

Updated July 24, 2024

Joseph Marquardt  
Curriculum vitae

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## CURRENT POSITION

Assistant Professor, Department of Biology  
Western Kentucky University  
1906 College Heights Blvd., KTH3014  
Bowling Green, KY 42101

## POSITIONS AND EMPLOYMENT

- 2022-present** Assistant Professor, Department of Biology, Western Kentucky University  
1906 College Heights Blvd., KTH3014 Bowling Green, KY 42101
- 2017-2022** *Postdoctoral Research Associate* in the laboratory of Dr. Erfei Bi at the  
University of Pennsylvania, Philadelphia, PA 19104
- 2011-2017** *Graduate Teaching Assistant* for the Department of Molecular Genetics at  
The Ohio State University, Columbus, OH 43210
- 2010-2017** *Graduate Research Assistant* in the laboratory of Dr. Harold Fisk at The  
Ohio State University, Columbus, OH 43210
- 2007-2010** *Undergraduate Research Assistant* in the laboratory of Dr. Jeffrey Marcus  
at Western Kentucky University, Bowling Green, KY 42101

## EDUCATION

- Ph.D.**, Molecular Genetics, The Ohio State University, May 2017  
Dissertation: "Examining the Regulation and Functions of Centrosomal Mps1"
- B.S.**, Recombinant Gene Technology, Western Kentucky University, May 2010  
Honors CE/T: "Molecular Tools for Understanding the Population Genetic Effects  
of Habitat Restoration on Butterflies"

## CURRENT RESEARCH INTERESTS

My primary training is in molecular biology, eukaryotic cell biology, and yeast genetics.  
Based on this formal training, my current research interests are as follows:

- Cell shape control mechanisms by the kinase Elm1 in the budding yeast *Saccharomyces cerevisiae*
- Dynamic localization of the scaffold Hsl7 during discrete cell cycle events
- Evolutionary relationship of Hsl7 for fungal pathogenesis

## PUBLICATIONS

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\*Undergraduate student directly mentored by me.

## **WKU**

**2024 1. Marquardt, J.,** Chen, X., and Bi, E. (2024). Reciprocal regulation by Elm1 and Gin4 controls septin hourglass assembly and remodeling. *Journal of Cell Biology*, 223(5).

## **Prior to WKU**

**2021 7. Marquardt, J.,** Chen, X., and Bi, E. (2021). Septin assembly and remodeling at the cell division site during the cell cycle. *Frontiers in Cell and Developmental Biology*, 9, 3358.

**2020 6. Marquardt, J.,** Yao, L., Okada, H., and Bi, E. (2020). The LKB1-like Kinase Elm1 Controls Septin Hourglass Assembly and Stability by Regulating Filament Pairing. *Current Biology*, 30(12), 2386-2394.

**2019 5. Marquardt, J.,** Chen, X., and Bi, E. (2019). Architecture, remodeling, and functions of the septin cytoskeleton. *Cytoskeleton (Hoboken)*, 76(1), 7-14.

**2018 4. Marquardt, J.** and Marcus, J. (2018). Molecular tools for understanding landscape genetics and the population genetic effects of habitat restoration on butterflies. *Journal of the Lepidopterists' Society*, 72(4), 253-264.

**2016 3. Marquardt, J.,** Perkins, J., Beuoy, K.\*, and Fisk, H. (2016). Modular elements of the tetratricopeptide repeats in the Mps1 amino-terminus target Mps1 to centrosomes and kinetochores. *PNAS*, 113(28), 7828-33.

**2016 2. Marquardt, J.** and Fisk, H. (2016). ARHGEF17 Sets the timer for retention of Mps1 at kinetochores. *JCB*, 212(6), 615-616.

**2012 1. Majumder, S.,** Slabodonick, M., Pike, A., **Marquardt, J.,** and Fisk, H. (2012). VDAC3 regulates centriole assembly by targeting Mps1 to centrosomes. *Cell Cycle*, 11(19), 3666-3678.

