Daniel Joseph Gomez

Biological Sciences: Genomics, Computational Biology and Metabolomics Graduate Student, <u>California State University, East Bay</u> Graduate Intern, <u>Snyder Lab</u>, <u>Stanford Genetics</u>, <u>Stanford Cancer Institute</u>, <u>Stanford Medicine</u> Psychiatry and Behavioral Sciences, <u>Urban Lab</u>, Stanford University of School of Medicine

Address: 3165 Porter Dr Palo Alto, CA 94304 Cell Phone: +1 (650) 201-1272 Email: <u>daniel.gomez@stanford.edu</u> Website: <u>http://web.stanford.edu/people/djgomez</u>

SUMMARY

Skilled Molecular Cell Biologist, Biomedical Data Scientist and Machine Learning Engineer, and knowledgeable Bioengineer/Bioinformatician with a focus on cross-species spatiotemporal patterns in microanatomy and precision medicine. Experienced in computational systems biology, translational bioinformatics and tropical medicine that leverages diverse datasets that integrate and create novel solutions for diagnosis and interventions with a specialized talent in spatially resolved technologies, advanced microscopy and molecular biology.

RESEARCH ACTIVITIES

Research Focus

- 1. Interorgan communication network analysis and representation learning in omics data for biological insights
- 2. Exerkine mapping and precision exercise medicine for optimizing fitness and health outcomes
- 3. AI/ML, Bioinformatics and Computational Biology in predictive modeling for precision medicine
- 4. Multiomics and multi-modal omics analysis integrated with spatial cell mapping for comprehensive understanding
- 5. Human BioMolecular Atlas Program (HuBMAP) and Human Tumor Atlas Network (HTAN) data utilization for health and disease understanding
- 6. Molecular Transducers of Physical Activity Consortium (MoTrPAC) insights integrated with Genotype-Tissue Expression (GTEx) Project data for predictive biomedicine
- 7. Multi-tissue multi-organ architecture integrative analysis of intra- & intercellular networks
- 8. Single-cell multiomics and spatial analysis with the PsychENCODE Consortium (PEC)

Education and Training

Postbaccalaureate/Graduate

2022-

M.S., Biological Sciences 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)
2024	<u>Contextualizing Cellular Physiology Workshop</u> National Institute of Diabetes and Digestive and Kidney Diseases
2024-	Your Body Inside and Out: Using Exercise Physiology to Slow Aging Stanford Online HMXBIOX0101
2024-	HuBMAP Visible Human MOOC Luddy School of Informatics, Computing, and Engineering Cyberinfrastructure Network for Science Center Indiana University
2024	<u>Certificate</u> , Bioinformatics in Precision Medicine 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: <u>Prof. Kacper Rogala</u>)
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: <u>Prof. Wah Chiu</u>)
2023	SSRL RapiData 2023 Certificate: 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)
2022-	M.S., Biological Sciences: Cell and Molecular Biology Department of Biological Sciences California State University, Hayward, CA

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
Undergradua	ate
2020-22	B.S., 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

- 2010-13 Molecular Cell Biology, University of Hawan at Manoa, (Advisor: <u>Prof. Paul Patek</u>, <u>Prof. Dr. Bruce Shiramizu</u>)
- 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 Intern, Snyder Lab, Department of Genetics, Stanford
	Cancer Institute (SCI), Stanford Medicine
2023-	Vice President of STEM Programs, Myplaceisahappy1 (MPH1)
2023	Visiting Graduate Student Intern, Rogala Lab, Department of Structural Biology,
	Department of Chemical and Systems Biology, Stanford Cancer Institute (SCI),
	Stanford Medicine
2022-23	Visiting scientist "User", SLAC National Accelerator Laboratory
2022-23	Teaching Associate, 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 (Software Developer, SDR), Poshprofiles
2015-16	R&D Coordinator, dosist (Previously known as hmbldt)
2014	Research Assistant of Anesthesia/Neuroanesthesia, UCSD School of Medicine
2013	Research Assistant of DTMMMP, JABSOM
2012-13	Biology Assistant of DTMMMP, JABSOM
2011	Teaching Assistant of Chemistry, University of Hawaii at Mānoa

SCHOLARLY PUBLICATIONS:

Peer Reviewed Publications: *Co-Authors

- T.H. Mulherkar*, D.J. Gomez*, 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. doi: 10.3390/v14092037. PMID: 36146843; PMCID: PMC9503663.
- 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; 21(1):15. https://doi.org/10.3390/blsf2023021015

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 American Association Cancer Research, Japanese Cancer Associate (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) 04/22/2013 Office of the Vice Provost for Research and Scholarship (OVPRS) University of Hawaii at Manoa 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 ACTIVITES Teaching

