

Curriculum Vitae

DORELA DORIS SHUBONI-MULLIGAN

NIH NEURO-ONCOLOGY BRANCH
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EDUCATION

Michigan State University East Lansing, MI
Ph.D., Behavioral Neuroscience 2013
Dissertation: *Masking: The Acute Effects of Light on the Brain and Behavior*
M.A., Behavioral Neuroscience 2011
Mentor: Dr. Laura Smale

Albion College Albion, MI
B.A. with honors, Biochemistry (Minors: Cell/Molecular Biology & Psychology) 2009
Thesis: *An Exploration of Circadian Rhythms: Pheromones, Hormones, and Phase Shifts*
Mentor: Dr. Tammy Jechura

EMPLOYMENT

National Institute of Health, Neuro-Oncology Branch Bethesda, MD
CRTA Postdoctoral Fellow 2017- Present
The role of circadian rhythms in brain cancer patients
Mentors: Dr. Terri S. Armstrong and Dr. Mark Gilbert

Michigan State University East Lansing, MI
Postdoctoral Researcher 2013-2017
Molecular imaging in Diabetes and Brain Cancer
Mentor: Dr. Erik M. Shapiro

PROFESSIONAL EXPERIENCE

RESEARCH EXPERIENCE:

National Institute of Health, Neuro-Oncology Branch Bethesda, MD
CRTA Postdoctoral Fellow, Mentors: Terri S. Armstrong and Mark Gilbert 2017- Present
The role of circadian rhythms in brain cancer patients

- Managed 3 parallel independent projects focusing on using circadian rhythms techniques to examine brain cancer.
 1. *Develop a novel animal model of irradiation-induced hypersomnia to elucidate the impact of treatment on circadian physiological and behavioral rhythms.*
Mentor: Terri S. Armstrong
 - i. *Establish the monitoring system, video tracking software, in an aging paradox to track sleep and circadian rhythms.*
 - ii. *Determine dose response curve and symptom trajectory of radiation on sleep and circadian rhythms.*

- iii. *Testing the impact of clock gene polymorphisms on sensitivity for developing radiation-induced hypersomnia in a humanize GEMM mouse model.*
 - 2. *Examine time-of-day effect (chronotherapy) of irradiation on the circadian system and brain cancer in vitro.*
Mentors: Terri S. Armstrong and Mark Gilbert
 - 3. *Clinical Trial to quantify the impact of sleep and circadian rhythms in brain tumor patients using smart wearables.*
Mentor: Terri S. Armstrong
- Collaborate with world renowned researchers at the NIH and beyond: Dr. DeeDee Smart, Dr. Jeeva Munasinghe, Dr. Lino Tessarollo, Dr. Yogita Chudasama, and Dr. Ghislain Breton.
- Presentation of data at international conferences, writing animal-use-protocols, manuscripts, and grants for independent research.
- Mentored undergraduate and postbaccalaureate students with independent projects.
- Primary trainer (4 years) for postbaccalaureate researchers and technicians: Animal Handling, Circadian rhythms analysis, and cell culture.

Michigan State University, Department of Radiology

East Lansing, MI

Postdoctoral Researcher, Mentor: Erik M. Shapiro

2013- 2017

Molecular imaging in Diabetes and Brain Cancer

- Managed 2 parallel independent projects focusing on utilizing magnetic resonance imaging to monitor disease.
 - 1. *Examine the migratory behavior of glioma cells in vivo and in vitro via Micrometer-sized iron oxide particle labeled cells and MRI.*
 - 2. *Quantifying liver and kidney functionality and health in diabetic rodents using FDA-approved contrast agents and MRI*
- Presentation of data at international conferences, wrote animal-use-protocols and manuscripts, and assisted in grant preparation.
- Mentored undergraduate and graduate students with independent projects.
- Primary trainer (4 years) for fellow postdoctoral researchers and technicians: Animal Handling, Surgery, and *in vivo* imaging on MRI and CT.

Michigan State University, Department of Psychology

East Lansing, MI

Graduate Researcher, Advisor: Laura Smale

2009- 2013

Understanding the effects of Light on the Mammalian Brain and Behavior

- Conducted independent research to examine temporal niche switching and their effects on circadian rhythms and masking in animals through behavioral, histological, and surgical (lesion) approaches.
- Presentation of data at national conferences, wrote manuscripts for publication in peer-reviewed journals, and assisted in grant preparation.
- Mentored undergraduate students with independent projects
- Primary trainer (3 years) for incoming postdoctoral researchers and graduate students: Animal Handling, Surgery, Behavioral Analysis, Cryosectioning, and Histology.

