



Faculty and Staff Information

Chair – Santosh D’Mello, PhD 2–7
Stephanie Aamodt 8-14
Stephen Banks 15-17
Beverly Burden 18
Matyas Buzgo 19–23
Amy Erickson 24-38
Mike Maguigan 39
Elahe Mahdavian 40–44
Stuart Nielsen 45–48
Vonny Salim 49–52
Peter Siska 53-55
Stephanie Villalba 56-58

Santosh D'Mello, PhD



Professor & Chair

PhD: University of Pittsburgh

Postdoctoral training: Boston University Medical School;

The Institute of Neurobiology, CNR – Rome

Office: SC104A

Tel: 318-795-2417

Fax: 318-797-5090

Email: santosh.dmello@lsus.edu

Teaching interests

Will be teaching *Neuroscience-I* (3 credits) and *Molecular basis of brain development* (3 credits) and degeneration starting Spring 2022 and *Neuroscience-II* in starting Fall 2022.

Research interests

Molecular mechanisms regulating neurodegeneration & brain development

Research in the lab is centered on understanding the molecular mechanisms regulating neurodegeneration. Specifically, primary cultures of neurons, transgenic and knockout mice, and animal models of neurological disease are used to study genes, proteins, and signal transduction pathways regulating neuronal cell death. We are also interested in identifying chemical compounds that protect the brain from neurodegeneration. The long-term objective of the laboratory's research is to develop strategies to prevent, treat, or cure degenerative diseases of the brain. Recently, we have expanded our interests to investigate neurodevelopmental disorders also. Our research has been funded by grants from the National Institutes of Health (NIH), Department of Defense, the National Science Foundation and private foundations. Our ongoing research on neurodegeneration and neurodevelopmental disorders is described below.

Neurodegenerative disorders

Neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease (PD), and Huntington's disease (HD) are progressive and fatal disorders affect millions of individuals in the

U.S. alone costing the economy over \$100 billion annually. While there are drugs that can reduce the symptoms associated with some of these diseases (for example, Parkinson's disease), they do not slow down the relentless loss of neurons and therefore the disease progresses. Our lab is interested in identifying molecules that regulate the survival or death of neurons and whose altered function contributes to neurodegenerative disorders. Once identified, such molecules can then be targeted in the development of effective therapeutic strategies for these disorders. Much of our focus has been on histone deacetylases (HDACs) a family of 18 proteins initially identified based on their ability to repress gene expression through the deacetylation of histones, but which are now known to have a variety of other functions mediated through the deacetylation of non-histone proteins residing in the nucleus, cytoplasm or mitochondria. In studies supported by the NIH, we discovered that activation of one of the members of this family of proteins, HDAC3, plays a central role in promoting neurodegeneration. We are studying the mechanism by which HDAC3 promotes neurodegeneration.

The lab is also interested in FoxG1, a protein belonging to the Forkhead family of transcription factors that is critical for proper brain development where it controls the production of neurons by regulating proliferation of neural progenitor cells. Mice that lack FoxG1 have a severely underdeveloped brain and die early during gestation. But FoxG1 is highly expressed in the adult brain where its function had not been studied. We recently found that FoxG1 maintains the survival of mature neurons. We have been investigating the molecular mechanism through which the activity of FoxG1 is regulated and the mechanism by which FoxG1 affects other molecules to maintain the survival of neurons. As part of an NIH-funded project, we generated transgenic mice that express elevated levels of FoxG1. These mice will be used to test whether elevated FoxG1 can protect mice against neurodegenerative diseases such as Huntington's disease. Another Forkhead protein of interest to the lab is FoxP1. FoxP1 is expressed selectively in the striatum and cortex, two regions of the brain that are selectively degenerate in HD. In studies funded by the NIH we found that FoxP1 expression is reduced in the striatum of HD patients and in HD mouse models. This reduction likely contributes to the loss of neurons in HD. In humans, FoxP1 mutations cause mental retardation and other cognitive deficits.

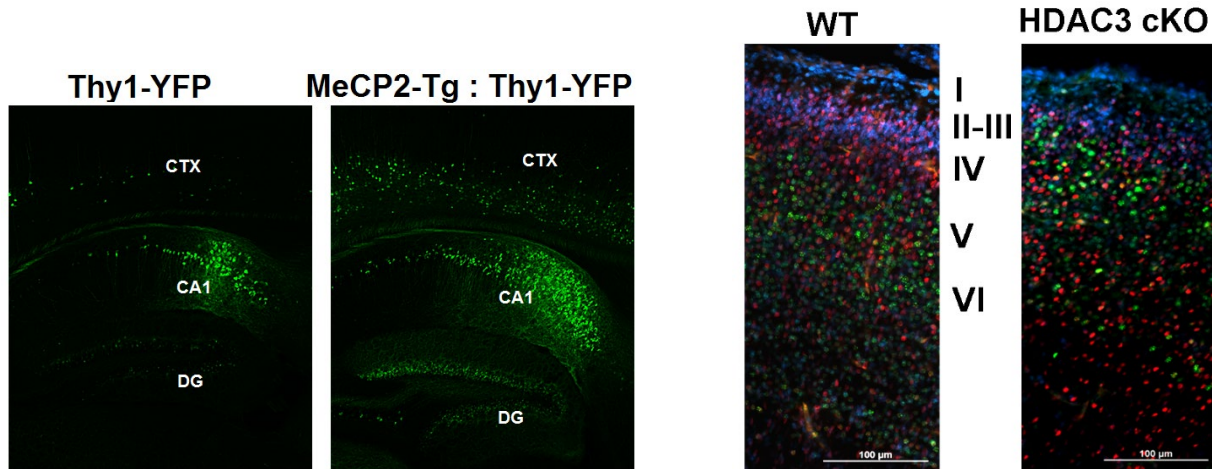
In addition to understanding the molecular biology of neurodegeneration the lab has been identifying chemical compounds that protect neurons from death. This drug discovery effort has led to the identification of several indolone and benzoxazine compounds that are highly protective in cell culture models and animal models of neurodegenerative diseases. Exactly how these neuroprotective compounds act is an area of interest.

Neurodevelopmental disorders

We have recently become interested in MeCP2, a gene that can repress gene transcription globally as well as locally. Loss-of-function mutations in the MeCP2 gene cause Rett syndrome, a neurodevelopmental disorder characterized by a slowing of development, loss of purposeful use of the hands, distinctive hand movements, slowed brain and head growth, problems with walking, seizures, and intellectual disability. On the other hand, elevated activity of MeCP2 as a result of gene duplication or triplication causes another neurological disorder called MeCP2 duplication syndrome. Patients with this disorder are born normal but then display progressive mental retardation, spasticity, epilepsy, and die at adulthood. We are studying MeCP2

duplication syndrome using transgenic mice that make 3-4 times more MeCP2 than normal. Like patients with MeCP2 duplication syndrome, these mice display neurological deficits and die early in adulthood. The mice display neuronal loss in certain brain regions coincident with the neurological symptoms and just before they die. We are characterizing other abnormalities in the MeCP2 transgenic brain with the goal of getting a better understanding of why human patients with MeCP2 duplication syndrome suffer the neurological phenotype that they do. A recent discovery we have made is that astrocytes within certain brain regions of the MeCP2 transgenic mice have high levels of a protein called GFAP. Interestingly, increased GFAP production is the primary cause of another neurological brain disorder called Alexander disease, characterized by spasticity, mental retardation, and seizures. These symptoms are also observed in many patients with MeCP2 duplication syndrome. We are exploring whether MeCP2 duplication syndrome and Alexander disease share mechanistic commonalities.

While abnormal function of HDAC3 contributes to neurodegeneration, recent research in the lab on brain-specific conditional knockout mice has revealed that HDAC3 plays an essential role in brain development. Neuronal migration and formation of proper lamination in the cortex is disrupted in mice lacking HDAC3 in the brain. Exactly how HDAC3 regulates proper brain development is being studied.



Supernumerary neurons in the hippocampus of MeCP2 transgenic mice

Disrupted lamination in the cortex of HDAC3 conditional knockout mice

Selected publications

Wang L, Ankanti H, Akubathini S, Balderamos M, Storey C, Patel AV, Kretzschmar D, Biehl ER, D’Mello SR. (2010) 1, 4- benzoxazine compounds as novel neuroprotective agents. *J. Neurosci. Res.* 88: 1970-1984.

Ankanti H, Akubathini SK, D’Mello SR., Biehl ER (2010) Synthesis of 2-Benzylidene and 2-Hetarylmethyl Derivatives of 2H-1,4-Benzoxazin-3-(4H)-ones as Neuroprotective Agents” *Synth. Communications* 40: 2364–2376

Zhao K, Ippolito G, Wang L, Price V, Kim MH, Cornwell G, Fulenchek S, Breen GA, Goux WJ, D'Mello SR. (2010) Neuron-selective toxicity of tau peptide in a cell culture model of neurodegenerative tauopathy: essential role for aggregation in neurotoxicity. *J Neurosci Res.* 88:3399-3413.

Chen HL, D'Mello SR. (2010) Induction of neuronal cell death by paraneoplastic Ma1 antigen. *J Neurosci Res.* 88:3508-3519.

Dastidar SG, Landrieu PM, D'Mello SR. (2011) FoxG1 Promotes the Survival of Postmitotic Neurons. *J Neurosci.* 31:402-413.

Ma C, D'Mello SR. (2011) Neuroprotection by histone deacetylase-7 (HDAC7) occurs by inhibition of c-jun expression through a deacetylase-independent mechanism. *J. Biol. Chem.* 286:4819-4828.

Bardai FH, D'Mello SR. (2011) Selective toxicity by HDAC3 in neurons: Regulation by Akt and GSK3 β . *J. Neurosci.* 31:1746-51.

In the list of 50 most downloaded Journal of Neuroscience papers, March 2011

Garcia-Oscos F, Salgado H, Hall S, Thomas F, Farmer GE, Bermeo J, Galindo LC, Ramirez RD, D'Mello S, Rose-John S, Atzori M. (2011) The stress-induced cytokine interleukin-6 decreases the inhibition/excitation ratio in the rat temporal cortex via trans-signaling. *Biol Psychiatry.* 71:574-582.

Ghosh Dastidar S, Bardai F, Ma C, Price V, Rawat V, Verma P, Narayanan V, D'Mello SR. (2012) Isoform-specific toxicity of Mecp2 in postmitotic neurons: Suppression of neurotoxicity by FoxG1. *J. Neurosci.* 32:2846-2855.

Ghosh Dastidar S, Narayanan S, Stifani S, D'Mello SR. (2012) Transducin-like enhancer of Split-1 (TLE1) combines with Forkhead box protein G1 (FoxG1) to promote neuronal survival. *J Biol Chem.* 287:14749-14759.

Bardai FH, Price V, Zaayman M, Wang L, D'Mello SR. (2012) Histone deacetylase (HDAC1) is a molecular switch between neuronal survival and death. *J Biol Chem.* 287:35444-35453.
Paper of the week (Oct 2012), Best neuroscience paper (2012)

Price V, Wang L, D'Mello SR (2013). Conditional deletion of HDAC4 in the CNS has no major effect on brain architecture or neuronal viability. *J. Neurosci. Res.* 91:407-15.

Bardai FH, Verma P, Smith C, Rawat V, Wang L, D'Mello SR. (2013) Disassociation of HDAC3 from normal huntingtin underlies mutant huntingtin neurotoxicity. *J. Neurosci.* 33:11833-11838.

Rangaswamy S, D'Mello SR, Narayanan V (2013) Epigenetics, Autism Spectrum, and Neurodevelopmental Disorders. *Neurotherapeutics* 10:742-756.

Verma P, Pfister, JA, Mallick S, D'Mello SR (2014) HSF1 protects neurons through a novel trimerization and HSP independent mechanism. *J Neurosci.* 34:1599-1612.

Mallick S. and D'Mello SR. (2014) JAZ (Znf346), a SIRT1-interacting protein protects neurons by stimulating p21 (WAF/CIP1) expression. *J. Biol. Chem.* 289:35409-35420.

Norwood J, Franklin JM, Sharma D, D'Mello SR. (2014) Histone deacetylase-3 is necessary for proper brain development. *J. Biol. Chem.*289: 34569-34582.

Garcia-Oscos F, Peña D, Housini M, Cheng D, Lopez D, Borland MS, Salgado-Delgado R, Salgado H, D'Mello S, Kilgard MP, Rose-John S, Atzori M. (2015) Vagal nerve stimulation blocks interleukin 6-dependent synaptic hyperexcitability induced by lipopolysaccharide-induced acute stress in the rodent prefrontal cortex. *Brain Behav Immun.* 43: 149-158.

Sharma D, Kim MS, D'Mello SR (2015). Transcriptome profiling of expression changes during neuronal death by RNA-Seq. *Exp. Biol. Med.*. 240:242-51.
Selected as the feature article for the February 2015 issue. Was also featured in a press release.

Rawat V, Goux W, Piechaczyk M and D'Mello (2016) C-Fos protects neurons through a non-canonical mechanism involving HDAC3 interaction: Identification of a 21 amino acid fragment with neuroprotective activity. *Mol. Neurobiology* 53:1165-1180.

Pfister J and D'Mello SR. (2015) Insights into the regulation of neuronal viability by Nucleophosmin/B23. *Experimental Biology and Medicine* 240:774-786.

Smith C and D'Mello SR (2016) Cell and context-dependent effects of the heat shock protein DNAJB6 on neuronal survival. *Mol. Neurobiol.* 53: 5628-5639

Pfister JA and D'Mello SR (2016) Regulation of neuronal survival by nucleophosmin 1 (NPM1) is dependent on its expression level, subcellular localization and oligomerization status. *J. Biol. Chem.*291:20787-20797.

Louis Sam Titus ASC, Yusuff T, Cassar M, Thomas E, Kretzschmar D, D'Mello SR (2017) Reduced Expression of Foxp1 as a Contributing Factor in Huntington's Disease. *J. Neurosci.*37:6575-6587.

Thomas EA and D'Mello SR (2018). Complex neuroprotective and neurotoxic effects of histone deacetylases. *J. Neurochem.*145:96-110.

Qu, Z and D’Mello SR. (2018) Proteomic analysis identifies NPTX1 and HIP1R as potential targets of HDAC3-mediated neurodegeneration. *Exp. Biol. Med.* 243:627-638

Montgomery KR, ASC Louis Sam Titus, Wang L, D’Mello SR (2018) Elevated MeCP2 in Mice Causes Neurodegeneration Involving Tau Dysregulation and Excitotoxicity: Implications for the Understanding and Treatment of MeCP2 Triplication Syndrome. *Molecular Neurobiology* 55:9057-9074.

Qu Z, Xuan Z, D’Mello SR. Neuroprotection by Heat Shock Factor-1 (HSF1) and Trimerization-Deficient Mutant Identifies Novel Alterations in Gene Expression (2018). *Sci Reports* 8(1):17255.

Pfister JA, Ma Chi, D’Mello SR (2019) Catalytic-independent neuroprotection by SIRT1 is mediated through interaction with HDAC1. *PLoSOne* 14(4):e0215208

Louis Sam Titus ACS, Sharma D, D’Mello SR. (2020) The BDNF and Npas4 genes are targets of HDAC3-mediated transcriptional repression. *BMC Neuroscience* 28;20(1):65.

D’Mello SR. (2020) Regulation of CNS Development by Class I HDACs. *Developmental Neuroscience*. 41:149-165.

D’Mello SR.(2020) Histone deacetylase-3: Friend and foe of the brain. *Exp Biol Med* 245:1130-1141.

D’Mello SR and Kindy M. (2020) Overdosing on iron: Elevated iron and degenerative brain disorders. *Exp Biol Med* 245:1444-1473

D’Mello SR (2021) When Good Kinases go Rogue: GSK3, p38 MAPK and CDKs as Therapeutic Targets for Alzheimer’s and Huntington’s disease. *International Journal of Medical Sciences* 22(11):5911. doi: 10.3390/ijms22115911).

