

## Susan E. Cohen

Associate Professor

Department of Biological Sciences

California State University, Los Angeles

Affiliate member of the Center for Circadian Biology at UC San Diego

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### EDUCATION

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**Massachusetts Institute of Technology**, Cambridge, MA 2009

Ph.D. in Molecular Biology

Advisor: Graham C. Walker

**University of California, Santa Barbara**, Santa Barbara, CA 2003

Bachelor of Science with honors and distinction in major in Microbiology

Minor in Mathematics

### RELEVANT EXPERIENCE

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**Associate Professor, California State University Los Angeles** 2023- Present  
Department of Biological Sciences

**Assistant Professor, California State University Los Angeles** 2017-2023  
Department of Biological Sciences

**Postdoctoral Fellow, UCSD**, San Diego, CA 2010- 2017  
Center for Circadian Biology and Division of Biological Sciences  
Advisor: Susan S. Golden  
Investigating the subcellular dynamics of the cyanobacterial circadian clock proteins and the interrelationships between the cell and circadian cycles

**Postdoctoral Researcher, MIT**, Cambridge, MA 2009-2010  
Department of Biology  
Advisor: Graham C. Walker  
A Novel Role for the Transcriptional Modulator NusA in DNA Repair/Damage Tolerance Pathways in *Escherichia coli*

**Graduate Student, MIT**, Cambridge, MA 2003-2009  
Department of Biology  
Advisor: Graham C. Walker  
A Novel Role for the Transcriptional Modulator NusA in DNA Repair/Damage Tolerance Pathways in *Escherichia coli*

**Undergraduate Student, UCSB** 2001-2003  
Department of Molecular Cellular and Developmental Biology  
Advisor: Rolf E. Christoffersen  
Mutagenesis of ACC oxidase, the ethylene forming enzyme of plants

## GRANTS AWARDED

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CSUPERB (PI: S. Cohen) Dates 01/03/2022-09/30/2022

\$7500 total costs

CSUPERB COVID-19 Post Pandemic Faculty Support Program

Elucidating the roles for RNA binding proteins in regulating the circadian clock

National Science Foundation, MCB Directorate (PI: S. Cohen) Dates 04/01/2019-3/31/2024

\$736,369 total costs

CAREER: Elucidating the spatiotemporal dynamics of the cyanobacterial circadian clock

CSUPERB (PI: S. Cohen) Dates 07/15/2018 – 11/30/2019

California State University Program for Education and Research in Biotechnology: New Investigator Grant Program

\$15,000 total costs

Roles for the RNA-binding protein Rbp2 in the circadian clock mechanism of cyanobacteria

CSULA Mini-Grant Dates 07/15/2018- 06/30/2019

\$5,000 total costs

Identification of factors involved in resetting

## PUBLICATIONS

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### Publications as PI at Cal State LA

† undergraduate author

‡ masters student author

### **Dynamic localization of circadian clock proteins KaiB and Rbp2 in *Synechococcus elongatus***

Harry J. Bevir<sup>‡</sup>, Christopher C. Hooper<sup>†</sup>, Tanya Chaljian<sup>†</sup>, and Susan E. Cohen

Manuscript in preparation, expected submission of Aug 2023

### **Roles for the RNA binding protein Rbp2 in regulating the circadian clock in *Synechococcus elongatus***

Briana M. McKnight<sup>†</sup>, Shannon Kang<sup>†</sup>, Tam H. Le<sup>†</sup>, Genelyn Carbonel<sup>†</sup>, Esbeydi Rodriguez<sup>†</sup>, Amanda L. Tran<sup>†</sup>, Nicholas R. Duncan<sup>†</sup>, Susan S. Golden and Susan E. Cohen

In press. *Journal of Biological Rhythms*

### **Investigating the roles for essential genes in the regulation of the circadian clock in *Synechococcus elongatus* using CRISPR interference**

Nouneh Boodaghian<sup>‡</sup>, Hyunsook Park and Susan E. Cohen

bioRxiv 2022.10.10.511597; doi: <https://doi.org/10.1101/2022.10.10.511597>

### **Adapting Undergraduate Research to Remote Work to Increase Engagement**

Susan E. Cohen, Sara M. Hashmi, A-Andrew D. Jones, Vasiliki Lykourinou, Mary Jo Ondrechen, Srinivas Sridhar, Anne L. van de Ven, Lauren S. Waters, and Penny J. Beuning  
*The Biophysicist*, 2(2):pp. 1-6 (2021)

Susan E. Cohen, Ph.D. – Curriculum vitae

### **Circadian Programmes in Cyanobacteria**

Susan E. Cohen

In: *Encyclopedia of Life Sciences (eLS)*, vol 2, pp. 1-10 (2021)

### **Circadian clocks in cyanobacteria**

Susan E. Cohen

In: Wang, Q., (ed.) *Microbial Photosynthesis*. pp. 169-180. Springer Nature (2020)

### **Circadian rhythmicity in prokaryotes**

Susan E. Cohen and Susan S. Golden

In: Schmidt, T., (ed.) *Encyclopedia of Microbiology*, 4e. vol 1, pp. 681-689. Oxford: Elsevier (2019)

The article can be found online at

<https://www.sciencedirect.com/science/article/pii/B9780128096338206705>

### **Phototaxis in a wild isolate of the cyanobacterium *Synechococcus elongatus***

Yiling Yang, Vinson Lam, Marie Adomako, Ryan Simkovsky, Annik Jacob, Nathan C.