Albion College, Department of Psychology

Albion, MI

Undergraduate Researcher, Advisor: Tammy Jechura

2005- 2009

The Effects of Non-Photic Zeitgebers on the Circadian Systems recovery from Jet-Lag

- Conducted independent research to examine the impact of non-photic environmental stimuli (alcohol, pheromones, and exogenous hormones) on the expression of circadian wheel running rhythms in animals.
- Colony management, including maintaining a high standard of care, monitoring conditions, and sustaining breeding pairs.
- Oral presentation of data at local conferences and poster presentation at national neuroscience conferences.
- Primary trainer (3 years) for fellow undergraduates: Animal Handling, Collection of Behavioral Data, and Analysis with Clocklab Software.

Wayne State University, Institute of Environmental Health

Detroit, MI

Student Technician, Advisor: Xiaoxin Susan Xu and Gan Wang

Summer 2005

An investigation of DNA repair and apoptosis mechanisms triggered by DNA damage

- Laboratory management, including organization of laboratory equipment, ordering of supplies, and daily preparations of solutions.
- Basic cell culture skills, including learning sterile technique, weekly passaging and final harvesting of cell pellets for digestion.
- Westerns blot analysis of cell preparation, including making and running of gels, transfer of protein to membrane and ECL.

TEACHING EXPERIENCE:**National Institute of Health**

Bethesda, MD

9-week Training Course Participant, Scientists Teaching Science

2018

Professor Barbara Houtz

Michigan State University

East Lansing, MI

Guest Lecture, *Brain and Behavior* (PSY209),

Professor Laura Smale

2016

Laboratory Guest Lecture, *Medical Neuroscience* (NOP552),

Professor John Johnson

2014-2015

Laboratory Guest Lecture, *Neuromusculoskeletal System* (OST571),

Professor John Johnson

2014

Teaching Assistant, *Child and Family Psychopathology* (PSY424),

Professor Emily Durbin

2013

Teaching Assistant, *Introductory Psychology* (PSY740),

Professor Linda Jackson

2012

Teaching Assistant, *Social Psychology* (PSY235),

Professor Spee Kosloff

2011

Teaching Assistant, *Developmental Psychology* (PSY244),

Professor Lauren Harris

2010

Teaching Assistant, *Brain and Behavior* (PSY209),

Professor Castillo-Ruiz

2010

Guest Lecture, *Brain and Behavior* (PSY209),

Professor Castillo-Ruiz

2010

Teaching Assistant, *Introductory Psychology* (PSY101),

Professor Robert Caldwell

2009

Albion College	Albion, MI
Guest Lecture, <i>Introductory Psychology</i> (Psychology 101), Professor Tammy Jechura	2016
Mentorship / Mentees	
Shannon Cramm, <i>Undergraduate (MSU, Neuroscience)</i> Coauthored 2 papers, Graduated University of Michigan School of Medicine, currently PGY-3 Surgical Resident at Massachusetts General Hospital	2009-2011
Jennifer Langel, <i>Graduate Student (MSU, Neuroscience)</i> Acknowledged 2 papers, Graduated Michigan State University PhD., currently post-doctoral research associate at National Institute of Mental Health	2010-2013
Amna Agha, <i>Postbaccalaureate (MSU, Neuroscience)</i> Coauthored 1 paper, currently graduate student at Michigan State University	2011-2012
Thomas Groves, <i>Postbaccalaureate (MSU, Neuroscience)</i> Coauthored 1 paper, currently graduate student at Western Michigan University	2011-2013
Aaron Schwartz-Duval, <i>Undergraduate and Postbaccalaureate (MSU, Radiology)</i> Coauthored 1 paper, Graduated University of Illinois Ph.D., currently post-doctoral research associate at MD Anderson	2013-2015
Eric Swy, <i>Undergraduate (MSU, Radiology)</i> Coauthored 1 paper, Graduated Michigan State University College of Human Medicine, currently Diagnostic Radiology Resident at University of Cincinnati	2013-2014
Stacy Forton, <i>Undergraduate (MSU, Radiology)</i> Coauthored 1 paper, currently Medical Student at Michigan State University College of Human Medicine	2014-2017
Alexander Wolf, <i>Undergraduate and Postbaccalaureate (MSU, Radiology)</i> Coauthored 1 paper, currently applying to Physician Assistant Schools	2015-2017
Faryal Mir, <i>MD/PhD Student (MSU, Radiology)</i> Coauthored 1 paper, currently Medical Student at Michigan State University College of Human Medicine	2016-2017
Madeline Dahut, <i>Rotational Graduate Student (George Washington University, Immunology)</i> Coauthored 4 abstracts, currently PhD candidate at National Cancer Institute	2019
Demarrius Young, Jr., <i>Postbaccalaureate (NIH, Neuro-Oncology Branch)</i> Coauthored 3 abstracts, currently preparing medical school applications	2019-Present
Julianie De la Cruz Minyety, <i>Postbaccalaureate (NIH, Neuro-Oncology Branch)</i>	2019-Present

