

## CURRICULUM VITAE

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### Daniel Joseph Gomez

**Graduate Student (Master's Level) of *Molecular and Cellular Biology***

Department of Biological Sciences  
Department of Chemistry and Biochemistry  
California State University, East Bay, Hayward, CA, USA  
&  
Department of Structural Biology  
Department of Chemical and Systems Biology  
Stanford University School of Medicine, Palo Alto, CA, USA  
Stanford Cancer Institute, Stanford, CA, USA

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### 🧪 Research Interests and Pursuits

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- \* Cryogenic Electron Microscopy and Tomography
- \* Patient Derived Models, Immunology
- \* Structural Biology
- \* Biophysics & Bioimaging
- \* Bioengineering & Therapeutic Sciences
- \* Biomedical (Surgical) Data Science
- \* Computational Precision Health

### Education & Research Experiences

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#### **Current:**

**Single Particle & Cryo-ET Training**

2023/7, **Stanford-SLAC Cryo-EM Center (S2C2)**  
**SLAC National Accelerator Laboratory**

**M.S. Molecular & Cellular Biology**

2022/8–present, **California State University, East Bay**  
**Department of Biological Sciences**  
**Department of Bioengineering**  
**Stanford University Schools of Engineering & Medicine**

**Immuno-oncology**  
**Cancer Genomics and Precision Oncology**  
*Certificate Program*

2023/9–2023/12 (*Anticipated*), **Harvard Medical School (HMX)**  
**Departments of Pathology, Immunology, and Genetics**  
**Department of Medicine and Health Sciences and Technology**  
**Center for Cancer Research**  
**Massachusetts General Hospital**

**Getting started in Cryo-EM**

2023/3–present, **California Institute of Technology (Caltech)**

*Certificate Program*

**Department of Biology and Bioengineering**  
(Professor: Grant Jensen, PhD)

**Virtual Associate Fellow**

*2022/6–present*, **Drexel University College of Medicine (DUCOM)**  
**Department of Microbiology and Immunology**  
**Department of Neurobiology and Anatomy**  
**Institute for Molecular Medicine and Infectious Disease**  
(Principal Investigator: Pooja Jain, PhD)

***Past:***

**Image Processing for Cryo-EM**

*Theory and practices of CryoEM*

*2023/5*, **Stanford-SLAC Cryo-EM Center (S2C2)**  
**SLAC National Accelerator Laboratory**  
(Carlos Sorzano, Marcos Cabezudo, Muyuan Chen, Greg Pinitilie, Tom Goddard)

**Bioengineering Graduate Course**

*Biological cryogenic electron microscopy and tomography*

*2023/4–2023/12*, **Stanford University**  
**Schools of Engineering & Medicine**  
**Department of Bioengineering**  
(Professor: Wah Chiu, PhD)

**RapiData 2023**

*Data Collection and Structure Solving*  
*Macromolecular X-Ray Diffraction Measurement*

*2023/3–2023/4*, **SLAC National Accelerator Laboratory**  
**Stanford Synchrotron Radiation Lightsource (SSRL)**  
**Structure Molecular Biology (SMB) program**  
**U.S. Department of Energy (DOE) Office of Science**  
**Stanford University**

**B.S. Biology:**

**Cell and Molecular Biology**

*2020/8–2022/5*, **San Francisco State University**  
**College of Science & Engineering**  
**Department of Biology**  
(Advisors: Nicole Salazar Velmeshev, PhD;  
Michael Goldman, PhD; Scott Roy, PhD)

**Research Assistant**

*2020/1–2020/3*, **University of Florida**  
**College of Veterinary Medicine (UFCVM),**  
**Department of Physiological Sciences**  
(Advisors: Chris Vulpe, MD, PhD; Rola Zeidan, PhD)

**R&D Coordinator**

*2015/12–2016/3*, **hmbldt/dosist**

**Research Assistant**

*2014/1–2014/6*, **UCSD School of Medicine**  
**VA San Diego Health Care**  
**Department of Anesthesia, Division of Neuroanesthesia**  
(Advisors: Hemal Petal, PhD; Jan Schilling, MD; Brian Head, PhD)

**Graduate Coursework**

*Neurosciences, Neurovirology*

*2012/8–2013/6*, **John A. Burns**  
**School of Medicine (JABSOM)**

**University of Hawaii at Manoa**  
**Department of Tropical Medicine,**  
**Medical Microbiology, and Pharmacology (DTMMMP)**  
(Professors: Martin Rayner, PhD; Bruce Shiramizu, MD;  
Vivek Nerurkar, PhD; Linda Chang, MD)