D’Mello SR. (2021) MECP2 and the Biology of MeCP2 Duplication Syndrome. *J. Neurochem.* doi: 10.1111/jnc.15331. (*Online ahead of print*).

Stephanie Aamodt, PhD



Professor
Department of Biological Sciences
Louisiana State University in Shreveport
Phone: 318.797.5214
Fax: 318.797.5222
Office: SC 114a
e-mail: stephanie.aamodt@lsus.edu

Professional Experience

Louisiana State University-Shreveport, Shreveport, LA
2005-present Professor, Dept. of Biological Sciences
2015-2020 Director, LSUS Quality Enhancement Plan
2000-2005 Chair, Department of Biological Sciences
1998-2005 Associate Professor, Dept. of Biological Sciences
1993-98 Assistant Professor, Dept. of Biological Sciences
1992-93 Instructor, Depts. of Biological Sciences and Chemistry
1991-92 Adjunct Instructor, Depts. of Biological Sciences and Chemistry

Louisiana State University Health Sciences Center-Shreveport, Shreveport, LA
2005-2006 Sabbatical, Dr. Tony Giordano, Director of the Biotechnology Program, mentor.

Tufts University School of Medicine, Boston, MA,
1977-79 Research Assistant, Dept. of Biochemistry and Pharmacology.

Education and Training

Postdoctoral Research Associate, Northwestern University School of Medicine, Dept. of Cell Biology and Anatomy, Chicago, IL, 1984-87

PhD in Molecular Biology, Vanderbilt University, Nashville, TN, 1984

BS in Biology, Bates College, Lewiston, ME, 1977

Publications

E. Aamodt and S. Aamodt (2006) Neural Specification and Differentiation in the Neurobiology of *C. elegans*, Academic Press, 74-99.

S. Aamodt, P. Polk and E. Aamodt (1999) Deletion Mutation of *C. elegans* PTL-1, a Tau Homologue. Molecular Biology of the Cell (abstract).

S. Aamodt (1997) PTL-1, the tau-like microtubule-associated protein from *C. elegans*. Dev. Biol. 186: 302 (abstract).

J.B. McDermott, S. Aamodt and E. Aamodt (1996) *ptl-1*, a *Caenorhabditis elegans* gene whose products are homologous to the tau microtubule associated proteins. Biochemistry 35 (29): 9415-9423.

Teaching Experience: Undergraduate

Courses recently taught:

Fundamentals of Biology I (BIOS 110, for majors) Summer 2014-2019

Fundamentals of Biology II (BIOS 120, for majors) Fall 1995-2004, 2005, 2006, 2007, 2009, 2011, 2014, 2019; Spring 2008, 2009, 2013, 2020, 2021 Summer 2001, 2004, 2008, 2020, 2021

Endocrinology (BIOS 480), Fall 2007, 2009, 2011, 2013, 2015, 2017, 2020

Histology, Summer 2018-2021

Histology Laboratory, Summer 2018, 2019

Immunology, (BIOS 321/421) Spring 2002, 2004, 2009, 2010, 2012, 2014-2021

Summer 2003, 2008, 2011, 2013, Fall 2006

Immunology Laboratory, Fall 2006, Spring 2009, 2010, 2012, 2014, 2019; Summer 2011, 2013

Introduction to Biological Inquiry (BIOS 210) Spring 2008-2016, Summer 2015-2017, Fall 2008-2016

Parasitology (BIOS 380), Fall 2008, 2010, 2012, 2014, 2017, 2019, 2021

Parasitology Laboratory, Fall 2008, 2012, 2014

Principles of Genetics (BIOS 363) Spring 2020, 2021, Fall 2021

Principles of Genetics Laboratory (BIOS 363L) Fall 1995, 2020, Spring 2020, 2021

Vertebrate Embryology/Developmental Biology (BIOS 375/475) Spring 1994, 1996-2000, 2002, 2004, 2008, 2013, 2016, 2017, 2022, Fall 2010

Vertebrate Embryology Laboratory (BIOS 375L/475L) Spring 1994, 1996-2000, 2002, 2008, 2013, 2022

Courses previously taught:

Biochemistry (CHEM 383,384) Spring 1991-Fall 1992

Biochemistry (BCHM 410) Fall 1999

Biochemistry Laboratory (BCHM 410L) Fall 1999

Freshmen Seminar (FS 104), Fall 2009-2018, Spring 2010, 2011

Fundamentals of Biology Laboratory (BIOS 120L) Spring 1991- Fall 1998

General Biology (BIOS 101, for non-science majors) Fall 1993-Spring 1998, Spring 2000, 2003, 2007, 2015, Summer 2007, Fall 2008, 2013

General Biology Laboratory (BIOS 101L) Fall 1993-Spring 1994, 2005

General Microbiology, Fall 2000

Human Physiology (BIOS 280), Summer 2007, 2009

Human Heredity and Society (BIOS 106) Spring 1995

Integrated Sciences I (SC 101), team-taught with Cynthia Sisson, Fall 2002, team-taught with Laura Whitlock, Fall 2003

Integrated Sciences II (SCI 102), team-taught with Cynthia Sisson, Spring 1999

Integrated Sciences III (SC 103), team-taught with Wayne Gustavson, Fall 2001, 2002

Seminar (BIOS 495) Fall 1994, 1996, 1998, Summer 2002

Special Topics (BIOS 490) Proteomics and Genomics, Spring 2007, Biology for the 21st Century, Spring 2011, Neurobiology, Fall 2015, 2017

Courses taught as 100% online courses: FS 104, BIOS 120, BIOS 120L, BIOS 210, BIOS 363, BIOS 363L, BIOS 434, BIOS 480

Teaching Experience: Graduate

Associate Member of the LSU-S Graduate Faculty

Supervised Paula Polk, MS earned in December 2000, LSU-Shreveport/LSUHSC-S Cooperative Masters Program

600 Level (Since 2011): Advanced Developmental Biology Spring 2015, 2016, 2018; Advanced Immunology Summer 2013, Spring 2015, 2016, 2017, 2019; Advanced Immunology Laboratory, Summer 2013; Advanced Endocrinology, Fall 2015, 2017; Advanced Neurobiology, Fall 2015, 2017; Advanced Parasitology, Fall 2017, 2019; Histology and Histology Laboratory, Summer 2018, 2019

Undergraduate Research Students Supervised (since 2011):

Lydia Angel Scott, Fall 2010 and Spring 2011

Matthew Templeton, Fall 2012

Debra Cordell, Spring 2013

Catie Colvin, Spring 2014

Martin Brigham, Spring 2015

Professional Experience

Co-Instructor, Online Scientific Teaching Institute for LA-SiGMA (Louisiana Alliance for Simulation-Guided materials Applications, (<http://lasigma.loni.org>). Taught a course with Cynthia Sisson for postdocs and graduated students in scientific teaching, July 2012, June 2013, June 2015.

Regional Field Station Leader for [FIRST IV: Faculty Institutes for Reforming Science Teaching for Postdoctoral Research Scholars](#). First IV is supported by NSF DUE 0817224 to Dr. Diane Ebert-May, Michigan State University), 1/2009 – 10/2013. Facilitated four teaching workshops at the University of Georgia Marine Institute and mentored three teams of post-docs in teaching. Scored videos of teaching using the Reformed Teaching Observation Protocol for the grant 2012-2013.

Professional Development

Gordon Research Conference on Undergraduate Biology Education Research, June 23-28, 2019

2012 POGIL (Process Orientated Guided Learning Inquiry) South Central Regional Workshop, 7/10/12 – 7/12/12, University of Texas at Dallas

NSF Chautauqua Short Course for College Teachers in Biomedical Ethics, taught by Denise M. Dudzinski, PhD, MTS, Assistant Professor, Medical Ethics, Department of Medical History & Ethics, University of Washington School of Medicine, University of Washington, July 12-14, 2004.

FIRST II: FIRST II is a National Dissemination Project supported by NSF DUE 0088847 to Dr. Jan Hodder, Oregon Institute of Marine Biology, and Dr. Diane Ebert-May, Michigan State University, to improve the teaching of science (<http://www.first2.org>). I organized LSUS Institutional Team, prepared the application forms, and serve as a member of the team under the Louisiana Universities Marine Consortium Field Station Team.

Bioinformatics, VectorNet Workshop for Biology Teaching Faculty, taught by Uwe Hilgert, Biology Media Educator, and Michael O'Brien, High School Educator, Dolan DNA Learning Center, Cold Spring Harbor Laboratory, June 16-20, 2003. I have used exercises and materials from the course in two courses that I have taught this summer and fall, and have

instructed two other faculty members in the use of the programs and materials available from the Dolan Learning Center.

IEEE Computer Society Bioinformatics Conference Tutorials: “Perl and Bioperl: Tools for Automated Analysis of Biological Sequence Data” and “Comparative Genomics for Biological Discovery”, August 14, 2002

Project Kaleidoscope Summer Institute, “Quantitative Literacy: Everybody’s Orphan” and “Assessment in the Service of Student Learning”, May 29-June 2, 2002

LaCEPT-Sponsored State-Wide Biology Workshop: “Innovation in Large Lectures - Teaching for Active Learning”, Dr. Diane Ebert-May, Louisiana Tech University, Ruston, LA, Jan. 15-16, 1998

Developmental Biology Teaching Laboratory Workshop, Darling Marine Center, University of Maine, July 1-4, 1998.

LaCEPT-Sponsored State-Wide Biology Workshop: “Designing and Running Investigative Laboratories”, Louisiana Tech University, Ruston, LA, May 25-28, 1998

LSU Board of Regents/LaCEPT Annual Conferences: Shaping the Future of Undergraduate Science, Mathematics, Engineering and Technology Education, Jan. 1994, 1995, 1996, 1997, Baton Rouge, LA.

Member of the Project Kaleidoscope Faculty for the 21st Century, Class of 1994. I attended the Project Kaleidoscope Invitational Symposium: Faculty for the 21st Century "Creating Our Futures", October 28-30, 1994 in Atlanta, GA and National Assembly of the Project Kaleidoscope Faculty for the 21st Century, Oct. 11-13, 1996, Kansas City, MO.

Invited Participant: "Biology in Action: New Approaches to Teaching and Learning Science", May 22-25, 1996, Radford University, Radford, VA 24142.

Selected by the LSU Board of Regents as a Summer 1996 LaCEPT Faculty Intern. I participated as a Faculty Intern in the LaSIP Earth Science Teacher Enhancement Program at Centenary College, Shreveport, LA.

Grant Support

Member of the General Biology Lecture and Lab Cohort for the Louisiana Library Network Grant for the Interactive Open Educational Resources (OER) . Summer 2021-2022

Louisiana Board of Regents Support Fund, PI: “Strengthening of Student Preparation in the Biological Sciences Through Training in Inquiry and Computational Biology”, 2009-2011, \$36,400. Funds for the purchase of machine-vision workstations and the preparation of laboratory exercises that use the workstations and data generated with the workstations.

Louisiana Board of Regents Support Fund, PI: "Enhancement of Proteomics and Genomics in the Biological Sciences Curriculum", 2006-2007, \$28,000. Funds for the development of new courses.

North Louisiana Partnerships in Innovation, "Pilot Study to Determine the Feasibility of a New Biotechnology Certificate within the Biology Degree Program", Nov.1, 2004-Oct.31, 2005, \$10,000.

LSU-Shreveport Technology Fee Fund, Equipment and Software for Lecture Capture. 2004-05, \$14,945.

Louisiana Board of Regents Support Fund, PI: "Equipment to Enhance Teaching Genomics in the Biological Sciences Curriculum", 2003-2004, \$64,000. Funds for the upgrading of the Biological Sciences Computer Laboratory.

National Science Foundation MCB 9604180: RUI, PI: PTL-1, A Tau-Like Microtubule-Binding Protein in *C. elegans*, 7/1/97 to 6/30/2002, \$105,000.

Louisiana Board of Regents Support Fund, PI: "Advanced Microscopy Workstations for the Enhancement of Undergraduate Education in Biological Sciences and Integrated Sciences", 2000-01, \$35,000.

Louisiana Board of Regents Support Fund, PI: "Stereomicroscopes for the Enhancement of Upper division Courses in the Biological Sciences", 2000-02, \$70,000.

NSF BIR 9602940, Biological Equipment and Instrumentation Resources Program, PI, A High Speed Centrifuge for Preparation of Biological Materials, 1997-98, \$21,393.

Louisiana Board of Regents Support Fund, Co-PI: Enhancement of Biology and Biochemistry Instruction at LSUS, 1997-1998, \$43,000.

Louisiana Board of Regents Support Fund, Co-PI: Equipment for the Enhancement of Biochemistry and Molecular Biology at LSU-S, 1997-98, \$66,845.

Louisiana Board of Regents Support Fund , Co-PI: Equipment to Facilitate Quantitative Investigations in Introductory Biology Laboratories, 1997-98, \$20,000.

American Heart Association, Louisiana Affiliate, with undergraduate Timothy Chia: Determination of the Loss of Function Phenotype of *C. elegans* ptl-1. \$1600, Summer 1997.

Biomedical Research Foundation of Northwest Louisiana, Co-PI: Equipment to Enhance the Molecular Biology and Biochemistry Teaching and Research at Louisiana State

University-Shreveport, 1996-97, \$16,916.

Service

LSU Shreveport SACS-COC QEP Committee, 2013-2020, QEP Director, 2015-2020

LSU Shreveport Health Sciences Advisory Committee, 1992-

LSUS Faculty Senate Instruction and Professional Development Committee, Chair, 2019-

LSUS Faculty Senate Policy and Personnel Committee, 2017-2019

LSU Shreveport Financial Aid Appeals Committee, 2013-2018

LSU Shreveport Advising Committee, 2009-2014

Stephen W Banks, M.Sc, Ph.D, C.Biol, FIBiol, MRSC



Title: Professor, Chair of Biology

Start Year at LSUS: 1992

Department: Biological Sciences Department

Office Location: Science Building 216

Office Phone: 318-797-5220

Office Fax: 318-797-5222

Email: stephen.banks@lsus.edu

Selected Publications:

**Denotes Undergraduate Student, *Denotes Graduate Student

Banks, S.W., Steele, M.J., Ward, D., and Dewick, P.M., (1982) "Stereochemistry of Isoflavone Reduction during Biosynthesis of (+)-and (-)-Pterocarpan: ^2H Nuclear Magnetic Resonance Studies of the Biosynthesis of (+)-Pisatin and (-)-Medicarpin". *Journal of the Chemical Society: Chemical Communications* 1982 p.147-149.

Banks, S.W., and Dewick P.M., (1982) "Biosynthesis of the 6a-Hydroxy-Pterocarpan: Deuterium NMR evidence for direct Hydroxylation of Pterocarpan" *Zeitschrift Naturforschung* 38c:185-188.

Banks, S.W., and Dewick P.M., (1982) "(-)-Pisatin, an induced metabolite of abnormal configuration from *Pisum sativum*" *Phytochemistry* 21:1605-1608.

Banks, S.W., and Dewick P.M., (1982) "Biosynthesis of the 6a-Hydroxypterocarpan Phytoalexin Pisatin in *Pisum sativum*" *Phytochemistry* 21: 2235-2242.

Banks, S.W., and Dewick P.M.,(1983) "Biosynthesis of Pisatin: Experiments with Enantiomeric Precursors" *Phytochemistry* 22:1591-1595.

Banks, S.W., and Dewick P.M.,(1983) "Biosynthesis of Glyceollins I, II and III in Soybean (*Glycine max*)" *Phytochemistry* **22**:2729-2733.

Smith, D.A., Wheeler, H.E., Banks, S.W. and Cleveland T.E., (1984) "Association between Lowered Kievitone Hydratase Activity and Reduced Virulence to Bean in Variants of *Fusarium solani* f.sp. *phaseoli*" *Physiological Plant Pathology* **25**:135-147.

Smith, D.A., Banks, S.W., (1986) "Biosynthesis, Elicitation and Biological Properties of Isoflavanoid Phytoalexins". *Phytochemistry* **25**:979-995.

