

Curriculum Vitae

Wendy Scott Beane, Ph.D.

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EDUCATION

- Doctor of Philosophy, 2007** (Biology) **Duke University**, Durham, NC, *Certificates in: Developmental & Stem Cell Biology, and Cell & Molecular Biology*
- Bachelor of Science, 2001** (Biomedical Sciences, Chemistry minor) **Averett University**, *Cum Laude*
- Bachelor of Arts, 1996** (English, Sociology minor) **Averett University**, Danville, VA

POSITIONS

- Associate Professor** Department of Biological Sciences
08/2018 – *Western Michigan University*
- Assistant Professor** Department of Biological Sciences
08/2013 – 08/2018 *Western Michigan University*
- Postdoctoral Fellow** Dr. Michael Levin, Tufts University
05/2008 – 08/2013 *Previously: Forsyth Institute, Harvard Medical School
Biophysical Regulation of Morphology in Planarian Regeneration*
- Graduate Student** Dr. David McClay, Duke University
07/2001 – 05/2007 *Gene Regulatory Networks and Rho GTPases: Sea Urchin*
- Interim Postdoc** *Endomesodermal Specification and Morphogenesis*
05/07 – 04/08 (Postdoc: *Calcium Signaling and Sea Urchin Oral/Aboral Specification*)

FUNDING

- 2023- NIH R15, National Institutes of Health, PI, *ROS Signaling in Wound Healing vs Tissue Repair* (NIH# 1R15GM150073-01/NIGMS)
- 2023- Faculty Research and Creative Activities Award, Western Michigan University, PI, *Quantum Biology: Magnetic Field Effects on Stem Cells* (FRACAA# 2624)
- 2022- NSF BIORETS, National Science Foundation, Senior Personnel, *BIORETS: Research Experiences for Teachers in the Biology of Plants, Animals, Microorganisms, and their Environments* (NSF# 2146882/DBI)
- 2021- Presidential Innovation Professorship, Western Michigan University, PI, *Promoting Advances in Quantum Biology Through Interdisciplinary Exchange*
- 2021- NSF RCN, National Science Foundation, Co-PI, *RCN: Instrumentation for Quantum Biology (I-QuBio)* (NSF# 2105474/MCB)
- 2021-23 Quantum Biology GRC. Proposal to establish and fund a new Gordon Research Conference, Co-Applicant, *First Quantum Biology GRC held March 2023*
- 2017-23 NSF CAREER, National Science Foundation, PI, *CAREER: Molecular Mechanisms Regulating Neural Regeneration in Planarians* (NSF# 1652312/IOS)
- 2016-8 NSF EAGER, National Science Foundation, Co-PI, *EAGER: Collaborative Research: Some Effects of Weak Electric and Magnetic Fields on Biological Systems* (NSF# 1644384/CBET)
- 2016-7 Support for Faculty Scholars Award, Western Michigan University, PI, *Comparative Analysis of Tissue Remodeling During Planarian Regeneration* (SFSA# S2016-015)

- 2014-5 Faculty Research and Creative Activities Award, Western Michigan University, PI, *Identifying Calcium Pathways that Control Regeneration of Shape* (FRACAA# W2014-013)
- 2013-4 Support for Faculty Scholars Award, Western Michigan University, PI, *Establishing Planaria as a Model for Whole Eye Regeneration* (SFSA# F2013-006)
- 2008-11 NRSA (F32), NIGMS, National Institutes of Health, PI, *Biophysical Regulation of Axial Polarity During Regeneration* (NIH# F32GM083547)
- 2001-3 Training Fellowship, National Institutes of Health, Duke Program in Developmental Biology
- 1997 Student Undergraduate Traineeship Grant, Cystic Fibrosis Foundation (UNC-Chapel Hill)

Teaching

- 2021- BIOS 5970: Methods and Concepts in Biology, (*Designed/Developed Course*), WMU
- 2021- BIOS 5740: Developmental Biology (*Redesigned Course*), Western Michigan University
- 2016- BIOS 5750: Stem Cells and Regeneration, (*Designed/Developed Course*), WMU
- 2015- BIOS 1610: Molecular and Cellular Biology, Western Michigan University
- 2023 Pre-GRC Research School on Quantum Biology, (*Instructor-Intro to Biology Bootcamp*), Virtual
- 2021 BIOL 458: Stem Cells and Regeneration Biology, (*Guest Lecturer*), University of Nevada-Las Vegas
- 2019-20 BIOS 5260: Molecular Biology Laboratory: Regeneration, (*Designed/Developed Course*), WMU

Awards & Honors

- 2022 Emerging (Faculty) Scholar Award. *Acknowledges WMU faculty that have achieved national recognition and demonstrated outstanding promise*, Western Michigan University
- 2021 Presidential Innovation Professorship. Named Professorship awarded by the President, Provost, and Vice President for Research and Innovation, Western Michigan University
- 2021 Darrell R. Latva Biological Sciences Teaching Excellence Award. Department of Biological Sciences, Western Michigan University.
- 2018 Honorary Faculty Fellow (Award). Lee Honors College, Western Michigan University
- 2018 Excellence in Discovery Award. Office of Research & Innovation, Western Michigan Univ.
- 2018 Distinguished Research and Creative Scholarship Award. Office of the Vice President for Research, Western Michigan University
- 2017 NSF CAREER Award. Integrative Organismal Systems, National Science Foundation

Professional Memberships & Service Activities

Current

- 2023- **Associate Editor, Quantum Biology and Biophotonics Section**, *Computational and Structural Biotechnology Journal* (CSBJ)
- 2023- WMU Biological Sciences Departmental Advisory Committee (to the Chair)
- 2023- **Co-Chair, Quantum Biology Gordon Research Conference** (March 2025)
- 2021- **Director and Founder, WMU's QBite Program** (Quantum Biology Interdisciplinary Trainee Exchange program)
- 2021- **Founding Executive Committee, US Quantum Biology Center** (funded by the Kavli Foundation and the Gordon and Betty Moore Foundation), housed at UCLA
- 2021- WMU Department of Biological Sciences Graduate Policies and Admissions Committee (GPAC) (Chair 2022-3)
- 2019 - Member, The Bioelectromagnetics Society (BEMS)
- 2018 - **Review Editor in Evolutionary Developmental Biology**, part of the journals *Frontiers in Cell and Developmental Biology* and *Frontiers in Ecology and Evolution*
- 2017- WMU Lee Honors College Study Abroad and Research/Creative Scholarship Committee
- 2016 - WMU Biological Sciences Departmental Development Committee