Rockwell, Susan E. Cohen, Arnaud Taton, Jingtong Wang, J. Clark Lagarias, Annegret Wilde,

David R. Nobles, Jerry J. Brand and Susan S. Golden

*Proc. Natl. Acad. Sci.*, **115(52)**: E12378-12387 (2018)

### **Roles for ClpXP in regulating the circadian clock in *Synechococcus elongatus***

Susan E. Cohen, Briana M. McKnight<sup>†</sup> and Susan S. Golden

*Proc. Natl. Acad. Sci.*, **115(33)**: E7805-7813 (2018)

### **Publications as a postdoctoral fellow at UCSD**

<sup>†</sup> undergraduate author

### **Structures of circadian clock complexes assembled by a metamorphic protein at night**

Roger Tseng, Nicolette Goularte, Archana Chavan, Susan E. Cohen, Yong-Gang Chang, Jansen

Luu, Joel Heisler, Sheng Li, Alicia K. Michael, Sarvind Tripathi, Susan S. Golden, Andy

LiWang and Carrie L. Partch

*Science* **355(6630)**: 1744-1180 (2017)

### **A microfluidic platform for long term monitoring of algae in a dynamic environment**

Chung Sze Luke, Jangir Selimkhanov, Leo Baumgart, Susan E. Cohen, Susan S. Golden, Natalie

A. Cookson and Jeff Hasty

*ACS Synthetic Biology* **5(1)**:8-14 (2015)

### **Circadian rhythms in cyanobacteria**

Susan E. Cohen and Susan S. Golden

*Microbiology and Molecular Biology Reviews* **79(4)**:373-85 (2015)

### **A protein fold switch joins the circadian oscillator to clock output in cyanobacteria**

Yong-Gang Chang, Susan E. Cohen, Connie Phong, William K. Myers, Yong-Ick Kim, Roger

Tseng, Jenny Lin, Li Zhang, Joseph S. Boyd, Yvonne Lee<sup>†</sup>, Shannon Kang<sup>†</sup>, R. David Britt,

Michael J. Rust, Susan S. Golden and Andy LiWang.

*Science* **349(6245)**:324-8 (2015)

**Best practices for fluorescent microscopy of the cyanobacterial circadian clock**

Susan E. Cohen, Marcella L. Erb, Joe Pogliano and Susan S. Golden.

*Methods in Enzymology* **551**:211-21 (2015)

**Dynamic localization of the cyanobacterial circadian clock proteins**

Susan E. Cohen, Marcella L. Erb, Jangir Selimkhanov, Guogang Dong, Jeff Hasty, Joe Pogliano and Susan S. Golden

*Current Biology* **24(16)**:1836-44 (2014)

**Publications as a graduate student at MIT**

† undergraduate author

**New discoveries linking transcription to DNA repair and damage tolerance pathways**

Susan E. Cohen and Graham C. Walker

*Transcription 2*: 37-40 (2011)

**Roles for the transcription elongation factor NusA in both DNA repair and damage tolerance pathways in *Escherichia coli***

Susan E. Cohen, Cindi A. Lewis<sup>†</sup>, Rachel A. Mooney, Michael A. Kohanski, James J. Collins, Robert Landick and Graham C. Walker

*Proc. Natl. Acad. Sci.* **107**: 15517-22 (2010)

**The transcription elongation factor NusA is required for stress-induced mutagenesis in *Escherichia coli***

Susan E. Cohen and Graham C. Walker

*Current Biology* **1**: 80-85 (2010)

**A DinB variant reveals diverse physiological consequences of incomplete extension by a Y-family DNA polymerase**

Daniel F. Jarosz, Susan E. Cohen, James C. Delaney, John M. Essigmann and Graham C. Walker

*Proc. Natl. Acad. Sci.* **106**: 21137-42 (2010)

**Transcriptional modulator NusA interacts with translesion DNA polymerases in *Escherichia coli***

Susan E. Cohen<sup>\*</sup>, Veronica G. Godoy<sup>\*</sup> and Graham C. Walker

*Journal of Bacteriology* **191**: 665-672 (2009) <sup>\*</sup>Equal authorship

**The SOS regulatory network**

Lyle A. Simmons, James J. Foti, Susan E. Cohen and Graham C. Walker

Chapter 5.4.3 *Escherichia coli* and *Salmonella*: cellular and molecular biology (2008)

