

Nyzil Massey

BVSc & AH (DVM equivalent), Ph.D., DABT
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EDUCATION

Ph.D. in Biomedical Sciences, Iowa State University, Ames, IA **December 2021**
Major Professor: Department of Biomedical Sciences

Bachelor of Veterinary Science and Animal Husbandry (equivalent to DVM) **July 2011**
Dr. G.C. Negi College of Veterinary and Animal Sciences, Palampur (H.P), India

TRAININGS/CERTIFICATIONS

Postdoctoral Research Associate, Iowa State University, Ames, IA **January 2022-present**
Major Professor: Department of Biomedical Sciences

Diplomate of American Board of Toxicology (DABT) **November 2025-December 2030**
<https://bcert.me/skbvenxhc>

Training in Neurotherapeutics Discovery and Development for Academic Scientists **March 2026**
NIH Blueprint for Neuroscience Research (NINDS)

RESEARCH FOCUS

My research focuses on defining the acute and long-term neuropathological consequences of exposure to organophosphate nerve agents, including soman, VX, and DFP, with an emphasis on how a single neurotoxic insult initiates seizures that evolve into persistent network dysfunction, chronic epilepsy, and cognitive and behavioral impairment. Using integrated models of **maternal, pediatric, adult, and geriatric care**, my work will examine how developmental stage and aging influence vulnerability to neurotoxic injury and recovery. Mechanistically, I investigate convergent pathways involving **glial dysregulation, oxidative stress, disrupted cellular signaling, excitatory-inhibitory imbalance, and durable transcriptional reprogramming**, linking these processes to circuit-level remodeling and altered functional connectivity. A key extension of this program explores how neurotoxic exposures during critical windows of brain development intersect with susceptibility to **neurodevelopmental and neurodivergent disorders**, including **autism spectrum disorder and attention-deficit/hyperactivity disorder**, by perturbing seizure thresholds and circuit maturation. Collectively, my work aims to identify actionable therapeutic targets and intervention strategies that prevent maladaptive brain remodeling and improve neurological outcomes across the lifespan.

RESEARCH EXPERIENCE

Assistant Professor **July 2026-Present**
Veterinary Anatomy and Physiology, Arkansas State University, Jonesboro, AR

Postdoctoral Research Associate **January 2022 – June 2026**
Department of Biomedical Sciences, Iowa State University, Ames, IA

- Lead investigator in an NIH-funded UO1 project focused on elucidating the mechanisms of neurotoxicity caused by nerve agents such as soman, VX, and DFP in a rat and guinea pig model.
- Performed comprehensive neurobehavioral assessments, including cognitive function, locomotor activity, anxiety, depression, and olfactory tests in rats.
- Implanted telemetry devices for continuous EEG monitoring and conducted analysis and interpretation of EEG data.
- Analyzed and interpreted functional and structural MRI data following nerve agent exposure.
- Designed and executed pharmacokinetic studies in rat models to understand drug absorption, distribution, metabolism, and excretion
- Designed and conducted a preliminary study to incorporate the drug in the diet for long-term treatment.
- Collected and processed animal tissues for cryosectioning, multiplex assays, and biochemical analyses of serum and cerebrospinal fluid (CSF).
- Performed molecular analyses, including ELISA, Western blotting, and RT-PCR, to investigate biomarkers of neurotoxicity.
- Conducted histopathological evaluations using immunofluorescent imaging, stereology, and Hematoxylin and Eosin staining to assess brain tissue changes.
- Mentored and trained Graduate students and undergraduate research assistants.

Graduate Research Assistant

Fall 2015 – Fall 2021

Department of Biomedical Sciences, Iowa State University, Ames, IA

- Investigated the role of HMGB1-RAGE signaling in barn dust-induced neurotoxicity in cell culture (in-vitro), Slice culture (Ex-vivo), and animal model (in-vivo).
- Explored the role of barn dust-induced neurotoxic effects on Mitochondrial and Endoplasmic reticulum impairment in activated microglia using cell culture (in-vitro), Slice culture (Ex-vivo), and animal model (in-vivo).
- Analyzed the neuroprotective effects of Mitoapocynin (NOX-2 inhibitor) in organic dust-induced neurotoxicity by mitigating microglial activation.
- Investigated neurosensory deficits induced by organic dust exposure in mice.
- Studied the role of KV1.3 potassium channels in microglial activation and understanding the neurotoxic mechanisms of neurodegeneration.