Graves, A.E., Goldman, S.L., Banks, S.W., (1988) "Scanning Electron Microscope Studies of *Agrobacterium tumefaciens*: Attachment to *Zea mays*, *Gladiolus* sp., and *Triticum aestivum*". *Journal of Bacteriology* **170**:2395-2400.

Banks, S.W., Gossett, D. R., Lucas, M.C., Millhollon, E. P., **LaCelle, M.G., (1993) "Agrobacterium-Mediated Transformation of Kenaf (*Hibiscus cannabinus* L.) with the *b*-Glucuronidase Gene" *Plant Molecular Biology Reporter* **11**:(2)101-104.

Gossett, D.R., Millhollon, E.P., Lucas, M.C., Banks, S.W., **Marney, M-M., (1994) "The effects of NaCl on antioxidant enzyme activities in callus tissue of salt-tolerant and salt-sensitive cotton (*Gossypium hirsutum* L.) cultivars". *Plant Cell Reports* **13**:498-503.

Gossett, D.R., Banks, S.W., Millhollon, E.P., Lucas, M.C.,(1996) "Antioxidant response to NaCl stress in a control and an NaCl-tolerant cotton cell line grown in the presence of paraquat, butathione, sulfoximine and exogenous glutathione" *Plant Physiology* **112:803-809.**

*Rainwater, D.T., Gossett, D.R., Millhollon, E.P., Hanna, H.Y., Banks, S.W., Lucas, M.C., (1996) "The relationship between yield and the antioxidant defense system in tomatoes grown under heat stress" *Free Radical Research* **25**:421-435.

Manchandia, A.M., Banks, S.W., Gossett, D.R., *Bellaire, B.A., Lucas, M.C., Millhollon, E.P., (1999) "The Influence of α -Amanitin on the Induction of Antioxidant Enzymes during Salt Stress" *Free Radical Research* **30:429-438.

*Rajguru, S.N., Banks, S.W., Gossett, D.R., Lucas, M.C., Fowler, T.E. Millhollon, E.P., (1999) Antioxidant Response to Salt Stress During Fiber Development in Cotton Ovules. *The Journal of Cotton Science* **3**: 11-21. Online at the Cotton Foundation: <http://www.jcotsci.org/1999/issue01/phys/art01/article.pdf>

*Bellaire, B.A., *Carmody, J., *Braud, J., Gossett, D.R., Banks, S.W., Lucas, M.C., *Fowler, T.E. (2000) Involvement of Abscisic Acid-Dependent and -Independent-Pathways in the Up-regulation of Antioxidant Enzyme Activity During NaCl Stress in Cotton Callus Tissue. *Free Radical Research* **33**: 531-545.

Banks, S.W., Shepherd, D.K., Williams-Hart, T., Gossett, D.R., and Crnkovic, A.C. (2007) "Snail shells in a practical application of statistical procedures". *Journal of Biological Education*. **41**: (3) 131-137.

*Vital, S.A., *Fowler, R.W., *Virgen, A., Gossett, D.R., Banks, S.W., Rodriguez, J. (2008) Opposing Roles for Superoxide and Nitric Oxide in the NaCl-Induced Up-Regulation of Antioxidant Enzyme Activity In Cotton Callus Tissue. *Journal of Experimental and Environmental Botany* **62**: 60-68.

Jones, L., Gossett, D.R., Banks, S.W., McCallum, M.L., (2010) Antioxidant Defense System in Tadpoles of the American Bullfrog (*Lithobates catesbeianus*) Exposed to Paraquat *Journal of Herpetology*, **44: (2) 222–228.

Beverly Burden, PhD



Name: Dr. Beverly J Burden

Title: Associate Professor

Start Year at LSUS: 1994

Department: Biological Sciences Department

Office Location: Science Building 115D

Office Phone: 318-797-5088

Email: beverly.burden@lsus.edu

Matyas Buzgo, PhD



Name: Dr. Matyas Buzgo
Title: Associate Professor
Start Year at LSUS: 2007
Department: Biological Sciences Department
School: Mathematics and Sciences
College: Arts and Sciences
Office Location: Science Building 115A
Office Phone: 318-797-5120
Office Fax: 318-797-5222
Email: matyas.buzgo@lsus.edu

Research Interests:

General and Past:

My research interest is evolutionary biology of land plants, especially flowering plants (angiosperms) and non-flowering seed plants (gymnosperms). I am particularly interested in the evolution of development (EvoDevo) of the flower and floral organs, and other reproductive organs. Where did carpels and stamens come from? How did the ancestral organs look and how were they arranged throughout the plant, before we would recognize them as "flower"? Do we have fossil representations of these pre-angiosperms? Apart from the sporangia, what is the principal difference between a vegetative leaf and a floral organ? Is there any, at all?

Actual, and Student Research Opportunities:

Synopsis:

1) Leaf development and evolution in Eusporangiate ferns: Ophioglossaceae and Psilotaceae are odd siblings. We re-examined the morphology of *Psilotum*. and found that the "green aerial frond" corresponds rather to fern leaf than to a stem. With this, *Psilotum* indeed is "similar" to Ophioglossaceae in terms of organ identity of its parts. The differences that makes these taxa so oddly dissimilar are based on differences of their development: Heterochony and Homeotisis.

2) Fern embryology: tip-to-toe embryo

In the very early stage, also the embryo of regular ferns (model organism *Ceratopteris*) develops in a linear, bipolar manner. However, we have not yet identified hypostasis, root initiation in *Ceratopteris*, and we still have a long way to study the embryo of *Psilotum* or *Ophioglossaceae*.

3) Plant tissue culture: Louisiana Iris, day lily

The purpose is to establish a successful protocol for plant tissue cultures derived from shoot apex meristems or parenchyma cells of select organism, such as *Iris* and *Hemerocallis*.

Details:

1) Leaf development and evolution in Eusporangiate ferns

Previous Team: Annie Phanid Miller, Sarah Witherington, Cassie Cole, Dr. Cran M Lucas; BSA 2010 242, 244.

"Ferns" in general (Monilophytes) are the closest relatives of extant seed plants, and many know them as an archaic group of plants, associated with dinosaurs, etc. However, most ferns ("ferns" in the narrow sense) belong to a single group (or "clade") called Leptosporangiate Ferns, based on their very peculiar sporangium. This group radiated relatively recently, and is not really "archaic", but actually modern; sadly, most truly archaic groups have died out. From all the "old style" ferns (eusporangiate ferns), only three groups have survived to today: Horsetails (*Equisetaceae*), Boat-ferns (*Marrattiaceae*), and the group of *Ophioglossaceae* and *Psilotaceae*.

This last group, *Ophioglossaceae* and *Psilotaceae*, is the biggest surprise of the last years' research. *Psilotaceae*, seemingly without leaves and or roots, was long time considered not a fern, but actually older than all other vascular land plants, older even than club-mosses (*Lycophytes*). *Ophioglossaceae*, however, with a peculiar stem growth, vascular system, and an elaborate axial, stem-like outgrowth bearing the sporangia, has been considered closer related to seed plants than normal ferns. Yet, molecular analysis revealed these two "opposite" families as two monophyletic sisters, and within the monilophytes. And: while a review of morphological data showed a great correspondance to molecular findings, it could not copy the molecular data for the *Ophioglossaceae*-*Psilotaceae* clade.

We re-examined the morphology of *Psilotum*. and found that the "green aerial frond" corresponds rather to fern leaf than to a stem. With this, *Psilotum* indeed is "similar" to *Ophioglossaceae* in terms of organ identity of its parts. The differences that meks these taxa so oddly dissimilar are based on differences of their development: Heterochony and Homeosis.

2) Fern embryology: tip-to-toe embryo in c-fern

Previous Team: Christopher Young, Jonette Green, Lauren Woodward.

Psilotum really has no root - what happened to it? Is it initiated in the embryo? Actually, how do ferns in general initiate roots?

Seed plants have a strict bi-polarity in the pro-embryo: suspensor-embryo. The root forms in below the suspensor from a defined cell layer (the "hypostatis"), and grows clearly into the direction opposite to the shoot apex of the embryo. However, in fern embryos we knew, root and shoot apex emerge in one direction, opposite to the suspensor. That is, even the root development of regular ferns is not really understood.

The leptosporangiate fern *Ceratopteris* ("c-fern") is a model organism for fern genetics and development. We established a protocol for its gametophyte cultivation and were able to study the very early embryo development. We found, that in this very early stage, also the fern embryo develops in a linear, bipolar manner. However, we have not yet identified hypostatis, root initiation in *Ceratopteris*, and we still have a long way to study the embryo of *Psilotum* or *Ophioglossaceae*.

3) Plant tissue culture: Louisiana Iris, day lily

The project is in collaboration between LSUS (Biological Sciences) and Plantation Point Nursery (Mooringsport LA). The organisms are Louisiana iris and day lilies (*Iris* section *Apogon* and *Hemerocallis*). The primary intent is to transfer rhizomatous tissue (parenchyma and shoot apex meristems) to a solid growth gel containing cell dedifferentiating growth factors, resulting in a plant tissue callus. A second approach may use seeds as tissue start.

The bulk of storage and maintenance operation would be in Mooringsport and not burden LSUS facilities. It provides the opportunity to train students on a standard method used in agriculture, horticulture, and plant biology. The outlook of this project is to apply the findings onto the fern research project mentioned above.

Selected Publications:

Haiying, L., Carlson, J.E., Leebens-Mack, J.H., Wall, P.K., Mueller, L.A., Buzgo, M., Landherr, L.L., Hu, Y., DiLoreto, D.S., Ilut, D.C., Field, D., Tanksley, S.D., Ma, H. dePamphilis, C.W. 2007. An EST Database for *Liriodendron tulipifera* L. floral buds: the first EST resource for functional and comparative genomics in *Liriodendron*. *Tree Genetics and Genomes* 4(3): 419-433.

Soltis, D.E., Chanderbali, A.S., Kim, S., Buzgo, M., Soltis, P.S. 2007. The ABC model and its applicability to basal angiosperms. *Annals of Botany* 100: 155-163.

Buzgo, M., Chanderbali A.S., Kim, S., Zheng, Z., Oppenheimer, D., Soltis, P.S., Soltis, D.E. 2007. Floral developmental morphology of *Persea americana* (avocado, Lauraceae): the oddities of male organ identity. *International Journal of Plant Sciences* 168 (3): 261-284.

Buzgo, M., Soltis, D.E., Soltis, P.S., Kim, S., Ma, H., Hauser, B.A., Leebens-Mack, J., Johansen, B. 2006. Perianth development in the basal monocot *Triglochin maritima* (Juncaginaceae). - In: Columbus, J.T., Friar, E.A., Porter, J.M., Prince, L.M., Simpson, M.G. (eds), *Monocots: Comparative Biology and Evolution*, (excluding Poales). Claremont, CA, USA: Rancho Santa Ana Botanic Garden, pp. 107-125. (see also Aliso 22).

Soltis, P.S., Soltis, D.E., Kim, S., Chanderbali, A., Buzgo, M. 2006. Expression of floral regulators in basal angiosperms and the origin and evolution of ABC function. - In: Soltis, D.E., Leebens-Mack, J.H., Soltis, P.S. (eds), *Advances in Botanical Research*, Vol. 44, *Developmental Genetics of The Flower*. Elsevier Ltd., London, UK (Academic Press, San Diego CA, USA), pp. 483-506.

Albert, V.A., Soltis, D.E., Carlson, J.E., Farmerie, W.G., Wall, P.K., Ilut, D.C., Solow, T.M., Mueller, L.A., Landherr, L.L., Hu, Y., Buzgo, M., Kim, S., Yoo, M.-J., Frohlich, M.W., Perl-Treves, R., Schlarbaum, S., Bliss, B.J., Zhang, X., Tanksley, S., Oppenheimer, D.G., Soltis, P.S., Ma, H., dePamphilis, C.W., Leebens-Mack, J.H. 2005. Floral gene resources from basal angiosperms for comparative genomics research. *BMC Plant Biology* 5 (1): 5.

Buzgo, M., Soltis, P.S., Kim, S., Soltis, D.E. 2005. The making of a flower. *The Biologist* 52: 149-154.

Buzgo, M., Soltis, P.S., Soltis, D.E. 2004. Floral developmental morphology of *Amborella trichopoda* (Amborellaceae). *International Journal of Plant Sciences* 165: 925-947.

Buzgo, M., Soltis, D.E., Soltis, P.S., Ma, H. 2004. Towards a comprehensive integration of morphological and genetic studies of floral development. *Trends in Plant Science* 9: 164-173.

Personal Bio:

Associate Professor: Department of Biology, Louisiana State University in Shreveport, Shreveport, LA, USA 2007-present

Postdoctoral experience:

Department of Botany, University of Florida, Gainesville, FL, USA (with Drs. Douglas E. Soltis and Pamela S. Soltis) 2002-2007

Dept. of Evolutionary Botany, University Copenhagen, Denmark (with Dr. Bo Johansen) winter 2001

Jodrell Laboratory, Royal Botanic Gardens, Kew, UK (with Drs. Mark W. Chase and Paula J. Rudall) 2000-2001

Institute of Systematic Botany, University of Zurich 1999

Other:

System Engineer, IBM Switzerland Informatica, 1992-1994

Instructor and field guide, WWF Switzerland, 1989-1994

Laboratory technician, public relations officer and statistical analyst, Health Department of the City of Zurich, 1989-1992

Teaching Assistant, Research Assistant, University of Zurich, 1989-1992 and 1994-1999

Amy Anne Erickson, PhD



Associate Professor, Biological Sciences, LSUS
Graduate Director, MS Biological Sciences Program
Department of Biological Sciences
Phone (318) 797-5105
amy.erickson@lsus.edu

Education:

- 1996-2003 Ph. D. in Biology, University of South Florida (Advisors: Susan S. Bell, Clinton J. Dawes), “Associational resistance from and susceptibility to herbivory by the mangrove tree crab, *Aratus pisonii*, on the red mangrove, *Rhizophora mangle* when in the presence of the black mangrove, *Avicennia germinans*, and the white mangrove, *aguncularia racemosa*”
- 1994-1997 M. S. in General Experimental Psychology, Florida State University (Advisor: Richard L. Hyson), “Characterization of the GABA_A receptor in the chick brainstem auditory system”
- 1990-1994 B. S. in Biology, Georgetown University (Advisor: Philip Sze), Senior Thesis: “The effects of herbivory on macroalgae: an amphipod preference feeding study”

Professional Experience:

- 2019-2021 Graduate Director, Master in Biological Sciences Program, LSUS
- 2013- Associate Professor, Dept. of Biological Sciences, Louisiana State University Shreveport, (12-15 hr teaching load/semester); Granted tenure
- 2012-2016 Member, Science & Education Advisory Council, LUMCON
- 2007-2013 Assistant Professor, Dept. of Biological Sciences, Louisiana State University Shreveport, (9-12 hr teaching load/semester)
- 2006- Research Associate/Collaborator, Smithsonian Institution
- 2006-2007 Visiting Assistant Professor, Dept. of Integrative Biology, University of South Florida (6 hr teaching load/semester)
- 2006 Postdoctoral Fellow, Smithsonian Marine Station, FL (Advisor: Valerie J. Paul), “*Lyngbya* blooms in the Indian River Lagoon”

- 2004-2005 Caribbean Coral Reef Ecosystems Postdoctoral Fellow, Smithsonian Marine Station, FL (Advisors: Valerie J. Paul, Ilka C. Feller), “Are feeding preferences of the mangrove tree crab *Aratus pisonii* chemically determined?”
- 2003-2004 Postdoctoral Fellow, Smithsonian Marine Station, FL (Advisor: Valerie J. Paul), “Examination of whether coral reef herbivore feeding preferences are chemically based”
- 2002-2003 Adjunct Instructor, Dept. of Biology, University of Tampa
- 1996-2003 Instructor & Graduate Teaching Assistant, Dept. of Biology, University of South Florida
- 1994-1996 Graduate Teaching & Departmental Assistant, Dept. of Psychology, Florida State University
- 1994 Undergraduate Teaching Assistant, Dept. of Biology, Georgetown University

Submissions and Publications:

- Capper, A., Erickson, A.A., Ritson-Williams, R., Becerro, M.A., Arthur, K.A., and Paul, V.J. (2016). Palatability and chemical defences of benthic cyanobacteria to a suite of herbivores. *J. Exp. Mar. Biol. Ecol.* 474:101-108.
- Erickson, A.A., Bell, S.S., and Dawes, C.J. (2012). Associational resistance protects mangrove leaves from crab herbivory. *Acta Oec.* 41:46-57.
- Erickson, A.A., Feller, I.C., Paul, V.J., Kwiatkowski, L.M., and Lee, W. (2008). Selection of an omnivorous diet by the mangrove tree crab *Aratus pisonii*. *J. Sea Res.* 59:59-69.
- Erickson, A.A., Paul, V. J., Van Alstyne, K.L., and Kwiatkowski, L.M. (2006). Palatability of green algae that may employ different types of activated chemical defenses. *J. Chem. Ecol.* 32:1883-1895.
- Ellis, William L., Bowles, Justin W., Erickson, Amy A., Stafford, Nate, Bell, Susan S., and Thomas, Melanie. (2006). Alteration of the chemical composition of mangrove (*Laguncularia racemosa*) leaf litter fall by freeze damage. *Estuar. Coast. Shelf. Sci.* 68:363-371.
- Erickson, A.A., Bell, S.S., and Dawes, C.J. (2004). Does mangrove leaf chemistry help explain crab herbivory patterns? *Biotropica* 36(3):333-343.
- Erickson, A.A., Saltis, M., Bell, S.S., and Dawes, C.J. (2003). Herbivore feeding preferences as measured by leaf damage and stomatal ingestion: a mangrove crab example. *J. Exp. Mar. Biol. Ecol.* 289(1):123-138.