**Y family polymerases in *Escherichia coli***

Daniel F. Jarosz, Penny J. Beuning, Susan E. Cohen and Graham C. Walker

*Trends in Microbiology* **15**: 70-7 (2007)

SELECTED INVITED SEMINARS AND CONFERENCE PRESENTATIONS

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<b>California State University, San Diego, Department of Biology</b> A day in the life of a cyanobacteria	2023
<b>2020 Society for Research on Biological Rhythms Meeting</b> Virtual conference. Roles for regulated proteolysis in the cyanobacterial circadian clock	2020
<b>Center for Circadian Biology Symposium: From Cells to Clinic</b> La Jolla, CA. Roles for regulated proteolysis in the cyanobacterial circadian clock	2019
<b>California State University, Long Beach, Department of Biological Sciences</b> Long Beach, CA. A day in the life of a cyanobacterium	2017
<b>Young Microbiologist Symposium</b> , John Innes Centre, Norwich UK Dynamic localization of the cyanobacterial circadian clock	2017
<b>University of California, Riverside, Department of Botany</b> , Riverside, CA The Cyanobacterial Circadian Clock: When and Where	2017
<b>University of California Merced- School of Natural Sciences</b> , Merced CA The cyanobacterial Circadian Clock: When and Where	2016
<b>National Cancer Institute- NIH</b> Bethesda, MD The cyanobacterial Circadian Clock: When and Where	2016
<b>Yale University, MCDB Department</b> , New Haven, CT The cyanobacterial circadian clock: When and Where	2016
<b>12<sup>th</sup> Workshop on Cyanobacteria</b> , Tempe, AZ Dynamic localization of the cyanobacterial circadian clock proteins	2016
<b>University of Indiana, Department of Biology</b> , Bloomington IN The cyanobacterial circadian clock: When and Where	2015
<b>University of Wisconsin Madison, Department of Bacteriology</b> The cyanobacterial circadian clock: When and where	2015
<b>5<sup>th</sup> ASM Conference on Prokaryotic Cell Biology and Development</b> Washington, D.C. Dynamic localization of the cyanobacterial circadian clock proteins	2015
<b>Society for Research on Biological Rhythms 14<sup>th</sup> Biennial Meeting</b> Big Sky, MT. Dynamic localization of the cyanobacterial circadian clock	2014
<b>California Center for Algae Biotechnology Symposium</b> , La Jolla, CA Dynamic localization of the cyanobacterial circadian clock	2014
<b>West Coast Bacterial Physiologist Meeting</b> , Pacific Grove, CA Dynamic localization of the cyanobacterial circadian clock	2013

- Center for Chronobiology Workshop on Biological Timing**, La Jolla, CA 2013  
Dynamic localization of the cyanobacterial circadian clock
- Indo-US workshop on “Cyanobacteria: Molecular Networks to Biofuels”** 2012  
Lonavala, India. Elucidating the relationship between the circadian and cell cycles in cyanobacteria
- EMSL BID STAP Meeting on Cell Cycles and Rhythms**, Richland, WA 2012  
Elucidating the relationship between the circadian and cell cycles in cyanobacteria
- UC President’s Postdoctoral Fellows Retreat**, Lake Arrowhead, CA 2011  
Circadian regulation of polyploidy in cyanobacteria
- MIT Department of Biology Retreat**, Hyannis, MA 2010  
Novel roles for NusA in DNA repair and damage tolerance in *E. coli*

#### SELECTED AWARDS

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- American Society for Microbiology Peggy Cotter Award for Early Career Scientists 2023
- CSUPERB Post Pandemic Faculty Support Award 2022
- CAREER Award, National Science Foundation 2019
- Best Postdoc Presentation Award-12<sup>th</sup> Workshop on Cyanobacteria 2016
- American Society for Microbiology Travel Grant Award 2015
- Society for Research on Biological Rhythms Research Merit Award 2014
- American Cancer Society Postdoctoral Fellow 2012-2014
- UCSD Center for Chronobiology Symposium poster prize recipient 2012 & 2013
- University of California President’s Postdoctoral Fellow 2011-2012

#### TEACHING

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##### Instructor of record

**Honors Academy Workshop- Why time of day matters**, CSULA Summer 2023

5 week workshop developed for students (ages 12-15 years old) that wish to enroll in the Early Entrance Program at Cal State LA, one of the few opportunities for accelerated education Nationwide, that accepts students between the ages of 11-15 year to earn their baccalaureate. My workshop focuses on the topic of circadian rhythms to introduce students to the process of scientific inquiry and analyzing and interpreting biological data.