RESEARCH INTERNSHIP/Co-op EXPERIENCE

Co-op: Protein and Cell Engineering

July 2021 - December 2021

Department of Biologics Drug Discovery, Biogen, Cambridge, Massachusetts

- Design of viral expression constructs and viral transduction to generate relevant cell systems.
- Generation of Knockout and Knock-In cell lines using CRISPR.Cas9 technologies.
- Transient transfections using CHO cells.
- Generation of stable cell line using non-viral vectors.
- Design and cloning of plasmids for transfection.

NIH/NSF/Foundation grants (submitted, 2025)

1. **Unraveling Novel Targets of Chronic Organophosphate Neurotoxicity: A Transcriptomic Analysis in a DFP Rat Model**-[PA-25-150]-Joint NINDS/NIMH Exploratory; Neuroscience Research Grant (R21 Clinical Trial Not Allowed). Funding amount: \$275K + indirect costs.
Application ID: 1R21NS147988-01
2. **Evaluating the Neuroprotective Effects of Honokiol and Magnolol against Gestational Organophosphate Exposure: Maternal-Fetal Toxicokinetics and Postnatal Neurodevelopmental Outcomes**-[PA-25-304]-NIH Exploratory/Developmental Research; Funding amount- \$275K +Indirect cost.
Application ID: 1R21NS146750-01
3. **Evaluating the Neuroprotective and Antiepileptic Effects of Honokiol and Magnolol in a Rat DFP Model**-[PAR-25-114]-CCRP Initiative: NIH Countermeasures against Chemical Threats (CounterACT) Translational Exploratory/Developmental Research Projects (R21 Clinical Trial Not Allowed); Funding amount- \$275K +Indirect cost.
Application ID: 1R21ES038342-01
4. **A Multimodal Digital Twin Framework for Predicting and Modulating Neurotoxic Brain Injury and Therapeutic Recovery Across Vulnerable Brain Networks**-[NSF PD 25-542]-Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science- \$1,200,000 (4 year), **(Co-investigator)**.
5. **Neuron–Glia Crosstalk in Environmental Neurotoxin-Induced Limbic Dysfunction**-Warren Alpert Foundation / Distinguished Scholar – Neuroscience- 400K (200K/year)-15% indirect cost included.
Application ID: 1976197

PATENTS (co-investigator)

1. **ISURF # 05765: A combination of 1400W and saracatinib as an adjunct therapy for survivors of nerve agent exposure**
IEdison# 3974801-24-0033
Status: Approved and recommended by Iowa State University Research Foundation to be filed.

PUBLICATIONS

JOURNAL ARTICLES (Peer reviewed)

(TOTAL: 24)

1. **Massey, Nyzil** and Vasanthi, Suraj Sundara and Luo, Diou and Meyer, Christina and Rao, Nikhil S. and Gimenez-Lirola, Luis G. and Kannurpatti, Sridhar and Thippeswamy, Thimmasettappa, Neuroinflammatory Mechanisms of Limbic Network Disruption and Recovery Following Soman (GD) Exposure: Convergent Roles of iNOS and Src Family Tyrosine Kinase Signaling. Available at SSRN: <https://ssrn.com/abstract=6678974>
(Pharmacological Research, Impact Factor: 10.5)

2. **Massey N**, Bhat SM, Shrestha D, Malovic E, Karriker LA, Choudhary S, Robertson AP, Nguyen HM, Wulff H, Kanthasamy AG and Charavaryamath C (2026) Kv1.3 as an upstream regulator of oxidative stress-mediated neuroinflammation following organic dust exposure in murine in vitro, ex vivo, and in vivo models. *Front. Toxicol.* 8:1765108. doi: 10.3389/ftox.2026.1765108
(Frontiers in Toxicology, Impact Factor: 4.6)

3. **Massey N**, Vasanthi SS, Meyer C, et al. Dual targeting of iNOS and Src tyrosine kinase as a superior therapeutic strategy against soman-induced long-term neurotoxicity: multimodal biomarker, imaging, and neurobehavioral outcome analyses. *Acta Neuropathol Commun.* Published online January 9, 2026. doi:10.1186/s40478-025-02220-8
(Acta Neuropathologica Communications, Impact Factor: 6.6)