In preparation:

- Burks, E., Stratton, C. and Erickson, A.A. (in preparation). The effect of freshwater acidification on freshwater clams.
- Sanson, W., Burden, B., and Erickson, A.A. (in preparation). Anti-microbial effects of *Salvinia molesta*.
- Erickson, A.A., Paul, V.J, Kwiatkowski, L.M., and Becerro, M.A. (in preparation). Sea urchin species vary in their susceptibility to algal chemical defenses.
- Erickson, A.A., Bell, S.S., and Dawes, C.J. (in preparation). Influence of mangrove species associations on herbivory by mangrove tree crabs.

Erickson, A.A., Feller, I.C., Paul, V.J., Kwiatkowski, L.M., West, L., and Trejo, P. (in preparation). The impact of leaf age and pre-existing crab damage on feeding preferences by the mangrove tree crab *Aratus pisonii*.

Erickson, A.A., Feller, I.C., Paul, V.J., Kwiatkowski, L.M., Lee, W. (in preparation). Chemical mediation of feeding preferences for the mangrove tree crab *Aratus pisonii*.

Erickson, A.A., Parsons, K., Feller, I.C., and Lee, W. (in preparation). Characterization of *Aratus pisonii* populations in Indian River Lagoon mangrove impoundments post Hurricanes Frances and Jeanne.

Erickson, A.A., Sargeant, B., Holstein, H., Lincoln, A., and Bell, S.S. (data analysis). Time budget analysis of the mangrove tree crab *Aratus pisonii*.

Grants, Honors, and Awards:

2021 LSUS Tech Fee, Erickson, A. Supplying biology labs with compound light microscopes. Awarded: \$34,500

2021 BoRSF Departmental Enhancement Grant, Erickson, A. (PI), Siska, P., Chen, X., Joiner, G., Maguigan, M., Providing GIS training to the LSUS community and Northwest Louisiana. Awarded: \$61,400

2021 LSUS Faculty Research and Development Grant, Erickson, A., Supplies for project on environmental DNA. Awarded: \$5,000

2020 LSUS Tech Fee, Erickson, A. Resources for environmental DNA research. Awarded: \$2,870

2020 LSUS Tech Fee, Mast J., (Advisor: Erickson, A.A.), Supplying biology labs with stereomicroscopes. Awarded: \$16,500

2020 LSUS Faculty Research and Development Grant, Erickson, A., Supplies for project on environmental DNA. Awarded: \$5,000

2020 LSUS Faculty Research and Development Grant, Erickson, A., Travel for environmental DNA field studies. Awarded: \$1,500

2020 LSUS Faculty Research and Development Grant, Erickson, A., Supplies for project on acidification of freshwater and marine ecosystems. Awarded: \$1,500

2019 LSUS Tech Fee, Erickson, A., Chen, X., Lewis, J. Resources for geographic information science. Awarded: \$21,990

2019 LSUS Tech Fee, Mast J., (Advisor: Erickson, A.A.), Laptop chargers for use in the classroom. Awarded: \$1,890

2019 LSUS Faculty Research and Development Grant, Erickson, A., Funding for research assistant for BoRSF grant. Awarded: \$5,000

2018 LSUS Research Sabbatical: Fall 2018

2018 LSUS Tech Fee, Erickson, A., Preparing plant samples for CHN analysis, Awarded: \$5000

2018 BoRSF Research Competitiveness Subprogram Grant – One-year, Erickson, A., Allelopathic effects of common aquatic plants on the invasive water fern *Salvinia molesta*. Awarded: \$15,000

2017 LSUS Tech Fee, Garcia S., (Advisor: Erickson, A.A.), Video cameras for use in the classroom and research. Awarded: \$5,244

- 2017 LSUS Faculty Research and Development Grant, Erickson, A., Generating plant extracts for chemical ecology experiments for use in research and in the classroom. Awarded: \$1000.
- 2017 Campus Federal's Teaching Enhancement Fund, Erickson, A., Attending Southern Section-American Society of Plant Biologists Meeting. Awarded: \$200
- 2016 LSUS Faculty Research and Development Grant, Erickson, A., Presentation of Scientific Research at the 4th Mangrove Macrobenthos Conference. Awarded: \$600.
- 2016 BoRSF Undergraduate Enhancement Grant, Erickson, A. (PI), Burden, B. Buzgo, M., Gossett, D., Enhancement of Environmental Science Equipment at LSUS. Awarded: \$62,800
- 2015 Campus Federal's Teaching Enhancement Fund, Erickson, A., Attending Teaching Online Conference, Awarded: \$250
- 2014- Harman and Renae Chandler Endowed Professorship for the Master of Biological Science Program
- 2014 LSUS Tech Fee, Erickson, A., Supplying Biology Laboratories with a Stereomicroscope with an Integrated Camera System, Awarded: \$2,600
- 2014 LSUS Tech Fee, Erickson, A., Supplying Biology Laboratories with Van Dorn Alpha Jars for Water Sampling, Awarded: \$1042.28
- 2013 Campus Federal's Teaching Enhancement Fund, Erickson, A., Attending Science Online: Oceans Conference, Awarded: \$300
- 2013 LSUS Tech Fee, Erickson, A., Supplying Biology Laboratories with a Stereomicroscope with an Integrated Camera System, Awarded: \$2500
- 2013 LSUS Tech Fee, Erickson, A., Supplying Biology Laboratories with Van Dorn Alpha Jars for Water Sampling, Awarded: \$984
- 2012 LSUS 2012 Tech Fee, Erickson, A., Supplying Biology Laboratories with Stereomicroscopes & Integrated Camera Systems, Awarded: \$14,727
- 2012 BoRSF Undergraduate Enhancement Grant, Erickson, A., Banks, S. Gossett, D., Lucas, C., Enhancement of Analytical Skills in Chemical Ecology. Awarded: \$37,824
- 2011 LSUS Tech Fee, Erickson, A.A., Supplying Biology laboratories with microscopes. Awarded \$22,500
- 2010 NSF-MRI, Lucas, C., Gossett, D., Banks, S., Williams-Hart, T., Erickson, A. (Co-PI), Acquisition of a High Performance Liquid Chromatography (HPLC) System for Research, Research Training and Education. Awarded: \$152,692
- 2010 LSUS Tech Fee, Morlock, T., and Key. M., (Advisor: Erickson, A.A.), Increasing drying capacity of the lyophilizer. Awarded: \$2,202
- 2010 LSUS Tech Fee, Erickson, A.A., and Banks, S.W., Supplying Biology laboratories with balances. Awarded: \$4,810
- 2010 BoRSF Traditional Enhancement Grant, Erickson, A.A., To the sea and back: Building a bridge between Louisiana State University Shreveport (LSUS) and Louisiana Universities Marine Consortium (LUMCON). Awarded: \$5,465
- 2009 LA EPSCoR Pfund Grant, Erickson, A.A., Effect of nutrient fertilization on nutritional and defensive chemistry of mangrove leaves in Florida and Belize. Awarded: \$10,000 (plus \$2,378 as in-cash match)

- 2008 LSUS Faculty Development Grant, Erickson, A.A., Request for travel to the Benthic Ecology Meeting. Awarded: \$500
- 2008 LSUS Faculty Research Grant, How mangrove leaf chemistry influences feeding by the mangrove tree crab *Aratus pisonii*. Awarded: \$597
- 2007 University of South Florida Faculty Research and Development Grant, The role of chemistry in feeding by marine herbivores. Awarded: \$800
- 2006-2007 Caribbean Coral Reef Ecosystems Grant, Erickson, A.A., Paul, V.J., and Feller, .C., Effect of fertilization on nutritional and defensive chemistry of mangrove leaves. Awarded: \$1000
- 2003 Student Travel Award, Estuarine Research Federation
- 2001 Tharpe Summer Fellowship in Biology, University of South Florida
- 2000 Best Student Presenter, Southeastern Estuarine Research Society
- 2000 Phi Kappa Phi Chapter Fellowship (126), University of South Florida
- 2000-2001 Tharpe Fellowship in Biology, University of South Florida
- 1998-2001 Biology Travel Fund, University of South Florida
- 1997 Nomination-Provost's Award in Outstanding Teaching, University of South Florida
- 1994 Dean's List, Georgetown University

Teaching Experience:

- 2013- Associate Professor, Dept. of Biological Sciences, Louisiana State University Shreveport: same courses as below; Graduate Biostatistics (F2F & online), Freshman Seminar, Invasive Species, Top-down & Bottom-up Effects, Marine Feeding Ecology Lab, *Salvinia*, Field and Organismal Discussion Group; Total preps: 20
- 2007-2013 Assistant Professor, Dept. of Biological Sciences, Louisiana State University Shreveport: General Biology (non-science majors; F2F & online), Marine Environment (non-science majors; online), Biological Inquiry (F2F & online), Principles of Ecology & Lab (F2F & online), Aquatic Biology (F2F & online) & Lab, Marine Biology (F2F & online) & Lab, Chemical Ecology (F2F & online) & Lab, Marine Feeding Ecology, Applied Coastal Ecology (online); Team teach for 1 wk/sem: Biology Principles I Lab, Research Methods, Medical Seminar. Total preps: 13
- 2006-2007 Visiting Assistant Professor, Dept. of Integrative Biology, University of South Florida: Principles of Biology (non-science majors), Marine Biology (non-science majors; online), Marine Biology (for majors), Advanced Marine Biology, 2006 Invited Lecture, Semester at Sea, Florida Atlantic University/HBOI: Algal chemical defenses. Total preps: 4
- 2003 Mangrove Ecology Scientist, Electronic field trip, Smithsonian Environmental Research Center: Where the Land and Sea Intertwine
- 2002-2003 Adjunct Instructor, Dept. of Biology, University of Tampa: Environmental Science
- 2002-2003 Lecture Assistant, Dept. of Biology, University of South Florida: Principles of Ecology
- 2000-2002 Instructor, Dept. of Biology, University of South Florida: Environment

- 1997-1998 Science Instructor, Fledge-ling Camp of Geology and Ecology (NSF),
University of South Florida
- 1996-1999 Teaching Assistant, Dept. of Biology, University of South Florida:
Laboratories for Principles of Ecology (Head TA), Introductory
Biology 1 & 2
- 1996 Teaching Assistant, Dept. of Psychology, Florida State University:
Sensation & Perception Laboratory
- 1995 Teaching Assistant, Program in Medical Sciences, Florida State University:
Neuroanatomy of the Human Brain Laboratory
- 1994 Teaching Assistant, Dept. of Biology, Georgetown University: Introductory
Biology 2 Laboratory

Contributed Papers:

- 2015 Southeastern Estuarine Research Society Meeting, Jacksonville, FL: Erickson, A.A.,
Bell, S.S., and Dawes, C.J., Associational resistance protects mangrove leaves from
crab herbivory.
- 2006 Ecological Society of America, Memphis, TN: Erickson, A.A., Feller, I.C., Paul, V.J.,
and Kwiatkowski, L.M., Chemical mediation of feeding preferences for the
mangrove tree crab *Aratus pisonii*.
- 2006 Meeting of the Mangrove Macrobenthos II, Coolangata, Australia: Erickson, A.A.,
Feller, I.C., Paul, V.J., and Kwiatkowski, L.M., Chemical mediation of
feeding preferences for the mangrove tree crab *Aratus pisonii*.
- 2006 Southeastern Estuarine Research Society Meeting, St. Augustine, FL: Erickson, A.A.,
Paul, V.J., Van Alstyne, K.L., and Kwiatkowski, L.M., Palatability of
green algae that employ different types of activated chemical defenses.
- 2004 Ecological Society of America, Portland, OR: Erickson, Amy A., Bell, Susan S.,
and Dawes, Clinton, J., Relating mangrove herbivore preference and
consumption to leaf chemistry and structure.
- 2004 Association of Tropical Biology and Conservation, Miami, FL: Erickson, Amy A.,
Bell, Susan S., and Dawes, Clinton, J., Relating mangrove herbivore
preference and consumption to leaf chemistry and structure.
- 2002 Benthic Ecology Meeting, Orlando, FL: Erickson, Amy A., Saltis, M., Bell, Susan
S., and Dawes, Clinton J., Dietary preference for red mangrove leaves as
measured by leaf damage and crab gut contents.
- 2000 Florida Ecological and Evolutionary Symposium, Archbold, FL: Brooks, R.A.,
Bell, S.S., Ellis, W.L., Erickson, A.A., Jacobson, S.B., and Rizzuto, N.V.,
Ecological engineers: revisiting the past and evaluating the future.
- 2000 Southeastern Estuarine Research Society, Tampa, FL: Erickson, Amy A.,
Bell, Susan S., and Dawes, Clinton J., Crab herbivory on the red mangrove
Rhizophora mangle L. when found in pure stands versus when in association
with the black mangrove *Avicennia germinans* (L.) Stearn and the white mangrove
Laguncularia racemosa (L.) Gaertn.
- 2000 Benthic Ecology Meeting, Wilmington, NC: Erickson, Amy A., Bell, Susan S.,
and Dawes, Clinton J., Crab herbivory on the red mangrove *Rhizophora*
mangle L. when found in pure stands versus when in association with the

- black mangrove *Avicennia germinans* (L.) Stearn and the white mangrove
Laguncularia racemosa (L.) Gaertn.
- 2000 Benthic Ecology Meeting, Wilmington, NC: Brooks, R.A., Bell, S.S., Ellis, W.L.,
 Erickson, A.A., Jacobson, S.B., and Rizzuto, N.V., Ecological engineers:
 revisiting the past and evaluating the future.