EDITORIAL EXPERIENCE:

- NCI Fellows Editorial Board Reviewer, January 2019 – Present
- Approved Reviewer for American Diabetes Associations' Peer-Reviewed Journals:
Diabetes; Diabetes Care, Clinical Diabetes and Diabetes Spectrum
- Invited Reviewer for Select Manuscripts: *Chronobiology International* (3 Reviews), *Journal of Neuro-Oncology* (2 Reviews); *Cancers* (1 Review); *Translational Cancer Research* (1 Review); *Beneficial Microbes* (1 Review); *Diabetes Care* (1 Review); *The FEBS Journal* (1 Review); *Science* (1 Review)

COMMUNITY OUTREACH:**National Institute of Health:**

NCI Fellows Editorial Board Reviewer	January 2019 – Present
DCDP Outreach at University of District of Columbia	August 2019
Neuro-Oncology Branch Social Committee	2018 – 2020
Postbac Poster Day Judge – Office of Intramural Training & Education	2018

Michigan State University:

University Undergraduate Research and Arts Forum Poster Judge	2016 & 2017
Neuroscience Fair Booth Leader – Neuroscience Program Outreach	2013
The Brain Bee Preparation Mentoring - Neuroscience Program Outreach	2011

Albion College:

Sleep Team: Sleep Hygiene Booth Presenter – Calhoun County Fair	2008
Classroom Student Mentor (weekly) - Washington Gardner Middle School, Mrs. Hawkins	2007
- Harrington Elementary School, Mrs. Kotas	2006

PUBLICATIONS:**Clinical Trials:**

Assessing sleep and circadian rhythms in primary brain tumor patients: An observational study, ClinicalTrials.gov Identifier: NCT04669574.

Peer-Reviewed Manuscripts:

Shuboni-Mulligan D.D., Young Jr. D., De La Cruz Minyety J., Briceno N., King A., Munasinghe J., Wang H., Gilbert M.R., Smart D.K., and Armstrong T.S. (Under Review) Histological analysis of sleep and circadian brain circuitry in cranial radiation-induced hypersomnolence (C-RIH) mouse model.

King A., **Shuboni-Mulligan D.D.**, Vera E., Crandon S., Acquaye A.A., Boris L., Burton E., Choi A., Christ A., Gonzalez Alarcon J., Grajkowska E., Jummula V., Leeper H., Leggiero N.M., Lollo N., Penas-Prado M., Reyes J., Theeler B., Wall K., Wu J., Gilbert M.R., and Armstrong T.S. (Under Review) Exploring the prevalence and burden of sleep disturbance in primary brain tumor patients.

De La Cruz Minyety J., **Shuboni-Mulligan D.D.***, Briceno N., Gilbert M.R., Celiku O., and Armstrong T. (2021) Association of Circadian Clock Gene Expression with Glioma Tumor Microenvironment and Patient Survival. *Cancers*, 13(11), 2756. ***Co-first Author** Association of Circadian Clock Gene Expression with Glioma Tumor Microenvironment and Patient Survival. *Cancers*, 13(11), 2756.

Shuboni-Mulligan D.D., Young D.L. Jr., De La Cruz Minyety J., Vera E., Munasinghe J., Gall A.J., Gilbert M., Armstrong T.S. and Smart D.K. (2021) Impact of age on the circadian visual system and daily rhythms of the sleep-wake cycle in mus musculus. *NPJ aging and mechanisms of disease*, 7(1), 1-14.

