MICAH OLIVAS

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EDUCATION

California State University, Fresno, California — Aug 2016 - May 2020 (expected)
B.S. in Biochemistry — **GPA**: 3.92/4.0
Honors Thesis: PM2.5-induced oxidative stress in the alveolar macrophage

Lady Margaret Hall, Oxford University, United Kingdom — Sept 2019 - Dec 2019 (expected)
Visiting Student, Molecular Genetics and Physical Chemistry

PUBLICATIONS

1. Olivas, M., Flores, D., Raval, K., Kaur, M., Castillo, J., Waterston, A., Hasson, A., & Dejean, L. PM2.5 mediated oxidative stress dynamics in the alveolar macrophage. *(In preparation, target submission date: December 2019)*.
2. Han, K., Pierce, S., Li, A., Spees, K., Anderson, G.R., Seoane, J.A., Wainberg, M., Kostyrko, K., Kelly, M.R., Yousefi, M., Simpkins, S.W., Yao, D., Lee, K., Kuo, C.J., Shokat, K.M., Jackson, P.K., Sweet-Cordero, A., Kundaje, A., Gentles, A.J., Curtis, C., Winslow, M.M., Lo, Y., Dubreuil, M., Olivas, M., Kamber, R., Bassik, M.C. Genome-wide CRISPR screens in lung cancer spheroids identify 3D growth specific cancer vulnerabilities. *(In revision, Nature)*.
3. Waterston, A., Castillo, J., Olivas, M., Hasson, A., & Dejean, L. PM2.5 Exposure and ROS Production in NR8383 Rat Alveolar Macrophages. Biophysical Journal 114, 334a (2018). DOI: https://doi.org/10.1016/j.bpj.2017.11.1872

RESEARCH EXPERIENCE

Amgen Scholar | Research Advisor: Michael Bassik, PhD — Jan – Aug 2019
Stanford University, Department of Genetics
CRISPR/Cas9 screens of KRAS-driven lung adenocarcinoma spheroids
- Characterized function of carboxypeptidase-d (CPD), a novel toxic hit in screen of KRAS-driven tumor spheroids
- Demonstrated dependency of insulin-like growth factor 1 receptor (IGF1R) on CPD processing

Undergraduate Research Fellow | Research Advisor: James Alvarez, PhD — May – July 2018
Duke University, Department of Pharmacology and Cancer Biology
Inducible CRISPR/Cas9 screening systems in dormant breast cancer
- Expressed ERT2-Cas9 fusion (Gersbach et al.) in mammary adenocarcinoma cell line derived from resected dormant human tumor
- Validated chemical induction of Cas9 in monolayer culture

Undergraduate Honors Researcher | Research Advisor: Laurent Dejean, PhD — 2016 – Present
California State University, Fresno, Department of Chemistry
Particulate matter-induced reactive oxygen species production in alveolar macrophages
- Developed dose-response assay to quantify oxidative stress responses in alveolar macrophages during fine atmospheric pollutant exposure
- Optimized high-throughput fluorometric workflow to categorize particulate matter-mediated ROS production by subcellular location

INVITED SEMINARS AND PRESENTATIONS

Posters

Han K*, **Olivas M***, Anderson G, and Bassik MC. Genome-wide CRISPR screens in 3D tumor spheroids reveal IGF1R processing dependencies in lung adenocarcinoma. Genome Engineering: Frontiers in CRISPR/Cas – Cold Spring Harbor Laboratories conference. Cold Spring Harbor, NY, October, 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/AMGEN Symposium. Stanford, CA, August, 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 (ASPET) meeting. Orlando, FL, April, 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, Jan., 2019

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 (ASCB) meeting. San Diego, CA, Dec., 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, July, 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) meeting. Santa Clara, CA, Jan., 2018

Talks

"The AB617 Community Steering Committee initiative: an update from South Fresno"
California Air Resources Board regular session, CalEPA Sacramento (2019)

"Sewn in Your Genes: Reimagining Disease in the Age of Modern Genetic Editing"
18th annual Honors Colloquium Series, Smittcamp Family Honors College (2018)

"Mapping the Dormant Tumor: A Novel Toolset for *in vivo* Genetic Screening"
Pharmacology and Cancer Biology Department chalk talk, Duke University School of Medicine (2018)

SELECTED HONORS AND AWARDS

Barry M. Goldwater Scholarship, Goldwater Foundation 2019

Amgen Scholarship, Stanford University 2019

Best Poster Presentation, Stanford Summer Research Program Symposium 2019
Award recognizing the top-scored poster presentation at the 26th annual Amgen/Stanford Summer Research Program symposium.

Milton J. Lindner Memorial Scholarship, CSU Fresno 2019
Funding awarded annually to one student in the College of Science and Mathematics who has demonstrated an exemplary commitment to academic research and community service.

Samuel T. Reeves Merit Award, Smittcamp Family Foundation 2019
Annual award issued to one undergraduate student in the Smittcamp Family Honors College at Fresno State pursuing advanced coursework or research abroad. Inaugural recipient.

Helen Gigliotti Scholarship, CSU Fresno Department of Chemistry 2019
Annual award recognizing one undergraduate biochemistry major on the basis of outstanding potential for academic research.

Departmental Honors, CSU Fresno Department of Chemistry 2018
Academic and research support granted to a small number of students annually.

American Society for Pharmacology and Experimental Therapeutics Summer Fellowship, Duke University 2018
Annual award to recognize one undergraduate biochemistry major who has demonstrated outstanding academic research potential.

American Chemical Society Outstanding Poster Presentation, Central California Research Symposium 2018
Annual award recognizing an exemplary research presentation in a chemistry-related discipline.

Smittcamp Family Honors College Scholarship, CSU Fresno 2016
Awarded annually to 50 (<5% acceptance rate) students from across the U.S., providing undergraduate tuition and honors status at CSU Fresno.

National Advanced Placement (AP) Scholar 2016
Granted to students in the United States who receive an average score of at least 4 on all AP Exams taken, and scores of 4 or higher on eight or more of these exams.

PROFESSIONAL SOCIETY MEMBERSHIP

Honors Society of Sigma Xi	2019
Honors Society of Phi Kappa Phi	2017 - 2019
American Society for Pharmacology and Experimental Therapeutics	2018 - 2019
American Society for Cell Biology	2017 - 2019
American Society for Biochemistry and Molecular Biology	2017 - 2019
Biophysical Society	2016 - 2019

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 CalEPA in Sacramento

Camp Kesem at Fresno State
Public Relations Coordinator (Volunteer 20 hr/wk), August 2017 - Present
- Coordinated weekly communication and a 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
- One of 10-15 members on A* performance team
- Raised nearly $7,000 for local charities during monthly shows in and around Fresno, CA

TECHNICAL SKILLS

Biochemical

- multichromatic flow cytometry, sterile cell culture, confocal microscopy, paraffin embedding/segmentation, lentiviral engineering, CRISPR/RNAi/siRNA assay development, cloning, immunoblotting, DNA/protein purification, extraction and analysis, organic and inorganic chemical synthesis, spectrophotometry

Software

- Web Development: Atom, Bootstrap, Jekyll
- Analytical: Flowjo, Pymol, Phenix, Coot (MacOS), MATLAB, NCBI BLAST, SnapGene, Wolfram Mathematica, GraphPad Prism, R Studio, ImageJ
- Other: LaTeX (MacTex), Endnote, Adobe Suite (Illustrator, Photoshop, Lightroom), Microsoft Office (Excel, Word, PowerPoint)