4. Ganguly, S., Jiang, Z., **Massey, N.**, Rao, N.S., Thippeswamy, T. and Sarkar, S. (2025) In David, A. K. and Peter, K. K. (eds.), *Proceedings of the 20th Machine Learning in Computational Biology meeting*. PMLR, Proceedings of Machine Learning Research, Vol. 311, pp. 178--188.
(Proceedings of Machine Learning Research)

5. **Massey, N.**, Vasanthi, S.S., Gimenez-Lirola, L.G. *et al.* Proinflammatory cytokines, oxidative stress, and organ function as biomarkers of soman (GD) chronic neurotoxicity. *Sci Rep* **15**, 9021 (2025). <https://doi.org/10.1038/s41598-025-94190-z>
(Scientific Reports, Impact Factor: 4.3)

6. **Massey N**, Vasanthi SS, Samidurai M, Gage M, Rao N, Meyer C, Thippeswamy T. 1400 W, a selective inducible nitric oxide synthase inhibitor, mitigates early neuroinflammation and nitrooxidative stress in diisopropylfluorophosphate-induced short-term neurotoxicity rat model. *Front Mol Neurosci.* 2023 Mar 17;16:1125934. doi: 10.3389/fnmol.2023.1125934. PMID: 37008784; PMCID: PMC10064070.
(Impact Factor: 3.8)

7. **Massey, N.**, Vasanthi, S.S., Holtkamp, C. *et al.* Mitigating organophosphate nerve agent, soman (GD), induced long-term neurotoxicity: Saracatinib, a Src Tyrosine Kinase inhibitor, as a potential countermeasure. *J Neuroinflammation* 22, 199 (2025). <https://doi.org/10.1186/s12974-025-03520-5> **(Impact Factor: 10.1)**

8. S Vasanthi S[#], **Massey N[#]**, Meyer C, Wang C, Thippeswamy T. Diet-incorporated saracatinib, a Src tyrosine kinase inhibitor, counteracts diisopropylfluorophosphate (DFP)-induced chronic neurotoxicity in the rat model. *Biomed Pharmacother.* 2025 Jun 12;189:118234. doi: 10.1016/j.biopha.2025.118234. Epub ahead of print. PMID: 40513390.
(Shared first author/equal contribution), (Impact Factor: 7.5)

9. Vasanthi SS, **Massey N**, Nair SN, Mochel JP, Showman L, Thippeswamy T. Exploring the benefits of in-diet versus repeated oral dosing of saracatinib (AZD0530) in chronic studies: insights into pharmacokinetics and animal welfare. *Front Vet Sci.* 2023 Nov 9;10:1297221. doi: 10.3389/fvets.2023.1297221. PMID: 38026620; PMCID: PMC10666625.
(Shared first author/equal contribution), (Impact Factor: 2.9)