Contributed Posters (*presenter if not first author):

- 2019 Entomological Society of America, St. Louis, MO: Burden, B., Sanson Dobbins
 Fields,
 W., Erickson, A., Antimicrobial properties of *Salvinia molesta* on common
 bacteria.
- 2019 American Society of Plant Biologists, San Jose, CA: Erickson, A, Zittrauer, C., Mast,
 J.,
 Mullins, S., Dean, E., Miller, R., Owens, K., De Soto, A. Controlling *Salvinia*
molesta through allelopathy.
- 2019 American Society of Plant Biologists, San Jose, CA: Burden, B., Sanson Dobbins
 Fields,
 W., Erickson, A.*, Antimicrobial properties of *Salvinia molesta* on common
 bacteria.
- 2019 American Society of Plant Biologists, San Jose, CA: Mast, J., Mullins, S., Zittrauer,
 C.,
 Dean, E., Erickson, A., Controlling *Salvinia molesta* through allelopathy.
- 2019 American Society of Plant Biologists, San Jose, CA: Mast, J., Erickson, A., Burden,
 B.,
 Invertebrate diversity in *Salvinia molesta*.
- 2019 4th Annual LSUS Student Scholars Forum, Shreveport, LA: Mast, J., Mullins, S.,
 Zittrauer, C., Dean, E., Erickson, A., Controlling *Salvinia molesta* through
 allelopathy.
- 2019 4th Annual LSUS Student Scholars Forum, Shreveport, LA: Mast, J., Erickson, A.,
 Burden, B., Invertebrate diversity in *Salvinia molesta*.
- 2019 4th Annual LSUS Student Scholars Forum, Shreveport, LA: Zittrauer, C., Mast, J.,
 Mullins, S., Dean, E., Miller, R., Owens, K., De Soto, A., Erickson, A.,
 Controlling *Salvinia molesta* through allelopathy.
- 2019 4th Annual LSUS Student Scholars Forum, Shreveport, LA: Garcia, S., Bates, A.,
 Black,
 B., Graham, L., Greer, K., Mast, J., Erickson, A., Stingray feeding preferences
 in captivity.
- 2019 4th Annual LSUS Student Scholars Forum, Shreveport, LA: Garcia, S., Bates, B.,
 Black,
 B., Graham, L., Greer, K., Mast, J., Erickson, A., Keystone Predators in the
 Rocky Intertidal.
- 2018 47th Annual Benthic Ecology Meeting, Corpus Christi, TX: Mast, J., Greer, S.,
 Erickson,
 A., A proposed study to document bioaccumulation in sea
 urchins in the Gulf of Mexico.
- 2017 Southern Section-American Society of Plant Biologists, Orlando, FL: Whorton, S.,
 Mast,
 J., Kong, K., Austill, B., Khan, B., Erickson*, A., Possible suppression

- of *Salvinia molesta* by allelopathy of two waterlilies, *Nymphaea mexicana* and *Nymphaea odorata*.
- 2017 Southern Section-American Society of Plant Biologists, Orlando, FL: Mast, J., Whorton, S., Garcia, S., Demarest, A., Erickson, A., Potential allelopathic effects of *Eichhornia crassipes* and *Lemna gibba* on the invasive water fern *Salvinia molesta*.
- 2017 Southern Section-American Society of Plant Biologists, Orlando, FL: Garcia, S., Erickson, A., *Littoraria irrorata* preference for salt marsh habitat.
- 2017 2nd Annual LSUS Student Scholars Forum, Shreveport, LA: Garcia, S., Erickson, A., *Littoraria irrorata* preference for salt marsh habitat.
- 2016 Mangrove Macrobenthos Meeting IV, St. Augustine, FL: Erickson, A.A., Paul, V.J., Feller, I.C., Lee, W., Kwiatkowski, L.M., West, L., Trejo, P., Mangrove extracts influence feeding activity by mangrove tree crabs in Florida and Belize.
- 2016 1st Annual LSUS Student Scholars Forum, Shreveport, LA: Al-wadi, A., Zedian, K., Miller, D., Bardwell, C., Candler, M., Mast*, J., Erickson, A., How distance to water affects insect diversity.
- 2016 1st Annual LSUS Student Scholars Forum, Shreveport, LA: Hood, B., Langston, D., Fuller, K., Patterson*, C., Keyvan, G., Ali, N., Brown, R., Crooks, S., Mast, J., Erickson, A., Insect diversity measured across habitat type.
- 2016 1st Annual LSUS Student Scholars Forum, Shreveport, LA: Anderson, A., Alvarez, M., Gomez, T., Jordan, C., Wren, K., Rao, K., Streets, C., Williamson, K., Mast*, J., Erickson, A., Influence of Flooding on Insect Diversity in Northwest Louisiana.
- 2016 1st Annual LSUS Student Scholars Forum, Shreveport, LA: Whorton*, S., Stinson, D., McKay, L., Simmons, A., Ali, H., Mast, J., Erickson, A., The relationship between insect diversity, temperature, and humidity.
- 2015 Coastal & Estuarine Research Federation, Portland, OR: Erickson, A., Lee, W., Trends in habitat use by the mangrove tree crab *Aratus pisonii*.
- 2015 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Hogrefe, K., Wells, D., Russell, K., Spataro, K., Lohman, M., Farooqui*, F., Abubakar*, T., Mast, J., Erickson, A., The relationship between fire ant nest density and environmental factors.
- 2015 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Cockerham, E., Vagrin, M., Schopp, J., Abubakar, T., Farooqui, F., Vargas, B., Mast, J., Erickson, A., Spatial dispersion of fire ant (*Solenopsis invicta*) nests.
- 2015 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Turner, T., Adegboyega, A., Yousuf*, Q., Williams, T., Mast, J., Erickson, A., Insect diversity in aquatic habitats.
- 2015 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: McFarland, D., Cannon, S., Farley, M., Gladney, S., Whorton, S., Mast, J., Erickson, A., How water depth & abiotic factors relate to plankton density & diversity.
- 2015 Southern Section-American Society of Plant Biologists, Dauphin Island, AL: Erickson, A.A., Bell, S.S., and Dawes, C.J., presenters: Harris, S.*,

- Greene, S.*, Associational resistance protects mangrove leaves from crab herbivory.
- 2015 Southern Section-American Society of Plant Biologists, Dauphin Island, AL: Harris, S., Greene, S., Murcia, H., Mast, J., Whidden, L., Cartee, G., Folkerts, M., Erickson, A.A., The Determination of Herbivory on *Croton capitatus* at C. Bickham Dickson Park Shreveport, Louisiana.
- 2015 Southern Section-American Society of Plant Biologists, Dauphin Island, AL: Folkerts, M., Greene, S.*, Harris, S., Mast, J., Fox, J., Jones, A., Erickson, A.A., Characterization of salt marsh habitat surrounding LUMCON's DeFelice Marine Center in Cocodrie, Louisiana.
- 2015 Southeastern Estuarine Research Society Meeting, Jacksonville, FL: Edwards, M.R., Lincoln, A., Holstein, H., Erickson, A.A., Behavior of the mangrove tree crab during its active season.
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Harris, S., Greene, S., Murcia, H., Mast, J., Whidden, L., Cartee, G., Folkerts, M., Erickson, A.A., The Determination of Herbivory on *Croton capitatus* Bickham Dickson Park Shreveport, Louisiana.
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Foster, D., Juell, E., Merry, A., Nguyen, B., Wells, C., Wheeler, M., Folkerts, M., Mast, J.*, Erickson, A.A., The Impact of Human Population Density on Bird Diversity in Shreveport, Louisiana.
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Hibbs, B., Jones, K., Ashton, S., Falade, I., Shihab, I., Folkerts, M.*, Erickson, A.A., How does bird diversity differ under variation in land use?
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Shams, S., Harris, H., Simmons, G., Nyajiro, E., Folkerts, M., Erickson, A.A., The relationship between native and invasive bird species in Shreveport, Louisiana.
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Barmes, A., Hughes, M., Tanga, S., Ferrell, D., Moore, R., Hubbard, G., Shams, S.*, Folkerts, M., Erickson, A.A., The influence of vegetation and aquatic habitat on bird diversity.
- 2014 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA: Folkerts, M., Harris, S., Mast, J., Fox, J., Jones, A., Erickson, A.A., Characterization of salt marsh habitat surrounding LUMCON's DeFelice Marine Center in Cocodrie, Louisiana.
- 2013 BOTANY 2013, New Orleans, LA: Erickson, A.A., Feller, I.C., Paul, V.J., Kwiatkowski, L.M., Lee, W., Selection of an omnivorous diet by the mangrove tree crab *Aratus pisonii* in laboratory experiments.
- 2013 BOTANY 2013, New Orleans, LA: Erickson, A.A., Paul, V.J., Kwiatkowski, L.M., Becerro, M., Rhizophytic green algal extracts differentially affect feeding by sea urchin species.

- 2013 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA:
Folkerts, M., Mast, J., Greene, S., Lincoln, A., Erickson, A.A., Do
zooplankton perform diel vertical migrations in Old River Lake?
- 2013 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA:
Greene, S., Folkerts, M., Mast, J., Lincoln, A., Erickson, A.A., Lakes
vs. Rivers: Do they differ in zooplankton density and diversity?
- 2013 LSUS School of Mathematics and Science Student Research Forum, Shreveport, LA:
Mast, J., Greene, S., Folkerts, M., Lincoln, A., Erickson, A.A., The
relationship between abiotic factors and zooplankton density in aquatic
ecosystems.
- 2013 Southeastern Estuarine Research Society (SEERS), Charleston, SC: Erickson, A.A.,
Feller, I.C., Paul, V.J., Kwiatkowski, L.M., Lee, W., Selection of an
omnivorous diet by the mangrove tree crab *Aratus pisonii* in laboratory
experiments.
- 2013 Southern Section - American Society of Plant Biologists (SS-ASPB), Little Rock,
AR: Erickson, A.A., Paul, V.J., Kwiatkowski, L.M., Becerro, M.,
Rhizophytic green algal extracts differentially affect feeding by sea urchin
species.
- 2012 LSUS School of Mathematics and Science Student Research Forum, Shreveport,
LA: Faith, C., Chaniyara, R., Erickson, A., Do nutrient additions
influence herbivory on mangrove leaves?
- 2011 LSUS Student Research Forum, Shreveport, LA: Edwards, M.R., Lincoln, A.,
Holstein, H., Erickson, A.A., Behavior of the mangrove tree crab during
its active season.
- 2010 LSUS Student Research Forum, Shreveport, LA: Morlock, T., Erickson, A.A., Proposed
methods for examining the effects of nutrient fertilization on nutritional and
defensive chemistry and herbivore feeding behavior in mangrove forests.
- 2010 39th Annual Benthic Ecology Meeting, Wilmington, NC: Erickson, A.A., Feller, I.C., Paul,
V.J., Kwiatkowski, L.M., West, L., Trejo, P., Red mangrove leaves improve with
age like fine wine: the relationship between crab feeding, leaf age, and pre-existing
herbivore damage.
- 2009 38th Annual Benthic Ecology Meeting, Corpus Christi, TX: Erickson, A.A., Lee, W.,
Hurricane impact on mangrove tree crab populations in Florida.
- 2007 29th Annual Southeastern Phycological Colloquy, Dauphin Island, AL: Erickson,
A.A., Paul, V.J., Becerro, M., Duran, S., and Kwiatkowski, L.M., The role of
chemical defense in the palatability of congeneric, rhizophytic, green
algae.
- 2005 27th Annual Southeastern Phycological Colloquy, Fort Pierce, FL: Erickson, A.A.,
Paul, V.J., Van Alstyne, K.L., and Kwiatkowski, L.M., Palatability of green
algae that employ different types of activated chemical defenses.
- 2005 27th Annual Southeastern Phycological Colloquy, Fort Pierce, FL: Paul,

- Valerie J., Ritson-Williams, Raphael, Erickson, Amy A., and Becerro, Mikel, Susceptibility of marine macroalgae and cyanobacteria to herbivorous fishes and the sea urchin *Diadema antillarum*.
- 2005 27th Annual Southeastern Phycological Colloquy, Fort Pierce, FL: Paul, Valerie J., Becerro, Mikel, Bonito, Victor, Ritson-Williams, Raphael, and Erickson, Amy, Impacts of benthic marine cyanobacteria on coral reefs: ecology and toxicity.
- 2005 27th Annual Southeastern Phycological Colloquy, Fort Pierce, FL: Puglisi, Melany, Ross, Cliff, Erickson, Amy, and Paul, Valerie, Chemical defenses of the marine cyanobacterium *Lyngbya cf. confervoides*.
- 2004 The Center of Excellence in Biomedical and Marine Biotechnology Meeting, Boca Raton, FL: Paul, Valerie J., Becerro, Mikel, Erickson, Amy, Duran, Sandra, and Ritson-Williams, Raphael, Recent Research from the Smithsonian Marine Station at Fort Pierce.
- 2004 Tenth International Coral Reef Symposium, Okinawa, Japan: Paul, Valerie J., Ritson-Williams, Raphael, Erickson, Amy A., and Becerro, Mikel, Susceptibility of marine macroalgae and cyanobacteria to herbivorous fishes and the sea urchin *Diadema antillarum*.
- 2004 Tenth International Coral Reef Symposium, Okinawa, Japan: Paul, Valerie J., Becerro, Mikel, Bonito, Victor, Ritson-Williams, Raphael, and Erickson, Amy, Impacts of benthic marine cyanobacteria on coral reefs: ecology and toxicity.
- 2003 Twin Cays Mangrove Ecosystem, Belize: Biodiversity, Geological History and Two Decades of Change, Fort Pierce, FL: Erickson, Amy A., Bell, Susan S., and Dawes, Clinton J., Relating mangrove herbivore preference and consumption to leaf chemistry and structure.
- 2003 Estuarine Research Federation, Seattle, WA: Erickson, Amy A., Bell, Susan S., and Dawes, Clinton J., Are similar conclusions found when measuring herbivory in various ways?: Implications for understanding ecology and addressing management issues.
- 2003 Benthic Ecology Meeting, Groton, CT: Erickson, Amy A., Bell, Susan S., and Dawes, Clinton J., Do different measures of herbivory lead to similar conclusions?
- 2001 Estuarine Research Federation, St. Petersburg, FL: Erickson, Amy A., Saltis, Mark, Bell, Susan S., and Dawes, Clinton J., Dietary preference for red mangrove leaves as measured by leaf damage and crab gut contents.
- 2001 Benthic Ecology Meeting, Durham, NH: Erickson, Amy A., Saltis, Mark, Bell, Susan S., and Dawes, Clinton J., Determining diet preference for mangrove species using leaf stomata in crab gut contents.
- 1999 Ecological Society of America, Spokane, WA: Erickson, Amy A., Bell, Susan S., and Dawes, Clinton J., Crab herbivory on the red mangrove *Rhizophora mangle* L. when found in pure stands versus when in association with the black mangrove *Avicennia germinans* L.
- 1999 Benthic Ecology Meeting, Baton Rouge, LA: Erickson, Amy A., Crab herbivory in mixed versus pure stands of the red mangrove *Rhizophora mangle* L.

