

Michele Lynn Lemons

Professor of Biology, Center for Neuroscience Director
Department of Biological and Physical Sciences
Assumption University
500 Salisbury Street, Worcester, MA 10609
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EDUCATION

University of Florida, Gainesville, Florida.....1993-1999

Ph.D. in Neuroscience

Dissertation: Inhibition of regeneration in the injured, adult spinal cord: potential role of chondroitin sulfate proteoglycans, specifically aggrecan

Mentors: Dena Howland, Ph.D. and Douglas Anderson, Ph.D.

College of William and Mary, Williamsburg, Virginia.....1989-1993

B.S. in Biology, Education Certification

PROFESSIONAL EXPERIENCE

Assumption University, Worcester MA.....2007-present

Asst Prof of Biology 2007-2013, Assoc Prof of Biology 2013-2019, tenured 2013, Professor 2019-present.

Research topic: Genetic and molecular investigation of axonal growth and synaptic formation

Founding Director, Center for Neuroscience.....2018-2020, 2021-present

Collaboratively developed interdisciplinary neuroscience program. Coordinate multidisciplinary advisory board, organize and execute neuroscience seminar series, plan career networking events and community service events, direct summer neuroscience research internship program, support student travel to professional conferences, serve as faculty mentor for Nu Rho Psi (Neuroscience Honor Society) and the Neuroscience Club.

University of Massachusetts Medical School, Worcester MA.....2013-present

Visiting Associate Professor in the Department of Neurobiology

Research topic: Single-neuron analysis of synapse development and plasticity in *C. elegans*

University of Utah, Salt Lake City, UT.....2000-2006

Postdoctoral Fellow in the Department of Neurobiology and Anatomy

Research topic: Ligand/receptor interactions that impact growth cone motility

Hamilton College, Clinton, NY.....1999-2000

Visiting Assistant Professor of Biology

Research topic: Analysis of proteoglycan production by cultured rat neurons and astrocytes

TEACHING EXPERIENCE

Assumption University, Worcester, MA.....2007-present

Assistant Professor of Biology 2007-2013, Associate Professor of Biology 2013-2019, Professor 2019-present

BIO415: Principles of Neuroscience lecture and laboratory

BIO420: Developmental Biology lecture and laboratory

BIO375: Milestones in Neuroscience, lecture

BIO370: General Physiology, lecture and laboratory

BIO160L: Concepts in Biology, laboratory

BIO115: Matters and Mysteries of your Brain, studio-style lab

BIO102: Human Biology in Health and Disease, lecture and laboratory

BIO490/HON444: Independent Study

INT300: Mentored student internships

Undergraduate summer research: Trained and mentored students to plan, conduct, analyze and present their data generated from neurobiology research

University of Utah, Salt Lake City, UT.....2001-2006

Postdoctoral fellow in the Department of Neurobiology and Anatomy

Neurobiology Current Topics. Team taught journal-based graduate course

Gross anatomy: served as teaching assistant for medical students in the dry lab

Undergraduate research training. Mentored three undergraduates in neurobiology

Hamilton College, Clinton, NY.....1999-2000

Full Time Visiting Assistant Professor of Biology

BIO 336: Cell Biology. Independently taught upper level course with lecture and lab

BIO 111: Introductory Biology. Team taught introductory level biology lecture and lab

BIO 348: Molecular Genetics. Team taught upper level course with lecture and lab

University of Florida, Gainesville, FL.....1993-1999

Ph.D. Candidate

Medical Neuroanatomy: Teaching Assistant for this required medical student course_ Current Topics in Neuroscience. Discussion leader for journal-based dialog in Neuroscience for graduate students

Physiological Psychology. Led two guest lectures in this undergraduate course

The College of William and Mary, Williamsburg, VA.....1993

Student Teacher. Taught 7th grade life science at Yorktown Middle School while a science education undergraduate student

Fairfax County School System, VA.....1992

Substitute Teacher. Taught biology, calculus and chemistry at the high school level

COMPETITIVE GRANT AND FELLOWSHIP FUNDING

National Science Foundation, Research Collaborative Network (RCN) Undergraduate Biology Education

(UBE).....submitted January 2024

Title: RCN-UBE: Transforming Learning and Equity in UBE by Cultivating an Ecosystem of Feedback (TUNe BIO)

Role: Co-Principle Investigator serving with PI Dr. Sarah Cavanagh at Simmons University

Expected to learn status in May 2024

National Science Foundation, Research Collaborative Network (RCN) Undergraduate Biology Education

(UBE).....2021-2023

Title: RCN UBE Incubator: Transforming Assessment, Feedback, and Grading in Undergraduate Biology Education

Funding: \$74,960 (direct and indirect costs)

Role: Co-Principle Investigator serving with PI Dr. Sarah Cavanagh

Funding duration: September 2021-December 2023

National Science Foundation, Division of Integrative Organismal Systems.....2019-2023

Title: RUI: Collaborative Research: Molecular mechanisms of dendrite development, maintenance and plasticity: *in vivo* single-neuron analysis in *C. elegans*.

Role: Principle Investigator

Funding: \$245,710 total: \$184,183 direct costs plus \$61,527 indirect costs

research, training Assumption undergraduates, training URM students and training high school biology teacher. Funds are also used to purchase a fluorescent dissecting microscope for the College that is available to all colleagues and students.

