

# Kate Segar

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## Education

PhD *University of Colorado – Denver* *Matriculated August 2021*  
Molecular Biology

B.S. *University of Puget Sound* *May 2019*  
Molecular and Cellular Biology and a minor in sociology and anthropology  
*Cum laude*

Senior Thesis: **Src-Driven Tumorigenesis: Src Regulation via Reactive Oxygen Species promotes Oncogenic Activity in *Drosophila***  
Thesis Advisor: Dr. Leslie Saucedo

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## Research Experience

*Laboratory Technician* *2019 - 2021*  
*Brandeis University/Dana-Farber Cancer Institute*

- Developing a sequence-based mutagenesis RNA screen to identify conserved mRNA structural motifs that influence non-canonical translation
- Identifying canonical translational inhibitory elements in non-canonically translated mRNA transcripts
- Optimized a several step, multi-day recombinant 13-subunit protein complex purification procedure
- Works independently and collaboratively to perform experiments and associated analysis for individual and shared projects
- Maintains lab space, manages consumable inventory, and makes common stock solutions

*Student Researcher* *2018-2019*  
*University of Puget Sound*

- Cultivated and utilized the model system *Drosophila melanogaster*, well versed in fly husbandry and several genetic mosaic techniques
- Researched and developed an independent project proposal on exploring the effects of reactive oxygen species on cancer progression
- Regularly utilized confocal microscopy and immunofluorescence as well as practiced tissue dissection, fixation, and mounting techniques
- Analyzed and organized data for presentation

*Agricultural Innovations Intern* *Summer 2017*  
*Callisons Inc. Lacey, WA*

- Performed time-sensitive duties in a fast-paced professional laboratory
  - Oversaw irrigation, fertilization, and documentation of over 200 plants in grow room and greenhouse
  - Worked independently to culture plant matter and suspended cell cultures, as well as preformed hydro-distillations and co-vapors on field trial variety species
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## Grants, Scholarships, Awards, and Honor Societies

*Phi Sigma Membership* *2018-2019*  
*Presidential Merit Scholarship* *2015-2019*  
*Collier Interdisciplinary Scholarship* *2016-17, 2018-19*  
*Dr. Richard Slater Scholarship* *2018-19*  
*Sherman Fairchild Research Award* *2018*  
*Richard M. Knight Award* *2018*  
*RSA/NRHH Member of the Year* *2017*

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## Presentations

### Oral Presentations

**University of Puget Sound Summer Research Seminar Series, Tacoma, WA, Modulating the Cancerous Effects of Src with Reactive Oxygen Species, July 2018**

**2019 Undergraduate Research Symposium, Tacoma, WA, Src-Driven Tumorigenesis: Src Regulation via Reactive Oxygen Species promotes Oncogenic Activity in Drosophila, April 2019**

### Poster Presentations

**Fall Undergraduate Science Research Symposium, Tacoma, WA, Modulating the Cancerous Effects of Src with Reactive Oxygen Species, September 2018**

**Murdock College Science Research Conference, Vancouver, WA, Modulating the Cancerous Effects of Src with Reactive Oxygen Species, November 2018**

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## Publications

Leslie Saucedo, Rosealie Triolo, and Kate Segar. How Drosophila can inform the emerging paradigm of the role of antioxidants in cancer. *Mol. Cancer Res.* September 2020.

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## Teaching and Mentoring Positions

*Instructional Assistant*

2017-2019

*University of Puget Sound*

- Managed and collaborated with up to twenty students in lab to perform laboratory experiments and grasp the basics of cell biology and general chemistry
- Created and maintained a supportive and thoughtful academic environment
- Aided in lab demonstrations, answered questions, and enforced safety measures
- Performed extensive lab grading and regularly held office hours outside of lab

*Peer Advisor*

2018-2019

*University of Puget Sound*

- Supported and advised first year students transitioning into college academic life
- Managed several advising sections and collaborated closely with faculty advisors as well as the Office of Academic Advising to respond to concerns regarding individual students
- Acted as a resource for new students and educated them about campus resources

*Orientation Leader*

Summer 2017, 2018

*University of Puget Sound*

- Welcomed new students and encouraged an inviting social environment over orientation
- Led multiple group community service outings, organized group community immersion trips, and guided immersive outdoor trips
- Introduced new students to University resources and culture and assisted with a smooth initial transition into college life

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## Computational Skills

CFX Maestro, Microsoft Office Suite, R Studio (intermediate), Image J, Adobe Photoshop

## Lab Techniques

tissue dissection and staining, immunohistochemistry, epi fluorescence and confocal microscopy, immunoprecipitation, protein purification, western blotting, cell culture/sterile technique, cloning, PCR, RT-qPCR, polysome profiling