

# Daniel J. Gomez

Cell and Molecular Biology, Graduate Student, California State University, East Bay  
Snyder Lab, Stanford Genetics, Stanford University School of Medicine

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## SUMMARY

Structural and Spatial Biologist, Cell and Molecular Biology Graduate, and Biomedical Data Scientist/Engineer with a specialization in AI/ML Bioinformatics, Computational Systems Biology, focusing on Precision Medicine, Big Data Omics, Single-cell Spatial Profiles, Genetics, Imaging Science and Biomedical Science. Experienced in leveraging translational research data to drive personalized diagnosis, interventions and therapeutics.

## Education and Training

### *Graduate*

- |           |   |
|-----------|---|
| 2022-2025 | M.S., Biological Sciences: Computational Biology and Bioinformatics<br>( <i>Anticipated Spring 2025</i> )<br>Department of Biological Sciences<br>California State University, Hayward, CA<br>Department of Genetics<br>Stanford University School of Medicine, Palo Alto, CA<br>(Thesis Advisor: <u>Prof. Michael Snyder</u> ) |
| 2025      | Certificate ( <i>Pending Final Exam</i> ), AI/ML Fundamentals in Precision Medicine<br>Department of Genetics, Stanford University School of Medicine<br>Stanford Data Ocean, Stanford Deep Data Research Center  |
| 2024      | HuBMAP Visible Human Course<br>Department of Cyberinfrastructure for Network Science Center<br>Indiana University   |
| 2024      | Certificate, Bioinformatics<br>Fundamentals of Data Science in Precision Medicine and Cloud Computing<br>Department of Genetics, Stanford University School of Medicine<br>Stanford Data Ocean, Stanford Deep Data Research Center  |
| 2023      | <u>2nd Annual Spatial Biology Workshop (Angelo Lab)</u><br>Department of Pathology, Stanford School of Medicine   |

- 2023 Graduate Student Intern & SCI Faculty Support  
Department of Structural Biology, Department of Chemical and Systems Biology  
Stanford Cancer Institute, Stanford University School of Medicine  
(Advisor: Prof. Kacper Rogala)
- 2023 Image Processing Workshop for Cryo-Electron Microscopy  
S2C2 | Stanford-SLAC Cryo-EM Center
- 2023 Biological cryogenic microscopy and tomography (BioE 320)  
Stanford Bioengineering, Schools of Engineering & Medicine  
(Advisor: Prof. Wah Chiu)
- 2023 Certificate, SSRL RapiData 2023: Data Collection and Structure Solving: A  
Practical Course in Macromolecular X-Ray Diffraction Measurement  
Structural Molecular Biology (SMB) Division, Macromolecular Crystallography,  
Stanford Synchrotron Radiation Lightsource (SSRL), SLAC National Accelerator  
Laboratory (Advisor: Dr. Aina Cohen)
- 2012-13 Neurosciences, Neurovirology Graduate Courses  
Department of Cell and Molecular Biology (CMB)  
Department of Tropical Medicine, Medical Microbiology, and Pharmacology  
(DTMMMP), John A. Burns School of Medicine (JABSOM), Honolulu, HI  
(Advisor: Prof. Dr. Bruce Shiramizu, Prof. Vivek Nerurkar)
- 2012 Translational Research in NeuroAIDS and Mental Health  
Neuroimmune Pharmacology Graduate Course  
Department of Neurology and Neurosurgery  
Division of Neuroimmunology and Neurological Infections  
Johns Hopkins University School of Medicine  
(Advisor: Dr. Avindra Nath, Prof. Amanda Brown, Prof. Dr. Bruce Shiramizu)

#### *Undergraduate*

- 2020-22 **B.S., Biology: Cell and Molecular Biology**, San Francisco State University, CA  
(Advisor: Prof. Michael Goldman, Prof. Nicole Salazar-Velmeshev)
- 2010-13 Molecular Cell Biology, University of Hawaii at Manoa, HI  
(Advisor: Prof. Paul Patek, Prof. Dr. Bruce Shiramizu)
- 2008-10 Communication Studies (Honors, Sigma Chi Eta Chapter), Ohlone College, CA
- 2003-09 Dual Credit (Study Abroad), Modesto Junior College, CA