**Johns Hopkins University School of Medicine (JHUSOM)**  
**Department of Neurology and Neurosurgery**  
**Division of Neuroimmunology and Neurological Infections**  
(Professors: Amanda Brown, PhD, Avindra Nath, MD)

## Research Assistant

*2012/8–2013/7, JABSOM, DTMMMP*  
(Advisors: Bruce Shiramizu, MD; Vivek Nerurkar, PhD)

## Molecular Cell Biology

*2010/8–2013/6, University of Hawaii at Manoa*  
**Department of Microbiology**  
(Advisor: Paul Patek, PhD)

## Positions & Employment

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2023-	Graduate Student Intern, Department of Structural Biology, Stanford University School of Medicine, Stanford Cancer Institute
2023-	VP of STEM Programs, Myplaceisahappy1 (MPH1)
2023	Expert Consultant, Coleman Research
2023-	Chairman, President, Gome Writings Inc, (“ <a href="#">Gome-Writer</a> ”)
2023-	CEO, Director, Gomera Health Inc. (“ <a href="#">Gomera</a> ”)
2022-	Founder/Chief Executive Officer, Gome Bio LLC (“ <a href="#">GomeBio</a> ”)
2022	Founding Board Member, Myplaceisahappy1 (MPH1)
2022	Teaching Associate, Department of Biological Sciences, College of Science, California State University, East Bay
2022	Graduate Student Researcher, Department of Biology, CSUEB
2022-23	Visiting scientist "User", SLAC National Accelerator Laboratory
2022-	Virtual Associate Fellow, Department of Microbiology & Immunology, Neurobiology and Anatomy, Drexel University College of Medicine (DUCOM)
2022	Lab Assistant II/Production Supervisor, Roche Diagnostics (RTD)
2022-	Person of Interest, Stanford-SLAC Cryo-EM Center (S <sup>2</sup> C <sup>2</sup> )
2021-22	Formulations Operator II, TAPP Robotics, Thermo Fisher Scientific
2021	Staff Research Assistant, Department of Bioengineering and Therapeutic Sciences, University of California, San Francisco (UCSF)
2020-21	Research Assistant, Department of Biology, SFSU
2020	Research Assistant, Department of Physiological Sciences, Toxicology, University of Florida College of Veterinary Medicine (UFCVM)
2019	Manufacturing Associate I, Custom Primers, Thermo Fisher Scientific
2018	Client Relationship Manager, Software Developer, PoshProfiles (BAWF)
2015-16	R&D Coordinator, hmbldt/dosist
2015	Assistant General Manager, Amoura International

2014	Research Assistant, Department of Anesthesia, Division of Neuroanesthesia, UCSD School of Medicine, VA Hospital
2013	Research Associate, DTMMMP, JABSOM, UHM
2012-13	Biology Assistant, DTMMMP, JABSOM, UHM
2011	Teaching Assistant, Department of Chemistry, UHM

## Honors & Awards

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2022	Faculty Member, Graduate, Department of Biological Sciences, CSUEB
2020	DiVERGE Awardee, Scripps Research Institute
2013	Grant Awardee, Undergraduate Research Opportunity Program (UROP), UHM

## First/Co-first Author Publications

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+:Co-first Author. \*: (Co-)Corresponding Author

**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

**D. Gomez\***. Unraveling the Structural Dynamics of Human Pegivirus-1 RNA-Dependent RNA Polymerase Using Computational Methods. *ResearchGate*, 2022. DOI: [10.13140/RG.2.2.11957.35041](https://doi.org/10.13140/RG.2.2.11957.35041)

**D. Gomez\***, Pioneering Organelle Structural Biology: Golgi apparatus dysfunction in Parkinson's Disease, Neurodevelopmental Disorders, and Cancer. *Preprints*, 2022, 2022100383. [doi: 10.20944/preprints202210.0383.v2](https://doi.org/10.20944/preprints202210.0383.v2).

T.H. Mulherkar<sup>+</sup>, **D.J. Gomez<sup>+</sup>**, G. Sandel, P. Jain<sup>\*</sup>, 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](https://doi.org/10.3390/v14092037). PMID: 36146843; PMCID: PMC9503663.

**D.J. Gomez\***, M. Williamson, P. Jain\*. Structural Vaccinology and epitope-based vaccine design against infectious diseases and cancer. *Vaccines*. 2023 (In preparation)

**D.J. Gomez**, G. Sandel, R. Kulkarni, J. Joseph, S. Maher, P. Jain\*. Immunotherapy for Infection-Related Cancers in People Living with HIV: Current Status, Challenges, and Future Directions. *Frontiers in Cellular and Infection Microbiology*. 2023 (In preparation)

## Poster Presentations

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Co-infection and Human Cancer: Viral Oncogenesis leads to Host-Pathogen-Tumor-Body Interactions, 2023/4, Berkeley, CA. 22nd Annual UC Berkeley Microbiology Student Symposium.