10. **Massey N**, Puttachary S, Bhat SM, Kanthasamy AG, Charavaryamath C. HMGB1-RAGE Signaling Plays a Role in Organic Dust-Induced Microglial Activation and Neuroinflammation. *Toxicol Sci.* 2019 Jun 1;169(2):579-592. doi: 10.1093/toxsci/kfz071. PMID: 30859215; PMCID: PMC6542342.
(Impact Factor: 4.1)
11. **Massey N**, Shrestha D, Bhat SM, Kondru N, Charli A, Karriker LA, Kanthasamy AG, Charavaryamath C. Organic dust-induced mitochondrial dysfunction could be targeted via cGAS-STING or cytoplasmic NOX-2 inhibition using microglial cells and brain slice culture models. *Cell Tissue Res.* 2021 Mar 9. doi: 10.1007/s00441-021-03422-x. Epub ahead of print. PMID: 33687557.
(Impact Factor: 4.1)
12. **Massey N**, Shrestha D, Bhat SM, Padhi P, Wang C, Karriker LA, Smith JD, Kanthasamy AG, Charavaryamath C. Mitoapocynin Attenuates Organic Dust Exposure-Induced Neuroinflammation and Sensory-Motor Deficits in a Mouse Model. *Front Cell Neurosci.* 2022 Apr 13;16:817046. doi: 10.3389/fncel.2022.817046. PMID: 35496912; PMCID: PMC9043522.
(Impact Factor: 3.2)
13. Meyer C, Grego E, S Vasanthi S, Rao NS, **Massey N**, Holtkamp C, Huss J, Showman L, Narasimhan B, Thippeswamy T. The NADPH Oxidase Inhibitor, Mitoapocynin, Mitigates DFP-Induced Reactive Astrogliosis in a Rat Model of Organophosphate Neurotoxicity. *Antioxidants (Basel).* 2023 Nov 30;12(12):2061. doi: 10.3390/antiox12122061. PMID: 38136181; PMCID: PMC10740988.
(Impact Factor: 6.6)
14. Rao NS, Meyer C, Vasanthi SS, **Massey N**, Samidurai M, Gage M, Putra M, Almanza AN, Wachter L, Thippeswamy T. DFP-Induced Status Epilepticus Severity in Mixed-Sex Cohorts of Adult Rats Housed in the Same Room: Behavioral and EEG Comparisons. *Front Cell Dev Biol.* 2022 May 10;10:895092. doi: 10.3389/fcell.2022.895092. PMID: 35620057; PMCID: PMC9127803.
(Impact Factor: 4.3)
15. Vasanthi SS, Rao NS, Samidurai M, **Massey N**, Meyer C, Gage M, Kharate M, Almanza A, Wachter L, Mafuta C, Trevino L, Carlo AM, Bryant E, Corson BE, Wohlgemuth M, Ostrander M, Showman L, Wang C, Thippeswamy T. Disease-modifying effects of a glial-targeted inducible nitric oxide synthase inhibitor (1400W) in mixed-sex cohorts of a rat soman (GD) model of epilepsy. *J Neuroinflammation.* 2023 Jul 12;20(1):163. doi: 10.1186/s12974-023-02847-1. PMID: 37438764; PMCID: PMC10337207.
(Impact Factor: 10.1)
16. Meyer C, Holtkamp C, Harm T, Grego E, Showman L, Rao NS, S Vasanthi S, **Massey N**, Narasimhan B, Thippeswamy T. Off-target effects of the NADPH oxidase inhibitor mitoapocynin-encapsulated nanoparticles and free-drug oral treatment in a rat DFP model of neurotoxicity. *J Drug Target.* 2025 Jul 8:1-11. doi: 10.1080/1061186X.2025.2523995. Epub ahead of print. PMID: 40569814.
(Impact Factor: 4.6)
17. Bhat SM, **Massey N**, Karriker LA, Singh B, Charavaryamath C. Ethyl pyruvate reduces organic dust-induced airway inflammation by targeting HMGB1-RAGE signaling. *Respir Res.* 2019;20(1):27. Published 2019 Feb 6. doi:10.1186/s12931-019-0992-3.
(Impact Factor: 5.0)
18. Shrestha D, Bhat SM, **Massey N**, Santana Maldonado C, Rumbelha WK, Charavaryamath C. Pre-exposure to hydrogen sulfide modulates the innate inflammatory response to organic dust. *Cell*

Tissue Res. 2021 Apr;384(1):129-148. doi: 10.1007/s00441-020-03333-3. Epub 2021 Jan 6. PMID: 33409657. dust”.

(Impact Factor: 4.1)

19. Mahadev Bhat S, Shrestha D, **Massey N**, Karriker LA, Kanthasamy AG, Charavaryamath C. Organic dust exposure induces stress response and mitochondrial dysfunction in monocytic cells. *Histochem Cell Biol.* 2021 Jun;155(6):699-718. doi: 10.1007/s00418-021-01978-x. Epub 2021 Mar 23. PMID: 33755775; PMCID: PMC8195852.

(Impact Factor: 2.1)

20. Bhat SM, **Massey N**, Shrestha D, Karriker LA, Jelesijević T, Wang C, Charavaryamath C. Transcriptomic and ultrastructural evidence indicate that anti-HMGB1 antibodies rescue organic dust-induced mitochondrial dysfunction. *Cell Tissue Res.* 2022 May;388(2):373-398. doi: 10.1007/s00441-022-03602-3. Epub 2022 Mar 4. PMID: 35244775.