2004 - Member, The Society for Developmental Biology (SDB)

Completed

- 2023 **NIH Grant Panel Reviewer**, National Institute of General Medical Sciences (K99/R00)
- 2023 **Instructor**, Intro to Biology Bootcamp, Pre-GRC Research School on Quantum Biology, Virtual with 200+ International attendees (US, UK, Europe, Japan, India, South Africa)
- 2023 **NSF Ad Hoc Grant Reviewer** (twice), HBCU-EiR (Historically Black Colleges and Universities - Excellence in Research), Directorate for Biological Sciences (BIO)
- 2023 **Advisory Roundtable Participant, Advanced Research and Invention Agency** (ARIA), United Kingdom, (newly established DARPA-like funding agency)
- 2022 **Invited Panelist, National Science Foundation: 2022 NSF Nanoscale Science and Engineering Grantees Conference**, session on “Quantum Biology”, Virtual
- 2022 **NIH Grant Panel Reviewer**, National Institute of General Medical Sciences (K99/R00)
- 2021-23 **Vice-Chair, Inaugural Quantum Biology Gordon Research Conference** (March 2023)
- 2021-22 **Member, Search Advisory Committee for VP of Research and Innovation**, WMU
- 2021-22 WMU Biological Sciences Departmental Recording Secretary
- 2021 Co-Organizer, Session on “Quantum Biology.” Cell Bio Virtual 2021, the joint meeting of the American Society for Cell Biology (ASCB) and European Molecular Biology Organization (EMBO). Virtual
- 2021 **Invited Panelist, National Academy of Sciences: Quantum Concepts for Biological Imaging and Sensing Workshop**, session on “Bioelectromagnetic Fields”, Virtual
- 2020-21 WMU Biological Sciences Departmental Advisory Committee (to the Chair)
- 2020 **NSF Ad Hoc Grant Reviewer**, Division of Integrative Organismal Systems (IOS)
- 2019 Chair, session on “Disease, Genetics and Metabolism”, Gordon and Betty Moore Foundation Workshop on Spin Physics in Biology, UCLA, Los Angeles, CA.
- 2019 Organizing Chair for “Evolution of Neural Regeneration” (Neuroscience) session, Annual Biomedical Research Conference for Minority Students (ABRCMS 2019), Anaheim, CA.
- 2017-20 WMU Biological Sci. Dept. Graduate Policies and Admissions Committee [Chair 2018-20]
- 2014-19 Member, Michigan Chapter of the Society for Neuroscience (MiSNF)
- 2014-19 **Participating Faculty, HHMI Grant to Reform WMU Introductory Biology Instruction**

Workshops/Courses

- Sep. 2021 Global Quantum Biology Square Table. UCLA & National Science Foundation, Virtual
- March 2021 National Academies of Science: Quantum Science Concepts in Enhancing Sensing and Imaging Technologies: Applications for Biology—A Workshop, Virtual
- Dec. 2019 Moore Foundation-Sponsored Workshop: Coherent Spin Physics in Biology, UCLA

Publications (* = undergraduate student, ** = graduate student, † = authors contributed equally)

28. Kinsey LJ**, **Beane WS**†, Tseng KA-S†. (2024) Accelerating an integrative view of quantum biology. *Frontiers in Physiology*. Section: Quantum-based Effects on Cell Physiology. 2024 Jan 11;14:1349013. DOI: 10.3389/fphys.2023.1349013. eCollection 2023.
27. Witucki A**, Rudge DW, Pleasants B, Dai P, **Beane WS**. (2023) Redesigning a course based undergraduate research experience for online delivery. *Biochemistry and Molecular Biology Education*. DOI: 10.1002/bmb.21780.
26. Witucki A**, **Beane WS**, Pleasants B, Dai P, Rudge DW. (2023) An Explicit and Reflective Approach to Teaching Nature of Science in a Course-Based Undergraduate Research

Experience. *Science and Education*. DOI: 10.1007/s11191-023-00441-8.