Role: Principle Investigator and mentor to Assumption University students

Status: Submitted August 2017 and selected for funding. Funding duration: 1/15/2019-- 12/31/2023

Assumption University Faculty Development Grant2017

Title: Genes that drive formation and modification of communication sites between neurons

Role: Principle Investigator and mentor to Monika Rettler '18 \$4,000

National Science Foundation, Preliminary Proposal, Division of Integrative Organismal Systems

.....2017

Title: IOS Preliminary Proposal: RUI: Collaborative Research: Molecular mechanisms of dendrite development, maintenance and plasticity: *in vivo* single-neuron analysis in *C. elegans*.

Role: Principle Investigator

Status: Accepted and invited to submit full proposal

National Institutes of Health (NIH) R15 science research grant2011-2015

Title: Molecular mechanisms of axonal guidance

Funding: \$150,000 direct costs and \$37,709 indirect costs over three years for science research with Assumption undergraduates. Used a portion of these funds to purchase a \$75,000 fluorescent microscope for the College that is used by numerous faculty and students. Role:

Principle Investigator and mentor to Assumption University students

Funding rate: 12%

Assumption University Honors Program Research Internship.....2015

Title: Conformational state of integrins causes axonal patterning defects in GABAergic motor neurons

Role: Principle Investigator and mentor to undergraduate Rachel Avar '17. \$7,000

Assumption University Faculty Development Grant2015

Title: Molecular mechanisms of neural development

Role: Principle Investigator and mentor to undergraduates Michaela Temple '17 and
Monika Rettler '18 \$5,000

Assumption University Honors Program Research Internship.....2011

Title: Molecules that guide neurons: the surprising role of integrin receptors in netrin-mediated axon
guidance

Role: Principle Investigator and mentor to undergraduate Jenna Garozzo '13. \$7,000

Assumption University Faculty Development Grant2009

Title: How to read a road map for a neuron: molecules that impact neuronal motility

Role: Principle Investigator and mentor to undergraduate Douglas Reilly '10. \$5,000

Assumption University Honors Program Research Internship.2008

Title: Netrin-1, integrins and cAMP direct neural growth cone motility. Assumption University.

Role: Principle Investigator and mentor to undergraduate Victoria Duke. \$7,000

Spinal Cord Research Foundation (SCRF) Fellowship Grant.....2002-2004

Title: Cell Autonomous Factors Influence Regeneration

Funding: \$100,000 over two years

Role: Postdoctoral Trainee at the University of Utah

NIH Developmental Biology Training Grant.....2001-2003

Title: Intrinsic factors that impact regeneration

Funding: \$35,196 per year plus \$1,000 for travel and other expenses. I elected to terminate this grant early in
order to accept the grant from SCRF.

Role: Postdoctoral Trainee at the University of Utah

Research Grant from the State of Florida Brain and Spinal Cord Injury Rehabilitation Trust Fund

.....1997-1998

Title: The Effect of Aggrecan on Axonal Growth *In Vivo* Following Spinal Cord Injury

Funding: \$32,097 for research

Role: Co-principle investigator at the University of Florida Brain Institute

Research Grant from the State of Florida Brain and Spinal Cord Injury Rehabilitation Trust Fund

.....1996-1997

Title: Enzymatic Degradation of Neurite Inhibiting Extracellular Matrix Molecule, Chondroitin
Sulfate Proteoglycan, *In Vivo*

Funding: \$ 40,350.08 for science research

Role: Co-principle investigator at the University of Florida Brain Institute.

PUBLICATIONS IN PEER REVIEWED JOURNALS

undergraduate authors are underlined

M.L. Lemons., B.M. Dewsbury., J.R. Eyler., L. Fergusson-Kolmes., J.M. Lang., H.L. Urry., L.B. Wheeler., S.R. Cavanagh.
(in preparation) Equitizing STEM Retention: Transforming Assessment, Feedback, and Grading in Undergraduate

Biology Education (TUnE-Bio) Network. CBE LSE special issue: Equity, Inclusion, Access and Justice in Biology Education.

S. Ramachandran, N. Banerjee, R. Bhattacharya, **M.L. Lemons**, J. Florman, C.M. Lambert, D. Touroutine, K. Alexander L. Schoofs, M.J. Alkema, I. Beets, M.M. Francis. (2021) A conserved neuropeptide system links head and body motor circuits to enable adaptive behavior. *Elife*. Nov 12; 10:e71747. DOI: 10.7554/eLife.71747

M.L. Lemons (2021) Phantom Limb Pain: Feeling Sensation From A Limb That Is No Longer Present And What It can Reveal About Our Brain Anatomy. *The Journal of Undergraduate Neuroscience Education* (JUNE). 19(2):C1-C11.

D. Oliver, E. Norman, H. Bates, R. Avard, M. Rettler, C.B. Benard, M.M. Francis, **M.L. Lemons**. (2019) Integrins Have Cell-Type-Specific Roles in Development of Motor Neuron Connectivity. *Journal of Developmental Biology*. 7(3), 17; <https://doi.org/10.3390/jdb7030017>.

A. Philbrook, S. Ramachandran, C.M. Lambert, D. Oliver, J. Florman, M.J. Alkema, **M. Lemons**, M.M. Francis. (2018) Neurexin directs partner-specific synaptic connectivity in *C. elegans*. *Elife*. Jul 24;7. pii: e35692. doi: 10.7554/eLife.35692.