(Impact Factor: 4.1)

21. Shrestha D, **Massey N**, Bhat SM, Jelesijević T, Sahin O, Zhang Q, Bailey KL, Poole JA, Charavaryamath C. Nrf2 Activation Protects Against Organic Dust and Hydrogen Sulfide Exposure Induced Epithelial Barrier Loss and *K. pneumoniae* Invasion. *Front Cell Infect Microbiol.* 2022 Apr 19;12:848773. doi: 10.3389/fcimb.2022.848773. PMID: 35521223; PMCID: PMC9062039.

(Impact Factor: 4.8)

22. Feye, K. M.; Smith, Joseph S.; Sebbag, Lionel; Hohman, A. E.; Acharya, Sreemoyee; Schneider, Benjamin K.; Tucker, J. T.; Cherep, Lucia A.; Nordeng, B. R.; Richardson, A. L.; Gage, Meghan C.; Luo, Diou; Shrestha, Denusha; Izbicki, Patricia; Malovic, Emir; Jefferson, M. A.; Manne, Sireesha; Jaisil, Pongrat; Kondru, Naveen; **Massey, Nyzil**; Klinedinst, Brandon S.; and Carlson, Steve A., "Veterinary Considerations for the Theoretical Resurrection of Extinct Species" (2018). *Veterinary Diagnostic and Production Animal Medicine Publications*. 132. https://lib.dr.iastate.edu/vdpam_pubs/132.

23. Schmidt-McCormack, Garrett R.; Feye, Kristina M.; Acharya, Sreemoyee; Mlynarczyk, Gregory S.A.; Anderson, Stephen A.; Izbicki, Patricia; Malovic, Emir; Luna, K. C.; Smith, Joseph S.; Jefferson, Matthew A.; Nakama, Aron; Santana, Kasandra Diaz; Kondru, Naveen C.; Kleinhenz, Michael D.; Tipton, James G.; Choudhary, Shivani; Kokemuller, Robin D.; Manne, Sireesha; Putra, Marson R.; **Massey, Nyzil**; Shrestha, Denusha; Luo, Diou; Sharma, Shaunik; Jaisil, Pongrat; Berg, Carrie A.; and Carlson, Steve A., "Theoretical Engineering of the Gut Micro biome for the Purpose of Creating Superior Soldiers" (2017). *Veterinary Diagnostic and Production Animal Medicine Publications*.133. https://lib.dr.iastate.edu/vdpam_pubs/133.

24. Stephen J. Anderson, Kristina M. Feye, Garrett R. Schmidt-McCormack, Emir Malovic, Gregory S.A. Mlynarczyk, Patricia Izbicki, Larissa F. Arnold, Matthew A. Jefferson, Bierlein M. de la Rosa, Rita F. Wehrman, K.C. Luna, Hilary Z. Hu, Naveen C. Kondru, Michael D. Kleinhenz, Joe S. Smith, Sireesha Manne, Marson R. Putra, Shivani Choudhary, **Nyzil Massey**, Diou Luo, Carrie A. Berg, Sreemoyee Acharya, Shaunik Sharma, Sri Harsha Kanuri, Jennifer K. Lange, Steve A. Carlson, Off-target drug effects resulting in altered gene expression events with epigenetic and “Quasi-Epigenetic” origins, *Pharmacological Research* Volume 107, 2016, Pages 229-233, ISSN 1043-6618, <https://doi.org/10.1016/j.phrs.2016.03.028>.

(Impact Factor: 10.5)

CONFERENCE PRESENTATIONS

Oral Presentation

1. *"Src Tyrosine Kinase and Inducible NOS Inhibition Mitigate Neuroinflammatory and Behavioral Consequences of Organophosphate-Induced Status Epilepticus in Guinea Pigs"*. Concurrent Symposium. Innovations in Countermeasures and Toxicology Research (ICTR) Conference, Chicago, Illinois, June 1-3, **2026**
2. *"The Brain's SOS: A Systems Approach to Neuroinflammation, Seizures, and Recovery Post Nerve Agent Exposure"*. Seminar series: BMS Work In Progress, College of Veterinary Medicine, Iowa State University, February 12, **2025**.
3. *"Swine Barn Dust Exposure Activates Microglia through Induction of Oxidative Stress and the Resultant Neuroinflammation Appears to Involve HMGB1 and RAGE Signaling"*, CSSOT, Ames, September 21, **2017**