25. Hack SJ**, **Beane WS**, Tseng K-AS. (2023) Biophysics at the edge of life and death: Radical control of apoptotic mechanisms. *Frontiers in Cell Death*. Section: Apoptosis (Vol 2). 27 February 2023. (Review) DOI: 10.3389/fceld.2023.1147605.
24. Kinsey LJ**, Van Huizen AV**, **Beane WS**. (2023) Weak magnetic fields modulate superoxide to control planarian regeneration. *Frontiers in Physics*. Section: Biophysics. 04 January 2023. Volume 10 – 2022. DOI: 10.3389/fphy.2022.1086809.
23. Van Huizen AV**, Hack SJ**, Greene, JM*, Kinsey LJ**, **Beane WS**. (2022) Reactive Oxygen Species Signaling Differentially Controls Wound Healing and Regeneration. *BioRxiv*. (Preprint) DOI: <https://doi.org/10.1101/2022.04.05.487111>.
22. Hack SJ**†, Kinsey LJ**†, **Beane WS**. (2021) An Open Question: Is Non-Ionizing Radiation a Tool for Controlling Apoptosis-Induced Proliferation? *International Journal of Molecular Sciences*. 2021 Oct 16;22(20):11159. (Perspective) DOI: 10.3390/ijms222011159.
21. **Beane WS**, Adams DS, Morokuma J, Levin M. (2019) Live imaging of intracellular pH in planarians using the ratiometric fluorescent dye SNARF-5F-AM. *Biology Methods and Protocols*. 2019;4(1):bpz005. DOI: 10.1093/biomet/bpz005.
20. Van Huizen AV**, Morton JM*, Kinsey LJ**, Von Kannon DG**, Saad MA*, Birkholz TR**, Czajka JM*, Cyrus J, Barnes FS, **Beane WS**. (2019) Weak magnetic fields alter stem cell-mediated growth. *Science Advances*. Jan 30;5(1):eaau7201. DOI: 10.1126/sciadv.aau7201.
(Highlighted by: Williams, R. (2019) Weak Magnetic Fields Manipulate Regeneration in Worms. *The Scientist*, Jan 30, 2019.)
(Highlighted by: “This week in *Science*” Feb 1, 2019 issue, <http://science.sciencemag.org/content/363/6426/twis>)
19. Birkholz TR**, Van Huizen AV**, **Beane WS**. (2019) Staying in Shape: Planarians as a Model for Understanding Regenerative Morphology. *Seminars in Cell and Developmental Biology*. 2019 Mar;87:105-115. (Review) DOI: 10.1016/j.semcdb.2018.04.014. Epub 2018 Jul 25.
[Cover Image]
18. Van Huizen AV**, Tseng AS, **Beane WS**. (2017) Methylisothiazolinone Toxicity and Inhibition of Wound Healing and Regeneration in Planaria. *Aquatic Toxicology*. Oct;191:226-235. DOI: 10.1016/j.aquatox.2017.08.013.
17. Birkholz TR** and **Beane WS**. (2017) The Planarian TRPA1 Homolog Mediates Extraocular Behavioral Responses to Near Ultraviolet Light. *Journal of Experimental Biology*. Jul 15; 220(Pt 14):2616-2625. DOI:10.1242/jeb.152298.
16. Morton JM*†, Saad MA*†, **Beane WS**. (2017) Surgical Ablation Assay for Studying Eye Regeneration in Planarians. *Journal of Visualized Experiments (JoVE)*. Apr 14;(122). DOI: 10.3791/55594.
15. Deochand ME**, Birkholz TR**, **Beane WS**. (2016) Temporal regulation of planarian eye regeneration. *Regeneration (Oxf)*. Oct 28;3(4):209-221. DOI: 10.1002/reg2.61.
14. Schatzberg D, Lawton M, Hadyniak SE, Ross EJ, Carney T, **Beane WS**, Levin M, Bradham CA. (2015) H⁺/K⁺ ATPase activity is required for biomineralization in sea urchin embryos. *Developmental Biology*. 2015 Oct 15;406(2):259-70. DOI: 10.1016/j.ydbio.2015.08.014.
13. Paskin TR**, Jellies J, Bacher J*, **Beane WS**. (2014) Planarian phototactic assay reveals differential behavioral responses based on wavelength. *PLoS One*. Dec 10;9(12):e114708.

DOI: 10.1371/journal.pone.0114708.

12. **Beane WS**, Morokuma J, Lemire JM, Levin M. (2013) Bioelectric signaling regulates head and organ size during planarian regeneration. *Development*. Jan;140(2):313-322.
DOI: 10.1242/dev.086900.
(Highlighted by: the “In this Issue” page)
11. **Beane WS**, Tseng A, Morokuma J, Lemire J, Levin M. (2012) Inhibition of planar cell polarity extends neural growth during regeneration, homeostasis and development. *Stem Cells and Development*. 2012 Aug 10;21(12):2085-94. DOI: 10.1089/scd.2011.0605. [Cover Image]
10. Lobo D, **Beane WS**, Levin M. (2012) Modeling planarian regeneration: a primer for reverse-engineering the worm. *PLOS Computational Biology*. 8(4) e1002481. (Perspective) DOI: 10.1371/journal.pcbi.1002481. [Cover Image]
9. **Beane WS**, Morokuma J, Adams DS, Levin M. (2011) A chemical genetics approach reveals H,K-ATPase-mediated membrane voltage is required for planarian head regeneration. *Cell Chemical Biology*. Jan 28;18(1):77-89. DOI: 10.1016/j.chembiol.2010.11.012.
Highlighted in *Science Daily*.
Preview: Sater, AK. (2011) A jump-start for planarian head regeneration. *Cell Chemical Biol*. Jan 28;18(1):4-5.
8. Tseng AS, **Beane WS**, Lemire JM, Masi A, Levin M. (2010) Induction of vertebrate regeneration by a transient sodium current. *Journal of Neuroscience*. Sep 29;30(39):13192-200. DOI: 10.1523/JNEUROSCI.3315-10.2010. [Cover Image]
(Highlighted by: articles in the New York Times, Science News, and msnbc.com)
7. Stevenson CG* and **Beane WS**. (2010) A low percent ethanol method for immobilizing planarians. *PLoS One*. Dec 14;5(12):e15310. DOI: 10.1371/journal.pone.0015310.
6. Oviedo NJ and **Beane WS**. (2009) Regeneration: The origin of cancer or a possible cure? *Seminars in Cell and Developmental Biology*. Jul;20(5):557-64. (Review)
DOI: 10.1016/j.semcd.2009.04.005.
5. Bradham CA, Foltz KR, **Beane WS**, Arnone MI, Rizzo F, Coffman JA, Mushegian A, Goel M, Morales J, Genevriere A-M, Lapraz F, Robertson AJ, Kelkar H, Loza-Coll M, Townley IK, Raisch M, Roux MM, Lapage T, Gache C, McClay DR, Manning G. (2006) The sea urchin kinome: a first look. *Developmental Biology*. Dec 1; 300(1):180-193.
DOI: 10.1016/j.ydbio.2006.08.074.
4. Morales J, Mulner-Lorillon O, Cosson B, Morin E, Bellé R, Bradham CA, **Beane WS**, Cormier P. (2006) Translational control genes in the sea urchin genome. *Developmental Biology*. Dec 1; 300(1):293-307. DOI: 10.1016/j.ydbio.2006.07.036.
3. **Beane WS**, Voronina E, Wessel GM, McClay DR. (2006) Lineage-specific expansions provide genomic complexity among sea urchin GTPases. *Developmental Biology*. Dec 1; 300(1): 165-179. DOI: 10.1016/j.ydbio.2006.08.046.
2. **The Sea Urchin Genome Sequencing Consortium**. (2006) The genome of the sea urchin *Strongylocentrotus purpuratus*. *Science*. Nov 10;314(5801):941-952. DOI: 10.1126/science.1133609. *My data is Fig. 4.
1. **Beane WS**, Gross JM, McClay DR. (2006) RhoA regulates initiation of invagination, but not convergent extension, during sea urchin gastrulation. *Developmental Biology*. Apr 1;

