

**Caelan Miller**

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**EDUCATION**

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2021 **B.A. in Biology: Microbiology.** Washington University in St. Louis, St. Louis, MO.  
Cumulative GPA: 3.34/4.00

**RESEARCH EXPERIENCE**

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2021-Present **Laboratory Technician.** PI: Dr. Lucia Strader. Department of Biology. Duke University. Durham, NC.

Cloned 70,000 *Arabidopsis thaliana* transcription factor fragments into inducible expression constructs to characterize activation domain sequences and structural motifs.

Built the ActDom CLI Tool, allowing users to query a database of activation scores for nearly 1,900 *Arabidopsis thaliana* transcription factors.

2020-2021 **Laboratory Technician.** PI: Dr. Rebecca Bart. Donald Danforth Plant Science Center. St. Louis, MO.

Cloned host eIF4E susceptibility factors into inducible expression constructs to aid in the characterization of their roles in Cassava brown streak disease.

2020-2021 **Undergraduate Research Fellow.** PI: Dr. Chris Shaffer. Department of Biology. Washington University in St. Louis. St. Louis, MO.

Utilized the gene annotation workflow tool PECAAN to annotate the genome of *Streptomyces* phage Targaryen. Submitted to NCBI GenBank.

- 2019-2020     **Undergraduate Research Fellow.** PI: Dr. Ian Duncan. Department of Biology. Washington University in St. Louis. St. Louis, MO.
- Cloned enhancer elements into inducible expression constructs to assess their potential modulation of E93 expression in *Drosophila*.
- 2018-2019     **Undergraduate Research Fellow.** PI: Dr. Sarah C. R. Elgin. Department of Biology. Washington University in St. Louis. St. Louis, MO.
- Annotated *Drosophila* D and F element genes to utilize phylogenetic footprinting to search for gene regulatory motifs specific to heterochromatic F element genes. Facilitated a large genetic screen identifying genes required for repeat-induced heterochromatin formation in *Drosophila melanogaster*.
- 2017-2018     **Undergraduate Student.** PI: Dr. Chris Shaffer. BIO 191 & 192. Department of Biology. Washington University in St. Louis. St. Louis, MO.
- Isolated and purified the novel *Streptomyces* phage Circinus from St. Louis soil samples. Utilized the gene annotation workflow tool PECAAN to annotate its genome. Submitted to NCBI GenBank.

## PUBLICATIONS

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Identification of Conserved Regulatory Motifs on the *Drosophila* Muller F Elements of Six *Drosophila* Species. Leung W. ... **Miller C.** ... Faculty and Students from the Genomics Education Partnership ... Elgin SCR. (Manuscript in preparation).

## AUTHORED SUBMISSIONS

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[Streptomyces Phage Circinus, complete genome](#). Kwan, A., **Miller, C.**, Herrmann, A., Tang, B.L., Shaffer, C.D., Weston-Hafer, K.A., Russell, D.A., Pope, W.H., Jacobs-Sera, D., Hendrix, R.W. and Hatfull, G.F.

[Streptomyces Phage Targaryen, complete genome](#). **Miller, C.**, Curnutt, N., McDermut, M., Hartigan, K.A., Mousa, M., Shaffer, C.D., Weston-Hafer, K.A., Garlena, R.A., Russell, D.A., Jacobs-Sera, D. and Hatfull, G.F.

## POSTER PRESENTATIONS

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"Comparative Annotations of Transcription Start Sites on the *Drosophila* D and F Elements." Alice Herrmann, Ariel Feng, Amy Kwan, **Caelan Miller**, Wilson Leung, Sarah C. R. Elgin. Presented at Fall 2018 Washington University in St. Louis Undergraduate Research Symposium

"Reconciliation and Analysis of Gene Models from the *Drosophila eugracilis* and *Drosophila takahashii* Muller D and F Elements." **Caelan Miller**, Ariel Feng, Alice Herrmann, Amy Kwan, Muhammad Mousa, Mitchell Grinwald, Wilson Leung, Sarah C. R. Elgin. Presented at Fall 2018 Washington University in St. Louis Research Symposium

"Searching for Genes Responsible for Gene Silencing in *Drosophila melanogaster*." Amy Kwan, Ariel Feng, Alice Herrmann, **Caelan Miller**, Gary Huang, Elena Gracheva, Sarah C. R. Elgin. Presented at Fall 2018 Washington University in St. Louis Undergraduate Research Symposium

"Isolation and Genome Characterization of *Streptomyces* Phage Circinus." Alice Herrmann, Amy Kwan, **Caelan Miller**, Brandon Tang. Presented at Spring 2018 Washington University in St. Louis Undergraduate Research Symposium

## TEACHING EXPERIENCE

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Spring 2020    **Teaching Assistant**, BIO 192: Ampersand: Phage Hunters II, Washington University in St. Louis

Spring 2019    **Teaching Assistant**, BIO 2961: Collaborative Phage Bioinformatics, Washington University in St. Louis

## OUTREACH & SERVICE

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2020-2021    Volunteer, Washington University in St. Louis Olin School of Business Annual Diversity & Inclusion Summit

2019-2020    Treasurer, Washington University in St. Louis Olin School of Business Annual Diversity & Inclusion Summit

2019-2020    Diversity & Inclusion Chair, Phi Gamma Nu (PGN), Professional Business Fraternity

2019-2020    Senior Board Member, The Minority Network, Washington University in St. Louis Student Union

2018-2020    Volunteer, StriveForCollege