Chakravarty S., Hix J., Wiewiora K.A. Volk M.C., Kenyon E., **Shuboni-Mulligan D.D.**, Blanco-Fernandez B., Kiupel M., Thomas J., Sempere L.F., and Shapiro E.M. (2020) Tantalum oxide nanoparticles as versatile contrast agents for X-ray computed tomography. *Nanoscale*, 12(14): 7720-7734.

- Shuboni-Mulligan D.D.**, Breton G., Smart D.K., Gilbert M. and Armstrong T.S. (2019) Radiation Chronotherapy - Clinical Impact of Treatment Time-of-Day: A Systematic Review. *Journal of Neuro-Oncology*, 145(3): 415-427.
- Shuboni-Mulligan D.D.**, Cavanaugh B.L., Tonson A., Shapiro E.M. & Gall A.J. (2019). Functional and anatomical variations in retinorecipient brain areas in *Arvicanthis niloticus* and *Rattus norvegicus*: implications for the circadian and masking systems. *Chronobiology International*, 36(11):1464-1481.
- Shuboni-Mulligan D.D.**, Chakravarty S., Mallett C.L., Wolf A., Dmitriev P., Forton S., & Shapiro E.M. (2019). In vivo serial MRI of age-dependent neural progenitor cell migration in the rat brain. *NeuroImage*, 199, 153-159.
- Fogo G.M., **Shuboni-Mulligan D.D.**, & Gall A.J. (2019). Melanopsin-containing ipRGCs are resistant to excitotoxic injury and maintain functional non-image forming behaviors after insult in a diurnal rodent model. *Neuroscience*, 412, 105-115.
- Mir F.F., Tomaszewski R.P., **Shuboni-Mulligan D.D.**, Mallett C.L., Hix J.M., Ether N.D., & Shapiro E.M. (2019). Chimeric mouse model for MRI contrast agent evaluation. *Magnetic resonance in medicine*, 82(1), 387-394.
- Dorela Shuboni-Mulligan**, Maciej Parys, Barbara Blanco-Fernandez, Christiane Mallett, Regina Schnegelberger, Marilia Takada, Bruno Hagenbuch, Erik Shapiro (2018) Dynamic contrast-enhanced magnetic resonance imaging of OATP dysfunction in diabetes. *Diabetes*.
- Mallett C.L., **Shuboni D.D.***, Shapiro E.M. Tracking neural progenitor cell migration in the rodent brain using magnetic resonance imaging. (2018) *Frontiers Neuroscience*. ***Co-first Author**
- Afridi M.J., Ross A., Liu X., Bennewitz M.F., **Shuboni D.D.**, Shapiro E.M. (2017) Intelligent and automatic in vivo detection and quantification of transplanted cells in MRI. *Magnetic Resonance in Medicine*, 78(5):1991-2002.
- Chakravarty S., Unold J., **Shuboni-Mulligan D.**, Blanco-Fernandez B., Shapiro E. (2016) Surface Engineering of Bismuth Nanocrystals to Counter Dissolution. *Nanoscale* 8: 13217-13222.
- Shuboni D.D.**, Agha A.A., Groves T.K., Gall A.J. (2016) The contribution of the pineal gland on daily rhythms and masking in diurnal grass rats, *Arvicanthis niloticus*. *Behavioral Processes*, 128: 1-8.
- Gall A.J., **Shuboni D.D.**, Yan L., Nunez A.A., Smale L. (2016) Suprachiasmatic nucleus and subparaventricular zone lesions disrupt circadian rhythmicity but not light-induced masking behavior in Nile grass rats. *Journal of Biological Rhythms*, 31(2): 170-181.
- Roach D.R., Garrett W.M., Welch G., **Shuboni-Mulligan D.**, Caperna T.J., Talbot N.C., Shapiro E.M. (2015) Magnetic cell labeling of primary and stem cell-derived pig hepatocytes for MRI-based cell tracking of hepatocyte transplantation. *PLoS ONE*, 10(4):e0123282.

Shuboni D.D., Cram S., Yan L., Ramanathan C., Cavanaugh B.L., Nunez A.A., Smale L. (2015) Acute effects of light on the brain and behavior of diurnal *Arvicanthis niloticus* and nocturnal *Mus musculus*. *Physiology & Behavior*, 138:75-86.

Swy E.R., Schwartz-Duval A.S., **Shuboni D.D.**, Latourette M.T., Mallet C.L., Cormode D.P., Shapiro E.M. (2014) Dual-modality, fluorescent, PLGA encapsulated bismuth nanoparticles for molecular and cellular fluorescence imaging and computed tomography. *Nanoscale*, 6: 13104-13112.

