



Daniel Westcott

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/daniel-j-westcott

Education

PhD

University of California, Berkeley - Plant Biology
Dissertation: Metabolic and photosynthetic responses to light and carbon of the unicellular alga, *Chromochloris zofingiensis*.
Committee: Krishna Niyogi (chair), Henrick Scheller, Daniel Fletcher, Melissa Roth

May, 2020
(expected)

BS

Northeastern Illinois University
Majors: Biology, Secondary Education
Honors Scholar, Summa Cum Laude.

May, 2014

Fellowships

NSF - GRFP

National Science Foundation, Graduate Research Fellowship Program
Research Area: Plant chloroplast development and the regulation of photosynthesis

2015 - present

Chancellor's Fellow

Awarded on application strength to the Plant and Microbial Department of the University of California, Berkeley

2014-present

Publications

Nature Comms. Biology



Hexokinase is necessary for glucose-mediated photosynthesis repression and lipid accumulation in a green alga
Melissa S. Roth*, **Daniel J. Westcott***, Masakazu Iwai & Krishna K. Niyogi
* these authors contributed equally to this work

2019

The Plant Cell



Regulation of oxygenic photosynthesis during trophic transitions in the green alga *Chromochloris zofingiensis* - Melissa S. Roth, Sean D. Gallaher, **Daniel J. Westcott**, ...Carolyn Larabell, Manfred Auer, Trent R. Northen, Sabeeha S. Merchant, Krishna K. Niyogi

2019

PNAS



Chromosome-level genome assembly and transcriptome of the green alga *Chromochloris zofingiensis* illuminates astaxanthin production
Melissa S. Roth, Shawn J. Cokus, Sean D. Gallaher, Andreas Walter, David Lopez, Erika Erickson, Benjamin Endelman, **Daniel J. Westcott**, Carolyn A. Larabell, Sabeeha S. Merchant, Matteo Pellegrini, and Krishna K. Niyogi

2017

Materials Research Proceedings



Domain structure of a unique bacterial red light photoreceptor as revealed by atomic force microscopy

Blaire A. Sorenson, **Daniel J. Westcott**, Alexandra C. Sakols, J Santoro Thomas, Perry Anderson, Emina A. Stojković Stefan Tsonchev, and Kenneth T. Nicholson

2014

Research

PhD

Specific foci: Lipid metabolism, central carbon metabolism, thylakoid membrane biogenesis, algal biology, glucose signaling networks, transcriptional dynamics, genetic transformation

Skills: Whole-genome sequencing and analysis, RNA-sequencing, PCR, qPCR, CRISPR/Cas9, cloning, western blot analysis, atomic force microscopy, structured illumination microscopy, electron microscopy, HPLC, TLC, culture techniques, lipidomic analysis, proteomic analysis, carbon nanotube-mediated DNA delivery, electroporation, Agrobacterium-mediated transformation, protein purification

NSF-REU UChicago Greenberg Lab

Specific focus: Plant-pathogen interactions between *P. syringae* and tomato
Skills: Protein domain analysis via cloning, protein purification, and physiological assessment of pathogenicity

Undergraduate

Specific focus: Bacteriophytochrome structure and function
Skills: Atomic force microscopy, protein purification



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Outreach Informing the public

	Science At Cal's Ask a Berkeley Scientist - Invited panelist, UC Berkeley	11/16/2019
	Genetically Modify Food! - Public lecture, Octopus Literary Salon, Oakland, CA	04/18/2019
	Organizing and planning team for CLEAR PubScience, a series of scientific lectures (19 so far) geared towards the public	9/2017 - present
	CLEAR in the Classroom - A series of high-school drop in classes to teach about CRISPR/cas9	3/2018
	CLEAR Farmer's market outreach	4/2017
	CLEAR in the Capital- Graduate student-led visit to Sacramento to meet with legislators and aides about science policy	3/2017
	Bay Area Science Festival - Discovery Day Volunteer	11/11/2017
	Cal Day Volunteer	4/18/2015
	Be a Scientist Program Volunteer, King Middle School, Berkeley, CA	10/2014 - 12/2014

Inreach Informing scientists

	Dr. Will Freyman, 23andMe Methods to infer the genetic ancestry of millions of people Lecture to UC Berkeley Scientists Personal role: Conception, invitation, planning, facilitation	8/22/2019
	UC Berkeley Plant Genome Engineering Symposium Founding committee member in 2016, Chair in 2018. With an annual budget of about \$10k, this one-day symposium brings cutting-edge plant science to more than 150 Berkeley students, researchers, and professors.	2016 - 2019
	Panel Organizer and Moderator: CRISPR goes to Washington This panel discussion addressed future regulatory challenges and public perception in relation to gene editing in plants. Panelists: Dr. Kevin Diehl - Director, Global Regulatory Seed Platform - DuPont Pioneer Prof. Kent Bradford - Director, UC Davis Seed Biotechnology Center Nathaniel Johnson - Food and Science Journalist at Grist and author of All Natural	5/4/2018
	Carl Pray, Rutgers University Bioeconomy in Transition Lecture to UC Berkeley Scientists Personal role: Conception, invitation, planning, facilitation	4/17/2017
	Joe Palca, NPR Fake News, or Real Science Lecture to UC Berkeley Scientists Personal role: Planning, facilitation	2/13/2017
	Lecture Agricultural policy in three acts Given to UC Berkeley graduate students	12/9/2015