## **AWARDS AND HONORS**

### **WKU**

**2024** CITL Teaching Honor nomination

**2024** Biology Department Mentor of the Year Award

**2023** OCSE Junior Faculty Award for Excellence in Teaching

**2023** CITL Teaching Honor nomination

**2022** CITL Teaching Honor nomination

### **Prior to WKU**

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- 2022** Best poster presentation award for the University of Pennsylvania Cell and Developmental Biology Department Retreat
- 2020** Regeneron Innovation Prize applicant chosen to represent the University of Pennsylvania
- 2014** American Society for Cell Biology Graduate Student Travel Award
- 2012** Graduate Teaching Assistant Award, Department of Molecular Genetics, The Ohio State University

## **GRANTS AND FELLOWSHIPS**

### **WKU (total: \$504,466 applied, \$501,466 awarded)**

- 2024** NIH Instrumentation Grant for a Bio-Rad Chemi Gel Doc as co-PI, Main PI: Dr. Simran Banga, \$50,656 awarded.
- 2024** WKU Gatton academy Research Internship Supply Grant (RIG) for Aanyaa Arora, \$500 awarded for Summer 2024
- 2024** KY INBRE Research Project Award, \$100,000 awarded, \$50,000 for FY25 and \$50,000 for FY26 contingent on renewal (#8P20GM103436)
- 2023** WKU FUSE grant for Gatton Academy researcher Nikhil Kumar, \$3,000 awarded for Spring 2024 (#24-SP258)
- 2023** NSF MRI for fluorescence activated cell sorter as co-PI, Main PI: Dr. Simran Banga, \$297,393 awarded.
- 2023** WKU FUSE grant for undergraduate researcher Jenson Harner, \$3,000 awarded for Fall 2023 (#23-FA234)
- 2023** WKU FUSE grant for undergraduate researcher Callie Stempa, \$3,000 applied for Fall 2023 (not funded)
- 2023** WKU Gatton academy Research Internship Supply Grant (RIG) for Nikhil Kumar, \$500 awarded for Summer 2023
- 2023** WKU RCAP for FY2024, \$15,917 awarded (#24-8013)
- 2023** KY INBRE EM voucher, \$5,000 awarded for FY2023
- 2022** WKU Gatton academy Research Supply Grant (RSG) for Presley Neagle, \$500 awarded
- 2022** KY INBRE start-up grant, \$25,000 awarded for FY2023 (May 2023-April 2024), Western Kentucky University (#P20GM103436 – 22)

### **Prior to WKU**

- 2013** Pelotonia Graduate Student Research Fellowship, The Ohio State University, August 2013-December 2015
- 2009** Kentucky Academy of Science Undergraduate Research Grant, “*Molecular Tools for Understanding the Population Genetic Effects of Habitat Restoration on Butterflies,*” Western Kentucky University, May 2009-May 2010
- 2009** Sigma Xi Undergraduate Research Grant, “*Molecular Tools for Understanding the Population Genetic Effects of Habitat Restoration on Butterflies,*” Western Kentucky University, May 2009-May 2010

## **CONFERENCE PARTICIPATION**

\*Undergraduate student directly mentored by me.

## WKU

### Oral Presentation

- 2024 6.** “Shedding Light On Cancer By Exploring The Influence Of Bem1, Boi1, And Boi2 Proteins On The Elm1 Protein Kinase-mediated Cell Shape Control In *Saccharomyces Cerevisiae*. Nikhil Kumar\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 5.** “Cell shape is mediated by a joint effort between a septin-associated kinase and endocytic protein.” Presley Neagle\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 4.** “Novel Techniques for Imaging Yeast Septins That Do Not Require Hydrofluoric Acid.” Fletcher Johnson\* and **Joseph Marquardt**, KY-INBRE Annual Research Conference-EM Workshop small group, March 1.
- 2024 3.** “Cell shape is mediated by a joint effort between a septin-associated kinase and endocytic protein.” Presley Neagle\* and **Joseph Marquardt**, KY-INBRE Annual Research Conference, March 1. *Chosen for a “Flash Talk” out of more than 100 poster presenters.*
- 2023 2.** “Exploring the influence of polarity proteins on the Elm1 protein kinase-mediated cell shape control.” Nikhil Kumar\* and **Joseph Marquardt**, Kentucky Academy of Science, November 3-4. *Awarded top scoring “Thoroughbred” ranking.*
- 2023 1.** “Effect of Dietary Flavonoids on Growth in *Saccharomyces cerevisiae*.” Vivian Rivera\* and **Joseph Marquardt**, Kentucky Academy of Science, November 3-4. *Awarded top scoring “Thoroughbred” ranking.*

