



Lauren Woodward, Ph.D.
Assistant Professor of Biology
Taylor University
Euler Science Complex, Room 310
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Education

PhD. Molecular Genetics, Ohio State University

(2019)

BS. Biology, Mount Vernon Nazarene University

(2013) *summa cum laude*

Teaching

Assistant Professor, Biology (2022-present)

Visiting Assistant Professor, Biology (2021-2022)

Co-instructor, Kenyon College (2020-2021)

Research Appointments and Interests

Visiting Assistant Professor (2021-2022)

Kenyon College (Gambier, OH)

- Investigated role of alternative splicing and nonsense-mediated decay on stress response in bryophytes
- Established laboratory stocks of *M. polymorpha*
- Developed CURE yeast two-hybrid screen of conserved transcription factors active in seasonal regulation of sexual reproduction in bryophytes
- Built RNAseq dataset to identify alternative splicing that occurs in response to environmental stress

Postdoctoral Fellow (2020 –2021)

Kenyon College (Gambier, OH)

- Investigated the evolutionary conservation of the molecular mechanisms driving seasonal regulation of reproduction in plants
- Prepared circadian RNAseq dataset
- maintained plant stocks for research
- Conducted multiple genetic modifications utilizing CRISPR/Cas9 technology
- Co-mentored students in research group
- ChIP-PCR

Graduate Research Assistant (2014 –2019)

Ohio State University (Columbus, OH)

- Investigated mRNA turnover as a result of nonsense-mediated decay in mammalian cells. Identified and characterized subcellular distinctions in proteomes of spliced mRNAs.
- Western blotting, protein purification, immunofluorescence microscopy, luciferase assay, RT-qPCR, northern blotting, molecular cloning, polysome profiling.



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Publications

Patton R, Sanjeev M, Woodward L, Mabin J, Bundschuh R, Singh G. (2020) Chemical crosslinking enhances RNA immunoprecipitation for efficient identification of binding sites of proteins that photo-crosslink poorly with RNA. RNA.

Papaioannou D., ... Woodward L., ..., Singh G., Kauppinen S., Bloomeld C, Dorrance A., and Garzon R.(2019) The long non-coding RNA HOXB-AS3 regulates ribosomal RNA transcription in NPM1-mutated acute myeloid leukemia. Nat Commun. 10.1

Woodward L, Gangras P, Singh G (2019) Identification of footprints of RNA:protein complexes via RNA Immunoprecipitation in Tandem followed by sequencing (RIPiT-Seq). JoVE

Mabin J*, Woodward L*, Patton R*, Yi Z, Jia M, Wysocki V, Bundschuh R, Singh G (2018) The exon junction complex undergoes a compositional switch that alters mRNP structure and nonsense-mediated mRNA decay activity. Cell Rep. 25, 2431-2446.e7

Woodward L, Mabin J, Gangras P, Singh G (2017) The Exon Junction Complex: A Lifelong Guardian of mRNA Fate. Wiley Interdiscip. Rev. RNA 8.

Honors, Awards, and Select Presentations

- **2022** “Regulated Nonsense: How mRNA processing shapes response to environmental stress in plants” –invited presentation for Science Seminar for the school of Natural and Applied Sciences, Taylor University
- **2022** “Nonsense by design: Investigating Inhibition of the Nonsense-mediated RNA decay Pathway in response to Environmental Stress in Plants” – research grant funded by Women’s Giving Circle (\$5,000)
- **2022** “Abiotic stress affects alternative splicing of nonsense-mediate decay targets in *Marchantia polymorpha*” – poster presented at American Society of Plant Biologist, meeting
- **2022** “Abiotic stress affects alternative splicing of nonsense-mediate decay targets in *Marchantia polymorpha*” – poster presented at Pennsylvania State University Plant Biology RNA Symposium
- **2022** ASPB Primary Undergraduate Institution Section travel award
- **2021** “Investigation of plants’ utilization of alternative splicing to adjust to harsh environments” – research grant funded by Kenyon College Faculty Research Grant
- **2018** Oral Presentation, RNA Society Meeting (Berkeley, CA)
- **2018** Berl Oakley travel award
- **2017** Excellent Poster Award, Rustbelt RNA Meeting
- **2016** Poster Presentation, Cold Spring Harbor Conference on Translational Control
- **2016-2017** OSU Center for RNA Biology, Secretary
- **2016** Oral Presentation, Rustbelt RNA Meeting
- Ohio State University- University Fellowship 2014-2015