Invited talks and other presentations:

- 2020 UC Davis Pre-Health Conference: Panelist on Health science MS & post-bacc programs
- 2020 *Salvinia* working group: LSUS Giant *Salvinia* control research teamworking group; Erickson, A., Mast, J.
- 2019 LSUS Faculty research showcase: Control of *Salvinia molesta* and eDNA
- 2017-2015 Medical Seminar, LSUS: Mangroves in Medicine
- 2015 College of Arts and Sciences Lecture Series, LSUS: Associational defense protects mangroves from crab herbivory
- 2014 College of Arts and Sciences Lecture Series, LSUS: Palatability of green algae that employ different types of chemical defenses
- 2014 LSU Day: To the sea and back: Marine Biology at LSUS
- 2013 College of Arts and Sciences Lecture Series, LSUS: Sea urchin species vary in their susceptibility to algal chemical defenses
- 2013 College of Arts and Sciences Lecture Series, LSUS: To the sea and back: Marine Biology at LSUS
- 2012 Louisiana School of Mathematics, Sciences, and the Arts: Marine biology in Northern Louisiana?
- 2007 LSUS: To eat or not to eat? Chemical mediation of feeding preferences for the mangrove tree crab *Aratus pisonii*
- 2006 Smithsonian Marine Station Lecture Series, LSUS: Palatability of green algae that employ different types of chemical defenses
- 2006 Georgia Tech: Community Ecology
- 2004 Smithsonian Marine Station Lecture Series, LSUS: Relating mangrove herbivore preference and consumption to leaf chemistry and structure
- 1998 Science Day at magnet school, Tampa, FL: Mangrove crabs
- 1998 Highschool Biology Honors program: Mangrove crabs

Research Experience:

- 2020-2019-2019-2018-2016-2003-1999-1998-2003-1998-1997-1996-1997
- Environmental DNA studies on marine and freshwater species, LSUS
- Effects of acidification of freshwater organisms, LSUS
- Invertebrate diversity in *Salvinia molesta*, LSUS
- Effects of *Salvinia molesta* extracts on microbial growth, LSUS
- Allelopathic effects of common aquatic plants on the invasive water fern *Salvinia molesta*, LSUS
- Marine chemical ecology, feeding preference studies, chemical extraction & isolation, Louisiana State University Shreveport, Smithsonian Marine Station, University of South Florida
- Drift algae sampling, Dept. of Biology, University of South Florida
- Mangrove forestry, herbivory, leaf chemistry, & gut content analysis, Dept. of Biology, University of South Florida
- Mangrove forestry of Central and South Florida, Dept. of Biology, University of South Florida
- Seagrass mapping and prop-scar study, Dept. of Biology, University of South Florida
- Morphological, distributional, & chemical studies of rhizophytic green macroalgae, Dept. of Biology, University of South Florida

1994-1997 Anatomical, histological, & receptor-binding of GABA_A receptors in chick brainstem auditory nuclei, Dept. of Psychology, Florida State University

1992-1994 Feeding preference studies, Dept. of Biology, Georgetown University

1992-1994 Behind the Scenes Volunteer, Smithsonian Institution: Everglades Mesocosm Project

Professional Affiliations:

2013- American Society of Plant Biologists (National, Southern Section)

2013-2014 Botanical Society of America

2013-2017 American Chemical Society (National, LSUS)

2011-2012 Gulf Estuarine Research Society

2006-2007 Society of Wetland Scientists

2004-2007 Association of Tropical Biology and Conservation

2000-2006 Georgetown University Alumni Admissions Program

2000-2007, 2010- Phi Kappa Phi Honor Society

2000- Southeastern Estuarine Research Society

2000- Coastal and Estuarine Research Federation

1999- Ecological Society of America

Reviewer:

Acta Oecologica, African Journal of Aquatic Science, Aquatic Biology, Aquatic Botany, Aquatic Ecology, Bulletin of Marine Science, Ecology, Estuaries and Coasts, Estuarine, Coastal, and Shelf Science, EurAsian Journal of BioSciences, Florida Scientist, Hydrobiologia, Journal of Animal Ecology, Journal of the Marine Biological Association of the United Kingdom, Journal of Chemical Ecology, Marine Biology, Marine Ecology Progress Series, Nature Chemical Ecology, Oecologia, Oxford University Press Review Panel, Plos One, Regional Environmental Change, Restoration Ecology, Wetlands Ecology and Management

Service:

2021 Member, CERF Niering Award Committee

2021 Member, Chair of Biological Sciences Search Committee

2021 Member, Biological Sciences Search Committee

2020 Member, Biology Curriculum revision (with V. Salim)

2020 Member, Anatomy & Physiology Search Committee

2020 Member, Graduate Thesis Committee Compensation Taskforce

2019 Member, Graduate Manual Revision Taskforce

2019- Member, Graduate Council

2019-2020 Member, Red River Watershed Management Institute Director Search Committee

2019-2020 Member, Assessment Committee

2019 Create permanent *Salvinia molesta* display at the Shreveport Aquarium

2018- Member and Chair, GIS Committee

2018-2019 Member, Associate Vice Chancellor/Director of Online Learning Search Committee

2018 Red River National Wildlife Refuge Celebration
 2018 Minden Maker's Fair
 2018 Shreveport/Bossier Maker Faire
 2018 Create LSUS *Salvinia molesta* brochure
 2018 Member, Cell Biology Search Committee
 2017- Member, Internship Committee
 2017- Member, Library Committee
 2017 Member, Badge Committee
 2017 Member, General Education Working Group
 2016 Member, Online Teaching Policy Committee
 2016-2018 Advisor, Pre-Vet Club
 2016-2017 Chair, Library Committee
 2016-2017 Member, LSUS Strategy Facilitation Team
 2016 Member, College of Arts and Sciences Freshman Advisor Search Committee
 2016 Chair, Director of Online Learning Search Committee
 2015-2017 Member, Retention Committee
 2015-2016 Member, Ad-hoc ADA Guidelines Committee
 2014- Advisor, Biology Club
 2014-2015 Chair, Instruction and Professional Development Committee, LSUS
 2014-2015 Member, Faculty Credentialing Committee
 2014 Member, Grievance Committee
 2014 Member, Ad-hoc Policy Committee
 2013- Chair, LSUS School of Mathematics and Science Scholarship Committee
 2013-2017 LSUS American Chemical Society Chapter
 2013-2014 Member, LSUS SACS-COC Reaffirmation Committee
 2013 Member, 8-week Session Faculty Focus Group
 2012-2014 Creator & Manager, LSUS Ecology & Environmental Science Advising Page
 2012-2014 Secretary, Faculty Senate Executive Committee, LSUS Faculty Senate
 2012 Evaluator, NSF-funded Center for Ocean Science Education Excellence
 (COSEE) Scientist Case Studies
 2012 Member, Biology Curriculum Review Committee
 2012 Member, Ad-hoc Senate Committee on Revenue Generation
 2012 Member, Senate Ad-hoc Committee: CLEP tests
 2012 Senator at Large, Senate Executive Committee, LSUS Faculty Senate
 2011-2015 Advisor, SOAR Advising to Incoming Freshman
 2011-2014 Senator, LSUS Faculty Senate
 2011-2013 Member, LSUS Faculty Progress Report Review Committee
 2011-2012 Member, LSUS Assessment Committee
 2011 Judge, Senior Projects at Airline HS
 2011 Member, Senate Ad-hoc Committee: Development of a Promise Program
 2009-2017 Member, Distance Learning Council
 2009 Member, M.S. in Biological Sciences Applicant Review Committee, Dept. of
 Biological Sciences, LSUS
 2008-2012 Member, LSUS School of Science Scholarship Committee
 2008-2012 Coordinator, Shreveport-Bossier SCI-NET Research Experiences Post Katrina
 grant

2008-2012 Member, Post-Katrina S/B Sci-Net Committee
2008-2012 Member, M.S. in Environmental Biology Development Committee, Dept. of Biological Sciences, LSUS
2008 Member, Introductory Biology Curriculum Committee, Dept. of Biological Sciences, LSUS
2007- Biological Sciences Advisor, LSUS
2007-2013 Member, Instruction and Professional Development Committee, LSUS
2000-2006 Interviewer, Georgetown University Alumni Admissions Program
1998-1999 Undergraduate Advisor, Biology and Pre-Professional Sciences, USF

Thesis students:

Advisor:

High school:

Jonathan Woldie, 2019-2020

Elijah Burks, 2019-2020

Sarah Glynn, 2007

Undergraduate:

Mariah Bertrand, 2019-2020 (not completed)

Lauren Henderson, 2019-2020

Masters:

Emily Dean, 2021-

Mariah Bertrand, 2020-

Erin Oostenburg, 2019-

Katelyn Toms, 2018-

Shana Mullins, 2018-2019 (not completed)

Jessica Mast, 2016-

Committee member:

Camila Muller, 2020-

Wendy Dobbins, 2018

Dominique Washington, 2014

Kyle Koho, 2007

Undergraduate research mentoring:

1999- Training undergraduate assistants (>150), Biology Dept., USF, Smithsonian Marine Station, LSUS in field and laboratory techniques for mangrove forestry, chemistry, and herbivory

Mike Maguigan



Director of the Red River Watershed Management Institute

My training is as a physical geographer, with interests in the environmental system – rock, soil, water, air, and vegetation. I also have experience in using technologies to monitor these systems, such as GIS and remote sensing. My research is a combination of field work, laboratory analyses, and computer analyses. Currently, I am interested in studying water quality and sediment transportation within the Red River Watershed, though I am open to new project to which I can lend my expertise. Questions I'm interested in answering:

- How do sediment flow and water quality vary by seasonal flow levels across the Red River Watershed?
- Can we isolate a potential cause of these phenomena at certain points in the river?
- How can technology better assist us in addressing these questions?

Elahe Mahdavian, PhD

Professor of Biochemistry

PhD: University of South Carolina

Office: SC312; Tel: 318-797-5227; Fax: 318-797-5090

Email: elahe.mahdavian@lsus.edu

Appointments:

- 2015-present Professor of Biochemistry, LSUS, Shreveport, LA.
- 2009-2015 Associate Professor of Biochemistry, LSUS, Shreveport, LA.
- 2003-2009 Assistant Professor of Biochemistry, LSUS, Shreveport, LA.
- 1999-2003 Assistant Professor of Chemistry, SCSU, Orangeburg, SC.

Professional Memberships & Contributions

- 2005-Present Member, American Chemical Society (ACS)
- 2007-2013 Member, American Association of Cancer Research (AACR)
- 2009-Present Member, LSUS Health Sciences Advisory Committee (HSAC)
- 2015-Present Chair, Northwest Louisiana Section of ACS (NWLA-ACS)
- 2010-present Advisor, Chemistry Club, LSUS
- 2020-present Advisor, Science Matters, LSUS

Teaching Interests (Undergraduate & Graduate Levels):

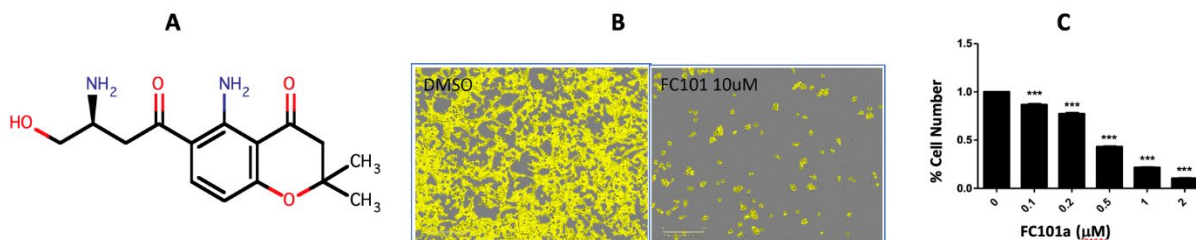
- I. Biochemistry Lecture & Laboratory Courses (BCHM410/BCHM610; BCHM412/BCHM612)
- II. Computational Chemistry/Biology -CADD Courses (CHEM495/CHEM795; BIOS495/BIOS795)
- III. Research and Thesis Courses (CHEM290, CHEM490, CHEM790, BIOS790)
- IV. Practical Bioinformatics Course, Team-Taught & Cross-Institutional LSUHSC (IDSP 204A/B)
- V. Chemistry Literature Course (CHEM301)

Research Interests:

My scholarly activities focus on the following two collaborative, student-centered and interdisciplinary research programs:

Cancer Research Program: This is an interdisciplinary research program spanning the interfaces of chemical synthesis, medicinal chemistry, and cancer biology fields. It is centered on a compound known as fusarochromanone (FC101), an anti-cancer agent with unique structure and function. FC101 is a cancer-specific cytotoxic agent that exhibits 10-100 times the effects against cancer cells vs. normal cells of the same type. This selectivity is the result

of differential uptake by cancer cells and increased toxicity against them. FC101 significantly inhibits proliferation/migration and induces apoptosis in cultured human cancer cells. The more invasive cancer cells, particularly the oncogenic BRAF mutant- MAPK driven cancer (e.g. melanoma, bladder, pancreatic, and TNBC), are more sensitive to the anti-cancer effect of FC101. The total synthesis of FC101 in its enantiomerically pure form was accomplished using a seven-step reaction scheme in 2014. This allowed for further investigation of its therapeutic potential and provided new opportunities to modify the molecule for lead optimization and analysis of quantitative structure activity relationships (QSAR). While FC101's exact mechanism of action is currently unknown, we have shown that it simultaneously inhibits the activity of two major oncogenic pathways, MAPK (corresponding to p-ERK reduction) and mTOR (corresponding to p-S6K, and p-S6 reduction) in cultured cancer cells. The current FC101 research focuses on: I. lead-optimization/SAR through synthesis and biological evaluation of key structural analogs; II. Computational and *in-vitro* drug screens to develop the phenotypic drug response/sensitivity profiles; III. Mechanistic understanding of how FC101 induces apoptosis and inhibits proliferation/migration in TNBC. Knowledge from computational, in-vitro, and mechanistic studies reveals FC101's molecular mechanism of action and ensures progress towards the pre-clinical stage of this research involving animal models of cancer.



A. The Chemical Structure of FC101; B. Images of FC101- and DMSO-treated cultured TNBC; C. FC101's growth inhibition of cultured TNBC.

Computer Aided Drug Discovery (CADD) Program:

This is a new interdisciplinary research/pedagogy program within the Departments of Chemistry and Biological Sciences involving CADD methodology. This approach has been incorporated into several cancer projects and new research units on antiviral therapeutics for COVID-19, practicing highly relevant science during the pandemic. Virtual screening methods, the search for bioactive compounds via computational tools, provide shortcuts and a wide range of opportunities to speed up drug discovery, while reducing the associated financial and attrition risks. The CADD methodology has also been integrated into a research-based online course, merging guided

research with interactive classroom instructions. The course enables students to use research-based methods and employ active learning with publicly available bioinformatics/structural biology data and modern computational modeling tools to identify promising anti-viral drugs for COVID-19. The inspiration for this online course is four-fold: (1) The importance of teaching science as science is practiced, merging guided research with course-based instruction to broaden student participation in research. (2) The recognition that interdisciplinary research skills in applied bioinformatics, computational modeling, and structural biology are indispensable to a student's scientific education (3) The significant negative impact of COVID-19 pandemic on public health and hence the emergent unmet need for new antiviral drugs. (4) Instructional shifts in response to COVID-19 pandemic and its impact upon the classroom-based student research experience. The CADD course, which has now been successfully implemented four times since summer 2020, combines three modules: lectures/discussions including live demos, inquiry-based assignments, and science communication.

Selected Publication:

1. Mahdavian E, Spencer HT, Dunlap RB. Kinetic Studies on Drug Resistant Variants of Escherichia coli Thymidylate Synthase: Functional Effects of Amino Acid Substitutions at Residue 4. *Arch Biochem Biophys.* **1999**; 368(2):257-64. PMID: 10441376.
2. Phan J, Mahdavian E, Nivens MC, Minor W, Berger S, Spencer HT. Catalytic Cysteine of Thymidylate Synthase is Activated Upon Substrate Binding. *Biochemistry.* **2000**; 39(23):6969-78. PMID: 10841779.
3. Tomic-Vatic A, Eytina J, Chapman J, Mahdavian E, Neuzil J, Salvatore BA. Vitamin E amides, a new class of vitamin E analogues with enhanced pro-apoptotic activity. *Int J Cancer.* **2005**; 117(2):188-93. PMID: 15900584.
4. Mahdavian E, Sangsura S, Landry G, Eytina J, Salvatore BA. A Novel Synthesis of Tocopheryl Amines and Amides. *Tetrahedron Letters.* **2009**; 50:19-21.
5. Turánek J, Wang XF, Knötigová P, Koudelka S, Mahdavian E, Procházka L, Sangsura S, Vacek A, Salvatore BA, Neuzil J. Liposomal formulation of vitamin E analogs as an efficient and selective anti-cancer treatment" *Applied Toxicology and Pharmacology*, **2009**; 237.
6. Dong LF, Jameson VJ, Tilley D, Prochazka L, Rohlena J, Valis K, Truksa J, Zabalova R, Mahdavian E, et al. Mitochondrial Targeting of a-Tocopheryl Succinate Enhances Its Pro-

apoptotic and Anti-cancer Efficacy. *Free Radic Biol Med.* **2011**; 50(11):1546-55. PMID: 21402148.

