Micah Olivas
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Education

09/2020 - Present **Stanford University**
Ph.D. Student, Department of Genetics

08/2016 - 05/2020 **California State University, Fresno**
Bachelor of Science, Biochemistry (Departmental Honors)
Cumulative GPA: 3.93/4.0 (*Summa Cum Laude*)
Honors Thesis: Oxidative stress dynamics in the alveolar macrophage
Relevant Coursework: Cancer Biology, Molecular Biology, Protein Biochemistry, Microbiology, Cell Biology, Metabolism, Statistics and Prediction

09/2019 - 12/2019 **Oxford University**, Oxford, England
Study abroad coursework in Stem Cell Biology (1st Class result) and Physical Chemistry (Upper Second Class result)

Research Experience

10/2020 - 11/2020 **Lab Rotation, Steinmetz Lab** (Sequencing technology development)
Stanford University, Department of Genetics, Stanford, CA
Project: Regulatory network discovery in targeted Perturb-sequencing space (in progress)
- Use random forest machine learning models to identify regulatory connections in targeted Perturb-seq (TAP-seq) data; build in R (expected)
- Basic processing of TAP-seq (single-cell RNA-seq) data in R (expected)

08/2020 - 09/2020 **Lab Rotation, Kundaje Lab** (Computational biology)
Stanford University, Department of Genetics, Stanford, CA
Project: Deep learning of mutant GATA1 binding profile from ChIP-seq experiments
- Trained a deep learning model (bpnet) to predict binding profiles of mutant GATA1 transcription factor at base-resolution; model built in Keras API
- Performed basic processing of CUT-and-RUN, ChIP-seq, and ChIP-exo sequencing data in Python and R

05/2019 - 08/2019 **Summer Research Assistant (AMGEN Scholar), Bassik Lab** (CRISPR screening)
Stanford University, Department of Genetics, Stanford, CA
Project: Synthetic lethality screen in lung cancer spheroids
- Investigated hits from a genome-wide CRISPR-Cas9 screen of growth regulators in spheroid culture of KRAS-mutant adenocarcinoma cells
- Described novel IGF1R protease dependency not captured in previous studies of 2D cultures
- Cultured mouse and human lung epithelial cells

05/2018 - 07/2018 **SURPH Summer Research Assistant, Alvarez Lab** (Molecular cancer biology)
Duke University, Department of Pharmacology and Cancer Biology, Durham, NC
Project: Development of inducible CRISPR-Cas9 screening systems
- Optimized spatiotemporal control of a Cas9-ERT2 fusion (KI Liu et al.) in primary cancer cell lines
- Cultured mouse and human mammary epithelial cells
- Generated lentivirus in HEK293T cells; transduced cancer cell types with Cas9 construct; confirmed expression with western blot and KO efficiency at reporter with FACS

08/2016 - 04/2019 **Research Assistant, Dejean Lab** (Mitochondrial biochemistry)
California State University, Fresno: Department of Chemistry; Fresno, CA
Project: Reactive oxygen species production in alveolar macrophages

- Developed fluorometric flow cytometry pipeline to categorize intracellular ROS production
- Characterized subcellular reactivity to fine particulate matter air pollutant (PM2.5) exposure
- Cultured rat alveolar macrophages

Technical Skills

- Tissue culture (cell line expansion, splitting, freezing/thawing)
- Flow cytometry and plate reader spectrophotometry (3 years; ImageJ, FlowJo, Flowing)
- CRISPR-Cas9 editing in immortalized and primary cell lines (2 years; guide RNA design and lentiviral delivery)
- Genomic and transcriptomic analysis (designed basic ChIP-seq, Cut-and-Run, and RNA-seq pipelines in R and Unix)
- Molecular purification and analysis (southern, northern, and western blotting)

Peer Reviewed Publications

1. Han, K., Pierce, S. E., Li, A., Spees, K., Anderson, G. R., Seoane, J. A., Lo, Y. H., Dubreuil, M., **Olivas, M.**, Kamber, R. A., Wainberg, M., Kostyrko, K., Kelly, M. R., Yousefi, M., Simpkins, S. W., Yao, D., Lee, K., Kuo, C. J., Jackson, P. K., Sweet-Cordero, A., Kundaje, A., Gentles, A. J., Curtis, C., Winslow, M. M., and Bassik, M. C. (2020) CRISPR screens in cancer spheroids identify 3D growth-specific vulnerabilities. *Nature*. **580**, 136–141
2. Waterston, A., Castillo, J., **Olivas, M.**, Hasson, A., and Dejean, L. (2018) PM2.5 Exposure and ROS Production in NR8383 Rat Alveolar Macrophages. *Biophys. J.* **114**, 334a

