine secretion from adrenal chromaffin cells. *The Journal of Pharmacological Sciences* 100:89.
33. **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., Tachikawa, E., and Kobayashi. (2005). Effect of pyrethroids on dopamine release and uptake in the rat striatum. *Toxicology Letters* 158: 137-138.
34. **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., and Kobayashi, H. (2005). Effect of pyrethroids on GABA release in the hippocampus of freely moving rats. *The Toxicologist* 84: 401.
35. Kobayashi, H., **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T. and Suzuki, K. (2005). Effect of pyrethroids on glutamate release in the hippocampus of freely moving rats. *The Toxicologist* 84:400.
36. **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., and Kobayashi. (2004). Effect of pyrethroids on striatal monoamine release in freely moving rats. *The Japanese Society of Veterinary Science abstract*, page 192.
37. **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T., Suzuki, K., and Kobayashi, H. (2004). The modulatory effect of pyrethroids on acetylcholine, dopamine and serotonin releases from the hippocampus of freely moving rats. *Toxicology and Applied Pharmacology* 197(3):319-320.

38. Kobayashi, H., **Hossain, M.M.**, Suzuki, T., Sato, I., Takewaki, T., and Suzuki, K. (2004). Effects of pyrethroids on enzymatic activities and transmitter uptakes in rat brain. *Toxicology and Applied Pharmacology* 197(3):320.
39. Suzuki, T., Suda, T., **Hossain, M.M.**, Sato, I., Tsutsumi, K., Sugawara, E., and Kobayashi, H. (2004). Dual protective and promotive effects of 4-hydroxy-3 (2H)-furanones on benzo[a]pyrene-induced micronucleus formation in mice. *Toxicology and Applied Pharmacology* 197(3):251.
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Invited Presentations:

1. Department of Occupational and Environmental Health, The University of Iowa: *Pesticide exposure neurogenesis, and Learning and memory. November 14, 2018.*
2. Department of Pharmacology and Toxicology, Michigan State University: *Pesticide exposure and adult neurogenesis: Role of ER stress. June 18, 2018.*
3. Integrated Life Sciences, Kent State University, Ohio: *Environmental exposure inhibits hippocampal neurogenesis and causes behavioral deficits. February 20, 2018*
4. Department of Biological Sciences, Kent State University, Ohio: *Pesticide exposure and adult neurogenesis: Role of ER stress. December 14, 2017*
5. Department of Pharmacology and Toxicology School of Medicine, University of Mississippi Medical Center Jackson, Mississippi: *Environmental exposure, adult neurogenesis and learning and memory. November 13, 2017.*
6. School of Biomedical Sciences Kent State University, Kent, Ohio: *Pyrethroid exposure causes ER stress-mediated disruption of cognitive function in adult mice. September 27, 2017.*
7. Department of Environmental & Occupational Health, Florida International University, Miami, Florida: *Pesticide exposure and adult neurogenesis: Role of ER stress. June 12, 2017.*
8. National Postdoctoral Appreciation Day at Rutgers, the state University of New Jersey: *Endoplasmic reticulum stress pathways as the mechanism for pesticide-induced apoptosis of dopaminergic cells: a possible mechanistic link between pesticides and Parkinson's disease. September 24, 2009.*
9. EOHSI-Robert Wood Johnson Medical School Piscataway: *Mechanisms of dopaminergic neurotoxicity caused by atrazine. March 10, 2008.*
10. Iwate Medical University Department of Pharmacology, Morioka, Japan: *Mechanism of CNS neurotoxicity induced by pyrethroids. February 21, 2005.*
11. The 138th Meeting of the Japanese Society of Veterinary Science, Hokkaido University, Hokkaido, Japan: *Effect of pyrethroids on striatal monoamine release in freely moving rats. September 10, 2004.*
12. The 137th Meeting of the Japanese Society of Veterinary Science. Nihon University, Fujisawa, Japan: *In vivo and in vitro effects of pyrethroids on cholinergic and dopaminergic systems in rat brain. April 2, 2004.*

13. The 135th Meeting of the Japanese Society of Veterinary Science. University of Tokyo, Tokyo, Japan: *The effect of three pyrethroids on acetylcholine release in the hippocampus of freely moving rats. April 1, 2003.*
14. The 76th Annual Meeting of The Japanese Pharmacological Society, Fukuoka, Japan: *The modulatory effect of pyrethroids on acetylcholine release in the hippocampus of freely moving rats. March 24, 2003.*