Poster Presentation

1. Innovations in Countermeasures and Toxicology Research (ICTR) Conference, Chicago, Illinois, June 1-3, **2026**
2. Society for Neuroscience annual, San Diego, CA, November 15-19, **2025**
3. The 17th Annual CounterACT Network Research Symposium, Salt Lake City, UT, June 3-5, **2024**
4. American Epilepsy Society, Orlando, FL, December 1-5, **2023**
5. American Epilepsy Society, Nashville, TN, December 2-6, **2022**
6. Society of Toxicology, Anaheim, CA, March 15-19, **2020** (Presented online)
7. Experimental Biology, Orlando, FL, April 6-10, **2019**
8. Experimental Biology, San Diego, CA, April 21-25, **2018**
9. Experimental Biology, Chicago, IL, April 22-26, **2017**

Conference Proceedings

1. **N. Massey**, D. Luo, M. Ekanayake, S. P. Parameswaran, S. S. Vasanthi, and T. Thippeswamy; Src Kinase and iNOS Inhibition Mitigate Neuroinflammatory and Behavioral Consequences of Organophosphate-Induced Status Epilepticus in Guinea Pigs. Innovations in Countermeasures and Toxicology Research (ICTR) Conference, Chicago, Illinois, June 1-3, **2026**
2. **N. Massey**, S. Sundara Vasanthi, C. Meyer, N. Rao, C. Wang, S. S. Kannurpatti, T. Thippeswamy; The Brain's SOS, A Systems Approach to Neuroinflammation, Seizures, and Recovery post-Soman Exposure. Society for Neuroscience, San Diego, November 15-19, **2025**
3. **Nyzil Massey**, Suraj S. Vasanthi, Christina Meyer, Nikhil S. Rao, and Thimmasepttappa Thippeswamy. Saracatinib in diet modifies soman-induced (GD) long-term neurotoxicity in a rat model. The 17th Annual CounterACT Network Research Symposium in Salt Lake City, Utah, June 3-5, **2024**
4. **Nyzil Massey**, Suraj S. Vasanthi, Christina Meyer, Nikhil S. Rao, and Thimmasepttappa Thippeswamy. Saracatinib in diet modifies soman-induced (GD) long-term neurotoxicity in a rat model. Orlando, FL, December 1-5, **2023**
5. **Nyzil Massey**, Suraj S. Vasanthi, Manikandan Samidurai, Nikhil S. Rao, Meghan Gage, and Thimmasepttappa Thippeswamy. 1400W, A Selective iNOS Inhibitor Mitigates Early

6. **N. Massey**, D. Shrestha, S. M. Bhat, N. Kondru, A. G. Kanthasamy, L. A. Karriker, and C. Charavaryamath. Suppression of cGAS-STING pathway or inhibition of mitochondrial NOX-2 reduces organic dust induced mitochondrial DNA driven inflammation in microglia. Anaheim CA, March 15-19, **2020**
7. **Nyzil Massey**, Denusha Shrestha, Sanjana Mahadev-Bhat, Locke A Karriker, Anumantha G Kanthasamy, and Chandrashekhhar Charavaryamath. "Title" Organic dust induces mitochondrial and E.R. stress response in activated microglia." The FASEB Journal 2019 33:1_supplement, 451.3-451.3 Orlando, April, 6-10, **2019**
8. **Nyzil Massey**, Sreekanth Puttachary, Sanjana Mahadev-Bhat, Denusha Shrestha, Anumantha G. Kanthasamy, and Chandrashekhhar Charavaryamath "Title" Ethyl Pyruvate Reduces Swine Barn Dust Exposure Induced Brain Microglial Cell Inflammatory Responses via Targeting HMGB1-RAGE Signaling" The FASEB Journal 2018 32:1_supplement, 781.7-781.7 San Diego, April, 21-25, **2018**
9. **Nyzil Massey**, Sreekanth Puttachary, Sanjana Mahadev-Bhat, Denusha Shrestha, Anumantha G Kanthasamy, and Chandrashekhhar Charavaryamath "Title" Swine Barn Dust Exposure Activates Microglia through Induction of Oxidative Stress and the Resultant Neuroinflammation Appears to Involve HMGB1 and RAGE Signaling" The FASEB Journal 2017 31:1_supplement, 747.2-747.2 Chicago, April, 22-26, **2017**

SCIENTIFIC CONTRIBUTIONS (voluntary)

