Oscar Molina

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EDUCATION

University of California, Los Angeles *Expected June 2020*
Bachelor of Science, Biochemistry (GPA 3.53)
Biomedical Research Minor, Computational Specialization

RESEARCH EXPERIENCE

Dr. Albert J. Courey Lab Department of Chemistry and Biochemistry,
Undergraduate Researcher University of California-Los Angeles
January, 2018 - Present

- Designing and implementing purification strategies for purifying proteins covalently conjugated to Small Ubiquitin-related modifier (SUMO) in Drosophila *melanogaster* embryos.
- Designing proteomic workflows to identify SUMO conjugated proteins and specific modified residues using tandem mass spectrometry in Drosophila embryos.
- Applied site-directed mutagenesis techniques and DNA cloning and transfecting strategies to create Ras genes with the inability to interact non-covalently with SUMO in S2 cells to assess Ras signaling.

Dr. Christina Woo Lab Department of Chemistry and Chemical Biology,
Visiting 10-week Summer Undergraduate Researcher Harvard University
June 2019 - August 2019

- Applied chemo-enzymatic labeling and isotope targeted labeling proteomics to describe the β-linked N-acetylglucosamine (O-GlcNAc) proteome under heat stress in U2OS cells.
- Implemented nanobody technology for proximity induced interaction between SUMO-conjugating enzyme-UBC9 and O-GlcNAc Transferase (OGT) for selective SUMO conjugation of OGT in U2OS and HEK 293T cells.
- Used immunofluorescence and fluorescence microscopy to visualize localization of transfected genes in U2OS and HEK 293T cells.

POSTER PRESENTATIONS

- **Society for Advancement of Chicanos/Hispanics and Native Americans in Science**, *Honolulu, Hawai'i, November 1, 2019*

Title: Alteration to the O-GlcNAc proteome by the Small Ubiquitin-related Modifier

- **Princeton Molecular Biology Retreat**, *Avalon, New Jersey, October 4th, 2019*

Title: Alteration to the O-GlcNAc proteome by the Small Ubiquitin-related Modifier

- **Summer Undergraduate Research Programs at Harvard Poster Symposium**, *Harvard University, August 15, 2019*

Title: Alteration to the O-GlcNAc proteome by the Small Ubiquitin-related Modifier

- **Leadership Alliance National Symposium**, *Hartford, CT, July 24 -28, 2019*

Title: Alteration to the O-GlcNAc proteome by the Small Ubiquitin-related Modifier

- **UCLA Research Poster Day,** *UCLA, May 21, 2019*

Title: SUMO-Conjugation to Protein Phosphatase 2A in the Regulation of Cell Signaling through the Ras/MAPK Pathway

- **Annual Biomedical Research Conference for Minority Students**, *Indianapolis,Indiana, November 17, 2018*

Title: SUMO-Conjugation to Protein Phosphatase 2A in the Regulation of Cell Signaling through the Ras/MAPK Pathway

- **Program of Excellence in Education and Research in the Sciences (PEERS) Poster Session,** *UCLA, November 8, 2018*

Title: SUMO-Conjugation to Protein Phosphatase 2A in the Regulation of Cell Signaling through the Ras/MAPK Pathway

- **UCLA Summer Program for Undergraduate Research**, *UCLA, August 29, 2018*

Title: SUMO-Conjugation to Protein Phosphatase 2A in the Regulation of Cell Signaling through the Ras/MAPK Pathway

PUBLICATIONS

Tak-Yu Yau, **Oscar Molina**, Albert J. Courey, SUMO in Development, *Development*. ***Submitted.***

CO-CURRICULAR ACTIVITES

P2P Mentor, PEERS (2017 - Current) - Served as a panelist on PEERS Sophomore seminar (2018, 2019) & mentored students in considering and participating in academic research.

Undergraduate Representative on Physical Sciences diversity committee (2018 - Current) - I actively helped with revising the Physical Sciences Diversity Plan and served as a panelist for the Physical Science, Welcome to Research panel to encourage freshmen and sophomores to consider in participating in research at UCLA.

Maximizing Access to Research Careers Undergraduate Student Training in Academic Research at UCLA (May 2018 - Current) - I participate in a weekly journal club where we practice oral presentations of our research, discuss current scientific literature, and practice scientific writing.

Expression, Purification & Analysis of Proteins and Protein Complexes Assistant, Cold Spring Harbor Laboratory (April 2018) - Helped teach protein expression, protein purification, and protein analysis techniques to graduate students and post-doctorates.

AWARDS & HONORS

- Princeton Molecular Biology Scholars 2019
- Dean's Honor List: Spring 208, Fall 2018, Winter 2019, Spring 2019
- NIH Trainee Grant: Maximizing Access to Research Careers, Undergraduate Student in Academic Research at UCLA, Spring 2018

ADDITIONAL SKILLS

Fluent in Spanish
Advance Programming in C++
Experience Programming in Qt, R, ggplot2, HTML
Familiar with Proteome Discover