**Co-infection and cancer: Viral oncogenesis in humans result in liver, blood, and brain cancer by host-pathogen interactions**, 2022/12, Honolulu, HI. 12th Annual American Association for Cancer Research (AACR) - Japanese Cancer Associate (JCA) Joint Conference.

## Oral Presentations

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**Immunoreagent Design and Production in Vaccine Development: Rational Design, High-Throughput Production, and Integration of Structure and Computation**, 2023/06, Virtual meeting. Vaccines Research 2023 eConference (Vaccines-eCon2023). The Research Catalyst.

**Unraveling the Structural Dynamics of HPgV-1 NS5B Using Computational Methods**. Grand Slam Graduate Research Presentation Competition, Cal State East Bay Grand Slam 2023, CSU East Bay.

**Pioneering organelle structural biology: Golgi apparatus dysfunction and cascades of fatal pathways in cancer**, 2023/03, Virtual meeting. Cells 2023 Conference. MDPI. sciforum.

**Landscape of Myeloid and Astrocyte phenotypes in acute MS lesions + Future Technological Directions**, 2023/01, Virtual presentation. Drexel University College of Medicine, Department of Microbiology and Immunology, Neurobiology and Anatomy. (Jain Lab)

**Structure-based discovery of RdRp NS5B in HPgV (GBV-C) by macromolecular crystallography (MX)**, 2022/12, In-person & Virtual presentation. Cell and Molecular Biology Seminar: CSU East Bay.

**Retron Library Recombineering (RLR): Going beyond CRISPR**, 2022/11, In-person & Virtual presentation. Cell and Molecular Biology Journal Club: CSU East Bay.

**PathAR** 6th Annual Cal State East Bay Hack Day, Hack the Outbreak, CSU East Bay, *Hackathon, and oral presentation*

**Ribozyme mechanisms and Clinical Gene Therapy**, 2022/10, Virtual meeting. Chemistry 2022, Global Virtual Summit on Chemistry & Pharmaceutical Chemistry.

**A Human Retrovirus in Neuro-Oncology, Interventional Conductome Studies, and Theranostics in Nuclear Medicine**, 2022/10, Virtual meeting. 5th International Webinar on Cancer Research and Oncology.

**Cancers: PCNSL outcome in EBV+/HIV Confection and HTLV connection in HIV/AIDS patients**, 2022/10, Virtual presentation. Drexel University College of Medicine, Department of Microbiology and Immunology, Neurobiology and Anatomy. (Jain Lab)

**HTLV-1: From neuroimaging to neurosurgery and biomarkers of neuroinflammation and neurodegeneration in HAM/TSP progression**, 2022/10, Virtual seminar. Cell and Molecular Biology Seminar: CSU East Bay.

**Hackathon “Hack the Outbreak”:** PathAR, 2022/10, In-person & Virtual presentation. CSU East Bay.

**An intasome story: Structural basis of host protein hijacking in human T-cell leukemia virus integration**, 2022/09, Virtual seminar. Cell and Molecular Biology Seminar: CSU East Bay.

**Deltaretrovirus: HTLV**, 2022/09, Virtual seminar. Cell and Molecular Biology Seminar: CSU East Bay.

**Data Driven Discovery of Computational Oncology and Modern Molecular Biology**, 2022/5, Virtual seminar. Data Science Research and Career Seminar: CSU Northridge.

## Journal Referee

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

## Teaching, Training, Mentoring Experience

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### *University Service (University of Florida)*

Spring 2023 - UF MHPMP Mentor, Minority Health Professional Mentorship Program (MHPMP), Pre-Health Club

### *Instructional Activities (CSUEB)*

Fall 2022 BIOL230 (Clinical Microbiology), (4 unit course) - 2 sections

Fall 2022 BIOL270 (Human Anatomy & Physiology I), (4 unit course) - 1 section

### *Instructional Activities (University of Hawaii)*

Spring 2011 CHEM161L (General Chemistry I Laboratory), (1 unit course) - 2 sections

### *University Service (University of Hawaii)*

2011 Tutor, Chemistry, Biology, Organic Chemistry (Emporium)

### *University Service (Modesto Junior College)*

2005 Teacher, English Language; Thailand, Laos (Study Abroad)

### *Undergraduate Student Mentees*

2023- Emmanuel Espinoza, Biochemistry, University of Florida (UF)

