

2021 HHMI Gilliam Seminars

This seminar series highlights Black leaders in plant biology through two events: 1. traditional research talks and 2. open-format talks on outreach and education efforts and/or academic perspectives.

Register for all here: <https://tinyurl.com/HHMIgilliam>

Prof. Terri Long (she/her)
North Carolina State University
<https://longlab.wordpress.ncsu.edu/>

research
5 May (W) 9-10 AM PST
outreach & perspectives
6 May (Th) 9-10 AM PST

Dr. Kevin Cox (he/him)
Danforth Center,
HHMI Hanna Gray Fellow
<https://www.meyerslab.org/>

research
12 May (W) 9-10 AM PST
outreach & perspectives
13 May (Th) 9-10 AM PST

Dr. Edith Pierre-Jerome
Duke University,
LSRF Fellow
<https://sites.duke.edu/benfey>

research
18 May (T) 10-11 AM PST
outreach & perspectives
20 May (Th) 10-11 AM PST

Prof. Thelma Madzima
(she/her)
UW Bothell
<https://thelmamadzima.com/>

research
26 May (W) 9-10 AM PST
outreach & perspectives
27 May (Th) 9-10 AM PST

Hosted by Prof. Jennifer Nemhauser and Román Ramos Báez in coordination with the UW Biology Diversity and Equity Committee.

2021 HHMI Gilliam Seminars

This seminar is part of a series highlighting Black leaders in plant science

Research

Don't Stress - Iron regulatory mechanisms at the intersection of plant development and multi-stress resilience

Register: <https://bit.ly/3uYt11Q>

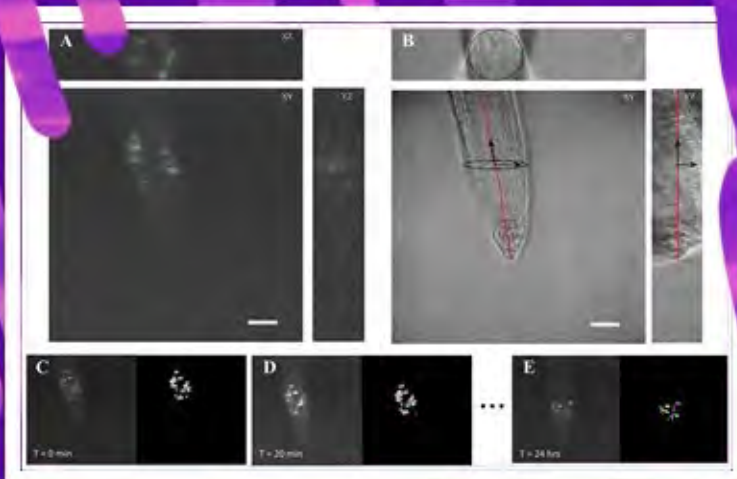
Others from this series: <https://tinyurl.com/HHMIgilliam>

Prof. Terri A. Long (she/her)
North Carolina State Univ.

5 May (W) 9-10AM PST

Our research focuses on understanding the molecular mechanisms that plants use to uptake, transport, and utilize iron, and respond to low iron conditions. Using a combination of molecular biology and mathematical modeling, along with advances in confocal and light sheet microscopy, we have identified iron deficiency response regulators and their corresponding gene targets, and gained insight into their spatiotemporal dynamics in

response to iron deficiency alone, and in combination with other stress conditions. We have also used these same approaches to understand how iron deprivation impacts root vascular development. Ultimately, this information may lead to new targets for generating crops with increased nutritional content and increased yield when grown in nutrient-poor soils.



Hosted by Prof. Jennifer Nemhauser and Roman Ramos Báez in coordination with the UW Biology DEC.

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Outreach & Perspectives

Black in Academia - A perspective

Register: <https://bit.ly/3giDIIs>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Prof. Terri A. Long (she/her)
North Carolina State Univ.

6 May (Th) 9-10AM PST



Let's be honest, being black in American has always been stressful. Being black in academia, while extremely rewarding, is doubly more so. This talk will be a discussion of the current status of black scientists in the US, with particular emphasis on plant biologists - where we are, where we hope to go, and pathways to get there. We will discuss the politics of diversity in STEM and academia, and why changing demographics demand that we make changes at every level of in how we approach education, particularly in plant science.