Invited Talks

- (2024) *Therapeutic Potential of Manipulating in vivo ROS Levels to Control Wound Repair and Tissue Regeneration*. 42nd Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI.
- (2024) *Quantum Biology: Magnetic Fields, Reactive Oxygen Species, and Stem Cells*. APS 2024; American Physical Society; Focus Session on Quantum Biology. Minneapolis MN.
- 2023 *Investigating Stem Cells as Quantum Sensors*. NIH National Center for Advancing Translational Sciences (NCATS) Quantum Information Sciences (QIS) and Quantum Sensing in Biology (QSB) Scientific Interest Group Seminar. Virtual Series.
- 2023 *Manipulating Tissue Repair with Weak Magnetic Fields*. The Guy Foundation 2023 Autumn Series: Quantum Biology and Space Health Programme. Virtual Series.
- 2023 *Introduction to Weak Magnetic Fields and Stem Cell Growth*. Quantum Biology and Cancer Meeting: Quantum Biology Primer session. Convened by Cancer Research UK (CRUK) and The Guy Foundation. London, UK. Hybrid Meeting; Virtual talk.
- 2023 *Development During Adulthood: Using Planarians to Understand Tissue Repair*. Central Connecticut State University, Advances in Developmental Biology (BMS 490/540) course, Fall.
- 2023 *Evidence for Quantum Spin Modulation of Stem Cells In Vivo*. QuEBS 2023: Quantum Effects in Biological Systems Workshops. University of Surrey, UK. Hybrid Meeting; Virtual talk.
- 2023 *Planaria, Regeneration, and Environmental Influences*. Lynn University Biological Sciences Dept. Seminar Series. Virtual.
- 2023 *More Than Meets the Eye: Planarians as a Model for Eye Regeneration*. 25th Meeting of the International Society for Eye Research (ISER), Gold Coast, Queensland, Australia. Unable to attend due to illness.
- 2023 *Reactive Oxygen Species (ROS) and Stem Cells*. The Guy Foundation Symposium: Advancing Terrestrial Health: Lessons from Space. Virtual Symposium.
- 2022 *Quantum Control of Stem Cells*. National Science Foundation (NSF): 2022 NSF Nanoscale Science and Engineering Grantees Conference, session on “Quantum Biology.” Virtual Conference.
- 2022 *Weak Magnetic Field Manipulation of ROS Signaling During Regeneration*. Session: Emerging potential evidence of quantum phenomena in biology, Quantum Bio BR Summit, Rio de Janeiro, Brazil. Virtual.
- 2022 *Radical Oxygen Species, Weak Magnetic Fields, and Tissue Growth*. The Guy Foundation 2022 Autumn Series: Quantum Mitochondria Programme. Virtual Series.
- 2022 *Planarians: A Model for Stem Cells, Regeneration, and Neuroethology*. BIORETS Faculty seminar, funded by a National Foundation of Science grant, Western Michigan University. Virtual.
- 2022 *Quantum Biology and Stem Cells*. MI Dean’s Meeting (Michigan Council of Colleges of Arts and Sciences). Western Michigan University. Virtual.
- 2022 *Weak Magnetic Fields: A Tool for Controlling Proliferation*. Quantum Effects in Biological Systems 2022 (QuEBS-2022), Crete, Greece. Unable to attend due to COVID-19.
- 2022 *A Spin Dynamics Approach to Manipulating Tissue Growth*. Cavendish Quantum Information Seminar Series, Hitachi Cambridge Laboratory and Cavendish Quantum Information Group, Department of Physics, University of Cambridge. Virtual.
- 2021 *Using Quantum Phenomena to Control ROS-Mediated Stem Cell Proliferation*. Cell Bio Virtual 2021, the joint meeting of the American Society for Cell Biology (ASCB) and European Molecular Biology Organization (EMBO). Virtual Meeting.

- 2021** *Lessons from Planaria: Separating Wound Healing from Regeneration, and Quantum Control of Stem Cells.* Biomedical Engineering in Regenerative Medicine Seminar, Division of Medical Engineering, Western Michigan University Homer Stryker MD School of Medicine. Virtual
- 2021** *Using Planaria to Understand Animal Shape.* Grinnell College Biology Dept. Seminar Series. Virtual.
- 2021** *Of Magnetic Fields and Flatworms.* Biophysical Society (BPS) Virtual Networking Event: Quantum Biology: what it is and opportunities to collaborate.
- 2021** *Weak Magnetic Fields: A Quantum Approach to Controlling Stem Cells.* BioEm 2021, Symposium on Weak Magnetic Field Effects and Models, Workshop: Ultraweak and Weak Static, ELF, and RF Field Effects on Biological Systems, Ghent, Belgium. Virtual Meeting. (Given by Luke Kinsey, Ph.D. Candidate)
- 2021** *Controlling Tissue Growth Through Quantum Phenomena.* QBBS: Quantum Biology & Biotechnology Symposium 2021, Australia Commonwealth Scientific and Industrial Research Organization (CSIRO), Virtual.
- 2021** *Radicals and Regeneration: A Quantum Approach to Manipulating Stem Cell Activity.* Leverhulme Quantum Biology Doctoral Training Centre (QB-DTC) Seminar Series, University of Surrey, UK. Virtual.
- 2021** *Quantum Control of Stem Cells.* National Academy of Sciences (NAS): Quantum Concepts for Biological Imaging and Sensing Workshop, session on “Bioelectromagnetic Fields.” Virtual Workshop.
- 2020** *Manipulating Quantum Spins to Control Stem Cell Activity.* International Big Quantum in Biospins Meeting. Sponsored by UCLA’s Quantum Biology Tech (QuBiT) Lab. Virtual Meeting.
- 2020** *Weak Magnetic Fields: A Tool for Controlling Proliferation.* Quantum Effects in Biological Systems 2020 (QuEBS-2020), Crete, Greece. Canceled due to COVID-19.
- 2020** *More Than Meets the Eye: Planarians as a Model for Eye Regeneration.* 24th Meeting of the International Society for Eye Research (ISER), Buenos Aires, Argentina. Canceled due to COVID-19.
- 2019** *Controlling Stem Cell Proliferation with Weak Magnetic Fields: A Case for Spin Dynamics and Free Radical Manipulation.* Gordon and Betty Moore Foundation-Sponsored Workshop: “Coherent Spin Physics in Biology,” UCLA, Los Angeles, CA.
- 2019** *A Lot of Nerve! Evolutionary Mechanisms of Neural Regeneration.* Invited Speaker and Co-Chair of Neuroscience Session, Annual Biomedical Research Conference for Minority Students (ABRCMS) 2019, Anaheim, CA.
- 2019** *Probing Conserved Regenerative Pathways: V-ATPase Signaling and Eye Regeneration.* 78th Annual Meeting of the Society for Developmental Biology, Boston, MA. (Teaser Talk)
- 2019** *Weak Magnetic Fields and the Regulation of Stem Cell Activity.* Developmental Bioelectricity Satellite Symposia, 78th Annual Meeting of the Society for Developmental Biology, Boston, MA.