### Poster Presentation

- 2024 12.** “Effect of Dietary Flavonoids on Growth in *Saccharomyces cerevisiae*.” Vivian Rivera\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 11.** “Investigating the effects of tag positions on morphogenesis checkpoint proteins.” Julia Allen\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 10.** “Investigating cell shape control by the polarisome and septin-associated kinases in *Saccharomyces cerevisiae*.” Jenson Harner\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 9.** “Novel Techniques for Imaging Yeast Septins That Do Not Require Hydrofluoric Acid.” Fletcher Johnson\* and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 8.** “Investigating the Ability of an Interspecies Gene to Rescue Shape Control Defects in Budding Yeast.” Amelia Baker\*, Josiah Shackelford\*, and **Joseph Marquardt**, WKU Student Scholar Showcase, April 6.
- 2024 7.** “Exploring the Influence of Bem1 and Boi1 Proteins on the Elm1 Protein Kinase-Mediated Cell Shape Control in *Saccharomyces cerevisiae*.” Nikhil Kumar\* and **Joseph Marquardt**, KY-INBRE Annual Research Conference, March 1. *Awarded Top Score Presentation for the entire conference.*

- 2024 6.** “Novel Techniques for Imaging Yeast Septins That Do Not Require Hydrofluoric Acid.” Fletcher Johnson\* and **Joseph Marquardt**, KY-INBRE Annual Research Conference, March 1.
- 2024 5.** “Effect of Dietary Flavonoids on Growth in *Saccharomyces cerevisiae*.” Vivian Rivera\* and **Joseph Marquardt**, KY-INBRE Annual Research Conference, March 1.
- 2023 4.** “Cell morphogenesis controlled by genetic interaction between a septin kinase and MAP kinase.” Callie Stempa\* and **Joseph Marquardt**, Kentucky Academy of Science, November 3-4. *Awarded top scoring “Thoroughbred” ranking.*
- 2023 3.** “Investigating cell shape control by the polarisome and septin-associated kinases in *Saccharomyces cerevisiae*.” Jenson Harner\* and **Joseph Marquardt**, Kentucky Academy of Science, November 3-4.
- 2023 2.** “Cell shape is mediated by a joint effort between a septin-associated kinase and endocytic protein.” Presley Neagle\* and **Joseph Marquardt**, Kentucky Academy of Science, November 3-4. *Awarded top scoring “Thoroughbred” ranking.*
- 2023 1.** “Exploring the influence of Bem1 and Boi1 proteins on the Elm1 protein kinase-mediated cell shape control in *Saccharomyces cerevisiae*.” Nikhil Kumar\* and **Joseph Marquardt**, NCSSS IMSA conference, June 23.

## **Prior to WKU**

### **Poster Presentation**

- 2022 3.** “Crosstalk regulation between the septin-associated kinases Elm1 and Gin4,” University of Pennsylvania Cell and Developmental Biology Department Retreat, May.
- 2019 2.** “Regulation of septin architecture and function by the LKB1-like kinase Elm1,” American Society for Cell Biology Annual meeting, December 7-11.
- 2014 1.** “Localization determinants in the Mps1 amino terminus distinguish centrosomal and kinetochore targeting,” American Society for Cell Biology Annual meeting, December 6-10.