Hosted by Prof. Jennifer Nemhauser and Román Ramos Báez in coordination with the UW Biology DEC.

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Research

Development of High-Resolution Spatial Transcriptomics in Plants

Register: <https://bit.ly/2P1VR2g>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Dr. Kevin Cox (he/him)
Danforth Center

The study and functional characterization of specialized tissue and cellular domains in organisms is critical to understand their gene networks. A method known as spatial transcriptomics accomplishes this by resolving the location of gene expression while maintaining relevant cellular adjacencies via tissue sections including specific cell types. Spatial transcriptomics originated in mammalian systems and has substantially improved over the last few years. The current platform for spatial transcriptomics in plants also allows for high resolution, in situ transcript profiling. However, the platform's resolution for plant systems is not comparable to those used for mammalian systems, as it is far from single-cell resolution. My work aims to achieve spatially-resolved, high-throughput transcriptional profiling at a single cell resolution in plants, with potential applications in any multicellular organism. Given that the project is still in its development stage, the data discussed in this talk will focus on the progress of the development of this platform.

12 May (W)
9-10AM PST



Hosted by Prof. Jennifer Nemhauser and Román Ramos Báez in coordination with the UW Biology DEC.

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Outreach & Perspectives

Ten Years of Science, Countless
Lessons in Academia

Register: <https://bit.ly/3giDIIs>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Dr. Kevin Cox (he/him)
Danforth Center

13 May (Th) 9-10AM PST



The journey of becoming a scientist is unique to every individual, as everyone has their own path to reaching this career goal.

Throughout my young scientific career, my path has led me through experiences that have turned into lessons important for my continued career development. While some of these experiences were positive, unfortunately some of these experiences were negative, as I encountered those negative

experiences solely due to my race. In this talk, I will discuss my career path and how that journey provided me lessons to share with other inspiring students. I will also discuss my experiences as a Black American in academia, which will include identifying some of the problematic areas and recommending methods to improve the current environments/cultures at academic institutions. Lastly, I will also discuss my passion for outreach and science communication and the activities I participate in.

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Research

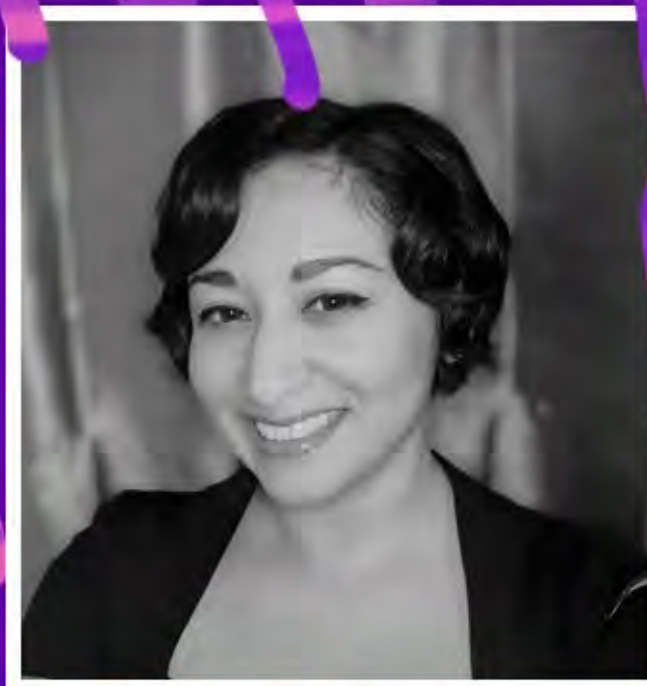
Build it to Understand it: Synthetic Regulation of Multicellular Development

Register: <https://bit.ly/3e7GKwJ>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Dr. Edith Pierre-Jerome
Duke University
18 May (T) 10-11AM PST

Synthetic biology provides a way to directly test and expand our understanding of a system. I will share how I have used this approach to build synthetic gene circuits to regulate formative cell divisions in Arabidopsis seedlings and gain new insights into gene regulatory logic and multicellular development.