Guest Editor

1. Cells (MDPI): Special issue "*Mechanisms and Biomarkers of Neurotoxicity: From Molecular Pathways to Therapeutic Interventions.*"

Peer Reviewer for Scientific Journals

1. Scientific Reports
2. Journal of Neuroinflammation, Springer Nature
3. Cell Biology and Toxicology, Springer Nature
4. Frontiers in Molecular Neuroscience (special issue: Brain Disease Mechanisms)
5. Frontiers in Cell and Developmental Biology Signaling
6. Frontiers in Public Health
7. Frontiers in Neurology Epilepsy
8. Frontiers in Environmental health and Exposome
9. The International Journal of Biochemistry & Cell Biology
10. Metabolic Brain Disease, Springer Nature
11. Brain And Behavior, Clarivate
12. Toxicological Sciences

PROFESSIONAL MEMBERSHIP

1. Society for Neuroscience **(2025-present)**
2. American Epilepsy Society **(2022-2024)**
3. American Society of Investigative Pathology **(2019 - 2020)**
4. American Association of Anatomists **(2016 - 2019)**

TEACHING EXPERIENCE

Graduate Teaching Assistant, Veterinary Physiology

Fall 2015 – Spring 2021

Department of Biomedical Sciences, Iowa State University, Ames, IA

Course	Years	Systems	Duties	Number of students	Number of lab hours/week
BMS 333	6 years (July 2015-May 2021)	1. Type of cells and tissue 2. Cardiovascular system 3. Respiratory System 4. Urinary System	1. Get students acquainted with various organ system's microscopic anatomy and how they correlate with their functioning. 2. Conducted lab overviews independently at the beginning of each lab prepared by the Professor in charge. 3. Lab reviews once a week during office hours in a one-on-one session. 4. Conducted reviews following each lab exam. 5. Graded all the assignments and exams. 6. Posted final results at the end of the course.	129-137 students per year	3-hour lab twice a week.
BMS 334	6 years (July 2015-May 2021)	1. Immune system 2. Integument 3. Digestive system 4. Endocrine System 5. Reproductive System	**Similar to BMS 333 1. Prepared a lab lecture on the female reproductive system	129-137 students per year	3-hour lab twice a week.

RESEARCH MENTORING

Graduate Research Assistants

- **Suraj Sundara Vasanthi (Biomedical Sciences)**
- **Sirisha Puducode Parameswaran (Biomedical Sciences)**

Undergraduate Research Assistants

2023

- **Adriana Carlo**, Animal Science
- **Brooke Corson**, Animal Science
- **Josie Huss**, Animal Science (Pre-Vet)
- **Claire Holtkamp**, Chemistry
- **Jada Wilson**, Biology
- **Kiara Quijano**, Animal Science
- **Parker Champion**, Kinesiology and Health

2024

- **Jonathan Acevedo**, Kinesiology and Health
- **Jacob Olson**, Genetics
- **Eliza Beebout**, Genetics
- **Saul J Pantoja-Gutierrez**, Ronald E. McNair Postbaccalaureate Achievement Program
- **Arann Raven**, Biology
- **Christopher J Buchwald**, Kinesiology
- **Grace Lacanglacang**, Animal Science

2025

- **Hung P Doan**, Software Engineering
- **Abby H Gibson**, Psychology
- **Diana C Lebron Ortiz**, Biology
- **Chelsea Jimenez**, Biology
- **Ethan G Sproule**, Biology
- **Christine I Murphy**, Biochemistry

HONORS & AWARDS

1. **Postdoc of the Year**, College of Veterinary Medicine, Iowa State University **(2025)**
2. **Graduate Student of the Year**, College of Veterinary Medicine, Iowa State University **(2021)**
3. **Veterinary Biomedical Science Graduate Research Award (2021)**
4. **Lora and Russ Talbot Graduate Fellowship (2020)**
5. **Research Excellence Award**, Iowa State University, Biomedical Sciences **(2020)**
6. **Best Poster Award (CVM Research Day, Iowa State University, 2020)**
7. **Best poster award (Graduate and Professional Student Research Conference, Iowa State University 2019)**
8. **3rd position in poster presentation (CVM research day, 2019)**
9. **Teaching Excellence Award**, Iowa State University, Biomedical Sciences **(2018)**
10. **Best poster award (Neuroscience Research Day, Iowa State University 2018)**
11. **Presidential Scholarship**, Iowa State University **(Aug 2015- May 2017)**

