GABE MEDNICK

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 focussed 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 (2018-2020), 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 argparser.

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 | 2016

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

2016 | 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
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 using the **pagedown** package.*

Last updated on 2020-11-18.

EDUCATION

2018 | 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 | 2008

PhD research
Principal Investigator: professor Roberto Bogomolni — UCSC

2008 | 2006

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

2006

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

2005

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

SCHOLASTIC RECOGNITION AND AWARDS

2015 | 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 (UCSC)**
Chemistry — UCSC

2007 **Dave Drexler Scholarship in Chemistry (UCSC)**
Chemistry — UCSC

2007 | 2006 **UCSC Reagent's Scholarship**
Chemisty — UCSC

2006 **NSF Summer Undergraduate Research Fellowship (SURF) recipient**
Chemistry — UCSC

Highest Honors Award (Mira Costa Community College)

Chemistry

UCSC

2004

INVENTIONS

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

SELECTED PUBLICATIONS

2020 **Viroid-sized rings self-assemble from mononucleotides through wet-dry cycling: implications for the origin of life**
Tue Hassenkam, David Deamer, Gabriel Mednick, Bruce Damer
ResearchGate Publications

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 the7nAChR 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