Shuboni D.D., Cram S., Yan L., Nunez A.A., Smale L. (2012) Acute Behavioral Responses to Light and Darkness in the Nocturnal *Mus Musculus* and Diurnal *Arvicanthis niloticus*. *Journal of Biological Rhythms*, 27(4): 299-307.

Shuboni D. and Yan L. (2010) Nighttime dim light exposure alters the responses of circadian system. *Neuroscience*, 170(4): 1172-1178.

Manuscripts in Preparation:

Barbara Blanco-Fernandez, Yasser Aldhamen, **Dorela D. Shuboni-Mulligan**, Shatadru Chavaharty, Christiane Mallett, Patrick O'Connell, Laura Szkolar, Andrea Amalfitano, Erik M. Shapiro (In Preparation) Dibutrylchitin and chitin nanoparticles are potent self-adjutant vaccine nanocarriers.

Shuboni-Mulligan D.D., Blanco-Fernandez B., Chakravarty S., Gallo K., Shapiro E.M. (In Preparation) Micrometer-sized iron oxide particles as a vehicle for measuring cancer cell invasion in an extracellular matrix medium-throughput MRI *in vitro* assay.

Skolar Sienkiewicz L.H.R., **Shuboni-Mulligan D.D.**, Mallet C.L., Wolf A., Shapiro E.M. (In Preparation) Cellulose based Release ACTivated Iron Oxide Nanoparticles (REACTION) as a smart MRI contrast agent for MRI-based cell tracking of transplanted cells.

Conference Presentations:

Oral Presentations:

Mir, F., Tomaszewski, R.P., **Shuboni-Mulligan, D.D.**, Mallett, C.L., Hix, J.M.L., Ether, N.D., and Shapiro E.M. Chimeric mouse model for MRI contrast evaluation. Oral Presentation, ISMRM, Montreal, Canada, 2019

Shuboni-Mulligan D., Mir F., Mallett C.L., and Shapiro E.M. Measuring Liver Reduction in diabetes by Quantitative Dynamic Contrast-Enhanced MRI. Oral Presentation, Contrast Media Research, Durango, Colorado, 2017.

Shuboni-Mulligan D. and Shapiro E.M. Micrometer-sized iron oxide particles as a vehicle for measuring cancer cell invasion in an *in vitro* MRI assay. Oral Presentation, Michigan Regional Postdoctoral Symposium, Wayne State University, Detroit, Michigan, 2017.

Mir F., **Shuboni-Mulligan D.**, Mallett C.L., and Shapiro E.M. Humanized Mouse Model for MRI Contrast Agent Evaluation. Oral Presentation, World Molecular Imaging Congress, Philadelphia, Pennsylvania, 2017.

Shuboni D.D., Mallett C.L., Pary M., Blanco-Fernandez B. and Shapiro E.M. Dynamic Contrast-Enhanced Magnetic Resonance Imaging: A Pre-Clinical Approach to Detect and Monitor Diabetes. Oral Presentation, International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, 2017.

Szkolar-Sienkiewicz L., **Shuboni-Mulligan D.D.**, Mallett C.L., and Shapiro E.M. Novel Polymer and Peptide REACTION-based Theranostics for MRI. Oral Presentation, International Society for Magnetic Resonance in Medicine, Honolulu, Hawaii, 2017.

Chakravarty S., Unold J., **Shuboni-Mulligan D.D.**, Blanco-Fernandez B. and Shapiro E.M. Polymer encapsulated bismuth nanoparticles surface engineered to counter dissolution. Oral Presentation, World Molecular Imaging Congress, New York City, New York, 2016.

Shuboni D. and Jechura T.J. The Effect of Incremental Changes in Light Onset on the Reentrainment Rate of 12-h Phase Shifted *Octodon degus*. Presentation. Elkin Isaac Symposium, Albion College, 2008.

Shuboni D. and Jechura T.J. The Effect of Incremental Changes in Light Onset on the Reentrainment Rate of 12-h Phase Shifted *Octodon degus*. Podium, Michigan Undergraduate Psychology Research Conference MUPRC, Albion College, 2008.

Shuboni D. and Jechura T.J. The Effect of Alcohol and Pheromones on the Reentrainment Rate of *Octodon degus*. Podium. Elkin Isaac Symposium, Albion College, 2007.

