

# Jess D. Bills, Ph.D. – Curriculum Vitae

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Department of Biology  
University of Kentucky  
Lexington, KY 40504

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## **Education and Training:**

2025 - current: Post-doctoral scholar, Department of Biology  
Mentor: Dr. Ann C. Morris, University of Kentucky  
2019 - 2024: Doctor of Philosophy (Ph.D.), Awarded 12/20/24  
Cellular, Molecular, and Developmental Biology  
Mentor: Dr. Ann C. Morris, the University of Kentucky  
Project: "All eyes on the spiny mouse: an investigation into *Acomys dimidiatus* as a model for retinal biology and regeneration."  
2013 - 2015: Master of Science (M.S.), Biology/Biotechnology  
The University of Texas at Dallas, TX  
2006 - 2010: Bachelor of Science (B.S.), Biology  
Texas Woman's University, TX

## **Previous Positions / Research Experience:**

2018—2019: Research Technician Senior/Lab Manager  
PI: Ann Morris, Ph.D., University of Kentucky, KY  
Vertebrate retinal development and regeneration  
2015—2017: Research Scientist  
CEO: Richard Vogel, DermaGenesis LLC, Pompano Beach, FL  
Wound healing and regeneration; collagen skin matrix production for advanced wound healing  
2012—2015: Research Study Coordinator  
PI: Kathryn Davis, Ph.D., UT Southwestern Medical Center, Dallas, TX  
Wound healing and reconstructive surgery outcome improvement.  
2011—2012: Research Technician II  
PI: Deborah Clegg, Ph.D., UT Southwestern Medical Center, Dallas, TX  
The role of estrogen in metabolism homeostasis  
2009—2010: Undergraduate Research Assistant  
PI: Heather Conrad-Webb, Ph.D., Texas Woman's University, Denton, TX  
The role of glutamine synthetase in yeast metabolism  
2005-2011: Certified Pharmacy Technician  
Walgreens Pharmacy  
Prescription compounding and filling, customer service

## **Fellowships, Awards and Advanced Education Courses:**

2024: ARVO Foundation Travel Award, Association for Research in Vision and Ophthalmology Conference  
2023: Ribble Pilot Grant – University  
2023: Morgan Fellowship – University of Kentucky  
2022: Ribble Pilot Grant – University of Kentucky  
2020—2025: National Science Foundation Graduate Research Fellow  
2021: Knights Templar Eye Foundation Travel Award, Association for Research in Vision and Ophthalmology Conference  
2020: Ribble Pilot Grant – University of Kentucky



- 2019: George Scherr Graduate Fellowship for Excellence in Research in Biology
- 2019: Gertrude Flora Ribble Research Fellowship
- 2019: Marine Biological Laboratory - Frontiers in Stem Cell and Regeneration Financial Aid Award
- 2019: Frontiers in Stem Cell and Regeneration Advanced training course, Marine Biological Laboratory, Woods Hole, Massachusetts