M.L. Lemons (2017) Referee Report For: A novel educational module to teach neural circuits for college and high school students: NGSS-neurons, genetics, and selective stimulations [version 1; referees: 3 approved with reservations]. *F1000Research* 2017, 6:117 (doi: [10.5256/f1000research.11456.r20684](https://doi.org/10.5256/f1000research.11456.r20684)) <https://f1000research.com/articles/6-117/v1#referee-response-20684>

M.L. Lemons. (2017). Locate the Lesion: A Project-Based Learning Case that Stimulates Comprehension and Application of Neuroanatomy. *Journal of Undergraduate Neuroscience Education*. 15(2) C7-C10.

M.L. Lemons. (2016). An inquiry-based approach to study the synapse: student-driven experiments using *C. elegans*. *Journal of Undergraduate Neuroscience Education*. 15(1). A44-A55.

Powell, S., Vinod, A., **Lemons, M. L.** (2014) Isolation and Culture of Dissociated Sensory Neurons From Chick Embryos. *J. Vis. Exp.* (91), e51991, doi:10.3791/51991.

M.L. Lemons, M.L. Abanto, N. Dambrouskas, C.C. Clements, Z. DeLoughery, J. Garozzo, M.L. Condic. (2013) Integrins and cAMP mediate netrin-induced growth cone collapse. *Brain Research*, (1537) 46-58.

M.L. Lemons (2012) Characterizing Mystery Cell Lines: Student-driven Research Projects in an Undergraduate Neuroscience Laboratory Course. *Journal of Undergraduate Neuroscience Education*. 10(2): A96-A104. This manuscript won the editor's choice award.

M.L. Lemons and M.L. Condic. (2008) Integrin signaling is integral to regeneration. *Experimental Neurology*, 209(2): 343-52.

M.L. Lemons and M.L. Condic. (2006) Combined integrin activation and intracellular cAMP cause Rho GTPase dependent growth cone collapse on laminin-1. *Experimental Neurology*, 202(2): 324-35.

M.L. Lemons, M.L. Abanto, S. Barua, W. Halfter and M.L. Condic (2005). Adaptation of sensory neurons to hyalectin and decorin proteoglycans. *Journal of Neuroscience* 25 (20), 4964-73.

M.L. Lemons, J.D. Sandy, D.K. Anderson and D.R. Howland (2003). Intact aggrecan and chondroitin-sulfate depleted aggrecan inhibit axon growth in the adult rat spinal cord. *Experimental Neurology* 184(2):981-90.

M.L. Condic and **M.L. Lemons** (2002). Extracellular matrix in spinal cord regeneration: getting beyond attraction and inhibition. Review paper submitted per request, *Neuroreport* 13 (3), A37-48.

M.L. Lemons, J.D. Sandy, D.K. Anderson and D.R. Howland (2001). Intact Aggrecan and Fragments Generated by Both Aggrecanase and Metalloproteinase-Like Activities Are Present in the Developing and Adult Rat Spinal Cord and Their Relative Abundance is Altered by Injury. *Journal of Neuroscience* 21 (13), 4772-4781.

M.L. Lemons, D.R. Howland, and D.K. Anderson. Chondroitin Sulfate Proteoglycan Immunoreactivity Increases Following Spinal Cord Injury and Transplantation (1999). *Experimental Neurology* 160, 51-65.

POSTER PRESENTATIONS AT PROFESSIONAL MEETINGS

Undergraduate authors are underlined

McKillop, H., Genao, N., Francis, M.M., **Lemons, M.L.** (2023) Investigating roles for extracellular matrix in neuronal synapse formation. Society for Neuroscience Meeting, Faculty for Undergraduate Research symposium.

McKillop, H., O'Keefe, S., MacQuarrie, L., Francis, M.M., **Lemons, M.L.** (2022) Investigating Roles of the Extracellular Matrix in Synapse Formation. Society for Neuroscience Meeting, Abstract Control # 10425.

Lemons, M.L. (2021) Promoting Enduring Learning by Connecting Course Content to Community Service. Society for Neuroscience Meeting. Virtual poster presentation.

O'Keefe, S., McKillop, H., MacQuarrie, L.M., Francis, M.M., **Lemons, M.L.** (2021) Investigating the roles of the extracellular matrix in synapse development. Assumption University Summer Research Symposium.

Armstrong, W., Bates, H., Norman, E., Oliver, D., Alexander, K. Francis, M.M., **Lemons, M.L.** (2019) Molecular mechanisms of neural circuit development. Society for Neuroscience Meeting, Faculty for Undergraduate Research symposium.

Lemons, M.L., Philbrook, A. Ramachandran, S., Oliver, D., Lambert, C. Francis, M.M. (2017) The synaptic organizer neurexin coordinates cholinergic connectivity with GABAergic neurons. Board B45. #368.20. Society for Neuroscience Meeting.

Avard R.C., Rettler M.M., Temple M.W., **Lemons M.L.** (2015) Conformational state of integrins causes significant axonal patterning defects in GABAergic motor neurons. Poster #30, Society for Neuroscience Convention, Faculty for Undergraduate Research symposium.

C.A. Lincoln, D.O. Oliver, M.M. Francis, **M.L. Lemons** (2014) Characterizing the role of integrins in axon pathfinding in *C. elegans*. Poster #24 Society for Neuroscience Convention, Faculty for Undergraduate Research symposium.

M.L. Lemons, D. Oliver, M.M. Francis (2014). Investigating the role of integrins in *Caenorhabditis elegans* axon patterning. Society for Neuroscience.