#### **Professional Experience**

- 2023- Graduate Student Researcher, Snyder Lab, Stanford Genetics
- 2023 Neuroimaging Data Scientist, Steinberg Lab, Stanford Neurosurgery
- 2023 Graduate Student Intern, Stanford Cancer Institute (SCI), Stanford Medicine
- 2023 SCI Faculty Support and Graduate Visiting Scientist, Rogala Lab,

	Stanford Structural Biology, and Chemical and Systems Biology, Stanford Cancer Institute (SCI)
2022-23	Visiting scientist, SLAC National Accelerator Laboratory
2022-23	Teaching Associate of Biological Sciences, CSU East Bay
2022	Virtual Volunteer Associate Fellow, Microbiology & Immunology, Neurobiology and Anatomy, Drexel University College of Medicine
2022	Lab Assistant II of Operations, Roche Diagnostics (Roche Molecular Systems)
2021-22	Formulations Operator II, Robotics, Thermo Fisher Scientific
2020	Research Assistant of Physiological Sciences, Toxicology, University of Florida
2019	Manufacturing Associate Technician, Custom Primers, Thermo Fisher Scientific
2018	Client Relationship Manager and Developer, Poshprofiles (BAWF, YapJoy, Inc)
2017	Sales Scientist, Car Dealerships (VW, Honda)
2015-16	R&D Coordinator, dosist
2015	Assistant General Manager, Amoura International Inc.
2014	Research Assistant of Anesthesia/Neuroanesthesia, UCSD SoM
2013	Research Assistant of DTMMMP, JABSOM, University of Hawaii at Mānoa
2012-13	Biology Assistant of DTMMMP, JABSOM, University of Hawaii at Mānoa
2011	Teaching Assistant of Chemistry, University of Hawaii at Mānoa

## SCHOLARLY PUBLICATIONS:

Peer Reviewed Publications: \*Co-Authors

1. **D.J. Gomez\***, T.H. Mulherkar\*, G. Sandel, P. Jain\*, Co-infection and cancer: Host-Pathogen Interaction between Dendritic Cells and HIV-1, HTLV-1, and Other Oncogenic Viruses. *Viruses*. 2022 Sep 14;14(9):2037.
2. **D.J. Gómez\***. Untangling the Microscopic World of Organelles, Cells, Tissues, and Organs: A Focus on the Dysfunctional Golgi Apparatus in Disease Research. *Biology and Life Sciences Forum*. 2023
3. Gina M. Many, Tyler J Sagendorf, Hugh Mitchell, Samuel Cohen, James A Sanford, **Daniel Gomez**, The MoTrPAC Study Group. Sexually distinct multi-omic responses to progressive endurance exercise training in the rat lung—Findings from MoTrPAC. (*Manuscript in preparation*).

Non peer-reviewed journal articles

1. **D. Gomez\***, Pioneering Organelle Structural Biology: Golgi apparatus dysfunction in Parkinson's Disease, Neurodevelopmental Disorders, and Cancer. *Preprints*, 2022, 2022100383.
2. **D. Gomez\***. Unraveling the Structural Dynamics of Human Pegivirus-1 RNA- Dependent RNA Polymerase Using Computational Methods. *ResearchGate*, 2022.

## CONFERENCE ABSTRACTS

1. **Gomez D.J.**, Mulherkar T., Sandel G., Jain P. “Co-infection and cancer: Viral oncogenesis in humans result in liver, blood, and brain cancer by host-pathogen interactions” 12<sup>th</sup> Annual AACR-JCA Joint Conference. (2022)

## **SYMPOSIUM POSTERS**

1. **Gomez D.J.**, Mulherkar T., Sandel G., Jain P. “Co-infection and Human Cancer: Viral Oncogenesis leads to Host-Pathogen-Tumor-Body Interactions” 22<sup>nd</sup> Microbiology Student Group Symposium in Krutch Theater at Clark Kerr UC Berkeley Campus (2023)

## **GRANTS**

### **Project Support Funding**

The MoTrPAC study is supported by the National Institutes of Health (grants U24OD026629, U24DK112349, U24DK112342, U24DK112340, U24DK112341, U24DK112326, 612 U24DK112331, U24DK112348, U01AR071133, U01AR071130, 613 U01AR071124, U01AR071128, U01AR071150, U01AR071160, U01AR071158, U24AR071113, U01AG055133, U01AG055137, 615 U01AG055135, 5T32HG000044, P30AG044271 and P30AG003319), the National Science Foundation, and the Knut and Alice Wallenberg Foundation.

