

MATTHEW CAO

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Education

University of California, Berkeley

B.A. Molecular & Cell Biology (Molecular Therapeutics)

Expected MAY 2026

Coursework: Organic Chemistry; Biochemistry and Molecular Biology; Genetics; Genomics; Cell Biology; Biology of Cancer; Molecular Therapeutics Discovery and Development;

Minor Data Science (Comp. Molecular & Genomic Bio.)

Expected MAY 2026

Coursework: Linear Algebra; Structure of Computer Programs; Discrete Mathematics and Probability; Data Structures & Algorithms; Data Science for Biology; Machine Learning in Computational Biology;

Research Experience

Liu Lab - Studies of Nucleic Acid-based Agents for Inhibition of Viral Replication

Berkeley, CA

Research Apprentice

JAN 2024 – JAN 2025

- Analyzed and generated 3D structures of SARS-CoV-2 envelope protein
- Designed 3D protein models to assess **vaccine** development strategies.
- Annotated genomes of SARS-CoV-2 and SARS-CoV-229E, identifying key transcriptomic features.
- Built protein models using AlphaFold 2/3, and ChimeraX; currently in-training for Rosetta SnugDock.

Gracell Biotech./CAR-T development (NASDAQ:GRCL)

Shanghai, China

Research Apprentice

MAY 2024 – JUL 2024

- Built prototypes and proof-of-concept drug delivery models
- Formulated experimental delivery methods for candidate therapeutics
- Conducted FACS, ELISA, and PCR procedures in GMP-compliant labs
- Collected blood samples and performed handling procedures on lab animals

Work Experience

Applied StemCell Inc.

Milpitas, CA

Laboratory Assistant

JUL 2021 – AUG 2021

- Cultured and maintained cells in GMP facilities
- Monitored cell growth and performed media changes
- Launched a cross-brand advertising campaign with HumanCells Bio, producing landing pages and LinkedIn ads

University of California, Berkeley

Berkeley, CA

Student Worker

AUG 2024 – PRESENT

- Proctored undergraduate exams, upholding academic integrity and protocol
- Managed exam logistics, verified student credentials, and enforced testing guidelines
- Coordinated with faculty to prepare exam materials and reported irregularities

Technical Skills

- **Laboratory Techniques:** Cell Culturing, Microscopy, Spectrophotometry, Chromatography, Gel Electrophoresis, PCR, ELISA, Technical Writing
- **Biological Knowledge:** Molecular immunology, Cancer Signaling Pathways, Organic Chemistry, Biochemistry, Genomics, Genetics, Gene Sequencing
- **Bioinformatics Tools:** BLAST, FASTQC, AlphaFold 2/3, ChimeraX
- **Programming:** Python (NumPy, Pandas, Matplotlib) Java, Javascript, Scheme, Python, SQL, Git
- **Data Science:** Machine Learning, Dimensionality Reduction, Exploratory Data Analysis,
- **Creative Tools:** Adobe Photoshop, Adobe Illustrator, Figma, Canva, Public Speaking
- **Website Development:** HTML/CSS, jQuery, React.js
- **Marketing & Media:** Social Media Strategy (Web, Instagram, LinkedIn)

Last Updated: May 5, 2025