D. Oliver, M.M. Francis, **M.L. Lemons** (2014). Genetic analysis of integrin signaling in *C. elegans* axon guidance. Poster presentation at the NorthEast Under/graduate Research Organization for Neuroscience (NEURON). Poster #34.

M.L. Lemons, J. Hauri, S. Cavanagh (2012). Learning through teaching: Undergraduates designing and executing lesson plans for elementary students during Brain Awareness Week. Presentation at Society for Neuroscience Meeting in the Teaching and History Session.

Z. DeLoughery, J. Garozzo, S.M. Powell, A. Vinod, M.L. Condic, **M.L. Lemons** (2011). Netrin-1 activates integrins on neural growth cones: evidence for a direct ligand-receptor mechanism of activation. Society for Neuroscience Abstract presented at Faculty for Undergraduate Neuroscience symposium.

M.L. Lemons, M.L. Abanto, N. Dambrauskas, C. Clements, V. Duke and M.L. Condic. (2010) An interaction between netrin-1 and integrin receptors in growth cones. Axon Guidance, Synapse Formation and Regeneration Meeting. Cold Spring Harbor, N.Y.

M.L., Lemons, M.L., Abanto, N. Dambrauskas, C. Clements, and V. Duke. (2008) Netrin-1 induced growth cone collapse is mediated by integrin receptors. Society for Neuroscience Abstract. Program number 26.4.

M.L. Lemons and M.L. Condic (2005). Integrins, cAMP, and netrin-1 interact and influence growth cone behavior. Society for Neuroscience Abstract. Program number 146.11.

M.L. Lemons and M.L. Condic (2004). Interactions between cAMP, integrin receptors and Rho GTPases influence growth cone motility. Society for Neuroscience Abstract. Program number 723.14.

M.L. Lemons and M.L. Condic (2002). Effects of cAMP on Neurite Outgrowth and Integrins. Society for Neuroscience Abstract. Session Number 528.3

M.L. Lemons and M.L. Condic (2001). Cytoplasmic cAMP levels influence neurite outgrowth on growth-influential proteins. Society for Neuroscience Abstract 26: 407.

M.L. Lemons, J.D. Sandy, D. K. Anderson, and D.R. Howland (1999) Identification, Characterization and Function of Aggrecan in the Adult Spinal Cord. Society for Neuroscience Abstract. 25: 750.

M.L., Lemons, D. K. Anderson, and D.R. Howland (1998) Influences of Aggrecan, a specific Chondroitin Sulfate Proteoglycan, upon axonal growth, *in vivo*. Society for Neuroscience Abstract. 24: 1054.

M.L., Lemons, D.R. Howland and D. K. Anderson (1997) Spatial relations between chondroitin sulfate Proteoglycan and axons following spinal cord injury and transplantation. Society for Neuroscience Abstract. 23:1724.

M.L. Lemons, D.R. Howland and D. K. Anderson (1996) Chondroitin sulfate Proteoglycan expression following spinal cord injury. Society for Neuroscience Abstract. 22:1018.

M.L. Lemons, D.R. Howland and D. K. Anderson (1996) Potential therapeutic degradation of the inhibitory extracellular matrix molecule, chondroitin sulfate Proteoglycan. Neurotrauma Society Abstract.

M.L. Lemons, D.R. Howland and D. K. Anderson (1995) Proteoglycan and GFAP expression following spinal cord injury and intraspinal transplantation. Society for Neuroscience Abstract. 21:822

SEMINARS, PRESENTATIONS, WEBINARS

Assessment, Feedback, & Grading in Introductory Biology: Current State of Play. Cavanagh, S.R., Eyer, J.E., Wheler, L., **Lemons, M.L.** (2023). 46th Annual Meeting of the Professional and Organizational Development Network in Higher Education. November, Pittsburgh, PA.

Connect & Collaborate for Student Success: Understanding the Impact of Executive Functioning and Anxiety Disorders on Assumption Students and Discussing Strategies to Help Our Students Succeed Served as on one of four interdisciplinary presenters/facilitators of this workshop. My presentation was focused on the cellular and molecular underpinnings of brain disorders, including anxiety. Sponsored by D'Amour Center for Teaching Excellence, Division of Student Success, Student Accessibility Services and Counseling Services at Assumption University. September 26, 2023

Webinar: Transforming Assessment, Feedback and Grading in Undergraduate Biology Education ., S.R. Cavanagh, B.M. Dewsbury., J.R. Eyer, L. Fergusson-Kolmes, J.M. Lang, H.L. Urry, L.B. Wheeler, **M.L. Lemons.** May 2023. <https://www.youtube.com/watch?v=gYf6EI3ErZU>

Everyday Mentoring. Co-presenter and Discussion Facilitator at panel entitled, "Everyday Mentoring" at NetVUE Regional Meeting: "Scientific Callings: Mentoring and Vocational Exploration in the Natural and Health Sciences. Assumption University. September 2022.

Big Insights from Small Brains. Research presentation with Emily Norman'20 to Board of Trustees. February 2020.

Inspired by Index Cards: Low-tech Tools for Teaching. Presentation for the Center for Teaching Excellence. Food for thought series. 2017.

Inviting students to make mistakes, and learn from their mistakes. Presentation for the Center for Teaching Excellence with special focus on work done as active member of the Course Innovation Academy. 2017.