Classroom Instruction Cal State East Bay

Fall 2022	BIOL 230 (Clinical Microbiology) – 2 sections BIOL 270 (Human Anatomy & Physiology I) – 1 section
1 all 2022	BIOL 270 (Indinan Anatomy & Enystology I) – I section
<u>University o</u>	<u>f Hawaii at Manoa</u>
Spring 2011	CHEM 161L (General Chemistry I Laboratory) – 2 sections
Modesto Jur	hior College
Summer 200	5 English Language – Thalland, Laos (Study Abroad)
Tutoring	Drivete Organia Chemistry Tutor
2011 University o	f Hawaii at Manoa
2011	Chemistry, Biology, Organic Chemistry (Learning Emporium)
Mentoring (.	Advisees) — Graduate Students
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 (A	Advisees) — Undergraduate Students
2023	Andreea Radu, Nursing Program, (CSUEB)
	Premed; Pathophysiology; Pediatrics
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
06/24	Contextualizing Cellular Physiology Workshop
05/24	AI in IO: Computational Immuno-oncology SITC-NCI Webinar Series
05/24	2nd Annual Stanford RNA Program Symposium, Stanford Medicine
05/24	Genomics and Personalized Medicine Symposium, Stanford Genetics
04/24	Health

03/24	Metabolic Health Center Annual Symposium, Stanford
03/24	National Institute of Mental Health (NIMH) 75th Anniversary Symposium
	NIMH's symposium Amplifying Voice and Building Bridges: Towards a More
	Inclusive Future
11/23	IEDB Virtual User Workshop. La Jolla Institute for Immunology. Immune
	Epitope Database and Analysis Resource
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 th 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 nd 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 (GSA)
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: Galgi apparetus 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.

10/22 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.

AREAS OF EXPERTISE

Data Science & Analysis in Omics

- Biomedical Data Science
- Data Analysis
- Computational Biology
- Bioinformatics
- Bioimage Informatics
- Integration of Omics Data

Biological Understanding

- Molecular Cell Biology
- Neuroscience
- Immunology
- Exercise Biology
- Physiological Sciences
- Cellular-level Understanding

- Precision Medicine
- Spatial Omics
- Single-cell Analysis
- Deep Profiling and Multiomics
- Multimodal DL/ML
- Predictive modeling
- Data integration
- Spatial Biology
- Biomarker Discovery
- Genetics and Genomics
- Developmental Biology
- Embryology (Maternal-Fetal Interface)
- Aging
- Cancer Biology

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.
	5

Certifications

2024 Fundamentals of Data Science in Precision Medicine and Cloud Computing

IPLISHMENTS

 in Macromolecular X-Ray Diffraction Measurement (Stanford/SLAC) Predicting cancer immunotherapy response by highly multiplexed tumor imaging Cyber Security for Lab Users, SLAC National Accelerator Laboratory IRB Training Life Sciences Responsible Conduct of Research Course (RCR) Medical School Pathology (192 hours) Python for Data Science and Machine Learning Bootcamp Data Science and Machine Learning Bootcamp with R 	2023	SSRL RapiData 2023: Data Collection and Structure Solving: A Practical Course
 Predicting cancer immunotherapy response by highly multiplexed tumor imaging Cyber Security for Lab Users, SLAC National Accelerator Laboratory IRB Training Life Sciences Responsible Conduct of Research Course (RCR) Medical School Pathology (192 hours) Python for Data Science and Machine Learning Bootcamp Data Science and Machine Learning Bootcamp with R 		in Macromolecular X-Ray Diffraction Measurement (Stanford/SLAC)
imaging2022Cyber Security for Lab Users, SLAC National Accelerator Laboratory2019IRB Training2019Life Sciences Responsible Conduct of Research Course (RCR)2018Medical School Pathology (192 hours)2017Python for Data Science and Machine Learning Bootcamp2017Data Science and Machine Learning Bootcamp with R	2022	Predicting cancer immunotherapy response by highly multiplexed tumor
2022Cyber Security for Lab Users, SLAC National Accelerator Laboratory2019IRB Training2019Life Sciences Responsible Conduct of Research Course (RCR)2018Medical School Pathology (192 hours)2017Python for Data Science and Machine Learning Bootcamp2017Data Science and Machine Learning Bootcamp with R		imaging
 2019 IRB Training 2019 Life Sciences Responsible Conduct of Research Course (RCR) 2018 Medical School Pathology (192 hours) 2017 Python for Data Science and Machine Learning Bootcamp 2017 Data Science and Machine Learning Bootcamp with R 	2022	Cyber Security for Lab Users, SLAC National Accelerator Laboratory
 2019 Life Sciences Responsible Conduct of Research Course (RCR) 2018 Medical School Pathology (192 hours) 2017 Python for Data Science and Machine Learning Bootcamp 2017 Data Science and Machine Learning Bootcamp with R 	2019	IRB Training
 2018 Medical School Pathology (192 hours) 2017 Python for Data Science and Machine Learning Bootcamp 2017 Data Science and Machine Learning Bootcamp with R 	2019	Life Sciences Responsible Conduct of Research Course (RCR)
 2017 Python for Data Science and Machine Learning Bootcamp 2017 Data Science and Machine Learning Bootcamp with R 	2018	Medical School Pathology (192 hours)
2017 Data Science and Machine Learning Bootcamp with R	2017	Python for Data Science and Machine Learning Bootcamp
	2017	Data Science and Machine Learning Bootcamp with R