**MICR 3300- Microbial Genetics**, CSULA Fall semesters (2017-Present)

Lecture + Laboratory undergraduate course with ~40 students that introduces the fundamental principles of microbial genetics with an emphasis on genetic exchange, genetic manipulation and applications with environmentally, industrially and medically significant organisms. Topics covered included bacterial DNA replication, transcription and translation; regulation of gene expression and the use of reporter assays; genetic analysis and manipulation; conjugation, transformation and transduction; transposition, site-specific and homologous recombination; DNA repair and mutagenesis; sporulation; and circadian rhythms.

**MICR 3500- Bacterial Physiology, CSULA** Spring semesters (2018-Present)

Lecture + Laboratory undergraduate course with ~40 students that covers the fundamental principles of bacterial physiology with an emphasis on biochemical events related to cellular differentiation and adaptation. Topics covered include: bacterial growth and cell division; chromosome replication and partitioning; membrane bioenergetics; electron transport; central metabolism; fermentation; lipid metabolism; macromolecular synthesis and processing- RNA, proteins, cell wall, capsule and lipopolysaccharide; nitrogen metabolism; solute transport; protein transport and secretion; responses to environmental cues; chemotaxis; and biofilm formation.

**MICR 1010- Introduction to Microbiology laboratory** Fall 2022  
CSULA

Laboratory section with 20 undergraduate students enrolled in introduction to microbiology for non-majors.

**BIOL 5410- Seminar: Hot Topics- Molecular mechanisms of circadian rhythms**  
CSULA Spring 2019

Graduate seminar course with 10 students that focused on the molecular mechanisms of circadian rhythms with an emphasis on evaluating primary literature and enhancing presentation skills.

**Development of Course based Undergraduate Research Experiences (CURE)**  
CSULA S2019-Present

Supported by my NSF CAREER award I developed 3-week CUREs in introductory biology (BIOL 1100) and introductory microbiology (MICR 3000). Additionally, I developed a semester long CURE in my microbial genetics course (MICR 3300) that culminates in a poster presentation at a local underserved high school in East Los Angeles. I have also developed 2- 3 week CURE exercises that have been incorporated into my bacterial physiology (MICR 3500) course. I chose to incorporate these CURE laboratory modules into the major core curriculum in order to introduce an element of inquiry-based research and promote vertical integration through the curriculum.

**BioClock Studio, UCSD, La Jolla, CA** Winter 2014 & 2015  
Member of the instructional team for The BioClock Studio. This innovative course, centered on the theme of circadian biology, was initiated by a grant from HHMI to Susan S. Golden.

Guest Lecturer

**BIMM116-Circadian Rhythms- Biological Clocks, UCSD, La Jolla, CA** 2014 & 2015  
“Cyanobacterial Clocks” 300-undergraduate student course

**BGGN200- Graduate School Fundamentals, UCSD, La Jolla, CA** 2011-2015  
“The view looking back from successful postdocs”

Teaching Assistant 2004 & 2006  
Introductory Biology (7.012) 2004, Microbial Physiology (7.21) 2006, MIT, Cambridge, MA

PUBLIC AND PROFESSIONAL SERVICE

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Susan E. Cohen, Ph.D. – Curriculum vitae

Ad hoc Reviewer

*Environmental Microbiology, PNAS, Plant & Cell Physiology, & J. Vis. Experiments, eLife, J. Biological Rhythms, Swiss National Science Foundation, National Science Foundation, CSUPERB*

Panel Reviewer

NSF, MCB Directorate	2020-2023
NSF, IOS Directorate	2020
CSUPERB New Investigator Award	2019

Professional Society Memberships

American Society for Microbiology	2004- Present
Society for Research on Biological Rhythms	2014- Present

Committees

Department Level:

Member of Student Outreach and Recruitment (SOAR)	F2017-S2019
Graduate Affairs Committee (GAC)	F2019-S2021
Instructional Affairs Committee (IAC)	F2021-S2022
Fiscal and Enrollment Management (FEM)	S2022-present
Molecular Biologist Search Committee	F2023
Retention, Tenure and Promotion (Pre-tenure) Committee	F2023-S2024
Lecturer Review Committee	F2023-S2024

College Level:

NSS Selection Committee for the NSS Outstanding Lecturer Award Nominee	F2021-S2022
External Awards Nominating Committee	F2023- S2024
Awards and Leaves Committee	F2023- S2025
College Resources Committee	F2023- S2024

University Level:

Radiation Safety Committee	S2023-Present
CSUPERB Faculty Consensus Group	S2023-Present
CSULA campus coordinator of Institutional Research and Academic Career Development Award (IRACDA) at UCLA and CSULA	Su2023-Present
National Institutes of Health, K12 \$860,352 total costs Dates 09/01/26- 08/31/2026 ICLA PI's: Michael Carey and Claudio Villanueva	