A Source of Inspiration: Community Service Learning. Presentation for the Community Service Learning Faculty Workshop at Assumption University. (2017)

Unlocking mysteries of Brain Development. Formal presentation to the Board of Trustees at Assumption University. (2017)

Studying worms to unlock mysteries of nervous system development. Formal presentation at the Department of Natural Sciences Research Seminar Series. Assumption University. (2014)

Molecular Mechanisms of Axon Guidance. Presentation given to the Francis Lab in the Department of Neurobiology at the University of Massachusetts Medical School. (2014)

How Neurons Know Where to Grow. Research presentation at "Faculty Showcase" in Department of Natural Sciences Seminar Series at Assumption University to recruit students to conduct neuroscience research under my mentorship (2008, 09, 11, 12, 13, 14)

Invited to appear on a TV show, "Higher Education Today" which is broadcast in the Washington, D.C.

area. Spoke with colleague Professor Cavanagh to host, Steven Goodman, about the study of neuroscience at small liberal arts colleges. (2013)

Invited to serve as a panelist at a Worcester Consortium event entitled, "*Planning Successful Scholarship: Obtaining Fellowships and Grants for Sabbaticals and Ongoing Research*". One of four panelists to present and discuss methods for obtaining external research funding. (2014)

Neurons on the move: How growth cones find their way. Assumption University Department of Natural Sciences Seminar Series. (2008)

Cells are diverse and dynamic. Keene State College (2008)

The role of integrins, netrin-1 and cAMP in growth cone motility. Skidmore College. (2005)

Integrins, cAMP and Rho GTPases: too much of a good thing for neurons. Gettysburg College (2005)

Netrin-1 mediated growth cone collapse involves integrins and other netrin receptors. Research in Progress Presentation. University of Utah. (2005)

Rho GTPases, cAMP and integrins interact and influence growth cone motility. Research in Progress Presentation. University of Utah (2005)

Cytoplasmic cAMP Levels Influence Embryonic Regeneration. Developmental Biology Retreat. Park City, Utah (2004)

Influence of Extrinsic and Intrinsic Factors on Regeneration. Research in Progress Presentation. University of Utah (2001)

Proteoglycans in the Spinal Cord: Implications for Development and Regeneration. Hamilton College (1999)

The Role of Chondroitin Sulfate Proteoglycans, Specifically Aggrecan, in Spinal Cord Regeneration. Rutgers University (1999)

Aggrecan's Effects Upon Axonal Growth In Vivo. Selected to give a research presentation at the Southeast Nerve Net Meeting. University of Florida. (1999)

Identification of Aggrecan in the Spinal Cord and an Examination of its Influences Upon Neurite Growth In Vivo. Graduate Student Research Presentation given at a Graduate Student Forum. University of Florida (199)

Aggrecan, a Specific Chondroitin Sulfate Proteoglycan, Appears to Influence Axonal Growth in vivo. Center for Neurobiological Sciences, University of Florida (1998)

Enzymatic Degradation of Neurite Inhibiting Extracellular Matrix Molecule, Chondroitin Sulfate Proteoglycan, In Vivo. BSCIRTF site visit. University of Florida. (1996)

Chondroitin Sulfate Proteoglycan Expression Following Spinal Cord Injury. Center for Neurobiological Sciences, University of Florida. (1996)

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience.....1993-present
Faculty for Undergraduate Neuroscience.....2008-present
GSA.....2023-present
POD network.....2023-present

GRANT REVIEW

Served as a grant reviewer for the National Science Foundation.....2005, 2015, 2018, 2019
Served as a grant reviewer for the Kentucky Science and Engineering Foundation.....2009

MANUSCRIPT REVIEW

Reviewed manuscript for Journal of Undergraduate Neuroscience Education by invitation.....2023
Reviewed manuscript for Journal of Undergraduate Neuroscience Education, case study division, by invitation.....2023
Reviewed manuscript for Neuroscience Insights by invitation.....2022
Reviewed manuscript for f100 by invitation.....2017
Reviewed manuscript for the Journal of Neuroscience Methods by invitation.....2005, 2015
Reviewed manuscript for the Journal of Visual Experimentation (JoVE) by invitation.....2013
Reviewed manuscript for the Experimental Neurology by invitation..... 2012, 09, 08, 06

THESIS AND DISSERTATION COMMITTEE MEMBER

Served on thesis committees for Honors Program Students; Amber Morra, Leslie Lupien, Brittney Carney, Joseph Provost, Rebecca Corridori, Nicole Leo, Lauren O'Connor, Michael Doyle, Emily Hill, Maria Gaughan, Deyanna Underwood
Served as honors thesis mentor for: Hailey McKillop, Sierra O'Keefe, William Armstrong, Elizabeth DiLoreto, Alexis Levine, Monika Rettler, Jenna Garozzo, Zackary Deloughery, Amrit Vinod, Natalie Schmitt, Victoria Duke
Served as external dissertation committee member for Ph.D. candidate Adrienne Kolpak at the University of Massachusetts Medical School, Worcester, MA.....2010

MENTORSHIP OF UNDERGRADUATE RESEARCH PROJECTS AND INTERNSHIPS

Hailey McKillop'23 Completed summer research internship under my mentorship at Assumption University in summer 2021 and University of Massachusetts Chan Medical School (UMCMS) summers 2022, 2023. Also conducted honors research project proposal in Spring 2023 (HON300) and defense in Fall 2024 (HON44). Served as her research mentor. Presented research at the Society for Neuroscience Meeting in 2022 and 2023. Plans to apply to graduate school.

