

Claudia Geraldine Lucero

Assistant Professor

California State University, Sacramento

Department of Chemistry

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EDUCATION

- 1999 to 2005 **University of California, Irvine** (Irvine, CA)
Ph.D., Organic Chemistry
National Institutes of Health Predoctoral Fellowship (1999 to 2004)
- 1994 to 1998 **University of California, Berkeley** (Berkeley, CA)
B.S., Chemistry

RESEARCH EXPERIENCE

- August 2010 to Present **California State University, Sacramento**
Graduate Research Supervisor
Supervising one graduate student on a thesis project: Total syntheses of three natural products (Tatarinoids A, B, & C).
- January 2009 to Present **California State University, Sacramento**
Undergraduate Research Supervisor
Supervising undergraduate students on the enantioselective 1,4-additions of allyl indium to α,β -unsaturated aldehydes and on the total synthesis of Tatarinoid C.
Summer Research Supervisor
East Los Angeles College undergraduate student was funded by the Math, Engineering, Science Achievement Program.
- 2005 to 2008 **Boston College** (Chestnut Hill, MA)
Postdoctoral Research Associate
Postdoctoral Advisor: Professor Marc Snapper
Efforts Towards The Total Synthesis of Kalmanol
National Institutes of Health Postdoctoral Fellowship (2005 to 2008)
- 1999 to 2005 **University of California, Irvine** (Irvine, CA)
Graduate Research Associate
Thesis Advisor: Professor Keith A. Woerpel
Title of Ph.D. Dissertation: Lewis Acid-Mediated Nucleophilic Additions to Tetrahydropyran Acetates: I. Evidence for an Electrostatic Stabilizing Interaction Between a Tetrahydropyran Oxocarbenium Ion and an Axial Electronegative Substituent on the Ring. II. Investigations Into the Influence of Several Heteroatom

Substituents on the Conformations of Oxocarbenium Ions and on the Selectivities.

June 1997 to
September 1997 and
June 1998 to
September 1998

Lawrence Berkeley National Laboratory (Berkeley, CA)

Undergraduate Research Assistant

Advisor: Professor Peter G. Schultz

Applied unnatural amino acid methodology to a biological problem, that of quantifying the energetic value of a cation- π interaction in the interior of a natural protein (i.e., staphylococcal nuclease).

April 1996 to
June 1997 and
September 1997 to
June 1998

University of California, Berkeley (Berkeley, CA)

Undergraduate Research Assistant

Advisor: Professor Peter G. Schultz

Synthesis of unnatural amino acids and the RNA-DNA hybrid - 5'-phospho-2-deoxycytidylyl-(3',5')adenosine (pdCpA), which is used for the chemical amino acylation of modified tRNA to incorporate unnatural amino acids in *in-vitro* protein expression reactions.

TEACHING EXPERIENCE

September 2008 to
present

California State University, Sacramento

Assistant Professor

CHEM 24 Organic Chemistry Lecture I (Fall 2009 and Fall 2010). First semester of a one-year organic lecture sequence designed for chemistry and pre-med majors.

CHEM 25 Organic Chemistry Laboratory (Fall 2008, Spring 2009, Spring 2010, and Fall 2010). Introductory organic laboratory skills.

CHEM 106 Chemical Concepts (Fall 2009)

A one semester course on the principles and concepts of chemistry with applications in the environment and home.

CHEM 124 Organic Chemistry Lecture II (Spring 2009, Fall 2009, and Spring 2010). Second semester of a one-year organic lecture sequence designed for chemistry and pre-med majors.

CHEM 125 Advanced Organic Chemistry Laboratory (Fall 2009)

Focuses on advanced organic laboratory techniques and instrumental methods of analysis.

CHEM 250 Advanced Organic Synthesis (Spring 2009). Graduate level class in organic synthesis and methodology.

September 2007 to
May 2008

Curry College (Milton, MA)

Chemistry Lecturer

CHEM 1001 Chemical Concepts (Fall 2007 and Spring 2008). A one semester chemistry course required for nursing students.

November 2006 &
May 2007

Boston College (Chestnut Hill, MA)

Lecturer for Advanced Organic Chemistry Course and Organometallic Chemistry Course

Taught by Professor Marc L. Snapper

Designed and presented two lectures to first-year graduate students.