Poster Presentations:

Shuboni-Mulligan D., Dahut M., Young D., Gilbert M., and Armstrong T. Circadian rhythms and radiation chronotherapy in glioblastoma cell lines and central nervous system cell controls. Poster Presentation, Society for Neuro-Oncology, Phoenix, Arizona, 2019.

Young D., Smart D.K., King A., Gilbert M., Armstrong T., and **Shuboni-Mulligan D.D.** Dose response curve for radiation-induced hypersomnolence (RIH) in a mouse model of cranial radiation: Behavioral analysis of Sleep and Activity. Poster Presentation, Society for Neuro-Oncology, Phoenix, Arizona, 2019.

Shuboni-Mulligan D., Blanco-Fernandez B., Chakravarty S., and Shapiro E.M. Mri-based cell tracking with individual cell sensitivity for measuring cancer cell invasion. Poster Presentation, Society for Neuro-Oncology, New Orleans, Louisiana, 2018.

- **Published Abstract:** *Neuro-Oncology*, Volume 20, Issue suppl_6, November 2018, Page vi30, <https://doi.org/10.1093/neuonc/nyy148.113>

Figiel C., **Shuboni-Mulligan D.**, Armstrong T., and Smart D.K. Validation of behavioral analysis across age in a mouse model for future investigation of radiation-induced hypersomnolence (RIH) in primary brain tumor (PBT) patients. Poster Presentation, Society for Neuro-Oncology, New Orleans, Louisiana, 2018.

- **Published Abstract:** *Neuro-Oncology*, Volume 20, Issue suppl_6, November 2018, Page vi224, <https://doi.org/10.1093/neuonc/nyy148.928>

- Shuboni D.D.**, Mallett C.L., Pary M., and Shapiro E.M. A new magnetic resonance imaging biomarker for diabetes. Poster, World Molecular Imaging Congress, New York City, New York, 2016.
- Szkolar-Sienkiewicz L., **Shuboni-Mulligan D.D.**, Mallett C.L., Wolf A.M. and Shapiro E.M. Enzymatically cleavable biopolymer coated iron oxide nanoparticles for monitoring stem cell transplants *in vivo* using MRI. Poster, World Molecular Imaging Congress, New York City, New York, 2016.
- Afridi M.J., Ross A., Liu X., Bennewitz M.F., **Shuboni D.D.** and Shapiro E.M. Intelligent and automatic *in vivo* detection and quantification of transplanted cells in MRI. Poster, World Molecular Imaging Congress, New York City, New York, 2016.
- Shuboni D.D.**, Shapiro E.M., Schwartz-Duval A.S. Controlled passive release of iron oxide through content manipulation. Poster, World Molecular Imaging Congress, Seoul, South Korea, 2014.
- Mallett C.L., **Shuboni D.D.**, Schwartz-Duval A.S., Swy E.R., Latourette M.T., Parys M., Cormode D.P., and Shapiro E.M. Dual-modality, fluorescent, PLGA-encapsulated bismuth nanoparticles: A novel nanoparticle platform for molecular and cellular computed tomography. Poster, World Molecular Imaging Congress, Seoul, South Korea, 2014.
- Gall A.J., **Shuboni D.D.**, Nunez A.A., Yan L., and Smale L. Excitotoxins cause significant damage to the SCN and SPZ of diurnal grass rat, but this damage does not interfere with light-induced masking behavior. Poster, Society for Research in Biological Rhythms, Big Sky, Montana, 2014.
- Shuboni D.D.**, Cram S., Yan L., Nunez A.A., Smale L. Masking responses and light-induced changes in Fos expression in nocturnal and diurnal rodents. Poster, Society for Research in Biological Rhythms, Sandestin, Florida, 2012.
- Gall A., **Shuboni D.**, Nunez A., Yan L., and Smale L. The intergeniculate leaflet (IGL) shows differential responses to light in diurnal and nocturnal rodents and contributes to the display of a day-active profile. Poster, Society for Research in Biological Rhythms, Sandestin, Florida, 2012.
- Shuboni D.** and Yan L. Nighttime dim light exposure alters the responses of circadian system. Poster, Society for Research in Biological Rhythms, Sandestin, Florida, 2010.
- Jechura T.J. and **Shuboni, D.D.** The Effect of Incremental Changes in Light Onset on the Reentrainment Rate of 12-h Phase Shifted *Octodon degus*. Poster, Society for Research in Biological Rhythms, Sandestin, Florida, 2008.
- Shuboni D.** and Jechura T.J. The effect of olfactory cues and alcohol on the phase shifting female rodent, *Octodon degus*. Poster, Society for Research in Biological Rhythms, Sandestin, Florida, 2008.