2022 Courtney-Jane Lopez, CNA, CSUEB, Pre-Nursing

2022 Daniil Mudrov, CSUEB, Cell and Molecular Biology (RA, MEDGENOME > Genentech)

2022 Yongtao Guan, CSUEB, Ohlone College, Pre-med (MCB)

2022 Arielle Vue, CSUEB, Pre-Nursing

## Volunteering

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### *Professional Service*

2022- Founding Board Member, VP of STEM Programs, Myplaceisahappy1 (MPH1)  
2022- Volunteer Reviewer (VR), MDPI  
2012 Volunteer, Physician Shadowing, Dr. Thomas Slavin, Pediatrics and Clinical Genetics, Medical Genetics section, City of Hope

### *Community Service*

2022 Volunteer, St. Michael's Church  
2022 Lighting Designer, Fountain Church  
2014 Market Research, Berkeley Human Society  
2014 Community Wellness Advocate, American Cancer Society  
2014 Anesthesiology Technician, VA San Diego Health Care, VA Medical-Center

### *University Service (University of Florida)*

2019-20 Scientific Ambassador, Microbiology

### *University Service (University of Hawaii)*

2011 Tutor, Chemistry, Biology, Organic Chemistry (Learning Emporium)

## Certifications & Licensure

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2023 (*pending*) ÄKTA go system  
2023 (*pending*) ÄKTA pure System  
2023 SSRL RapiData 2023: Data Collection and Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement SLAC SSRL  
2023 (*pending*) Deep Learning with PyTorch for Medical Image Analysis  
2023 (*pending*) Reinforcement Learning beginner to master - AI in Python  
2023 (*pending*) Modern Artificial Intelligence Masterclass: Build 6 Projects  
2023 (*pending*) Deep Learning: Convolutional Neural Networks (CNN) in Python  
2023 (*pending*) A deep understanding of deep learning (DL)  
2023 The Complete Quantum Computing Course  
2023 Scientific Computing with NumPy - Python Data Science  
2023 Writing High Performance Python  
2023 Database Design  
2023 Beginning C++ Programming - From Beginner to Beyond  
2023 Complete linear algebra: theory and implementation in code  
2023 Reviewer Certificate (MDPI Journal - *Biology, Cancers, Pharmaceuticals, IJMS, Viruses, Cells, Healthcare*)  
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 – Certificate of Achievement  
2018 Modern Golang Programming, Packt Publishing



2018	Learning Path: Go: Building Cloud Native Go Applications, Packt
2018	Mastering Go Programming, Packt Publishing
2017	DNA Research with Biopython
2017	Data Science and Machine Learning Bootcamp with R
2017	Google's Go (golang) Programming Language
2017	Python for Data Science and Machine Learning
2016	Intro to SQL for Data Science Course - DataCamp

## Professional Trainings & Workshops

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2023	Single Particle & CryoET Training at S2C2-Stanford-Cryo-EM Center (SLAC)
2023	Image Processing for Cryo-EM at S2C2-Stanford-Cryo-EM Center (SLAC)
2023	RapiData 2023 at SSRL: Data Collection and Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement, SLAC National Accelerator Laboratory, Stanford Synchrotron Radiation Lightsource (SSRL), SMB, U.S. Department of Energy, Office of Science
2022	5th Annual Cal State East Bay Hack Day (Hack the Outbreak): Created an AR prototype of a epitope based measles vaccine to MV-H:SLAM fusion
2022	The Upside of Downturns Summit, Startup Grind Silicon Valley, SF Bay Area
2022	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)
2022	SSRL/LCLS Users' Meeting   Stanford-SLAC National Accelerator Laboratory
2022-	Stanford-SLAC Cryo-EM Center (S <sup>2</sup> C <sup>2</sup> ), SCSC – Training on Electron Microscopes and Computers (Under the direction of Wah Chiu), cryo-FIB/SEM milling
2022	UW-Madison, Department of Biochemistry, 42 <sup>nd</sup> Steenbock Symposium, Opening Doors to Cryo-EM, Titan Krios G3 and G4 workshop, Cryo-electron tomography, SerialEM

## Technical Strength

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**Languages:** English (Native), Spanish (Communicative), French (Novice), Arabic (Novice), Hebrew (Beginner)

**Digital Proficiency:** Benchling, Photoshop, Illustrator, Biorender, Linux, GitHub, Shell scripting, Shiny

**Programming Languages:** Go , R , Python , C++ , HTML, MATLAB, Bash.

**Bioinformatic Tools and Databases:** BioPerl, Biopython, IGV, APE, BLAST, Bedtool, Bioconductor, RNAseq, scRNAseq, Seurat, 10X Genomics pipelines, Proteomics, The Cancer Genome Atlas (TCGA), nucamino, COSMIC, Roche Cancer Genome Database (RCGDB)