Noelia Genao'23. Completed summer research internship under my mentorship at the UMCMD during summer 2023. Presented research at the Society for Neuroscience Meeting in 2023. Plans to apply to graduate school.

Sierra O'Keefe'21 Completed independent research during spring of 2021 as BIO490 and summer of 2021 as a summer research intern under my mentorship. Also conducted honors research project proposal in Fall 2020 (HON300) and defense in Fall 2021 (HON44). Served as her research mentor. Accepted into Optometry Program at MCPHS.

Jenna Graf'21. Completed independent research project during spring 2022 as part of BIO490. *Is β integrin/pat-3 required for proper neuronal commissural patterning?* Accepted into graduate program for prosthetic design.

Julie Aguiar'21. Completed independent research project during spring 2022 as part of BIO490. *Is β integrin/pat-3 required for proper neuronal commissural patterning?* Accepted position as lab technician at UMCMS.

Li MacQuarrie'22 Completed summer research internship at Assumption University in summer 2021. *Investigating the role of Extracellular Matrix Molecules and their Receptors on Synapse Formation.* Served as her research mentor.

Emily Norman'20 Completed neuroscience research internship during the summer of 2018 and 2019. *Investigation of genes that guide development and formation of neuronal spines in C. elegans.* Served as research mentor. Pursuing PhD at UMCMS.

Heather Bates'20 Completed research internship during the summer of 2018 and 2019. *Analysis of dendritic spine development, activity and maintenance in neurons of C. elegans.* Served as research mentor. Currently in PA program at MCPHS.

William Armstrong'20 Completed research internship during the summer of 2018 and 2019. *Studying the role of mtUPR in synaptic remodeling of C. elegans.* Served as research mentor. Currently pursuing PhD at UConn.

Monika Rettler '18 Research internship during the summer of 2015, summer of 2017, and spring 2017. *Examination of influence of integrin conformational states (e.g. activation state) on axonal patterning and synapse formation.* Served as mentor and chair of Honors research thesis. Earned her M.D. at Univ. of Missouri.

Alexis Levine '18 Completed honors research conducted at Harvard University. *Studying head diameter as a potential indicator of seizure activity in young children with TLS.* Served as on-campus mentor for Honors Program.

Nicholas Villani'18 Conducted research internship during spring of 2018 as BIO490. *Understanding the role of integrin ligands in spine-like projection (SLP) development.* Served as research mentor.

Joselyne Alvarez'19 Conducted research internship during spring of 2018 as BIO490. *Understanding brain development through worms.* Served as research mentor.

Liz Diloreto '17 Conducted research at UMMS in Dr. Zitzewitz's lab at UMMS. *Studying protein folding of matrin-3 and its impact on ALS.* Served as on-campus mentor for Honors Program. Currently earning PhD at WPI.

Michaela Temple '17 Research internship during the summer of 2015 and fall of 2015 at Assumption University. *Examination of influence of integrin conformational states on synaptic patterning.* Served as research mentor. Practicing optometrist.

Rachel Avard '17. Research internship during the summer of 2015, fall of 2015 and Spring 2016 at Assumption University. *Examination of affects of integrin conformational states (e.g. integrin inactivation state) on axonal patterning and cell death.* Served as research mentor. Earned PhD at Columbia University.

Cassie Lincoln'15. Completed research internship during summer of 2014 and spring of 2015 at the University of Massachusetts Medical School, Department of Neurobiology and Assumption University. *Creating transgenic worms to study integrin expression and activation in vivo.* Served as research mentor. Practicing PA.

Mary Gonring '15 Completed research internship during spring of 2015 at Assumption University as BIO490. *Examination of effects of integrin inactivation on axonal patterning.* Served as research mentor.

Priya Ahluwalia '15 Completed research internship during spring of 2015 at Assumption University as BIO490. *Does the ina-1 gene work cell autonomously in GABAergic neuronal patterning?* Served as research mentor.

Natalie Schmitt'15 Literature based research for Honors program. *From Lab Benches to Hospitals: Investigating the Causes and Treatment Methods of ALS*. Served as mentor and chair of Honors research thesis.

Devyn Oliver'14. Research internship in summer of 2013 and fall of 2013 at the University of Massachusetts Medical School, Department of Neurobiology. *Impact of integrins on axon guidance in C. elegans*. Served as research mentor. Earned PhD at UMCMS. Currently working in industry.

Chandler Erwin'14 and Devyn Oliver '14. Research internship in summer 2012. *An investigation of the effects of netrin upon integrin activation in Neuro2A cells*. Served as research mentor. *Devyn is listed twice because she was involved in two distinct projects.

Jenna Garozzo '13. Research internship in summers of 2011 and 2012 and BIO490 in fall of 2012. *Using RNAi to determine if the netrin receptor DCC is involved in netrin-mediated integrin activation*. Earned authorship on publication in *Brain Research*. Served as research mentor and honors thesis chair. Practicing PA.

Zachary DeLoughery '12. Research internship in summer of 2011 and continued research through BIO490 in the Spring of 2012. *Determining an effective protocol for effective use of RNAi to knockdown protein expression in Neuro2A cells*. Earned authorship on publication in *Brain Research*. Served as research mentor and honors thesis chair. Earned his PhD at Brown University.