Shuboni D. and Jechura T.J. The Effect of Alcohol and Pheromones on the Reentrainment Rate of *Octodon degus*. Poster. Michigan Undergraduate Psychology Research Conference MUPRC Calvin College, 2007.

Shuboni D., Sprague H., Jechura T.J. The effects of enriched maternal environments and support on the cognitive performances of offspring in *Octodon degus*. Poster. Michigan Undergraduate Psychology Research Conference MUPRC Adrian College, 2006.

HONORS AND AWARDS:

National Institutes of Health	Bethesda, MD
Diversity Career Development Program Fellow	2018-2019
Cold Spring Harbor Brain Tumor Course Participant	2018
CRTA Fellowship	2017-Present
Michigan State University	East Lansing, MI
Research Assistantship Neuroscience Program's Training Grant from the NIH (T32 MH070343) under Dr. Marc Breedlove	2011-2012
Teaching Assistantship MSU Psychology Department	2009-2013
Albion College	Albion, MI
Ned Garvin Ned Garvin Prize for Neuroscience	2009
Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA) Summer Research Program Award, "The Relationship between Progesterone levels and Olfactory Cues on Responsiveness in the Female Diurnal Rodent, <i>Octodon degus</i> "	2008
Richard K. Vitek Chemistry Scholarship	2008
Lepard Family Pre-Medical Scholarship	2007
FURSCA Research Grant, "The Effects of Seasonal Changes in Light Onset on the Re-entrainment Rate of 12-h Phase-Shifted <i>Octodon degus</i> "	2007
FURSCA Summer Research Program Award, "The effects of enriched maternal environments and support on the cognitive performances of offspring in <i>Octodon degus</i> "	2006
Albion College Presidential Academic Scholarship	2005

TECHNICAL SKILLS:

Small Animal Experience:

- | | |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| - Handling: Rat, Mouse, Degu, and Grass Rat | - Live Animal Imaging: Bruker 7T MRI, GE |
| - Behavioral Tests: Elevated Plus Maze and Open Field Test | eXplore Locus μ CT, Perkin Elmer IVIS Spectrum |
| - Activity Monitoring: Running Wheel, IR Sensor, Video Sleep Recording, and Telemetry | - Survival General Surgery: Ovariectomy, Telemetry Transmitter Implantation, Bilateral |

- Enucleation and Unilateral Ureter Obstruction*
- Survival Cranial Stereotaxic Surgery: *Pinealectomy, Excitotoxic Lesion, Intraventricular/Intracranial Particle Injection, and Glioma Inoculation*
- Terminal Procedures: *Transcardial Perfusions, Rapid Decapitation, Retinal Extractions, and Bile Duct Cannulation for Beta Islet Isolation*
- Neurogenesis Monitoring: *BrdU injection and histology*

Analytical Experience:

- Confocal and Light Microscopy
- Immunohistofluorescence: *Triple-Labeling*
- Immunohistochemistry: *Single and Double-labeling*
- ImageJ: *cell number and volume quantifications - qPCR*
- Western Blot Analysis
- ELISA
- Flow Cytometry

LANGUAGES:

English: Spoken and Written (Native)
Romanian: Spoken (Fluent)

- Silastic Hormone Capsule Implantation
- Tail Vein Catheterization: *Rat and Mouse*
- Rat Intubation/Ventilation
- Whole Body Irradiation: *X-RAD 320*
- Blood Collection: *Retro-orbital, Tail Vein, and Cardiac Puncture*
- Injections: *Intraocular, Retro-Orbital, Intracardiac, Intrafemoral, I.V., I.P., and S.C.*
- Tissue Harvesting: *Brain, Liver, Kidneys, Pancreas, Bone Marrow, Muscle, Retina and Spleen*

- MTT assay
- ICP-OES: *Iron, Bismuth, and Gadolinium*
- Statistical Analysis

Computer Proficiency:

Microsoft Office Suite, SPSS, Lieca Application Suite, NIS-Elements, Bruker Paravision 5.0/6.0, GE eXplore Locus, Perkin Elmer Live Image Software, ImageJ, VitalView, ClockLab, and SA