Abstracts

- 2024** Schafer DJ, Miller RD, Hack SJ, and **Beane WS.** *Towards New Therapeutics: Modeling Non-Cognitive NDD Symptoms in High-Throughput Invertebrate Systems.* 42nd Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI.
- 2024** Guerra J, Vučković J, **Beane WS**, and Tseng K A-S. *Investigating the Developmental Effects of a Hypomagnetic Space Environment.* Southwest Regional meeting 2024 of the Society for Developmental Biology (SDB). Aurora, CO.
- 2023** Hack SJ and **Beane WS.** *Planar Cell Polarity (PCP) Signaling Controls Organ Scaling During In Vivo Adult Tissue Regeneration.* ‘Biological Size Control and Scaling’ Session of Cell Bio 2023: the Joint Meeting of the American Society for Cell Biology (ASCB) and European Molecular Biology Organization (EMBO). Boston, MA.
- 2023** Hack SJ, Vučković J, Qureshi E, and **Beane WS.** *Uncovering the Relationship Between Bioelectric Signaling and Reactive Oxygen Species (ROS) Accumulation During Adult Tissue Repair.* ‘Bioelectricity in

Development, Regeneration, and Cancers' Session of Cell Bio 2023: the Joint Meeting of the American Society for Cell Biology (ASCB) and European Molecular Biology Organization (EMBO). Boston, MA. ****Selected for a talk.**

2023 - Miller RD, Hack SJ, and **Beane WS**. *Planarians as a Model for Neuroethology in Neurodegenerative Disease*. Society for Developmental Biology (SDB) 82nd Annual Meeting, Chicago, IL.

2023 - Hack SJ, Van Huizen AV, Kinsey LJ, and **Beane WS**. *In Vivo Modulation of ROS Thresholds Controls Separate Gene Expression Programs During Wound Healing vs Regeneration*. Society for Developmental Biology (SDB) 82nd Annual Meeting, Chicago, IL.

2023 - Kinsey LJ, McClenny ZW, Qureshi S, and **Beane WS**. *Reactive Oxygen Species (ROS) Levels Modulate Blastema Growth*. 5th North American Planarian Meeting (NAPM), Portland, OR.

2023 - Acharya P, Hack SJ, Nolf CC, **Beane WS**. *Caspase-8 Mediated Apoptosis Regulates in Vivo Tissue Regeneration and Neurogenesis*. 41st Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI.

2023 - Hack SJ, Van Huizen AV, Kinsey LJ, and **Beane WS**. *ROS Separately Modulates Wound Healing and Regeneration Through a Threshold Mechanism*. 41st Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI. ****Selected talk for S. Hack. **Won 2nd Place, Best Graduate Oral Presentation.**

2023 - Kinsey LJ, McClenny ZW, and **Beane WS**. *Weak Magnetic Fields as a Tool to Control Tissue Growth via Reactive Oxygen Species*. 41st Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI. ****Selected talk for L. Kinsey. **Won 1st Place, Best Graduate Oral Presentation.**

2023 - McClenny ZW, Qureshi S, Kinsey LJ, and **Beane WS**. *Levels of Reactive Oxygen Species Regulate the Degree of Tissue Regrowth at the Wound Site*. 41st Annual Kalamazoo Community Medical and Health Sciences Research Day. WMU Stryker School of Medicine, Kalamazoo, MI.

2023 - Hack SJ and **Beane WS**. *Cell Signaling Controls the Termination of Adult Tissue Growth*. WMU 16th Annual Creative Activities Poster and Presentation Day. Kalamazoo, MI. ****Won 1st Place, Best Poster Award.**

2023 - Hack SJ and **Beane WS**. *Planar Cell Polarity Signaling is Required to Terminate Regenerative Growth in the Planaria Schmidtea mediterranea*. International Society for Regenerative Biology (ISRB) Webinar Series. ****Selected for a talk.**

2023 - Hack SJ and **Beane WS**. *Planar cell polarity signaling is required to terminate new tissue growth In Vivo*. National Graduate Student Symposium (NGSS), St. Jude Children's Research Hospital. Memphis, TN.

2023 - Vučković J, Kinsey LJ, and **Beane WS**. *Weak Magnetic Fields Alter ROS-Mediated Signaling During Regeneration*. Quantum Biology Gordon Research Conference: Emerging Methodologies to Investigate Quantum Effects in Biology. Galveston, TX.

2023 - Kinsey LJ, McClenny ZW, and **Beane WS**. *Weak Magnetic Fields Control Stem Cell-Mediated Tissue Growth by Altering Superoxide Levels*. Quantum Biology Gordon Research Conference: Emerging Methodologies to Investigate Quantum Effects in Biology. Galveston, TX. ****Selected for a talk.**

2023 - Hack SJ and **Beane WS**. *The Role of TRPA1 in Planarian Photoreception*. 25th Meeting of the International Society for Eye Research (ISER), Gold Coast, Queensland, Australia. ****Invited talk for Hack.**

2022 - Qureshi S, Kinsey LJ, and **Beane WS**. *Reactive Oxygen Species Modulate Tissue Growth During Planarian Regeneration*. Joint Society for Developmental Biology (SDB) 81st Annual Meeting and Pan-American Society for Evolutionary Developmental Biology (PASEDB) 4th Annual Meeting. Vancouver, Canada. ****Won Undergraduate Honorable Mention Poster Award.**

2022 - Hack SJ and **Beane WS**. *Planar Cell Polarity: A Stop Signal for Terminating Stem Cell-Mediated Regeneration*. Joint Society for Developmental Biology (SDB) 81st Annual Meeting and Pan-American Society for Evolutionary Developmental Biology (PASEDB) 4th Annual Meeting. Vancouver, Canada.

