



Suren Bandara, PhD

Current Position

Senior Health Scientist

Discipline Areas

- > Neurotoxicology
- > Pharmaceuticals
- > Consumer products
- > Pesticides

Years' Experience

2 Years

Joined Cardno

2017

Education

- > PhD, Neuroscience, University of Illinois Urbana-Champaign, Urbana, 2015
- > BS, Biology, minor Chemistry, Indiana University of Pennsylvania, Indiana, PA, 2007

Summary of Experience

Suren Bandara is a Senior Health Scientist with Cardno ChemRisk. His principal areas of training and expertise are in toxicology, pharmacology, and human health risk assessment. Dr. Bandara completed his PhD in Neuroscience with a focus on Neurotoxicology at the University of Illinois Urbana-Champaign, where he managed a research project focused on identifying the ototoxic effects of developmental exposure to polychlorinated biphenyls (PCBs). As a postdoctoral fellow at the University of California-Davis he developed a novel zebrafish model of seizures. This model was used to develop novel mechanistically targeted anticonvulsants against chemical threat agents, including potent pesticide induced seizures.

As a consultant, Dr. Bandara's primary areas of practice include active pharmaceutical ingredients/supplements, chlorinated compounds, including PCBs, and herbicides/pesticides. Additionally, Dr. Bandara has studied the health effects of exposure to a wide range of industrial compounds, including cobalt, lead, cyanide and asbestos. Dr. Bandara has published multiple abstracts and peer-reviewed publications on various toxicology, environmental, occupational, and risk-related topics.

Significant Projects

Pharmaceuticals and Nutraceuticals

Performed occupational safety assessments on multiple active pharmaceutical ingredients and raw materials for various clients. Specifically, prepared occupational exposure limits/cleaning validation limits as well as occupational banding assignments according to ICH guidelines and industry standards.

Led research efforts to identify/quantify the presence of active pharmaceutical ingredients (API) and heavy metals, and to determine the human health risk associated with ingestion of contaminated supplements. Prepared a framework to determine the risk of supplement contamination, including APIs.

Polychlorinated Biphenyls

Led research efforts to understand the toxicology, potential exposures, and subsequent health risks associated with potential PCB exposure from a school building. Research included compilation of the analytical environmental data, exposure assessment, and a deep dive evaluation and critical assessment of potential health effects of PCB exposure.

While as a doctoral student Dr. Bandara investigated the effects of developmental exposure to PCBs on ototoxicity and whether early life PCB exposure exacerbates noise induced hearing loss in adulthood in a rat model. Dr. Bandara also investigated whether developmental PCB exposure increased audiogenic seizure (AGS) susceptibility later in life and identified the underlying molecular pathways involved.

Herbicides/Pesticides

Led a research effort to determine the *in vivo* (animal) toxicology, and potential human health risks associated with glyphosate exposure. Provided a critical evaluation of the clinical and nonclinical data to determine the existence of an association between glyphosate exposure and non-Hodgkin's Lymphoma, and other health endpoints.

While a postdoctoral fellow at UC Davis, Dr. Bandara designed and performed experiments to screen for novel anticonvulsants against the now banned pesticide Tetramethylenedisulfotetramine (TETS), a potential chemical threat agent, on a novel zebrafish model of seizures. He developed methods to perform EEG analysis in zebrafish larvae and designed high throughput assays to identify potential anticonvulsants that could be translated for human use in case of an accidental or intentional TETS poisoning. He also used advanced genetic tools, such as morpholino oligonucleotides and CRISPR-Cas9 gene editing systems to isolate the molecular target(s) of TETS, a major scientific gap in anticonvulsant therapy development for TETS induced seizures.

Medical Devices and Proposition 65

Performed research tasks for a consortium of 14 medical device companies addressing regulatory challenges regarding the classification of the carcinogenic and reproductive hazard potential of cobalt in the European Union.

Performed research tasks for a large consumer product and pharmaceutical company regarding the Prop 65 classification of an over-the-counter pharmaceutical.