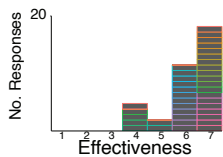
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Teaching



The Secret Life of Plants: a large-format biology course for non-majors taught under the direction of Dr. Zambryski, UC Berkeley. Rated as a very, or extremely effective instructor by 82% of respondents.

Spring, 2019

Experimental Plant Biology: a small-format, lab-focused class for majors in plant biology. Taught under the direction of Dr. Widermuth, UC Berkeley

Spring, 2016

Student Teaching, Oak Park River Forest High School, Oak Park, IL Classes managed, 9th and 10th grade general Biology, 11th grade AP Environmental Science - Under the direction of Cindy McGuckin.

9/2013-5/2014

Tutoring - Northeastern Illinois University

9/2013-3/2014

Mentorship

Over the course of my PhD, I've mentored 3 undergraduate students, one of which has graduated and is applying to graduate school currently. Two others continue to work in our lab. I've also mentored one high school student, who will be graduating next spring, and has already accepted an offer from their top choice university.

Relevant Coursework

Science communication, plant developmental genetics, plant cell biology, biochemistry, plant biochemistry, scientific logic and reasoning, genomics and computational biology, plant systems biology, python bootcamp, general chemistry, organic chemistry, biochemistry, invertebrate zoology, educational pedagogy

Employment

CTVN

Community Television Network - Office Manager, Chicago, IL CTVN is a non-profit media education organization serving low-income Chicago teens. My duties included grant reporting, employee scheduling and review, and equipment management.

2011 - 2014

Williams Island Farm

Equipment wrangler and farmhand, Chattanooga, TN Williams Island Farm is an non-certified organic farm located in the middle of the Tennessee River. Duties included equipment repair, greenhouse management, volunteer coordination, and vegetable crop management.

2009 - 2010

Earth's Harmony Landscaping

Landscaper and gardener, Chattanooga, TN We specialized in native landscaping and invasive species remediation.

2008-2009

Greenlife Grocery

Deli Manager, Chattanooga, Tennessee As manager, I was responsible for hiring, scheduling, and orderliness of up to 30 employees. I managed stock, ensured food safety, and aided the transition from a small store, to one of the busiest in the region.

2005-2008



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Scientific Presentations

Regulation of oxygenic photosynthesis during trophic transitions in the green alga <i>Chromochloris zofingiensis</i> Poster, Western Photosynthesis Conference	January, 2020
To photosynthesize or not to photosynthesize Talk, UC Berkeley and LBNL bioenergetics seminar series	May, 2019
Advancing the <i>Chromochloris zofingiensis</i> toolkit Poster, DOE Bioenergy and Environmental Research Annual Meeting	February, 2019
Regulation of oxygenic photosynthesis during trophic transitions in the green alga <i>Chromochloris zofingiensis</i> Poster, Western Photosynthesis Conference	January, 2019
Hexokinase is a global regulator of photosynthesis in the unicellular green alga <i>Chromochloris zofingiensis</i> Poster, Plant and Microbial Biology Departmental Retreat	September, 2018
Hexokinase is a critical regulator of photosynthesis in <i>Chromochloris zofingiensis</i> Poster, International Photosynthesis Symposium	August, 2016
Imaging thylakoid membrane architecture with atomic force microscopy Poster, Plant and Microbial Biology Departmental Retreat	September, 2015
On Science Education Speech, Northeastern Illinois University Annual Banquet	April, 2014
The tomato guard cell protein, RIN4 and its interactions with two effectors from the pathogenic bacteria <i>P. syringae</i> HopZ3 and AvrPto Talk, University of Chicago REU wrap-up	December, 2013
Structural Characterization of Red Light Photoreceptors Using Atomic Force Microscopy Poster, SACNAS national conference in Seattle, WA	October, 2012
Characterization of a Unique Bacterial Photoreceptor in the Light-Adapted State Using Atomic Force Microscopy, ACS regional meeting, Dearborn, MI	July, 2012

Miscellany

Berkeley HaasID innovation challenge participant In partnership with IDEO, competitive teams posited ideas to enable the success of Plenty, a vertical farming startup.	October, 2018
 How I survived eating the Impossible Burger A lighthearted blog post written to explain leghemoglobin.	August, 2017