- 2022** - Kinsey LJ, Van Huizen AV, Qureshi S, and **Beane WS**. *Targeting Reactive Oxygen Species to Modulate Stem Cell-Mediated Growth: A Developing Approach*. Joint Society for Developmental Biology (SDB) 81st Annual Meeting and Pan-American Society for Evolutionary Developmental Biology (PASEDB) 4th Annual Meeting. Vancouver, Canada.
- 2022** - Hack SJ and **Beane WS**. *When Enough is Enough: Planar Cell Polarity Signaling is Required for Terminating Regenerative Growth*. International Society for Regenerative Biology (ISRB), Around the World Virtual Meeting. **** Selected for a talk.**
- 2022** - Hack SJ and **Beane WS**. *Different Cell Death Pathways Regulate Stem Cells During Homeostasis vs Regeneration*. WMU Stryker School of Medicine Research Day 2022, Kalamazoo, MI. **** Selected for a talk.**
- 2021** - Hack SJ and **Beane WS**. *The Planar Cell Polarity Pathway is Required to Terminate Neurogenesis*. Neuroscience 2021, the Society for Neuroscience (SFN) 50th Annual Meeting, Virtual Meeting.
- 2021** - Hack SJ and **Beane WS**. *The Terminator: The Planar Cell Polarity Pathway is Back to Halt Tissue Growth*. Society for Developmental Biology (SDB) 80th Annual Meeting, Virtual Meeting.
- 2021** - Kinsey LJ, Van Huizen AV, and **Beane WS**. *Manipulation of Stem Cells and Tissue Growth: An Approach in the Quantum*. Society for Developmental Biology (SDB) 80th Annual Meeting, Virtual Meeting.
- 2021** - Hack SJ and **Beane WS**. *Knowing When to Quit: The Planar Cell Polarity (PCP) Pathway and Regeneration*. 2021 Flatworm Fridays Seminar Series. Virtual series. **(Talk)**
- 2021** - Hack SJ and **Beane WS**. *Adult Tissue Regeneration as a Model for Understanding the Control of New Growth*. 2021 Midwest Women in Science Conference, Virtual.
- 2021** - Van Huizen AV, Kinsey LJ, Greene J, and **Beane WS**. *Reactive Oxygen Species Signaling: A Therapeutic Target for Wound Healing and Regeneration*. 2021 Wound Healing Society (WHS) Annual meeting. Virtual Meeting. **** Selected for a talk.**
- 2020** - Kinsey LJ, Van Huizen AV, and **Beane WS**. *Weak Magnetic Fields: a Tool to Manipulate ROS-Mediated Stem Cell Proliferation and Growth*. 22nd International Conference on Oxidative Stress Reduction, Redox Homeostasis and Antioxidants (Redox World Congress). Virtual Meeting. **** Selected for a talk.**
- 2019** - Birkholz TR, Kha CX, Tseng AS, and **Beane WS**. *Probing Conserved Regenerative Pathways: V-ATPase Signaling and Eye Regeneration*. Society for Developmental Biology (SDB) 78th Annual Meeting, Boston, MA.
- 2019** - Kinsey LJ, Van Huizen AV, Saad MA, and **Beane WS**. *Reactive Oxygen Species (ROS) Signaling Regulates Stem Cell Activity During Planarian Regeneration*. Society for Developmental Biology (SDB) 78th Annual Meeting, Boston, MA.
- 2019** - Van Huizen AV, Kinsey LJ, Barnes F, and **Beane WS**. *Weak Magnetic Fields as a Modulator of In Vivo Stem Cell Proliferation*. Society for Developmental Biology (SDB) 78th Annual Meeting, Boston, MA.
- 2019** - **Beane WS**, Van Huizen AV, Kinsey LJ, and Barnes F. *Non-linear Effects on Stem Cell-Mediated Regeneration Following Weak Magnetic Field (WMF) Exposure*. BioEM 2019, the joint annual meeting of BEMS (the Bioelectromagnetics Society) and EBEM (the European Bioelectromagnetics Association), Montpellier, France.
- 2019** - Birkholz TR, Kha CX, **Beane WS**, and Tseng AS. *Bioelectrical Signaling Regulates Eye Regeneration*. BioEM 2019, the joint annual meeting of BEMS (the Bioelectromagnetics Society) and EBEM (the European Bioelectromagnetics Association), Montpellier, France.
- 2019** - Van Huizen AV, Kinsey LJ, Barnes F, and **Beane WS**. *Manipulation of Weak Magnetic Fields Alters Stem Cell Proliferation During Regeneration*. BioEM 2019, Montpellier, France. ****Won Poster Award.**
- 2019** – **Student Flash Talk**: Van Huizen AV, Kinsey LJ, Barnes F, and **Beane WS**. *Manipulation of Weak Magnetic Fields Alters Stem Cell Proliferation During Regeneration*. BioEM 2019, Montpellier, France.

2019 - Barnes F, Gurhan H, Kandala S, and **Beane WS**. *Effects of Weak Static Magnetic Fields on ROS Concentrations and the Growth Rates of Cancer Cells and Planarians*. 21st International Conference on Oxidative Stress Reduction, Redox Homeostasis and Antioxidants (Redox World Congress), Paris, France.