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2021 HHMI Gilliam Seminars

This seminar is part of a series highlighting Black leaders in plant science

Outreach & Perspectives

Front and Center: Black, Indigenous
and Latine Plant Scientists

Register: <https://bit.ly/3geyWvK>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Dr. Edith Pierre-Jerome
Duke University

20 May (Th) 10-11AM PST



The Front & Center initiative has been developed to highlight and address the unmet needs of plant scientists who encounter racism in their pursuit of knowledge and discovery. Front & Center is dedicated to increasing the representation and visibility of Black, Indigenous, & Latine Plant Scientists and building a safe community for these scientists to connect with and support one another. Our goals are for Black, Indigenous, and & Latine Plant Scientists to be seen, heard, belong, and have agency within the plant science community.

Hosted by Prof. Jennifer Nemhauser and Román Ramos Báez in coordination with the UW Biology DEC.

2021 HHMI Gilliam Seminars

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Research

Epigenetic & abiotic stress mediated transcriptional regulation in maize

Register: <https://bit.ly/2QvoUM3>

Others from this series: <https://tinyurl.com/HHMIgilliam>

Prof. Thelma Madzima (she/her) - UW Bothell

Plants are frequently subjected to fluctuating and often extreme abiotic environments such as drought, high salinity, nutrient deficiency and extreme cold, and must adapt rapidly. The negative effects of environmental stress on plant growth and yield will only continue to be exacerbated. A priority for many plant breeding programs is to develop climate resilient crops displaying phenotypic traits of enhanced stress tolerance, and these efforts are often complemented with biotechnology-based approaches to manipulate these responses at the molecular level. Some instances of abiotic stress-induced transcriptional responses rely on epigenetic modifications. RNA-dependent DNA methylation (RdDM) is a plant-specific epigenetic pathway that functions to direct changes in DNA (cytosine) methylation, chromatin structure and gene expression at target loci. The core objective of my research program is to understand how agriculturally important crop plants respond to abiotic stress stimuli, and how epigenetic mechanisms facilitate these responses. By manipulating two important regulatory networks, we recently demonstrated that epigenetic and abiotic stress-mediated regulatory mechanisms are integrated in facilitating plant transcriptional responses to stress at specific loci in the *Zea mays* (maize) genome, identifying candidate cis and trans regulatory elements required for these events. I will describe our on-going efforts and findings that are aimed at elucidating the mechanistic relationship between these two important pathways.

26 May (W)
9-10AM PST



Hosted by Prof. Jennifer Nemhauser and Román Ramos Báez in coordination with the UW Biology DEC.

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Outreach & Perspectives

Ten Years of Science, Countless
Lessons in Academia

Register: <https://bit.ly/3giDIIs>

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Prof. Thelma Madzima
(she/her) - UW Bothell

27 of May (Th)
9-10AM PST



The devastating racial and social events that occurred in 2020 emphasized the systemic racism that exists in society and academia. Prior to these events, academic institutions and scientific communities had for years declared their 'commitments' to increasing diversity through student and faculty recruitment and retention efforts. However, even after years of expressing these commitments, the diversity in higher education does not parallel that of the general population. At the University of Washington, for example, faculty from underrepresented minority (URM) groups together comprise only ~7% of all faculty, where those that identify as Black make up 2% of academic personnel (2020). I will discuss my perspectives, often driven by lived experiences, on why recruitment and retention efforts have failed, particularly in STEM disciplines, where diversity, equity and inclusion (DE&) efforts have largely been a reaction instead of being intentional.

In the scientific process, we often use quantitative assessments to evaluate the efficacy of our research on non-human subjects, however we fail to regularly apply quantitative analysis of data when it pertains to DE&, in which human lives are at stake. As a result of the lack of reflection and these inconsistent practices, recruitment efforts are often misaligned with the availability of individuals from the target populations; and recruitment is attempted when the focus should be on retention. Additionally, as universities attempt to diversify, most STEM divisions currently lack the ability to provide professional support for URM faculty, who face unique challenges such as implicit and explicit biases by students (often reflected in teaching evaluations) and colleagues (often reflected by provided resources, in merit reviews and P&T). Moreover, URM faculty navigate these challenges while bearing the un-recognized service burden of mentoring and retaining the next generation of URM scientists. I will provide recommendations on how I believe STEM divisions can improve DE& efforts in a more impactful manner.

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coordination with the UW Biology DEC.