Sarah Powell '12. Research internship in the summer of 2011 and research through BIO490 in the spring of 2012. *Using quantitative immunocytochemistry to determine the effect of netrin upon integrin activation in chick sensory neurons*. Earned authorship on publication in *JoVE*. Served as research mentor. Practicing PA.

Amrit Vinod '13. Summer of 2011. Worked with Sarah Powell '12 on the project with the title: *Using quantitative immunocytochemistry to determine the effect of netrin upon integrin activation in chick sensory neurons*. Summer of 2012. Co-mentored Amrit Vinod with Dr. Cobie Davie. Project title: Bioactivity of Moschamine. Honors Thesis Project. Earned authorship on publication in *JoVE*. Earned his M.D. at UMCMS.

Taylor Parent '12. Research through INT306 in the spring of 2011. Served as mentor during student's internship with orthopedic surgeon, Dr. Busconi at the University of Massachusetts Medical School. Met weekly to discuss her interactions with doctors and patients.

Douglas Reilly '11. Science research through BIO490 in spring of 2009 and research internship in summer of 2009. *Comparing protein expression of three cell lines with primary sensory neurons*. Earned PhD at WPI.

Jaqueline Paisner '10. Internship through INT300 in the spring of 2009. Served as mentor during student internship with Dr. Bissan at Chesire Dental Associates.

Carryne Clements'10. Research internship in summer of 2008. *Using quantitative immunocytochemistry to characterize activated integrin levels in primary sensory neurons*

Victoria Duke '10. Research internship in summer of 2008. *Using co-immunoprecipitations to determine cell surface levels of integrins of neurons on various substrates*.

SERVICE TO ASSUMPTION UNIVERSITY

Founding Director, Center for Neuroscience.....	2018-2020, 2021-present
Faculty mentor for the Neuroscience Club.....	2017-2020, 2021-present
Faculty mentor for Neuroscience Honor Society, Nu Rho Psi.....	2021-present
Served on Search Committee for Provost of Assumption University.....	2022-2023
Served on two Search Committees for Tenure Track Assistant Professor in Psychology.....	2022-2023, 2023-2024
Member of Enrollment Management Council.....	2023-24
Member of Admissions Committee.....	2014-2018, 2020-2022
Member of Merit Awards committee.....	2022-24
Served on Search Committee for Vice President of University Advancement.....	2022
Strategic Planning Committee: Approaches to Teaching and Learning Work group.....	2021-22
Served on Search Committee for tenure track Assistant Professor of Psychology position.....	2019
Worked collaboratively across several departments to design an interdisciplinary Neuroscience Major with a Cellular Path. Major was successfully implemented Fall 2018.....	2018
Developed novel course for Neuroscience major entitled, "Milestones in Neuroscience"	2018
Developed novel course with integrated lab for core curriculum, entitled, "Matters and Mysteries of your Brain"	2017
Member of Advisory Board for D'Amour Center of Teaching Excellence.....	2017-2019
Member of Augustine Scholarship Selection Committee.....	2016-2023
Member of Planning Committee for Undergraduate Symposium.....	2016-2020
Member of Course Innovation Academy within the Center of Teaching Excellence.....	2016-17
Mission Statement Committee (developed Mission statement for Core Curriculum).....	2016
Committee for Students with disabilities.....	2015-2017
Innovation Team for New Undergraduate Program Development.....	2014-15
Core Curriculum Committee 1A (learning objectives and mission).....	2012-2013

Student Travel Fund Committee. Helped create process for students to apply for travel funds to present at off-campus professional meetings, continue to select students for travel expenses from a pool of applications.....2008-2013

Institutional Review Board (IRB). Review applications for research projects that involve human subjects. Approve projects that sufficiently protect human subjects.....2011-2013, 2014-15

Standing Committee on General Education (SCOGE). Responsible for evaluating the general education curriculum and assess proposals that suggest to change it.....2011-2013

Admissions Committee. Attend Open House Events, meet with perspective students and their parents.....2009-12, 14-2020

Scholarship Committee. Help students to prepare applications for Fulbright Scholarships, Marshall Scholarships and other competitive awards.2010-2013, 2014-2018

Served on Tagaste Project. Participated in Mind and Matter Tagaste linkage for first year students. Taught Human Biology linked with three other course.....2010-12

Served on Search Committee for Psychobiologist tenure track faculty position in Psychology Department. This search was successful.....2008-09

Participated in several Open Houses, Scholars Days, Assumption Day, Majors Fair, Admissions Events and the Undergraduate Research Symposiums.....2008-present

Advise students.....2008-present

SERVICE TO DEPARTMENT OF BIOLOGICAL AND PHYSICAL SCIENCES, FORMERLY NATURAL SCIENCES

Work collaboratively with members of Department of Biological and Physical Sciences and Marketing to create faculty and student profile visual display in prominent location for campus tours.....2022-2024

Admissions Liaison. One of two representatives from Department of Biological and Physical Sciences to present and meet with admissions department, educate about programs and strengths of department.....2022-present

Coordinate prospective student visit/experience and tour of the Natural Sciences.....2022

Presenter and participant for Departmental Showcase to prospective students and their families..... 2021-present

Coordinator of Summer Research internships sponsored by Biological and Physical Sciences..... 2016--2019

Chairperson of search committee for tenure track Assistant Professor of Biology position in the Department of Natural Sciences. Search was successful.....2018

Served on Search Committee for a tenure track bioinformatics faculty position in the Department of Natural Sciences. Search was successful.....2015-16