AWARDS/GRANTS

1. *"Travel Stipend Award"* Innovations in Countermeasures and Toxicology Research (ICTR) Conference Chicago, Illinois, June 1-3. **\$1500, (2026)**
2. *"Graduate Student Travel Grant"* Society of Toxicology, Anaheim, March 15-19 by CEGER, University of Iowa, Iowa City, IA. **\$500 (2020)**
3. *"Professional Development Grant"* awarded by Graduate and Professional Student Research Conference, Iowa State University, for Society of Toxicology, Anaheim, March 15-19. **\$200 (2020)**
4. *"International Student Travel Grant"* awarded by the College of Veterinary Medicine, Iowa State University, Ames, IA, for Experimental Biology, Orlando, April 6-10. **\$500 (2019)**
5. *"Graduate Student Travel Grant"* awarded by the American Association of Anatomists for Experimental Biology, Orlando, April 6-10. **\$300 (2019)**
6. *"Graduate Student Travel Grant"* awarded by the Department of Biomedical Sciences for Experimental Biology San Diego, April 21-25. **\$500 (2018)**
7. *"Professional Development Grant"* awarded by Graduate and Professional Student Research Conference, Iowa State University for Experimental Biology, San Diego, April 21-25. **\$200 (2018)**
8. *"Graduate Student Travel Grant"* awarded by the American Association of Anatomists for Experimental Biology, San Diego, April 21-25. **\$300 (2018)**
9. *"Graduate Student Travel Grant"* for Experimental Biology Chicago, April 22-26 by CEGER, University of Iowa, Iowa City, IA. **\$750 (2017)**
10. *"Graduate Student Travel Grant"* awarded by American Association of Anatomists for Experimental Biology, Chicago, April 22-26, **\$300 (2017)**

LEADERSHIP & ORGANIZATIONAL SKILLS

1. **Treasurer** (ISU Bhangra Student Organization, Iowa State University, **2017 - 2018**)
2. **Vice-President** (BMS Graduate Student Organization, **2016 - 2017**)
3. Organized a cricket match between CVM faculty and students (**2017**)
4. Working in a Non-Profit has given me the experience to resolve and manage conflict situations and to think in terms of a group trying to integrate every individual. (**2013 - 2015**)
5. Organized an Animal Birth Control/Anti-rabies camp at a high-altitude Himalayan village (**2013**).
6. My job as an Assistant Block Technology manager has allowed me to gain abilities of good Communication skills, teamwork, and management of unforeseen situations. (**2011 - 2012**)

WORK EXPERIENCE (BVSc. / DVM)

Veterinary surgeon (Volunteer)

March 2015 – June 2015

Animal SOS Sri Lanka, Non-Profit (coolingkim@aol.com)

- Attended to more than 1000 animals daily in a pet clinic for daily clinical, pre-operative, and postoperative management.
- Managed clinical and Daily care of the animals in the shelter after the rescue.

Veterinary Surgeon/Educationalist (Volunteer)

June 2014 - February 2015

Baan Unrak Thai Animal Sanctuary, Non-Profit (gemmashford@hotmail.com)

- Attended to 80 animals daily in a pet clinic for clinical, preoperative, and postoperative management.
- Conducted routine spay and neuter of 300 dogs and cats, and other non-elective surgeries, and organized spay/neuter camps.
- Trained 8 newly graduated veterinarians in basic surgical procedures and small animal clinic management.

Veterinary Surgeon

August 2013 – May 2014

Dharamsala Animal Rescue, Non-Profit (darescue@gmail.com)

- Organized and participated in vaccination camps and animal birth control camps in different parts of India and worked with experienced veterinarians from different parts of India and the world.
- Attended to 150 animals daily in a pet clinic and provided daily clinical, preoperative, and postoperative management.
- Operated and managed a mobile clinic that works on a helpline, and at-the-spot treatment for large and Small Animals was provided.

Assistant Block Technology Manager

April 2012 – July 2013

Agriculture Technology Management Agency, India (pd@atmachamba.org)

- Extension work, skill development, training, exposure visits, farm schools, and treating the livestock of village people in one of the 7 blocks in my district were the main parts of the job.