### **Publications:**

1. **Jessica D. Bills**, Ashley W. Seifert and Ann C. Morris. 2024. "Retinal Neuroanatomy of Two Emerging Model Organisms, the Spiny Mouse (*Acomys Dimidiatus*) and the Mongolian Gerbil (*Meriones Unguiculatus*)."  
*Experimental Eye Research*.  
<https://www.biorxiv.org/content/10.1101/2024.01.17.576137v1>
2. Krueger, Laura A., **Jessica D. Bills**, Zun Yi Lim, Jennifer M. Skidmore, Donna M. Martin, and Ann C. Morris. 2023. "Chromatin Remodeler Chd7 Regulates Photoreceptor Development and Outer Segment Length." *Experimental Eye Research* 226 (January): 109299.
3. Davis, Kathryn E., **Jessica Bills**, Debby Noble, Peter A. Crisologo, and Lawrence A. Lavery. 2021. "Ultraviolet-A Light and Negative Pressure Wound Therapy to Accelerate Wound Healing and Reduce Bacterial Proliferation." *Journal of the American Podiatric Medical Association*, July. <https://doi.org/10.7547/20-251>.
4. Coomer, Cagney E., Stephen G. Wilson, Kayla F. Titillii-Torres, **Jessica D. Bills**, Laura A. Krueger, Rebecca A. Petersen, Evelyn M. Turnbaugh, Eden L. Janesch, and Ann C. Morris. 2020. "Her9/Hes4 Is Required for Retinal Photoreceptor Development, Maintenance, and Survival." *Scientific Reports* 10 (1): 11316.
5. **Bills, Jessica D.**, Sandra J. Berriman, Debby L. Noble, Lawrence A. Lavery, and Kathryn E. Davis. 2016. "Pilot Study to Evaluate a Novel Three-Dimensional Wound Measurement Device." *International Wound Journal* 13 (6): 1372–77.
6. Constantine, Ryan S., **Jessica D. Bills**, Lawrence A. Lavery, and Kathryn E. Davis. 2016. "Validation of a Laser-Assisted Wound Measurement Device in a Wound Healing Model." *International Wound Journal* 13 (5): 614–18.
7. **Bills, Jessica D.**, Christopher Derderian, Jenny Barker, Alysia Lowe, Lawrence A. Lavery, and Kathryn E. Davis. 2015. "The Role of Estrogen in the Modulation of Autologous Fat Graft Outcomes." *Plastic and Reconstructive Surgery* 135 (1): 103e – 113e.
8. Lowe, A., **Jessica Bills**, R. Verma, L. Lavery, K. Davis, and K. J. Balkus Jr. 2015. "Electrospun Nitric Oxide Releasing Bandage with Enhanced Wound Healing." *Acta Biomaterialia* 13 (February): 121–30.
9. Barker, Jenny C., Adam D. Barker, **Jessica Bills**, Jiying Huang, Mary Wight-Carter, Imelda Delgado, Debby L. Noble, Lily J. Huang, Matthew H. Porteus, and Kathryn E. Davis. 2014. "Genome Editing of Mouse Fibroblasts by Homologous Recombination for Sustained Secretion of PDGF-B and Augmentation of Wound Healing." *Plastic and Reconstructive Surgery* 134 (3): 389e – 401e.
10. Davis, Kathryn E., Fadi C. Constantine, Elaine C. Macaslan, **Jessica D. Bills**, Debby L. Noble, and Lawrence A. Lavery. 2013. "Validation of a Laser-Assisted Wound Measurement Device for Measuring Wound Volume." *Journal of Diabetes Science and Technology* 7 (5): 1161–66.
11. Davis, Kathryn E., Javier Lafontaine, **Jessica Bills**, Deborah Noble, Mary Wight-Carter, Georgette Oni, Rod J. Rohrich, and Lawrence A. Lavery. 2013. "The Comparison of Two Negative-Pressure Wound Therapy Systems in a Porcine Model of Wound Healing." *Wound Repair and Regeneration: Official Publication of the Wound Healing Society [and] the European Tissue Repair Society* 21 (5): 740–45.
12. Davis, Kathryn E., Michael D Neinast, Kai Sun, William M Skiles, **Jessica D Bills**, Jordan A Zehr, Daniel Zeve, et al. 2013. "The Sexually Dimorphic Role of Adipose and Adipocyte



Estrogen Receptors in Modulating Adipose Tissue Expansion, Inflammation, and Fibrosis.” *Molecular Metabolism* 2 (3): 227–42.

13. Davis, Kathryn, Yvonne Rasko, Georgette Oni, **Jessica Bills**, Palmyra Geissler, and Jeffrey M. Kenkel. 2013. “Comparison of Adipocyte Viability and Fat Graft Survival in an Animal Model Using a New Tissue Liquefaction Liposuction Device vs Standard Coleman Method for Harvesting.” *Aesthetic Surgery Journal / the American Society for Aesthetic Plastic Surgery* 33 (8): 1175–85.
14. Davis, Kathryn, **Jessica Bills**, Jenny Barker, Paul Kim, and Lawrence Lavery. 2013. “Simultaneous Irrigation and Negative Pressure Wound Therapy Enhances Wound Healing and Reduces Wound Bioburden in a Porcine Model.” *Wound Repair and Regeneration: Official Publication of the Wound Healing Society [and] the European Tissue Repair Society* 21 (6): 869–75.

### **Patents:**

1. Matrix Production Carrier. Inventors: Tumey, D., Cox, D. and **Bills, J.** United States Patent US20170274562A1. Application number US15/469,629. Publication date Sept. 28, 2017.
2. Matrix Construction. Inventors: **Bills, J.**, Cox, D., and Tumey, D. United States Patent US20180200411A1. Application number US15/907,417. Publication date July 19, 2018.
3. Methods of producing extracellular matrix useable in breast implant and other matrix production. Inventors: Vogel, D., Vogel, R., Cox, D. and **Bills, J.** United States Patent US20180236133A1. Application number US15/902,270. Publication date Aug. 23, 2018.

