

# GABE MEDNICK

## Biochemist with evolving interests in bioinformatics, data science and machine learning

My journey into the physical and biological sciences started with a desire to study osteopathic medicine. In the process of completing a biochemistry and molecular biology degree, my interest in the structure and function of the human body grew into a fascination with the invisible structure and inner workings of the cell. I developed a deep interest in both physical chemistry and biochemistry, and my curiosity resulted in a PhD focused on sensory transduction pathways and light sensing mechanisms in bacteria.

After finishing my PhD, I developed and implemented innovative teaching practices in chemistry and biology at the university level. More recently, I worked as a senior scientist for a small startup with an emphasis on DNA and RNA synthesis. I love hands-on research but my current professional passion is centered on **data science** and **bioinformatics**. My mission is to facilitate data informed choices that provide insight, drive innovation and optimize decision making.



## PROFESSIONAL EXPERIENCE

2020



### Data Scientist, intern

Claret Biosciences LLC

📍 Santa Cruz, CA

- Worked on unique modeling problems using tidyverse and tidymodels framework in R, as well as command line tools, bash scripting and python.
- Created and managed multi-step workflows with Snakemake.
- Used version control on all projects.
- Generated custom command line tools from R scripts using argparse.

2020

|  
2018



### Senior Scientist

UpRNA LLC (founded by professor David Deamer, inventor of nanopore sequencing.)

📍 Santa Cruz, CA

- Investigated proprietary methods of DNA and RNA synthesis.
- Worked as the principal operating scientist.



## TEACHING EXPERIENCE

2018

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2016



### General chemistry.

Taught and co-taught general chemistry and biology as part of an active learning initiative.

📍 UCSC

2016

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2009



### Biochemistry and Physical chemistry

Teaching assistant for upper division biochemistry and physical chemistry series for multiple years

📍 UCSC

## CONTACT INFO

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🌐 [gabemednick.com](http://gabemednick.com)

📞 760-214-6512

For more information, please contact me.

## SKILLS

Experienced with microbiology, molecular biology, biochemistry, spectroscopy, data science, bioinformatics and machine learning.

Programming skills include R, Bash, Python, Git and SQL. Also experienced with creating reactive web applications. Please see my [DataCamp](#) profile for a detailed list of programming courses I have completed.

*This resume was made with R and the lovely [pagedown](#) package. Last updated on 2020-12-21.*



## EDUCATION

2018  
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2016

- **HHMI postdoctorate at UCSC**  
Teaching chemistry and biology with a focus on technology and student engagement in STEM

📍 UCSC

2016

- **University of California, Santa Cruz**  
PhD in Chemistry

📍 UCSC

Thesis: Structural Characterization of a Bacterial Photosensing Light-Oxygen-Voltage (LOV) Protein Domain From *Rhizobium leguminosarum*

2008

- **University of California, Santa Cruz**  
B.S. in Biochemistry and Molecular Biology

📍 University of California, Santa Cruz

Thesis: Interpreting Conformational Changes of the LOV2 Domain Using Time-resolved Raman Spectroscopy



## RESEARCH EXPERIENCE

2016  
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2008

- **PhD research**  
Principal Investigator: professor Roberto Bogomolni

📍 UCSC

2008  
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2006

- **Undergraduate research**  
Mentor: professor Roberto Bogomolni
  - Studied the mechanism of light triggered chemistry in light activated proteins using Raman spectroscopy.

📍 UCSC

2006

- **NSF Summer Undergraduate Research Fellowship (SURF) at UCSC**  
Mentor: professor Pradip Mascharak
  - Investigated a novel compound that was designed to release nitric oxide under targeted light activation.

📍 UCSC

2005

- **Summer research intern**  
Mentor: Dr. Michael Matthay
  - Ran experiments in a lab in the Cardiovascular Research Institute (CVRI) working on therapies for severe acute respiratory syndrome (SARS)

📍 UCSF



## SCHOLASTIC RECOGNITION AND AWARDS

2015  
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2014

- **Graduate Division's Outstanding TA of the Year Award**  
Chemistry

📍 UCSC

2010

- **NSF Graduate Research Fellowships Program (GRFP) Fellowship — honorable mention**  
Chemistry

📍 UCSC

- 2008 • **BS in Molecular Biology with Highest Honors from the Department of Chemistry and Biochemistry**  
Chemistry 📍 UCSC
- 2007 • **Dave Drexler Scholarship in Chemistry**  
Chemistry 📍 UCSC
- 2007 • **UCSC Reagent's Scholarship**  
Chemistry 📍 UCSC
- 2006 • **NSF Summer Undergraduate Research Fellowship (SURF) recipient**  
Chemistry 📍 UCSC
- 2004 • **Highest Honors Award**  
Community College 📍 Mira Costa



## INVENTIONS

- 2020 • **Methods And Devices For Non-Enzymatic Nucleic Acid Synthesis**  
David Deamer, Gabriel Mednick 📍 Filed by UCSC's patent office



## SELECTED PUBLICATIONS

- 2020 • **AFM Images of Viroid-Sized Rings That Self-Assemble from Mononucleotides through Wet-Dry Cycling: Implications for the Origin of Life**  
Tue Hassenkam, David Deamer, Gabriel Mednick, Bruce Damer 📍 Life
- 2016 • **Structural and Functional Characterization of a Bacterial Photosensing Light-Oxygen-Voltage (LOV) Protein Domain From *Rhizobium leguminosarum*.**  
Gabriel Mednick (PhD thesis) 📍 UCSC
- 2006 • **Receptor for Advanced Glycation End-Products is a Respiratory Marker of Type I Cell Injury in Acute Lung Injury.**  
Tokujiro Uchida, Madoka Shirasawa, Lorraine B. Ware, Katsuo Kojima, Yutaka Hata, Koshi Makita, Gabe Mednick, Zachary Matthay, and Michael A. Matthay  
📍 American Journal of Respiratory and Critical Care Medicine
- 2005 • **Activation of the  $\alpha 7$  nAChR Reduces Acid-Induced Acute Lung Injury in Mice and Rats to the distribution of intra-individual divergence of alternative splicing.**  
Xiao Su, Jae Woo Lee, Zachary Matthay, Gabe Mednick, Tokujiro Uchida, Xiaohui Fang, Naveen Gupta, and Michael A. Matthay  
📍 American Journal of Respiratory Cell and Molecular Biology