7. Dong L, Jameson VJ, Tilly D, Cerny J, Mahdavian E, Marín-Hernández A, et al. Mitochondrial Targeting of Vitamin E Succinate Enhances Transmission of its Activity via Mitochondrial Complex II. *J Biol Chem.* **2011**; 286(5):3717-28. PMID: 21059645.

8. Ying G, Chen X, Chang C, Singh K, Barzegar M, Mahdavian E, et al. "Fusarochromanone Induces G1 Cell Cycle Arrest and Apoptosis in COS7 and HEK293 Cells. PLOS ONE. **2014**; 10(9):11. PMID: 25384025, PMCID: PMC4226581.

9. Mahdavian E, Williams-Hart T, Furmanski B, Kevil C, Gopi K, Yoon-Jee K, et al. "Biological Activities of Fusarochromanone: A Potent Anti-Cancer Agent". *BMC Research Notes.* **2014**; 7:601. PMID: 25187308, PMCID: PMC4168212.

10. Mahdavian E, Marshall M, Martin P, Cagle P, Salvatore BA, Quick Q. "Caspase Dependent Signaling Underlies Glioblastoma Cell Death in Response to the Fungal Metabolite, Fusarochromanone". *Int J Mol Med.* **2014**; 34(3):880-5. PMID: 25016928, PMCID: PMC4121350.

11. Wynne M, Salvatore BA, Mahdavian E. Use of In-silico Assays for ADMET and Target Profiling of Fusarochromanone. *Journal of In-silico Pharmacology.* **2015**; 3(6). PMCID: PMC4464579.

12. Hasanain, G., Mahdavian E, et al. "Development and characterization of folic acid-functionalized apoferritin as a delivery vehicle for epirubicin against MCF-7 breast cancer cells", *ARTIFICIAL CELLS, NANOMEDICINE, AND BIOTECHNOLOGY*, **2018**; 46, 847-854.

13. Hashempour, S., Mahdavian E, et al. "Binding Studies of AICAR and Human Serum Albumin by Spectroscopic, Theoretical, and Computational Methods" *Molecules*, 2020; 25(22).

14. Kashanian, S., Mahdavian E, et al. "Novel dual targeting system based on cSLNs and modified apoferritin to simultaneously deliver doxorubicin and mitoxantrone anticancer drugs" *Current Pharmaceutical Biotechnology*, **2021**; 26(6).

15. Burford, N.; Smith, A.; Salvatore, B.; Mahdavian, E.; "Combination Therapies for TNBC: EGFR inhibitors and Fusarochromanone". *Journal of BMC Cancer*, **2021**. In Revision.

16. Mackay, R.; Weinberger, P.; Copland, J.; Mahdavian, E.; Xu Q.; "YM155 induces DNA damage and cell death in anaplastic thyroid cancer cells by inhibiting DNA topoisomerase II α ".

Molecular Oncology (ID: MOLONC-21-0535). **2021**. Submitted.

17. Salvatore, B., Mahdavian, E., “Phenotypic Investigations of Combination Therapeutics for Metastatic Cancer”. Mini Review, *BMC Medicine*. **2021. In Prep.**

List of published work in NCBI- My Bibliography

<http://www.ncbi.nlm.nih.gov/pmc/?term=elahe+mahdavian>

Google Scholar Website: <https://rb.gy/eerhtg>

Stuart Nielsen, PhD



Title: Assistant Professor

Start Year at LSUS: 2021

Department: Biological Sciences Department

School: Mathematics and Sciences

College: Arts and Sciences

Office Location: Science Building 220

Office Phone: 318-797-2413

Office Fax: 318-797-5090

Email: stuart.nielsen@lsus.edu

Office Hours: Fall 2021: M 12:00-14:00; T/R 13:00-17:00 (or virtually via Zoom).

Teaching Assignments:

BIOS 101	General Biology (for non-science majors)	Fall
BIOS 109	Animal Diversity (for non-science majors)	Fall
BIOS 222L	General Zoology Laboratory	Fall & Spring
BIOS 365	Herpetology	Spring

*Please feel free to contact me for class itineraries, text books, or syllabi.

Research Interests:

I am an Evolutionary Biologist and a Herpetologist (someone that studies reptiles and amphibians).

Student Research Opportunities:

1) Molecular systematics, biogeography, and evolution of reptiles and amphibians.

One major concentration of my past research has been devoted to generating species-level phylogenies for numerous taxonomic groups, in order to provide an evolutionary framework for subsequent research. A well-resolved, well-supported phylogeny can clarify evolutionary patterns that may have been confused by a non-evolutionary taxonomy and is vital to identify evolutionary patterns. Phylogenies are an essential tool for the investigation of spatial and historical patterns of species richness, and the influence of environment and geography on generating and maintaining biological

diversity. I have used time-calibrated molecular phylogenies to study past geoclimatic change on speciation and diversification in Africa, Australia, and New Zealand, extinction risk of range-restricted taxa, as well as the evolution of novel anti-predator defenses.

Research at LSUS will focus on three broad topics: 1) completing ongoing and initiating new projects to test complex bio-/phylogeographic hypotheses and delimit species using both phylogenomic and multi-locus coalescent methods (African lizards and frogs; Caribbean/Middle American sphaerodactylid geckos); 2) examining the origin and maintenance of species boundaries in relation to the genomic influence of sex chromosomes (many squamate lineages; see below); and 3) studying one-off evolutionary novelties including i) a unique, anti-predator, 'deimatic' startle display that has convergently evolved twice within diplodactylid geckos in Australia and New Caledonia (check out <https://youtu.be/idjpfPIGNg>) and ii) body size extremes including both dwarfism (sphaerodactylid geckos) and gigantism (diplodactylid geckos). Data collection and analysis for most of these projects is relatively straightforward, making them ideal student research projects.

2) Sex chromosome evolution in squamates (lizards and snakes).

I am working towards understanding fundamental questions regarding the evolution, structure, and function of sex chromosomes and sex determination, and the development of new model clades to address these questions. Sex chromosomes play a central role in development by controlling sex determination, the mechanism that decides the sex of an embryo. Sex chromosomes also exert tremendous influence over essential evolutionary processes, such as speciation, sex-specific adaptation, and genetic conflict. Squamate reptiles (~10,000 species of lizards, snakes, and amphisbaenians) are ideally suited to test hypotheses about the origins and evolution of sex chromosomes because they exhibit myriad sex determining modes, including temperature-dependent (TSD) and genetic (GSD) sex determination, with both male (XX/XY) and female (ZZ/ZW) heterogamety, and many independent transitions among them. Yet, surprisingly, even at the family level, we don't know the sex chromosome systems in the vast majority (~80%) of squamate lineages. Developing new model clades is vital to advance our understanding of sex chromosomes and sex determination, beyond the limited knowledge obtained by only studying a handful of well-studied model organisms.

Student research opportunities involve continuing to identify sex chromosomes in understudied clades, particularly those of conservation concern, and assessing homology via the sequencing and assembly of genomes/transcriptomes and advanced cytogenetics.

Most Recent Publications:

Rovatsos, M., T. Gamble, S.V. Nielsen, A. Georges, T. Ezaz, & L. Kratochvíl. 2021. Do male and female heterogamety really differ in expression regulation? Lack of global dosage balance in pygopodid geckos. *Philosophical Transactions of the Royal Society B* 376: 20200102. <https://doi.org/10.1098/rstb.2020.0102>

Paluh, D.J., K. Riddell, C.M. Early, M.M. Hantak, G.F.M. Jongsma, R.M. Keeffe, F.M. Silva, S.V. Nielsen, M.C. Vallejo-Pareja, E.L. Stanley, D.C. Blackburn. 2021. Rampant tooth loss

across 200 million years of frog evolution. *eLife* 10:e66926.

<https://doi.org/10.7554/eLife.66926>

Knox, C., R. Hitchmough, S.V. Nielsen, T. Jewell, & T. Bell. 2021. A new, enigmatic species of black-eyed gecko (Reptilia: Diplodactylidae: Mokopirirakau) from North Otago, New Zealand. *Zootaxa* 4964(1):140–156. <https://doi.org/10.11646/zootaxa.4964.1.7>

Heinicke, M.P., M.H. Beidoun, S.V. Nielsen, & A.M. Bauer. 2021. Phylogenetic analysis of “*Breviceps adspersus*” documents *B. passmorei* Minter et al., 2017 in Limpopo Province, South Africa. *Herpetology Notes* 14:397–406.

Hitchmough, R.A., S.V. Nielsen, J.A. Lysaght, & A.M. Bauer. 2021. A new species of *Naultinus* from the Te Pahi area, northern New Zealand. *Zootaxa* 4915(3):389–400. <https://doi.org/10.11646/zootaxa.4915.3.7>

Keating, S.E., M. Blumer, L.L. Grismer, A. Lin, S.V. Nielsen, M.K. Thura, P.L. Wood Jr., E.S.H. Quah, & T. Gamble. 2021. Sex chromosome turnover in bent-toed geckos (*Cyrtodactylus*). *Genes* 12:116. <https://doi.org/10.3390/genes12010116>

Academic Positions Held:

Assistant Professor

- Department of Biology, Louisiana State University in Shreveport, Shreveport, LA, USA (2021-present)

Courtesy Faculty

- Division of Herpetology, Department of Natural History, Florida Museum of Natural History, University of Florida, Gainesville, FL (2021-present)

Adjunct Professor/Visiting Assistant Professor

- Sciences for Health Programs Department, Santa Fe College, Gainesville, FL (2021-2021)
- Department of Biological Sciences, Marquette University, Milwaukee, WI (2018-2019)

Postdoctoral Researcher

- Department of Natural Sciences, University of Michigan–Dearborn, Dearborn, MI. Advisor: Dr. Matt Heinicke (2020-2020)
- Division of Herpetology, Florida Museum of Natural History, University of Florida, Gainesville, FL. Advisor: Dr. Dave Blackburn (2018-2020)
- Department of Biological Sciences, Marquette University, Milwaukee, WI. Advisor: Dr. Tony Gamble (2016-2018)

Molecular Lab Manager

- Division of Herpetology, Florida Museum of Natural History, University of Florida. (2018-2020)
- Department of Biological Sciences, Marquette University, Milwaukee, WI. (2016-2018)

Post-PhD Fellowships Awarded

- US Dept. of State, J. William Fulbright Postdoctoral Research Fellowship (Brazil): Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil. Advisor: Dr. Fernanda Werneck (Sex chromosome evolution in geckos) (Delayed due to COVID-19)
- John J. Brander and Christine E. Rundblad Research Fellowship: Milwaukee Public Museum, Milwaukee, WI. (Declined)
- Endeavour Postdoctoral Fellowship: Australian National University, Canberra, Australia. Advisors: Drs. Paul Oliver, Scott Keogh, & Craig Moritz (High turnover in sex chromosomes within Australia's *Gehyra* geckos; New Guinea gekkonid taxonomy) (2016–2017)

Vonny Salim, PhD



Title: Assistant Professor

Start Year at LSUS: 2018

Department: Biological Sciences

School: Mathematics and Sciences

College: Arts and Sciences

Office Location: SC 212

Office Phone: 318-797-5228

Office Fax: 318-797-5222

Email: Vonny.Salim@lsus.edu

Current Courses Taught:

BIOS 420	Cell Biology	Fall
BIOS 620	Cell Biology (Graduate Level)	Fall
BIOS 420L	Cell Biology Laboratory	Fall
BIOS 620L	Cell Biology Laboratory (Graduate Level)	Fall
BIOS 430	Molecular Biology	Spring
BIOS 630	Molecular Biology (Graduate Level)	Spring
BIOS 430L	Molecular Biology Laboratory	Spring
BIOS 630L	Molecular Biology Laboratory (Graduate Level)	Spring
BIOS 351	Medical Microbiology	Spring/Summer
BIOS 465	Applied Biotechnology	Spring
BIOS 665	Applied Biotechnology (Graduate Level)	Spring
BIOS 107	Humans and Their Environment	Summer
BIOS 490	Cancer Biology	Summer
BIOS 690	Cancer Biology (Graduate Level)	Summer
BIOS 491	Undergraduate Research	Fall

Research Interests:

My research interests are in the biosynthesis, function, and application of plant-derived natural products for human health and the cellular machineries and dynamics of phytochemicals for further integration into human disease treatment and prevention, such as in cancer therapy.

1. Genomics and metabolomics of natural product biosynthesis for human health.

Medicinal plants produce a wide variety of chemicals with pharmaceutical values. One class of plant specialized metabolites, alkaloids have been used as chemotherapeutic agents. Alkaloids, such as vinblastine harvested from

Catharanthus roseus and camptothecin from *Camptotheca acuminata* have been used in the clinic, however, their productions are still limited by expensive and tedious isolation processes from plants. The goal of this project to elucidate anticancer alkaloid biosynthetic pathways and functionally characterize enzymes involved in the production of these high-value compounds. Large-scale sequencing of medicinal plants that produce alkaloids have accelerated the identification process of putative biosynthetic genes. In this project, we investigate the aspects of genomics and metabolomics of natural product biosynthesis and metabolic engineering to increase the production of alkaloids and other phytochemicals with important biological activities for human health.

2. Metabolite and enzyme engineering of natural product biosynthetic pathways in microbial systems.

Recombinant expression of plant biosynthetic genes in microbial systems, such as bacteria *Escherichia coli* and *Saccharomyces cerevisiae* (yeast) has been known as an efficient method to investigate the function of novel biosynthetic genes. In our laboratory, we utilize reverse genetics approaches, including virus-induced gene silencing and RNA interference to test the function of putative genes involved in the biosynthesis of alkaloids and other phytochemicals. Further genetic manipulations of plants and microbial systems in our laboratory also include overexpression and mutagenesis that may result in accumulation of novel compounds with potential biological activities. We aim to generate chemical diversity of lead compounds, especially those with anticancer properties and accelerate drug discovery.

3. Functional characterization of microbiomes in medicinal plant systems for applications and impacts on human health.

Alkaloids are well-known targets in anticancer drug development. The ability of medicinal plants to produce cytotoxic alkaloids involves biotic factors, such as their relationships with microbes and utilization of natural product secretion systems. In this project, microbial communities associated with the production of anticancer alkaloids are identified using Next Generation Sequencing (NGS) machine, and we also perform the metabolite analysis using Ultra-Performance Liquid Chromatography-Mass Spectrometry (UPLC-MS) located at the LSUS Cyber Collaboratory. The integration of metagenomics and metabolomics accelerates the efforts to determine specific microbial colonization that modulate the anticancer alkaloid metabolism in medicinal plants.

List of publications:

Nasirian, V., Shamsipur, M., Molaabasi F., Mansouri, K., Sarparast, M., **Salim, V.**, Barati, A., Kashanian, S. (2020). miRNA-21 rapid diagnosis by one-pot synthesis of highly luminescent red emissive silver nanoclusters/DNA. *Sensors and Actuators B: Chemical* 308: 127673.

Salim, V., Jones, A.D., DellaPenna, D. (2018). *Camptotheca acuminata* 10-hydroxycamptothecin O-methyltransferase: An alkaloid biosynthetic enzyme coopted from flavonoid metabolism. *Plant Journal* 95:112-125.

Qu, Y., Easson, M., Simionescu, R., Hajicek, J., Thamm, A.M.K., **Salim, V.**, De Luca, V. (2018). Solution of the multistep pathway for assembly of corynanthean, strychnos, iboga and aspidosperma monoterpenoid indole alkaloids from 19E-geissoschizine. *PNAS* 115: 3180-3185.

Sadre, R., Magallanes-Lundback, M., Pradhan, S., **Salim, V.**, Mesberg, A., Jones, A.D., DellaPenna, D. (2016). Metabolite diversity in alkaloid biosynthesis: A multi-lane (diastereomer) highway for camptothecin synthesis in *Camptotheca acuminata*. *Plant Cell* 28:1926-1944.

De Luca, V., **Salim, V.**, Thamm, A., Masada-Atsumi, S., Yu, F. (2014). Making iridoids/secoiridoids and monoterpenoid indole alkaloids: Progress on pathway elucidation. *Current Opinion in Plant Biology* 19:35-42.