Outreach

- 2023 “Planarian Regeneration” research demo at WMU for Mattawan High School AP Biology students, December 5th
- 2023 Biology portion of WMU Science Education Visit Day, Portage Northern Middle School 8th grade students, November 20th
- 2023 Summer BIORETS research experience in Beane Lab at WMU for Plainwell High School instructor (developed curricula), June-August
- 2023 Teaching demo “Pluripotency in Planaria” for summer BIORETS program at WMU, June 30th
- 2023 STEM Practicum, F.C. Reed Middle School, Energy and Taxis (Phototaxis and Chemotaxis): 63 students across 3 class period (5th grade classes), June 2nd
- 2023 Kick off of STEM unit, Vicksburg High School, Planarian Regeneration and Light Response: 200 students across 7 class periods (9th grade Biology), March 8th
- 2023 QBITE Training Visit to University of Nevada, Las Vegas to jumpstart their Quantum Biology research, February 14-18th
- 2022 “How Flatworms Regenerate” research demo at WMU for Mattawan High School AP Biology students, December 12th
- 2022 STEM Practicum, Coloma High School, Neural Regeneration: 16 Students (Behavioral Science class), November 23rd
- 2022 Summer BIORETS research experience at WMU for Vicksburg High School instructor (developed curricula), June-August
- 2022 Teaching demo “Pluripotency in Planaria” for summer BIORETS program at WMU, July 8th
- 2021 Established QBITE (Quantum Biology Interdisciplinary Trainee Exchange) program (founder)
- 2021 Established Gordon Research Conference on Quantum Biology (founding co-vice chair)
First QB-GRC was held March 19-24, 2023
- 2021 Biophysical Society Virtual Networking Event on Quantum Biology (co-organizer), October 29th
- 2019 Biology portion of WMU Science Education Visit Day, attended by Portage Northern Middle School and Oakland Academy, November 25th
- 2019 STEM Practicum, Gobles High School, Neural Regeneration: 48 students across 2 class periods, November 7th

Mentoring

Graduate Students (WMU) (Current Students in Bold)

- 2022- **Jana Vučković**, *Masters Graduate Student*, Western Michigan University
Fulbright Fellowship (Serbia) 2022-24
WMU Graduate College Graduate Student Travel Award, 2023 (Spring)
- 2022- **Rae Daun Miller**, *Masters Graduate Student*, Western Michigan University
Received Society for Developmental Biology (SDB) Travel Award, 2023
- 2019- **Samantha Hack**, *Doctoral Graduate Student*, Western Michigan University
Tuition Award, MBL Frontiers in Stem Cells and Regeneration course, 2021
Margaret T. Du Mond Endowed Scholarship, WMU, 2021
WMU Graduate College Graduate Student Research Grant 2022 (Spring)
WMU Graduate College Graduate Student Travel Award, 2022 (Fall)
Tuition Award, CSHL Advanced Sequencing Technologies/Bioinformatics Analysis Course 2022
International Society of Eye Research (ISER) Early Career Research Travel Award, 2023
Invited Participant St. Jude Children’s Research Hospital National Graduate Student Symposium (NGSS) 2023
WMU BIOS Graduate Research and Creative Scholar (Ph.D.) Award 2023
WMU Graduate College Graduate Student Travel Award, 2023 (Spring)
Best Graduate Oral Presentation - 2nd Place, WMed 41st Annual Research Day
WMU All-University Graduate Research and Creative Scholar Award 2023

- Best Poster Award, WMU Research and Creative Activities Poster/Performance Day 2023**
2023-24 Dissertation Completion Fellowship, WMU Graduate College
 Received Society for Developmental Biology (SDB) Travel Award, 2023
Invited Participant PRIMeD at Fred Hut Fred Hutchinson Cancer Center 2023
 Received American Society for Cell Biology (ASCB) Travel Award, 2023
- 2018-23** Luke Kinsey, *Doctoral Graduate Student*, Western Michigan University
Subsequently: Visiting Assistant Professor, Kalamazoo College,
 Received National Society for Developmental Biology (SDB) Travel Award, 2019
WMU Departmental Graduate Teaching Effectiveness Award 2021
Western Michigan University All-University Graduate Teaching Effectiveness Award 2022
 WMU Graduate College Graduate Student Travel Award, 2022 (Spring)
Best Graduate Oral Presentation – 1st Place, WMed 41st Annual Research Day
Distinguished Graduate Student in Biological Sciences 2023
- 2018-23** Allison Witucki, *Doctoral Graduate Student*, Mallinson Institute for Science Education, Western Michigan University, together with Dr. David Rudge
Subsequently: Lake Michigan University, Distance Education Manager
WMU MISE Graduate Teaching Effectiveness Award 2017
Western Michigan University All University Graduate Teaching Effectiveness Award 2018
WMU MISE Graduate Research and Creative Scholar (Ph.D.) Award 2023
Nominee: WMU All-University Graduate Research and Creative Scholar Award 2023
Nominee: ProQuest Distinguished Dissertation Award, Biological Sciences, 2023
- 2016-21** Alanna Van Huizen *Doctoral Graduate Student*, Western Michigan University
Subsequently: Postdoc, St. Jude Children’s Research Hospital, McKinney-Freeman Lab
 Received Society for Developmental Biology (SDB) Travel Award, 2017
Distinguished Graduate Student in Biological Sciences 2018
WMU BIOS Graduate Research and Creative Scholar (Ph.D.) Award 2019
Best Poster Award, WMU Research and Creative Activities Poster/Performance Day 2019
 Received BioEM 2019 Graduate Student Travel Award, 2019
 Received Society for Developmental Biology (SDB) Travel Award, 2019
Second Place, Best Poster Competition, BioEM 2019, Montpellier, France
Received National American Dissertation Fellowship from American Association of University Women (AAUW) for 2020-21.