Poster Presentations

08/2019 **Olivas M***, Han K, Anderson G, and Bassik MC. Genome-wide CRISPR screens in 3D tumor spheroids reveal IGF1R processing dependencies in lung adenocarcinoma. 26th annual Stanford Summer Research Program Symposium. Stanford, CA

04/2019 **Olivas M***, Fox D, and Alvarez J. Development of an inducible Cas9 for temporally controlled gene editing in mammary adenocarcinoma. American Society for Pharmacology and Experimental Therapeutics meeting. Orlando, FL

01/2019 **Olivas M***, Flores D*, Waterston A, Dejean L, and Hasson A. Study of the chemical and signaling bases of ambient particulate matter-induced oxidative stress in alveolar macrophages. California State University Program for Education and Research in Biotechnology (CSUPERB) meeting. Garden Grove, CA

12/2018 **Olivas M***, Flores D*, Waterston A, Dejean L, and Hasson A. Chemical and signaling bases of PM-mediated ROS production in alveolar macrophages. American Society for Cell Biology meeting. San Diego, CA

07/2018 **Olivas M***, Fox D, and Alvarez J. Development of an inducible Cas9 for temporally controlled gene editing. Selected for symposium review. 6th annual BioCoRE symposium. Durham, NC

04/2018 **Olivas M***, Waterston A, Dejean L, and Hasson A. PM2.5 Exposure and ROS Production in NR8383 Alveolar Macrophages. California State University Honors Research Conference. Northridge, CA

01/2018 **Olivas M***, Waterston A, Dejean L, and Hasson A. PM2.5 Exposure and ROS Production in NR8383 Alveolar Macrophages. California State University Program for Education and Research in Biotechnology (CSUPERB). Santa Clara, CA

04/2017 Castillo J*, **Olivas M***, Waterston A, Dejean L, and Hasson A. Effects of particulate matter aerosols on ROS production in alveolar macrophage cells. 38th annual Central California Research Symposium. Fresno, CA

Honors and Awards

2020	Phi Kappa Phi Fellowship (50 awarded nationally), Honors Society of Phi Kappa Phi
2019	Marshall Scholarship Finalist, Marshall Aid Commemoration Commission
2019	Barry M. Goldwater Scholarship, Goldwater Foundation
2019	Best Poster Presentation, Stanford Summer Research Program Symposium
2019	Milton J. Lindner Memorial Scholarship, CSU Fresno
2019	Samuel T. Reeves Merit Award, Smittcamp Family Foundation
2019	Helen Gigliotti Scholarship, CSU Fresno Department of Chemistry
2018	Departmental Honors (4 graduates selected), CSU Fresno Department of Chemistry
2018	American Society for Pharmacology and Experimental Therapeutics Summer Fellowship
2017	American Chemical Society Outstanding Poster Presentation, Central California Research Symposium
2016	Smittcamp Family Honors College full-tuition scholarship, CSU Fresno

Professional Service

California Air Resources Board
Community Steering Committee Member (Volunteer 10 hr/wk), November 2018 - Present

- Organized and implemented Assembly Bill 617 in South Fresno, providing protections for residents of critical non-attainment areas throughout the region
- Reported directly to the California Air Resources Board (CARB) during regular meetings at the California Environmental Protection Agency (CalEPA) building in Sacramento

Camp Kesem at Fresno State
Public Relations Coordinator (Volunteer 20 hr/wk), August 2017 - Present

- Coordinated weekly communication and a weeklong summer camp for more than 80 local children whose parents or guardians have been affected by cancer

FLOCC Comedy Improv Troupe at Fresno State
Performing Member (Volunteer 15 hr/wk), August 2017 - Present

- Performed alongside 10-15 members on A* performance team
- Raised nearly $7,000 for local charities during monthly shows in and around Fresno, CA

References

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Dr. Laurent Dejean
Assistant Professor of Biochemistry
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Dr. James Alvarez
Professor of Pharmacology and Cancer Biology
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