Salim, V., Wiens, B., Masada-Atsumi, S., Yu, F., De Luca, V. (2014). Iridodial oxidase catalyzes a key 3 step oxidation to form 7-deoxyloganetic acid in the *Catharanthus roseus* iridoid biosynthesis. *Phytochemistry* 101:23-31.

Besseau, S., Kellner, F., Lanoue, A., Thamm, A.M.K., **Salim, V.**, Schneider, B., Geu-Flores, F., Höfer, R., Guirimand, G., Guihur, A., Oudin, A., Glevarec, G., Foureau, E., Papon, N., Clastre, M., Giglioli-Guivarc'h, N., St-Pierre, B., Werck-Reichhart, D., Burlat, V., De Luca, V., O'Connor, S.E., Courdavault, V. (2013). A pair of tabersonine 16-hydroxylases initiates the synthesis of vindoline in an organ-dependent manner in *Catharanthus roseus*. *Plant Physiology* 163: 1792-1803.

Salim, V., Yu, F., Altarejos, J., De Luca, V. (2013). Virus-induced gene silencing identifies *Catharanthus roseus* 7-deoxyloganic acid-7-hydroxylase, a step in iridoid and monoterpene indole alkaloid biosynthesis. *Plant Journal* 76: 754-765.

Asada, K.*, **Salim, V.***, Masada-Atsumi, S.*, Edmunds, E., Nagatoshi, M., Terasaka, K., Mizukami, H., De Luca, V. (2013). A 7-deoxyloganic acid glucosyltransferase contributes a key step in secologanin biosynthesis in Madagascar periwinkle. *Plant Cell* 25: 4123-4134. (* co-1st authors).

Salim, V., De Luca, V. (2013). Towards complete elucidation of monoterpene indole alkaloid biosynthesis pathway: *Catharanthus roseus* as a pioneer system. *Advances in Botanical Research* 68: 1-37.

De Luca, V., **Salim, V.**, Levac, D., Atsumi, S. M., Yu, F. (2012). Discovery and functional analysis of monoterpenoid indole alkaloid pathways in plants. *Methods in Enzymology* 515: 207-229.

De Luca, V., **Salim, V.**, Atsumi, S.M., Yu, F. (2012). Mining the biodiversity of plants: A revolution in the making. *Science* 336: 1658-1661.

Roepke, J.*, **Salim, V.***, Wu, M., Thamm, A.M.K., Murata, J., Ploss, K., Boland, W., De Luca, V. (2010) Vinca drug components accumulate exclusively in leaf exudates of Madagascar periwinkle. *PNAS* 107: 15287-15292. (* co-1st authors).

Biography:

Postdoctoral position:

Research Associate, Michigan State University, Lansing, Michigan, Department of Biochemistry and Molecular Biology, Supervisor: Dr. Dean DellaPenna, 2013-2018.

Education:

Doctor of Philosophy in Biotechnology, Brock University, St. Catharines, Ontario, Canada, Supervisor: Dr. Vincenzo De Luca, 2013.

Bachelor of Science in Biotechnology/Biochemistry, Calvin University, Grand Rapids, Michigan, 2007.

Professional Experience:

Development Assistant, Alder Biopharmaceuticals, Inc., Bothell, Washington, 2007-2008.

Quality Assurance Assistant, MDS Pharma Services, Bothell, Washington, 2007.
Brain Tumor Research Data Assistant, New Approaches to Brain Tumor Therapy (NABTT),
the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins Hospital, Baltimore,
Maryland, 2005.

Peter Siska, PhD

Professor of Biological Sciences and Geosciences

Education:

RNDr. Komensky University, Bratislava

Ph.D. Komensky University, Bratislava, Slovakia

Ph.D Texas A&M University, TX, USA

Courses: BIOS 110 Principles of Biology
 BIOS 210 Introduction to Biological Inquiry
 ENSC 200 Introduction to geographic information systems
 ENSC 300 Introduction to remote sensing
 ENSC 300 Intermediate geographic Information system
 BIOS 490 Special Topics in Biological Sciences
 BIOS 490 Seminar
 ENSC 690

Research interest:

1. **Palynology, ecosystems and environment**

Pollen grains are one of the most interesting elements of biosystem. They are responsible for transfer of genetic information and health of ecosystems; the fossil pollen grains are also indicators of past climate change. In addition, pollen grains are used in forensic science to trace criminal activities including illegal business with honey.

2. **Geographic information systems to natural resource management studies**

Investigating spatial patterns of natural and human phenomena such as radioactivity and its impact on human health; investigating spatial pattern of toxic elements and their impact on biosphere; evaluating total stem volume using terrain, satellite data and sequential gaussian simulation.

3. **Application of geostatistics in prediction of karst hazards.**

The methods of kriging interpolation and variogram modeling became widely used in natural sciences. The karst environment is prone to sudden subsidence of dolines that cause economical damages and pose also danger to human life. The evaluations of parameters that lead to collapse of dolines using kriging interpolation methods can predict the potential hazards in carbonatic rock complexes.

4. **Multifactorial statistics and regional dynamics in natural ecosystems**

The natural ecosystems are complex entities consisting from biotic and abiotic components. Multifactorial analysis can be used to evaluate causes of dynamic changes in ecosystems and identify relatively homogeneous complexes that can be delineated and understood with respect of their internal structure and interregional dynamics.

Examples of peer reviewed publications:

Siska, P. P. Bryant, V.M. Hung, I-Kuai and P. Goovaerts (2019). Matching the Spatial Distribution of Upland and Lowland Pollen Grains with the Temperature and Humidity in the Columbia Basin. *Athens Journal of Sciences*, Volume 6 (1). Pgs. 1 – 18.

<https://www.athensjournals.gr/sciences/2019-6-1-1-Siska.pdf>

Siska, P. and I-K Hung (2017). Land Management decisions in a carbonatic geo-environment. *IOP Conference Series: Earth and Environmental Science*, Volume 92.

Siska, P.P., Goovaerts P. and I-K Hung (2016). Evaluating susceptibility of dolines (sinkholes) for collapse in Sango, Tennessee, USA. *Progress in Physical Geography* DOI: 10.1177/0309133316638816.

Siska P. and S. Polacik (2014). Influence of environmental parameters on spatial distribution of pollen grains in Columbia Basin. *Proceedings of the 2014 International Conference on Power Systems, Energy, Environment*. Interlaken, Switzerland. Pgs.116-125.

Watson, J. R., Siska, P.P. and R. L. Wolfel (2013). Assessing Gains in Language Proficiency, Cross-Cultural Competence and Regional Awareness during Study Abroad: A Preliminary Study. *Foreign Language Annals* Vol. 46 (1), pp 62-79.

Siska, P. P, I.K. Hung and V.M. Bryant. (2012). The Mapping Composite Pollen from Point Sampled Data and Cartographic Generalization. *Papers of Applied Geography Conferences*, Volume 35(2012): 192-201.

Siska, P. P. and V. Lauko (2011). Strategic Missile Deployment: A Geographic Perspective. *Applied Geography*. Elsevier Science. *Applied Geography* Volume (31): 829-838.

Siska, P.P. and L.J. Hummel (2011). The Regional Knowledge System: A Complex Response to Complex Conflicts. *American Intelligence Journal*. Vol 29, No: 2. 107-115.

Siska, P. P. (2009). The Deployment of Ground Based Mid-Course Missiles in Central Europe: Regional Perception and Viability. *Papers of the Applied Geography Conferences*. Volume 32 (2009): 105-114.

Kemmerly, P.R. and Peter P. Siska (2008). Karst Modeling and Hazard Assessment on the Pennyroyal Plain and Western Highland Rim. *Journal of Geography (Geografický Časopis)*. 60(3): 217-240.

Siska, P. P. and P. R. Kemmerly (2008). Doline Feature Database (DFD) Development and Assessment of Hazards Using Co-Regionalization Model. In: *Papers of the Applied Geography Conferences*. Volume (31): 34-42.

Siska, P.P. Bryant, V.M. and I-Kuai Hung (2006). Determining Spatial Correlation in Distribution of Southern Pine Biome and Dispersion of Pine Pollen Using Geographic Information Science. *Journal of Geography (Geografický Časopis)*. 58 (4): 239 – 258.

Siska, P. P. Goovaerts, P., Hung, I-Kuai, and V. M. Bryant (2005). Predicting the Ordinary Kriging Errors Caused by Surface Roughness and Dissectivity. *Earth Surface Processes and Landforms*. 30(6): 601 – 612.

Siska, P. P. and V. M. Bryant Jr. (2005) Digital Ecosystem Analysis. *Papers of the Applied Geography Conferences*. Volume (28): 32-139.

Siska, P. P. (2004) A Multivariate Spatial Model for Determining Urban Development Sites in Flood Prone Coastal Areas. *Papers of the Applied Geography Conferences*. Vol 27: 75 - 83.

Erikson, M. and P.P Siska (2003). Replay to Marcotte's Comments on Understanding Anisotropy Computations. *Journal of Mathematical Geology*. 35(5) 683 – 700.

Siska, P. P. Nelson, R. and A. Bhowmick (2003) Lidar Data in Geographic Information Systems: Component Object Modeling (COM) Approach. Papers of Applied Geography Conferences. Volume (26): 242-248.

Siska, P. P. Bryant, M. V. and J. Jones (2001). Spatial Modeling of Modern Pollen Rain in Big Bend National Park. *Palynology: Journal of American Society of Stratigraphic Palynologists*. 25(2001): 199-216.

Siska, J. J. Hurburgh, C. R. and P. P. Siska (2001). The Impact of Instrument Engineering Parameters on Spectral Reproducibility Across Filter Instruments. *Journal of Near Infrared Spectroscopy* Volume (9): 97-105.

Siska, P. P., and I – Kuai Hung, (2001) Progression of Errors in Applied Spatial Analysis. Papers and Proceedings of Applied Geography Conferences. Vol. 24(2001): 284-290.

Stephanie Villalba, PhD

Stephanie Vanhoof Villalba, Ph.D.

Assistant Professor of Biological Sciences

Phone: (318) 797-5157

E-mail: stephanie.villalba@lsus.edu

Education

2012-2017 Louisiana State University Health Sciences Center, Shreveport, LA
Ph.D., Cellular Biology and Anatomy
Mentor, Edward Glasscock, Ph.D., Associate Professor
Dissertation title: "The Role of Pharmacogenetics in the Treatment of Neurocardiac Dysfunction in Two Mouse Models of Epilepsy"

2005-2007 Louisiana Tech University, Ruston, LA
M.S., Biology

1999-2002 Louisiana Tech University, Ruston, LA
B.S., Cell and Molecular Biology
Minor, Chemistry
Summa cum laude

Teaching and Research Positions

2020- Assistant Professor, Department of Biological Sciences
Louisiana State University Shreveport, Shreveport, LA

2020- Gratis Assistant Professor, Department of Molecular and Cellular Physiology
Louisiana State University Health Sciences Center, Shreveport, LA

2017-2020 Instructor, Department of Cellular Biology and Anatomy
Louisiana State University Health Sciences Center, Shreveport, LA

2012-2017 Graduate Assistant, Department of Cellular Biology and Anatomy
Louisiana State University Health Sciences Center, Shreveport, LA
Ph.D. Dissertation Lab of Edward Glasscock, Ph.D.

2012-2017 Graduate Teaching Assistant, Department of Cellular Biology and Anatomy
Louisiana State University Health Sciences Center, Shreveport, LA

2008-2012 Instructor, Department of Biology
Grambling State University, Grambling, LA

2008 Research Assistant, Department of Basic Pharmaceutical Sciences
University of Louisiana at Monroe, Monroe, LA

Lab of Seetharama Satyanarayanajois, Ph.D.

- 2006 Graduate Assistant, College of Engineering & Science
Louisiana Tech University, Ruston, LA
Lab of David K. Mills, Ph.D.
- 2005-2007 Teaching Assistant, Department of Biological Sciences
Louisiana Tech University, Ruston, LA
- 2005-2007 Graduate Assistant, Department of Biological Sciences
Louisiana Tech University, Ruston, LA
Lab of David K. Mills, Ph.D.
- 2001-2002 Undergraduate Research Assistant, Department of Biological Sciences
Louisiana Tech University, Ruston, LA
Lab of Wendy Trzyna, Ph.D.
- 2001 Summer Undergraduate Research Fellow, Department of Pharmacology &
Toxicology
University of Arkansas for Medical Sciences, Little Rock, AR
Lab of Paul L. Prather, Ph.D.

Publications

6. Clayton S, Alexander JS, Solitro G, White L, Villalba S, Winder E, Boudreaux M, Veerareddy P, Dong E, Minagar A, Dao HN, Sorrels D. Self-expanding intestinal expansion sleeves (IES) for short gut syndrome. *Ped Surg Internat*, 2021 (recently accepted).
5. Vanhoof-Villalba S, Gautier N, and Glasscock E. Pharmacogenetics of KCNQ channel activation in two potassium channelopathy mouse models of epilepsy. *Epilepsia* 2017, 59: 358-368.
4. Mishra V, Karumuri BK, Gautier N, Liu R, Hutson T, Vanhoof-Villalba S, Vlachos I, Iasemidis L, and Glasscock E. Scn2a deletion improves survival and brain-heart dynamics in the Kcna1-null mouse model of sudden unexpected death in epilepsy (SUDEP). *Hum Mol Genet* 2017, 26: 2091-2103.
3. Lee S, Holly K, Voziyanov V, Villalba S, Tong R, Grigsby H, Glasscock E, Szele F, Vlachos I, and Murray T. Gradient index microlens implanted in prefrontal cortex of mouse does not affect behavioral test performance over time. *PLoS ONE* 2016, 11(1): e0146533.
2. Satyanarayanajois S, Villalba S, and Go M. Design, synthesis, and docking studies of peptidomimetics based on HER2-herceptin binding site with potential antiproliferative activity against breast cancer cell lines. *Chemical Biology and Drug Design* 2009, 74(3):246-57.
1. Martin N, Ruckle M, Vanhoof S, and Prather P. Agonist, antagonist, and inverse agonist characteristics of TIPP (H-Tyr-Tic-Phe-Phe-OH), a selective delta-opioid receptor ligand. *The Journal of Pharmacology and Experimental Therapeutics* 2002, 301(2):661-71.

Current Professional and Service Activities

Institutional

Louisiana State University Shreveport, Shreveport, LA

Graduate Recruitment & Education Committee – Graduate Director (Spring 2022—)

IACUC – currently under development

Chair Search Committee – Dept. of Biological Sciences (Spring 2021)

Faculty Search Committee – Dept. of Biological Sciences (Spring 2021)

Innovation Committee (2021-present)

Faculty Collaboratory Committee (2021-present)

Health Sciences Advisory Committee (2020-present)

Other

Appointment with the Open Educational Resource (OER) for Dual Enrollment Faculty Cohorts from LOUIS: The Louisiana Library Network at the Louisiana Board of Regents (2021-2022)

CBIO 1044: General Biology II Lecture + Lab (Science Majors) – General concepts and principles of ecology, evolution, and biological diversity, for science majors. The course material is presented in a combined lecture and laboratory format.

Professional Memberships

2021- Faculty for Undergraduate Neuroscience

2021- Louisiana Academy of Sciences

2019- Center for Brain Health – LSUHSC-S

2017-2020 American Association for Anatomy

2017-2020 American Association of Clinical Anatomists

2015- Society for Neuroscience – Shreveport Chapter

2014-2017 American Epilepsy Society

Teaching Interests

- I. Human Anatomy & Physiology
- II. Human Neuroanatomy & Neuroscience
- III. Histology

Research Interests

Dr. Villalba's current research focus is geared towards medical and anatomical educational research and neuroscience research. She collaborates with faculty at both LSU Health Science Center – Shreveport and LSUS. Her neuroscience research, in collaboration with Dr. Kathryn A. Hamilton at LSUHSC-S, focuses on protein and gene expression in olfactory epithelium, concentrating on various stages of development of olfactory sensory neurons. The goal of this project is to further our understanding of neuronal development and plasticity.