Stanford Tissue Mapping Center  
Project Number 5U54HG012723-03  
Contact PI/Project Leader: Professor Michael P. Snyder  
Stanford University  
National Human Genome Research Institute

Precancerous Atlas of Familial Adenomatous Polyposis  
Project Number 1U2CCA233311-01  
Contact PI/Project Leader: Michael P. Snyder  
National Cancer Institute

### **Prior Funding**

Undergraduate Research Opportunities Program (UROP)  
Office of the Vice Provost for Research and Scholarship (OVPRS)  
University of Hawaii at Mānoa  
John A. Burns School of Medicine (PI: Bruce Shiramizu)  
Role: Co-Investigator  
IL-17 Production in CNS by Infiltrating T Cells and Glial Cells in the HIV-1-Infected Brain

The goal of this study to gain mechanistic insights into fronto-striatal brain wiring of neuroinflammatory pathways in HIV-Associated Neurocognitive Disorders (HAND) for the purpose of overcoming translational mental health roadblocks in precision medicine.

## **EDUCATIONAL ACTIVITIES**

### **Teaching**

*Classroom Instruction*

Cal State East Bay

Fall 2022      BIOL 230 (Clinical Microbiology) – 2 sections

Fall 2022        BIOL 270 (Human Anatomy & Physiology I) – 1 section

University of Hawaii at Manoa

Spring 2011     CHEM 161L (General Chemistry I Laboratory) – 2 sections

Modesto Junior College

Summer 2005    English Language – Thailand, Laos (Study Abroad)

*Tutoring*

2011            Private Organic Chemistry Tutor

2011            Chemistry, Biology, Organic Chemistry (Learning Emporium)

*Mentoring (Advisees) — Graduate Students*

2022-        Matthew Williamson, Biological Sciences, MS, CSUEB  
Cell and Molecular Biology, BS, CSUEB

2022        Daniil Mudrov, Cell and Molecular Biology, BS, CSUEB  
Biochemistry, Next-generation sequencing, Pharmacogenetics  
Now at MEDGENOME, Genentech, Biochemistry MS Student at St. Joseph's

*Mentoring (Advisees) — Undergraduate Students*

2023        Andreea Radu, Nursing Program, (CSUEB)  
Premed; Pathophysiology; Pediatrics; Data science, Precision Medicine

2023        UF Minority Health Professional Mentorship Program (MHPMP)  
Emmanuel Espinoza, Biochemistry, University of Florida (UF)  
Inorganic chemistry; Quantitative Chemistry, Biochemistry

2022        Courtney-Jane Lopez, CNA, Pre-Nursing (CSUEB)  
Clinical Microbiology; Nursing

2022-        Anika Acharya, Pre-Nursing (CSUEB)  
Human Anatomy and Physiology; Nursing

2022        Yongtao Guan (Pre-med, CSUEB, Ohlone College)  
Clinical Microbiology; Nursing

**Workshops/Seminars/Users' Meetings/Symposiums/Conferences/Series**

05/24        AI in IO: Computational Immuno-oncology SITC-NCI Webinar Series

11/23        IEDB Virtual User Workshop. La Jolla Institute for Immunology. Immune  
Epitope Database and Analysis Resource

09/23        Beyond blotting: Boosting protein analysis with cell-based immunofluorescent  
assays

