Daniel J. Gomez

Genomics Machine Learning Research, Computational Systems Immunology, Spatial Biology

Graduate Student Researcher, California State University, East Bay

Snyder Lab, Stanford Genetics, Stanford University School of Medicine

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SUMMARY

A Computational Immuno-oncologist, Spatial Biologist, Molecular Biologist, and ML Biomedical Data Scientist/Engineer with a specialization in Bioinformatics and AI/ML Precision Medicine and focusing on Single-cell Spatial Omics Profiling, Genetics, Genomics, Imaging Science, Pathology, and Biomedical Science. Experienced in leveraging translational research data to drive personalized diagnosis, therapeutics, and implement early interventions such as precision exercise medicine.

Education and Training

Graduate

2022-2025 **M.S., Biological Sciences: Bioengineering, Structural Biology, Chemical and Systems Biology, Cancer Biology, Computational Systems Immunology, and Genetics**
Department of Biological Sciences
California State University, Hayward, CA
Department of Genetics
Stanford University School of Medicine, Palo Alto, CA (Thesis Advisor: Prof. Michael Snyder)

2025 **Certificate** (*In Progress*), **AI/ML Fundamentals in Precision Medicine**
Department of Genetics, Stanford University School of Medicine
Stanford Data Ocean, Stanford Deep Data Research Center

2024 HuBMAP Visible Human Course
Department of Cyberinfrastructure for Network Science Center
Indiana University (Professor Katy Börner)

2024 **Certificate, Bioinformatics**
Fundamentals of Data Science in Precision Medicine and Cloud Computing Department of Genetics, Stanford University School of Medicine
Stanford Data Ocean, Stanford Deep Data Research Center

2023 2nd Annual Spatial Biology Workshop (Angelo Lab)
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 Cryo-ET Preparation | Stanford-SLAC Cryo-EM Center

2023 Biological cryogenic microscopy and tomography (BioE 320)
Stanford Bioengineering, Schools of Engineering & Medicine,
Stanford University School of 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 Research Affiliate, Snyder Lab, Stanford Genetics

2023 Neuroimaging Data Scientist, Steinberg Lab, Stanford Neurosurgery

2023 Graduate Student Intern, Snyder Lab, 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), Stanford Medicine
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, UCSDSOM
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

Thesis Project: Generative Models for Exerkines, Ligands, and Receptors, Spatially Resolved Technologies, and Cellular Mapping in the Human Cell Atlas The goal of this study to gain insights into exerkines, ligands, and receptors by generating RNA, protein, and metabolites as well as develop tools for HuBMAP/HTAN and HGCA that map exerkines in exercise organs with CODEX/Phenocyler data in HuBMAP and HTAN with other spatially resolved technologies like Xenium and match that with the Gut Cell Atlases to provide support for exercise immunotherapy.

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" 12th 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" 22nd Microbiology Student Group Symposium in Krutch Theater at Clark Kerr UC Berkeley Campus (2023)

GRANTS

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.

Journal Reviewer/Referee

Biology
Cancers
Cells
Healthcare
International Journal of Molecular Sciences (IJMS)
Pharmaceuticals

EDUCATIONAL ACTIVITES

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 Mānoa

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, CaduceusRx
2011 Chemistry, Biology, Organic Chemistry (Learning Emporium), University of Hawaii at Manoa

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, Previously at Genentech

Mentoring (Advisees) — Undergraduate Students

2025 Indigo Wade, Nursing Program, (CSUEB)
Nursing, Health Sciences

2023 Andreea Radu, Nursing Program, (CSUEB)
Premed; Pathophysiology; Pediatrics

2023 Emmanuel Espinoza, UF Minority Health Professional Mentorship Program (MHPMP) 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; Molecular Cell Biology/Microbiology

Workshops | Seminars | Users' Meetings | Symposiums | Conferences | Series

02/25	Precision Medicine World Conference 2025
11/24	Stanford Spatial Biology Symposium, 10x Genomics, Stanford University
11/24	Gastric Cancer Summit 2024, National Cancer Institute, Stanford Medicine
09/24	Proteomics: From Genomics to Proteomics, Stanford Healthcare Innovation Lab
09/24	Giotto Suite Workshop 2024, Boston University
06/24	Contextualizing Cellular Physiology Workshop, NIH, NIDDK
05/24	Genomics and Personalized Medicine Symposium, Stanford Genetics
05/24	AI in IO: Computational Immuno-oncology SITC-NCI Webinar Series
04/24	Pediatric & Maternal Innovation Showcase 2024, Stanford Maternal Health, Stanford Metabolic Center, Stanford Medicine Children's Health
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
10/22	Image Processing for Cryo-EM at S2C2-Stanford-Cryo-EM Center (SLAC)
10/22	5th 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, 42nd 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)

RECOGINITION

Invited Talks, Panels

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

OTHER PROFESSIONAL ACCOMPLISHMENTS

Oral Presentations

10/22	Department of 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	Seminar, 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	Seminar, California State University, East Bay, Hayward, CA; **Gomez D**. Deltaretrovirus: HTLV.
09/22	Seminar, 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

2025-	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	Bootcamp Data Science and Machine Learning Bootcamp with R