

Linda Chio

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EDUCATION

PhD **University of California, Berkeley**, Chemical Engineering, expected 2021

BS **California Institute of Technology**, Chemical Engineering, 2015
With Honors, concentration in Biomolecular Engineering

PUBLICATIONS

- Demirer, G.S., Chang R., Zhang H., **Chio L.**, Landry, M.P. Nanoparticle-Guided Biomolecule Delivery for Transgene Expression and Gene Silencing in Mature Plants, Manuscript submitted (2017).
- **Chio, L.**, Yang, D., Landry, M.P. Surface engineering of nanoparticles to create synthetic antibodies. *Methods Mol. Bio.*, (2017) 1575: 363-380.
- Del Bonis-O'Donnell, J.T., Beyene, A. G., **Chio, L.**, Demirer, G. S., Yang, D., Landry, M.P. Engineering Molecular Recognition with Bio-mimetic Polymers on Single Walled Carbon Nanotubes. *Journal of Visualized Experiments* (2017), e55030.
- Landry, M.P., Ando, H., Chen, A., Cao, J., Kottadiel, V. I., **Chio, L.**, Yang, D., Dong, J., Lu, T., Strano, M.S. Single-Molecule Detection of Protein Efflux from Isolated Microorganisms using Fluorescent Single Walled Carbon Nanotube Sensor Arrays. *Nature Nanotechnology*, (2017): published online. doi:10.1038/nnano.2016.284
- McIntosh, J. A., Heel, T., Buller, A., **Chio, L.**, Arnold, F. H. Structural adaptability facilitates histidine heme ligation in cytochrome P450. *J. Am. Chem. Soc.*, (2015) 137(43): 13861-13865
- Bergner, M., Duquette, D. C., **Chio, L.**, Stoltz, B. M. Exceedingly efficient synthesis of Grandifloracin and acylated analogues. *Organic Letters*, (2015) 17: 3008-3010

HONORS AND AWARDS

- **National Defense Science & Engineering Graduate (NDSEG) Fellowship**, (2017-2021)
- **NSF Graduate Research Fellowship**, (2017, declined in favor of NDSEG)
- **Lam Research Fellow**, UC Berkeley, (2016-2017)
- **Outstanding Graduate Student Instructor**, UC Berkeley, 2016
- **Merck Index Award**, Caltech, 2015
Awarded to one outstanding student in the College of Chemistry in their senior year.
- **SanPietro Travel Grant**, Caltech, 2015
Travel grant awarded to 3 to 4 applicants annually

RESEARCH EXPERIENCE

Markita Landry's Research Group

Berkeley, CA

Graduate Student Researcher

2015-present

- Constructing and characterizing nanoscale biosensors for the label-free detection of small protein analytes, particularly VEGF and oxytocin, using non-covalently linked single-walled carbon nanotubes and amphiphilic polymers, such as peptoids and aptamers
- Developing single-walled carbon nanotubes with targeted biological recognition elements for high-contrast imaging and a modular platform of sensor production using covalent bioconjugation

Frances Arnold's Group Undergraduate Research

Pasadena, CA

Independent Researcher

January 2014 – June 2015

- Built enzyme libraries of the monooxygenase cytochrome P450 through directed evolution to enable the development of non-native enzyme cyclopropanation functionality
- Resolved novel structural rearrangements of histidine mediated heme iron coordination of the active site in P450 Cyp119 showing unprecedented flexibility of the active site

Genentech Summer Internship

South San Francisco, CA

Protein Isolation Intern

Summer 2014

- Synthesized through maleimide-sulfhydryl chemistry and preliminarily tested 8 novel antibody-drug conjugates for preclinical trials in a 12 week internship
- Improved antibody-drug conjugation purification through novel separation technology by altering the isoelectric point of the antibody

Brian Stoltz's Group Undergraduate Research

Pasadena, CA

Independent Researcher

Fall 2011-Fall 2012

Arthur R. Adams SURF Fellow

- Investigated a novel enantioselective catalytic silylsilylation reaction using transition metal catalysis to aid in the synthesis of the transtagonalides that induce apoptosis in cancer cells
- Constructed analogs of the core of (+)-Grandifloracin, a pancreatic cancer drug

PRESENTATIONS

- **American Institute of Chemical Engineers Annual Meeting:** Antibody-Mimetic Protein Detection with Peptoid-Functionalized Near-Infrared Carbon Nanotube Optical Sensors; Oral Presentation; November 2017
- **Molecular Foundry's 10th Peptoid Summit:** Peptoid-Carbon Nanotube Sensors for Protein Detection; Lightning Round and Poster Presentation; August 2017
- **RIKEN Quantitative Cell Biology Symposium:** Synthetic Antibodies for Direct Near-infrared Imaging of Cellular Metabolites and Proteins; Poster Presentation; Osaka, Japan; September 2016
- **University of California Systemwide Bioengineering Symposium:** Nanoparticle-Polymer Conjugates for Near-Infrared Biomolecular Detection; Poster Presentation; June 2016
- **Perpall Speaking Competition – Caltech SURF Seminar:** Improving Alcohol Tolerance in *Saccharomyces cerevisiae* for the Production of Biofuels; Oral Presentation; October 19, 2013
- **Gee Family Poster Competition – Caltech SURF Seminar:** Synthetic Inspirations from Cancer-Curing Molecules: A Quest for a Silylsilylation Reaction and Building Natural Product Analogs; Poster Presentation; October 2012

TEACHING EXPERIENCE

UC Berkeley Graduate Student Instructor

Berkeley, CA

Technical Communications for Chemical Engineers

Spring 2016

- Provided feedback for students as they develop their communications skills through presentations and technical writing
- Participated in lecture activities and lesson planning

Introduction to Chemical Engineering Design

Fall 2015

- Co-led weekly discussion sections on course material
- Created and developed course content on chemical engineering design concepts

VOLUNTEER AND SERVICE EXPERIENCE

American Institute of Chemical Engineers – (Fall 2011 – present)

- **Caltech Chapter: Freshmen Representative (2011-2012), Secretary (2012-2014):** Engaged students across the chemical engineering major in outreach and academic support activities including: student-to-student mentoring, industrial mentoring, and information panels

Bay Area Scientists in Schools, Instructor – UC Berkeley (Fall 2016 – present)

- Teaching second graders a hands-on lesson on soils within the East Bay Area community

Expanding Your Horizons – UC Berkeley (Spring 2017-present)

- **Finance Planning Committee** – manage and raise funds for a one-day Bay Area STEM conference for middle school girls

Graduate Pathway Symposium – UC Berkeley (Fall 2015 – present)

- **Mentor** – mentoring 4 first generation students about graduate school
- **Recruitment Subcommittee Member** – coordinated with area colleges to mentor students about graduate school

Graduate Women Engineers – UC Berkeley (Fall 2015 – present)

- **Speaker Series Co-chair** (2017 – 2019) – organize a speaker series aimed at aiding the professional development of women engineers

Graduate Assembly Delegate Alternate – (August 2016 – May 2017)

- **Committee on Teaching Member** –making recommendations on good teaching practices and evaluates candidates for the Distinguished Teaching Award, the highest UC Berkeley award on teaching

Be A Scientist Mentor – UC Berkeley (February 2016 – May 2016)

- Independently mentored 5 seventh graders on science projects