Served on Search Committee for a tenure track anatomy faculty position in the Department of Natural

Sciences. Search was successful.....2011-12

Served on Search Committee for a tenure track microbiology faculty position in the Department of Natural Sciences. Search was successful.....2009-10

Co-organizer of the Department of Natural Sciences Seminar Series. Worked with Dr. Colby Davie to schedule internal and/or external speakers for each week of the academic school year2008-2010

Attended Council for Undergraduate Research Meeting in Washington, D.C. per recommendation of the Provost. Shared information about external funding opportunities.....2009

Worked with Dr. Steve Theroux and Dr. Stuart Cromarty to submit a proposal for a Neuroscience and Behavior Concentration for Biology Majors, proposal was successful.....2009

Served on Search Committee for a tenure track anatomy faculty position in the Department of Natural Sciences.....2008-09

Submitted proposal for novel Principles In Neuroscience Course BIO415, course was approved..... Fall 2009

Serve on Recommendation Committee for Health Professions2008-present

SERVICE TO THE COMMUNITY

Gave presentation to students enrolled in honors science classes at Wachusett Regional High School entitled, "Brain function at the cellular level". January 2, 2024.

Served as External Evaluator of Neuroscience Program at Stonehill College. Careful evaluation of program's self evaluation and an on-site visit were used to generate a full evaluation report submitted to Provost, 2023

Served as Faculty leader for Assumption Team of faculty and students in an annual WALK MS event, .2016-present

Served as co-organizer for the Western Massachusetts Chapter of the Society for Neuroscience meeting held at Assumption University, 2019

Member of the Western Massachusetts Society for Neuroscience Chapter, 2015-present

"Neurocasenet" Fellow. Selected to serve in a pedagogical-focused community of Professors from across the country who teach neuroscience undergraduates, 2017-2022

Served as representative from Assumption University in New Case Scholar initiative, led by Dr. Frenzel and Dr. Roesch at Emory University, 2015-16

Participated in Brain Awareness Week activities by preparing Assumption students to design and execute brain-related lesson plans to second graders at Nelson Place Elementary School, Worcester, MA, 2016, 2010-12

Science Fair Judge, 6th grade level, Nelson Place Elementary School, Worcester, 2016

Presented lessons to 2nd, 3rd and 5th graders regarding the nervous system at Glenwood Elementary

School, Rutland, MA, 2013-15

Presented a brain lesson to second graders at Naquag Elementary School, Rutland, MA, 2014

Volunteer Rutland Youth Soccer coach for first and second graders, 2012, 13

Volunteer Religious Education (formerly known as CCD) Teacher for first grade students at Saint Patrick's Church, Rutland, MA, 2010-11

Anatomy lesson presenter at Naquag Elementary School in Rutland, MA, 2011

Science lesson presenter at Salmon Center for Early Education in Worcester, MA, 2009

Brain Awareness Week participant. Taught and interacted with students at Bonneville Elementary School, Salt Lake City, Utah, 2006

Brain Awareness Week participant. Taught and interacted with students at North West Middle School in Utah about neuroscience related topics, 2005

Science Fair Judge at Cathedral of the Madeleine Choir School in Salt Lake City, Utah, 2005

Brain Awareness Week participant. Taught lessons about electrical signaling in the brain to elementary students at Uinta Elementary School in Salt Lake City, Utah, 2003

Visiting science teacher at Montessori School in Gainesville, Florida. Once a week, I taught a wide range of basic science lessons to elementary students, 1999.

HONORS AND AWARDS

Paul Ziegler Presidential Award for Excellence in Scholarship. 2020. This award is given by the President of Assumption University to a faculty member who was nominated by colleagues and selected by the Presidential Award Committee.

Selected to serve as *Guest Coach* for Assumption University football team. All American Football kicker Cole Tracey '18 requested that I serve as guest coach for last home game. I attended practices, film study sessions and watched the game from the sidelines with the team after walking on field with team captains for coin toss. 2016

Editor's Top Pick of published articles at JUNE (Journal for Undergraduate Neuroscience Education). 2012. The Editor of JUNE selected my article as the best published manuscript in JUNE during 2012.

International Outstanding Young Investigator Award. 2003-2004.

This award is sponsored by the International Campaign for Cures of Spinal Cord Injury and Paralysis (ICCP). The Award enabled me to work in the prestigious laboratory of Dr. Alan Hall at the University College London in the UK. This award was made possible by my initial nomination by the Paralyzed Veterans of America (PVA), who were allowed to nominate only one candidate from their pool of funded fellows.

Nominated for the Burroughs Wellcome Fund for Postdoctoral Travel by the Intermountain Chapter of Society for Neuroscience. 2002. University of Utah.

First Place Award at Graduate Student Forum in Health Science Division. 1999. College-wide student research competition. University of Florida.

Student Representative for the Department of Neuroscience in a Graduate Student Research Competition. 1999. One of two students selected to represent the Department of Neuroscience in a student research competition within the College of Medicine. University of Florida.

Bryan W. Robinson Fellowship. 1998. Competitive fellowship awarded to selected individuals for clinically relevant research in the field of neuroscience. University of Florida.

Medical Guild Minigrants. 1995. Competitive research award based upon dissertation research. University of Florida.

University of Florida College of Medicine Scholarship Award. 1993-1999.

Dean's List. 1993, 1992. College of William and Mary.

Mortar Board Member. 1993. College of William and Mary. Selected for membership based upon scholarship and community service