## **INVITED SPEAKER**

### **WKU**

- 2024** KY-INBRE External Advisory Committee presentation. Presented updated work by the Marquardt Lab including data, internal and external grants, and student engagement practices for the EAC. University of Kentucky, February 29.
- 2024** RCAP Information Session for new applicants. Served on a panel of other successful recent RCAP applicants to share insights and tips for best practices in applying for RCAP awards. Western Kentucky University, January 29.
- 2023** Mahurin Honors College Young Alumni Speaker Series. Discussed career trajectory and opportunities that my time enrolled in the honors college provided me during my academic journey. Western Kentucky University, November 7.
- 2022** Invited speaker to discuss research at WKU and career pathway into academia with undergraduates of the Molecular Biotechnology major. Western Kentucky University, Biology 388, October 7.

### **Prior to WKU**

- 2019** “Molecular Tools for Understanding the Population Genetic Effects of Habitat Restoration on Butterflies,” The Academy of Natural Sciences at Drexel University lecture series, June 21.
- 2018** “Regulation of septin architecture and function by the LKB1-like kinase Elm1,” University of Pennsylvania Cell and Developmental Biology Department Retreat, May 4.

### **SERVICE TO THE PROFESSION**

#### **WKU**

##### **Department**

- 2024** Search committee for Microbiology Faculty position
- 2023-present** Advising of Pre-Med and Forensics/Genetics undergraduates
- 2022-present** Biology retention committee
- 2023** Search committee for Biotechnology Center Lab Manager position

##### **University**

- 2024** Faculty Interview Committee for STEM Specialist applicants in the Office of Scholar Development (June 2024)
- 2024** Session Chair for WKU Student Scholar Showcase (April 2024)
- 2024** “Head for the Hill” event for incoming students (Feb 2024)
- 2024** Reviewer for RCAP grants for FY25
- 2023-present** TOPS advising event for incoming students (Apr 2023, Aug 2023, June 2024)
- 2023** “Choose WKU” day, facilitated a tour of the biology labs in EBS (Feb 2023)
- 2022** Presidential Scholarship “Meet your college” recruiting event (Oct 2022)
- 2022** Invited speaker, Tri-Beta faculty series (Oct 2022)
- 2022-present** Faculty reviewer for Faculty and Undergraduate Student Engagement (FUSE) grants

##### **Profession**

- 2023** Peer-reviewer for the *Journal of the Kentucky Academy of Science*

### **Prior to WKU**

#### **Invited Speaker Search Committee**

- 2019** Distinguished Seminar Series- University of Pennsylvania Cell and Developmental Biology Department Postdoc Invited speaker series
- 2014** 38<sup>th</sup> Annual Adolf E. Waller Memorial Lecture Series- Ohio State University Molecular Genetics

#### **Institutional Biological Safety Committee**

- 2017** Swarthmore College- Served as the external reviewer for two NIH-funded grants that required IBC clearance to use biological samples in new research labs

**STUDENT MENTORING**

<b>Undergraduate Students (Total:16)</b>			
<b>Name</b>	<b>Year</b>	<b>Type</b>	<b>Current Employment</b>
Callie Stempa	2022-2023	Paid position, Biol 399	Graduated Au23, PhD Student at University of Iowa
Gabe Rogers	2022	Biol 399	Graduated SP23
Jenson Harner	2022-2024	Paid position, Biol 399	Graduated SP24, MS Student at WKU
Julia Allen	2022-2024	Paid position, Biol 399	Graduated SP24, Genetic Counselor's Assistant
Presley Neagle	2022-	Biol 399	Undergraduate Student
Josiah Shackelford	2023	Biol 399	Graduated Au23
Cameron Seigle	2023-2024	Biol 399	Graduated SP24
Vivian Rivera	2023-2024	Honors CE/T	Graduated SP24, PhD Student at The Ohio State University
Nikhil Kumar	2023-2024	Biol 399, Summer intern	Graduated Gatton SP24, Undergraduate at University of Kentucky
Fletcher Johnson	2023-2024	Paid position	Graduated SP24
Amelia Baker	2023-	Volunteer	Undergraduate Student
Kaylee Brannon	2023-	Paid position	Undergraduate Student
Luke Walker	2024-	Biol 399	Undergraduate Student
Sophia Blair	2024-	Biol 399	Undergraduate Student
Aanyaa Arora	2024-	Summer Intern	Gatton Academy Student
Rosalitha Perry	2024	Summer Intern	Undergraduate Student