June 2006 to
September 2006

Massachusetts Institute of Technology (Cambridge, MA)
Research Science Institute Mentor

A rigorous academic program in which I trained a high school student on laboratory techniques and he assisted me with the synthesis of kalmanol. Only 75 students are selected from the United States and other nations. My student was the only student to receive highest honors for his work.

1999 to 2000

University of California, Irvine (Irvine, CA)
Teaching Assistant, Department of Chemistry

Served three quarters as teaching assistant for undergraduate chemistry lab courses (general chemistry and introduction to organic chemistry).

June 1998 to June 1999

University of California, Berkeley (Berkeley, CA)
Undergraduate Teaching Assistant

Scholars Program

Teaching assistant for undergraduate organic chemistry course (for chemistry majors).

PUBLICATIONS

4. "Stereoselective C-Glycosylation Reactions of Pyranoses: Implications on the Conformational Preference of the Mannosyl Cation," Lucero, C. G.; Woerpel, K. A. *J. Org. Chem.* **2006**, *71*, 2641-2647.
3. "Stereochemistry of Nucleophilic Substitution Reactions Depending Upon Substituent: Evidence for Electrostatic Stabilization of Pseudoaxial Conformers of Oxocarbenium Ions by Heteroatom Substituents," Ayala, L.; Lucero, C. G.; Romero, J. A. C.; Tabacco, S. A.; Woerpel, K. A. *J. Am. Chem. Soc.* **2003**, *125*, 15521-15528.
2. "A Model for Hydride Transfer in Thymidylate Synthase Based On Unnatural Amino Acid Mutagenesis," Barrett, J. E.; Lucero, C.; Schultz, P. G. *J. Am. Chem. Soc.* **1999**, *121*, 7965-7966.
1. "Energetic Analysis of an Engineered Cation-pi Interaction in Staphylococcal Nuclease," Ting, A.; Shin, I.; Lucero, C.; Schultz, P. G. *J. Am. Chem. Soc.* **1998**, *120*, 7135-7136.

PRESENTATIONS

Lucero, C. G.; Woerpel, K. A. "Investigations Into the Synthetic Utility and Nature of the Stabilizing Interaction between a Tetrahydropyran Oxocarbenium Ion and an Axial Electronegative Substituent at Position C-4." UCI Organic Chemistry Graduate Student and Post-Doctoral Colloquium, January 2003, University of California, Irvine.

Lucero, C. G. "Studies Towards the Catalytic Enantioselective 1,4-Additions of Allyl Indium Reagents to α,β -Unsaturated Aldehydes" and "Efforts Towards the Total Syntheses of Tatarinoids A, B, & C." Presented at San Jose State University, San Jose, CA, March 2011.

Lucero, C. G. "The Story of Drugs that Make a Difference." Presented at Butte College, Butte, CA, April 2011.

RESEARCH STUDENT PRESENTATIONS

Plukchi, S.; Lucero, C. G. "Catalytic Enantioselective 1,4-Additions of Allyl Indium Reagents to α,β -Unsaturated Aldehydes." Presented at the American Chemical Society 23rd Northern California Undergraduate Research Symposium, San Jose, CA, May 2011.

Panayotov, D.; Lucero, C. G. "Total Synthesis of Tatarinoid C." Presented at the American Chemical Society 23rd Northern California Undergraduate Research Symposium, San Jose, CA, May 2011.

GRANTS RECEIVED

National Science Foundation, Major Research Instrumentation (NSF-MRI). "Acquisition of a 500 MHz NMR Spectrometer for Research at CSU Sacramento." \$655,000 (2009-2012)

CSUS Research and Creative Activity Award, \$15,000. (2011-2012)

CSUS Faculty Promotion Development Funds, \$500. (2010-2011)

United Interprise, Inc. (UEI) Faculty Grants Program Award, \$750. (2008-2009)

UNDERGRADUATE RESEARCH MENTORING

1 graduate student (thesis defense August 2011)
5 undergraduate students

Post Graduation Positions:

Graduate Programs: UC Davis and Boston University

PROFESSIONAL ORGANIZATIONS

American Chemical Society (ACS) Member (1999—Present)