Xenobiotic exposure modeling

Conducted research to determine the physiological and neurobehavioral effects of exposure to the phytoestrogen genistein in a rat model of human menopause. This project was the first to determine that phytoestrogens found in supplements claiming 'natural alternatives to hormone replacement therapy' may have negative consequences on neurobehavioral endpoints such as working memory.

Professional Honors/Awards

- > Poster award: 1st place at the UC Davis Postdoctoral research symposium, 2017; University of California-Davis, Davis, CA
- > Poster award: 3rd place at the International Society of Toxicology (NTSS), 2017; Baltimore, MD
- > TL1 Postdoctoral Fellowship in Clinical and Translational research 2016-2017; University of California-Davis, Davis, CA
- > Poster award: 2nd place at the Midwest chapter of Society of Toxicology annual meeting, 2014; Chicago, IL
- > Predoctoral traineeship: Environmental Toxicology Scholar, National Institutes of Health, 2013-2015; University of Illinois Urbana Champaign, Urbana IL.
- > Ranked 'Outstanding' by the Center for Teaching Excellence's list of teachers ranked as excellent, 2011-2012; University of Illinois Urbana Champaign, Urbana IL.

Membership and
Service to
Professional
Societies

- > Member of the Society of Toxicology (SOT)
- > Member of International Society for Pharmaceutical Engineering (ISPE)
- > Member of the Genetic and Environmental Toxicology Association of Northern California (GETA)
 - Business representative (2019-current)
- > Member of the Northern California chapter of Society of Toxicology (NorCal SOT); postdoctoral representative 2017
 - Postdoctoral representative (2017)
- > Member of the Developmental Neurotoxicology Society (DNS), 2012-2015

Publications

Peer-Reviewed Publications

- > Eichenbaum G, Murray J, Monnot AD, Jacobson-Kram D, Cohen, SM, Hardisty J, Bandara SB, Kovochich M, Deore M, Pitchaiyan S, Gelotte C, Lai, JC, Atillasoy E, Hermanowski-Vosatka A, Kuffner E, Unice K, Yang K, Gebremichael, Y, Howell BA. A Critical Review of the Acetaminophen Preclinical Carcinogenicity and Tumor Promotion Data and Their Implications for its Carcinogenic Hazard Potential. *Regulatory Toxicology and Pharmacology*. Accepted.
- > Bandara SB, Towle KM, Monnot AD. A human health risk assessment of heavy metal ingestion among consumers of protein powder supplements. *Toxicology Reports*. Accepted. doi.org/10.1016/j.toxrep.2020.08.001.
- > Bandara SB, Carty DR, Miller GW, Singh V, Harvey DJ, Vasylieva N, Pressly B, Wulff H, Lein PJ. 2020. Susceptibility of larval zebrafish to the seizurogenic activity of GABARAR antagonists. *Neurotoxicology*. doi: 10.1016/j.neuro.2019.12.001.
- > Hobson BA, Rowland DJ, Siso S, Guignet MA, Harmany ZT, Bandara SB, Saito N, Harvey DJ, Bruun DA, Garbow JR, Chaundhari AJ, Lein PJ. 2019. TSPO PET Using [18F]PBR111 Reveals persistent neuroinflammation following acute diisopropylfluorophosphate intoxication in the rat. *Toxicological Sciences*. DOI. 10.1093/toxsci/kfz096.
- > Kundu P, Korol DL, Bandara S, Monaikul S, Ondera CE, Helferich WG, Khan IA, Doerge DR, Schantz SL. 2018. Licorice root components mimic estrogens in an object location task but not an object recognition task. *Horm Behav*. 2018 Jul;103:97-106.
- > Kundu P, Neese SL, Bandara S, Monaikul S, Helferich WG, Doerge DR, Khan IA, Schantz SL. 2018. The effects of the botanical estrogen, isoliquiritigenin on delayed spatial alternation. *Neurotoxicol Teratol*. 2018 Mar - Apr;66:55-62.
- > Bandara SB, Sadowski RN, Schantz SL, Gilbert ME. 2017. Developmental exposure to an environmental PCB mixture delays the propagation of electrical kindling from the amygdala. *Neurotoxicology*. Jan;58:42-49.
- > Sadowski RN, Stebbings KA, Slater BJ, Bandara SB, Llano DA, Schantz SL. 2016. Developmental exposure to PCBs alters the activation of the auditory cortex in response to GABAA antagonism. *Neurotoxicology*. Sep;56:86-93.
- > Bandara SB, Eubig PA, Sadowski RN, Schantz SL. 2016. Developmental PCB Exposure Increases Audiogenic Seizures and Decreases Glutamic Acid Decarboxylase in the Inferior Colliculus. *Toxicol Sci*. Feb;149(2):335-45.