Undergraduate Students (WMU) (Current Students in Bold)

- 2023-** **Elizabeth Ruch**, WMU
- 2023-** **Dylan Schafer**, Member Lee Honors College, WMU
- 2023-** **Anna Tomica**, WMU
- 2022-** **Caitlin Nolff**, Member Lee Honors College, WMU
 WMU OVPRI Undergraduate Research Excellence Award Spring 2023
WMU Frank Hinds Zoology Award 2023
- 2022-23** Zachary McClenny, Member Lee Honors College, WMU
WMU Distinguished Senior in Biomedical Sciences Award 2023
- 2022-23** Pooja Acharya, WMU (Volunteer Technician Summer 2023)
- 2021-23** Isabela Giorgetti de Carvalho, WMU
 WMU CAS Undergraduate Research and Creative Award Spring 2023
- 2022-22** Kay Bansemer, Member Lee Honors College, WMU
- 2021-23** Saad Qureshi, (summers at WMU), University of Michigan
Undergraduate Honorable Mention Poster Award, 81st Annual SDB Meeting 2023
- 2021-22** Jade Cervantes, Member Lee Honors College, WMU
- 2020-21** Jacob Ownby, WMU (subsequently Pfizer)
- 2019-20** Jacqueline Greene, Member Lee Honors College, WMU (subsequently NAMSA)
 WMU OVPR Undergraduate Research Excellence Award Spring 2020
- 2019-20** Nik Nur Sabrina Binti Nik Azli, WMU
 WMU OVPR Undergraduate Research Excellence Award Summer 2020
- 2018-21** Sarah Gaffan, Member Lee Honors College, WMU
 Lee Honors College Research and Creative Activities Award Summer 2019
- 2018-21** Tashifa Fayyaz, Member Lee Honors College, WMU (subsequently MSU Med School)
Merze Tate Endowed Medallion Scholar, WMU’s most prestigious merit-based scholarship
Jensen Chemistry Scholarship Award, WMU Chemistry Department Spring 2019
WMU Distinguished Senior in Biomedical Sciences Award 2021

- 2017-20** Yarielis Rosario, WMU (subsequently Eurofins)
WMU OVPR Undergraduate Research Excellence Award Spring 2018
WMU Frank Hinds Zoology Award 2019
WMU OVPR Undergraduate Research Excellence Award Spring 2020
- 2017-19** Emily Bolhuis, Member Lee Honors College, WMU
WMU OVPR Undergraduate Research Excellence Award Fall 2017
WMU CAS Undergraduate Research and Creative Award Spring 2018
- 2017-19** Breanna Varker, WMU
WMU OVPR Undergraduate Research Excellence Award Fall 2017
WMU CAS Undergraduate Research and Creative Award 2018
- 2016-19** Allison Watson, WMU
- 2016-19** Marwa Saad, Member Lee Honors College, WMU (subsequently PhD Rockefeller)
WMU CAS Undergraduate Research and Creative Award 2016
WMU OVPR Undergraduate Research Excellence Award Spring 2017
Lee Honors College Research and Creative Activities Award 2018 & 2019
WMU Presidential Scholar for Biological Sciences (University-Wide Honor) 2019
WMU Presidential Scholar for Chemistry (University-Wide Honor) 2019
Lee Honors College “Discovery Driven” Pillar Award Spring 2019

High School Students (Current Students in Bold)

- 2022-** **Emaad Qureshi**, Kalamazoo Area Mathematics and Science Center (KAMSC)
- 2019-20** Saad Qureshi, Kalamazoo Area Mathematics and Science Center (KAMSC),
Graduated Spring 2020 (subsequently University of Michigan undergraduate).
1st place in the 2020 Southwest Michigan Science and Engineering Fair

High School Biology Instructors (Current Teachers in Bold)

- 2023** **Nick Grabemeyer**, Science Teacher, Plainwell High School, Plainwell, MI
- 2022** Liz Ratashak, Science Teacher, Vicksburg High School, Vicksburg, MI

Chair, WMU Lee Honors College Thesis Committees (Active Committees in Bold)

- Dylan Schafer**, *The Role of FoxJ in the Regeneration of Neural-Based Behavior*
- Caitlin Nolf**, *The Role of Apoptosis in Planarian Tissue Repair*
- Tashifa Fayyaz, *Comparative Analyses of the Feeding Strategies of Phagocata morgani, Phagocata gracilis, Schmidtea mediterranea and Dugesia japonica*
(Graduated 2021, subsequently MSU Medical School)
- Jacqueline Greene, *The Role of Reactive Oxygen Species in Planarian Wound Closure*
(Graduated 2020, subsequently employed at North American Science Associates (NAMSA))
- Breanna Varker, *Analyses of the Feeding Strategies of Two Different Phagocata Planarian Species*
- Emily Bolhuis, *Analyses of the Feeding Strategies of D. japonica and S. mediterranea Planaria*
(Graduated 2019)
- Marwa Saad, *Mechanisms of Reactive Oxygen Species Signaling During Planarian Regeneration*
Winner, Discovery Driven Pillar Award (Graduated 2019, subsequently Ph.D. student Rockefeller University)

Member, Thesis Committees (Active Committees in Bold)

- Peter Karabinis** (Ph.D., Quantitative and Systems Biology, University of California, Merced)
- Jacob Mastenbrook** (M.S., Biological Sciences, WMU)
- Shelby Gould** (Ph.D., Biological Sciences, WMU)
- John Rozofsky** (Ph.D., Biological Sciences, WMU)
- Elannah Venhaus (M.S., Biological Sciences, WMU)
- Bethany Kohl (M.S., Biological Sciences, WMU)
- Makayla Long (M.S., Biological Sciences, WMU, Graduated 2021)
- Sahithi Kandala (Ph.D., Electrical Engineering, University of Colorado, Boulder, Graduated 2021)
- Elizabeth Ketchum (Ph.D., Biological Sciences, WMU, Graduated 2022)
- Joshua Paris (M.S., Biological Sciences, WMU, Graduated 2021)
- Hakki Gurhan, (Ph.D., Electrical Engineering, University of Colorado, Boulder, Graduated 2020)
- Mamoon Ali (M.S., Biological Sciences, WMU, Graduated 2020)

Tetiana Petrachkova (Ph.D., Biological Sciences, WMU, Graduated 2020)

Albert Lam (M.S., Biological Sciences, WMU, Graduated 2020)

Paige Blinkiewicz (Undergraduate Honors Thesis, Biological Sciences, WMU, Graduated Dec 2019)

Reviewer For National Science Foundation (IOS, MCB, DBI), National Institutes of Health (NIGMS), *PLoS Genetics, Cell Reports, Development, PLoS One, Developmental Biology, Physical Biology, Biology Letters, Scientific Reports, PeerJ, Development Genes and Evolution, Zoological Letters, Bioelectricity*, and others.