<b>Graduate Students (Total:1)</b>			
<b>Name</b>	<b>Year</b>	<b>My Role</b>	<b>Current Employment</b>
Rachel Foster	2023-	Mentor	WKU graduate Student

**TEACHING EXPERIENCE****Western Kentucky University, Assistant Professor**

Biol 120	Biological Concepts: Cells, Metabolism, and Genetics (SP2023, AU2023)
Biol 120H	Honors Biological Concepts: Cells, Metabolism, and Genetics (SP2023)
Biol 319	Introduction to Cell and Molecular Biology (AU2022, SP2023)
Biol 319H	Honors Introduction to Cell and Molecular Biology (AU2022, SP2023)
Biol 350	Introduction to Recombinant Genetics (SP2024)
Biol 388	Contemporary Issues in Biotechnology (SP2024)

**The Ohio State University, Graduate Teaching Assistant**

General Genetics (AU 2011, AU 2012, SU 2016, AU 2016)  
General Genetics Lab (SU 2016, AU 2016)  
Biological Sciences: Form, Function, Diversity, and Ecology (SP 2016, SP2017)  
Eukaryotic Cell and Developmental Biology Lab (SP 2012, SP 2013, SP 2015)  
Quantitative, Population, and Evolutionary Genetics (AU 2016)

## PREVIOUS RESEARCH EXPERIENCE

### **Western Kentucky University, Undergraduate Research Assistant**

Butterfly population genetics and molecular biology research in the lab of Jeffrey Marcus to elucidate the role of habitat corridor construction on local butterfly population structure. Relevant techniques used include field work collecting butterfly samples, genomic DNA isolation, molecular fingerprinting and sequencing, and phylogenetic tree generation and interpretation.

### **The Ohio State University, Graduate Research Assistant**

Mammalian cell culture and molecular biology research in the lab of Harold Fisk to elucidate the role of a protein kinase Mps1 in centrosome biology. Relevant techniques used include molecular cloning, protein purification, immunoprecipitation, SDS-PAGE and western blotting, mammalian cell culture, immunofluorescence, fluorescent fixed and live-cell microscopy.

### **The University of Pennsylvania, Postdoctoral Research Associate**

Yeast cell and molecular biology research in the lab of Dr. Erfei Bi to elucidate the structural composition and dynamics of septin architecture throughout the cell cycle. Relevant techniques include molecular cloning, protein purification, immunoprecipitation, SDS-PAGE and western blotting, yeast genetics, live-cell confocal microscopy, *in vivo* protein dynamics via fluorescence recovery after photobleaching (FRAP), photo-activation, and photo-conversion.

## PROFESSIONAL DEVELOPMENT

Year	Description of Activity	Type
2022	Syllabus training workshop offered by CITL	Teaching
2022	New faculty orientation	Teaching
2022	Blackboard Ultra Introduction (CITL)	Teaching
2022	KY INBRE R15 grant writing workshop	Scholarship
2022-	WKU President's Convocation	Other
2022-	Ogden College Opening Meeting	Other
2023	New faculty orientation (continuance and SITES)	Teaching
2023	Blackboard Ultra Transition	Teaching
2023-	KY INBRE Electron Microscopy Workshop	Scholarship
2023	Distracted Student Engagement keynote speaker (CITL)	Teaching
2023	Demystifying the Publishing Process in JKAS	Scholarship



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2024	Embedding Study Strategies in Content Courses	Teaching
2024	Integrating Transferable Skills for the Workplace into your Curriculum	Teaching
2024	KY INBRE FIJI ImageJ and Illastik workshop	Scholarship