09/23        Stanford Genetics Structural Variants and DNA Repeats

05/23	Image Processing for Cryo-EM at S2C2-Stanford-Cryo-EM Center (SLAC)
10/22	5 <sup>th</sup> Annual Cal State East Bay Hack Day (Hack the Outbreak)
10/22	IEDB Virtual User Workshop. La Jolla Institute for Immunology. Immune Epitope Database and Analysis Resource. Funded by the National Institute of Allergy and Infectious Diseases (NIAID)
09/22	Predicting cancer immunotherapy response by highly multiplexed tumor imaging (Certified)
09/22	SSRL/LCLS Users' Meeting (Stanford-SLAC)
06/22	UW-Madison, 42 <sup>nd</sup> Steenbock Symposium, "Opening Doors to Cryo-EM" Titan Krios G3 and G4 workshop, Cryo-electron tomography, SerialEM.
05/22	Invited Speaker, CSU Northridge, "Data-Driven Discovery of Computational Oncology and Modern Molecular Biology"

### **Professional Societies**

2024-	Society for Immunotherapy of Cancer (SITC)
2023	Genetics Society of America (GSEA)
2023-	American Society of Human Genetics (ASHG)
2022-	ISCB: International Society for Computational Biology
2022	ACA: The Structural Science Society
2022-	American Associate for Cancer Research (AACR)
2022	Society for Neuro-Oncology (SNO)
2022	American Society for Virology (ASV)
2020	American Society Biochemistry and Molecular Biology (ASBMB)
2013	The American Association of Immunologist (AAI)
2012	Society of NeuroImmune Pharmacology (SNIP)

### **RECOGNITION**

#### **Invited Talks, Panels**

04/23	Speaker, Grand Slam Graduate Research Presentation, "Virophysics and Structural Dynamics of HPgV-1 NS5B Using Computational Methods," Hayward, CA
03/23	Speaker, Cells 2023 Conference of MDPI/sciforum, "Pioneering organelle structural biology: Golgi apparatus dysfunction and cascades of fatal pathways in cancer," Virtual.
01/23	Speaker, Drexel Medicine, "Landscape of myeloid and astrocyte phenotypes in acute MS lesions and future technological directions," Virtual. (Jain Lab)
10/22	Speaker, Chemistry 2022: Global Virtual Summit on Chemistry & Pharmaceutical Chemistry, "Ribozyme mechanisms and Clinical Gene Therapy," Virtual.
10/22	Speaker, Cancer Webinar 2022: 5 <sup>th</sup> International Webinar on Cancer Research and Oncology, "A human retrovirus in Neuro-Oncology, interventional conductome studies, and theranostics in Nuclear

Medicine,” Virtual.

*Journal Reviewer*

Biology

Cancers

Cells

Healthcare

International Journal of Molecular Sciences (IJMS)

Pharmaceuticals

**OTHER PROFESSIONAL ACCOMPLISHMENTS**

**Oral Presentations**

- 10/22 Microbiology Control, Microbiology & Immunology, Neurobiology & Anatomy, Drexel Medicine, Philadelphia, PA; **Gomez D.J.** Cancers: PCNSL outcome in EBV+/HIV Coinfection and HTLV connection in HIV/AIDS patients.
- 10/22 California State University, East Bay, Hayward, CA; **Gomez D.** HTLV-1: From neuroimaging to neurosurgery and biomarkers of neuroinflammation and neurodegeneration in HAM/TSP progression.
- 10/22 Hack the Outbreak. California State University, East Bay, Hayward, CA; **Gomez D.** PathAR.
- 09/22 California State University, East Bay, Hayward, CA; **Gomez D.** Deltaretrovirus: HTLV.
- 09/22 California State University, East Bay, Hayward, CA; **Gomez D.** “An intasome story: Structural basis of host protein hijacking in human T-cell leukemia virus integration.

**Certifications**

- 2024 AI/ML Fundamentals in Precision Medicine
- 2024 Fundamentals of Data Science in Precision Medicine and Cloud Computing
- 2023 SSRL RapiData 2023: Data Collection and Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement (Stanford/SLAC)
- 2022 Predicting cancer immunotherapy response by highly multiplexed tumor imaging
- 2022 Cyber Security for Lab Users, SLAC National Accelerator Laboratory
- 2019 IRB Training
- 2019 Life Sciences Responsible Conduct of Research Course (RCR)
- 2018 Medical School Pathology (192 hours)
- 2017 DNA Research with Biopython
- 2017 Python for Data Science and Machine Learning Bootcamp
- Data Science and Machine Learning Bootcamp with R