### **Presentations and Posters:**

- 2024: **Jess D. Bills**, Dara Buendia, Ashley Seifert and Ann C. Morris. “The pro-regenerative response to retinal injury in spiny mice: absence of reactive gliosis paired with microglial and Müller glial proliferation.” Oral Presentation at the Association for Research in Vision and Ophthalmology Conference.
- 2023: **Jess D. Bills** and Ann C. Morris. “Spiny mice display a pro-regenerative response to acute retinal damage”. Poster Presentation at the Association for Research in Vision and Ophthalmology Conference.
- 2022: **Jess D. Bills** and Ann C. Morris. “All eyes on the spiny mouse: Retinal cell type atlas and response to retinal damage in *Acomys cahirinus*”. Invited speaker, slide presentation at the Gordon Research Conference for Vision System Development.
- 2022: **Jess D. Bills** and Ann C. Morris. “All eyes on the spiny mouse: Retinal cell type atlas and response to retinal damage in *Acomys cahirinus*”. Poster Presentation at the Gordon Research Conference for Vision System Development.
- 2021: **Jess D. Bills** and Ann C. Morris. “Characterization of retinal cell types in the African Spiny mouse (*Acomys cahirinus*)”. Poster presentation at the Association for Research in Vision and Ophthalmology Annual Meeting
- 2021: **Jess. D. Bills** and Ann C. Morris. All eyes on the spiny mouse: “Retinal cell type atlas and response to retinal damage in *Acomys cahirinus*”. Poster Presentation at the Society of Developmental Biology Annual Meeting.
- 2020: **Jess D. Bills** and Ann C. Morris. “Characterization of retinal cell types in the Cairo spiny mouse (*Acomys cahirinus*)”. Poster Presentation at the Society for Developmental Biology Annual Meeting.

### **Teaching / Mentoring Experience:**

- Spring 2024: Teaching Assistant – University of Kentucky  
Biology 304 Genetics Laboratory: Instructed over 50 students in a wet lab setting learning basic genetic techniques.
- 2022-2024: S-STEM Graduate Mentor



Providing mentorship for undergraduate students awarded the S-STEM NSF scholarship for STEM majors at the University of Kentucky

2021-2024: Graduate Mentor for Undergraduate Researchers  
 2021-2022: Noah Jones, UKY Chemistry/Biology Major  
 2022: Amy Ngo, UKY Biology Major  
 2022-2023: Ben Heckman, UKY Biology Major

2019-2020: Teaching Assistant – University of Kentucky  
 Biology 155 Laboratory: Instructed over 70 students in a dry lab learning scientific methods and basic scientific skills.  
 Biology 304 Genetics Laboratory: Instructed over 50 students in a wet lab setting learning basic genetic techniques.

2017-2019: Substitute Teacher - Lorena ISD, Lorena, TX  
 6th grade science long-term substitute  
 5<sup>th</sup> and 6<sup>th</sup> grade history  
 Special education

2013-2015: University of Texas Southwestern Medical Center, Dallas, TX  
 Basic Laboratory Skills Class for all incoming medical/undergraduate/graduate students  
 Basic Suture class

2004-2005: Teaching Assistant - Tarleton State University, Stephenville, TX  
 Chemistry 101 Lecture/Lab: Instructed over 60 students in both lecture-based learning and introduction to chemistry lab techniques.

#### **Department / University Service:**

2022-2024: NSF S-STEM Mentor  
 2021-2022: RTS Faculty Search Committee Member  
 2020-2022: UK Biology Diversity, Equity, and Inclusion Committee Member  
 2020-2021: President - UK Biology Graduate Student Association  
 2020: Vice President - UK Biology Graduate Student Association  
 2019-2020: Treasurer - UK Biology Graduate Student Association

#### **Outreach / Community Work:**

2024: Judge: Kentucky Middle School State Science Fair  
 2019-2021: Volunteer – NERD Squad Science outreach  
 2019: Science Olympiad  
 Volunteer/Grader/Test Writer  
 2019: Expanding Your Horizons  
 Group Mentor – Biology/Neuroscience  
 2019: Science Night at Coventry Oak Elementary School, Volunteer  
 2018: Sts. Peter and Paul School Science Fair Judge  
 2018-2024: Volunteer -Lexington Humane Society