- > Poon E, Bandara SB, Allen JB, Sadowski RN, Schantz SL. 2015. Developmental PCB exposure increases susceptibility to audiogenic seizures in adulthood. *Neurotoxicology*. Jan;46:117-24.
- > Neese SL, Bandara SB, Schantz SL. 2013. Working memory in bisphenol-A treated middle-aged ovariectomized rats. *Neurotoxicol Teratol*. Jan-Feb;35:46-53.
- > Neese SL, Bandara SB, Doerge DR, Helferich WG, Korol DL, Schantz SL. 2012. Effects of multiple daily genistein treatments on delayed alternation and a differential reinforcement of low rates of responding task in middle-aged rats. *Neurotoxicol Teratol*. Jan-Feb;34(1)

Peer Reviewer

- > Neurotoxicology
- > Neurotoxicology and Teratology
- > Applied Toxicology and Pharmacology
- > Food and Chemical Toxicology

Presentations

- > Bandara SB. (2020). A discussion of the Scientific and legal issues in the growing glyphosate litigation. DRI-Products Liability conference. New Orleans, LA.
- > Bandara SB, Towle KM, Novick RM, Monnot AD. (2018). A human health risk assessment of heavy metal ingestion among consumers of protein powder supplements. Poster presented at Society of Toxicology meeting; San Antonio, TX.
- > Bandara SB, Feldman DH, Miller GW, Lein PJ. (2017). Differential seizure susceptibility to GABAA receptor antagonists in larval zebrafish. Poster presented at Society of Toxicology meeting; Baltimore, MD.
- > Bandara SB, Feldman DH, Miller GW, Lossin C, Lein PJ. (2016) Larval zebrafish as a model for discovering therapeutics for chemical threat agent-induced seizures. Poster presented at Society of Toxicology meeting; New Orleans, LA.
- > Bandara SB, Eubig, P, Sadowski RN, Schantz SL. (2014) Developmental PCB exposure and increased seizure susceptibility. Poster presented at 8th International PCB workshop, Woods Hole, MA.
- > Bandara SB, Sadowski R, Schantz SL, Gilbert ME. (2014) Developmental exposure to PCBs differentially alters sensitivity to audiogenic and kindling-induced seizures in rats. Poster presented at Society of Toxicology meeting, Phoenix, AZ.
- > Bandara SB. (2013) PCBs and Auditory Function: A New Story about an Old Contaminant. Invited talk at Midwestern SOT, Chicago, IL.
- > Bandara SB, Schantz SL. (2013) Developmental exposure to BPA does not affect the proper maturation and function of outer hair cells in the cochlea of rats. Poster presented at Developmental Neurotoxicology Society meeting, Tuscan, AZ.
- > Poon E, Bandara SB, Schantz SL. (2012) Developmental exposure to PCBs increases the susceptibility to audiogenic seizures in a rat model. Poster presented at Society of Toxicology meeting; San Francisco, CA.
- > Poon E, Bandara SB, Schantz SL. (2011) Does developmental exposure to PCBs exacerbate noise-induced hearing loss and increase susceptibility to audiogenic

seizures? Poster presented at the University of Illinois Toxicology Open House; Urbana, IL.

- > Neese SL, Bandara SB, Doerge DR, Helferich WG, Korol DL, Schantz SL. (2009) Effects of multiple daily genistein treatments on delayed alternation and a differential reinforcement of low rates of responding task in middle-aged rats. Poster presented at the Society of Neuroscience Convention; Chicago, IL.