

Estefania Elorriaga

Estefania.Elorriaga@oregonstate.edu

339 Richardson Hall
Oregon State University
Corvallis, OR 97331
(541) 737-8479

Education

Oregon State University, Corvallis

Doctor of Philosophy in Molecular and Cell Biology Expected 06/2017

Thesis: Tools to modify flowering genes and identification of new reproductive containment gene targets in woody plants for GE acceptance

GPA: 4.00 out of 4.00

Master of Science in Biological and Ecological Engineering 09/2012

Thesis: High Frequency Water Vapor Density Measurements using the Beat Frequency Method

GPA: 3.94 out of 4.00

Pennsylvania State University, University Park

Bachelor of Science in Electrical Engineering 12/2006

Bachelor of Science in French and Francophone Studies 12/2006

GPA: 3.41 out of 4.00 (F.E./E.I.T. Licensed #ET009556)

Professional Experience

Graduate Research Assistant

Oregon State University

Molecular and Cell Biology Graduate Program – Strauss lab 09/2012- now

- Building plant expression constructs for *Agrobacterium*-mediated binary vector transformation with CRISPR Cas site-directed nucleases for gene editing of floral genes in poplar and eucalypt trees
- Transforming, regenerating, and analyzing mutation prevalence and type in DNA sequences of CRISPR Cas transgenic trees
- Testing the efficiency of an inducible recombinase system for regeneration of non-transgenic mutants
- Executing an RNASeq and systems biology analysis on individual floral organs of *Eucalyptus grandis*
- Delivering lectures on biofortification and/or plant breeding and genetics to university students as part of the Genes and Chemicals in Agriculture: Value and Risk course
- Delivering guest lectures on biofortification and/or plant breeding and genetics to middle and high school students

- Took the courses required by the doctoral program plus the electives of my interest

Graduate Teaching Assistant

Oregon State University

Ecampus course: Genes and Chemicals in Agriculture: Value and Risk 07/2012- 09/2014

- Organizing the course's activities, including weekly updates
- Managing the Blackboard course site and keeping it up to date
- Grading the students' assignments, weekly discussions, and exams
- Taught the guest lecture on Biofortification in the developing world every spring term

Student worker

National Clonal Germplasm Repository (Peoria, OR) 11/2010- 09/2011

- Performed DNA extractions and PCRs
- Ran the Beckman Coulter Genetic Analysis System CEQ 8000
- Genotyped different lines of black raspberry, blueberry, and ohelo berry from electropherogram and agarose gel data Graduate Research Assistant

Plant genetics experience

- Poplar tissue culture including media preparation and tissue propagation
- Poplar *Agrobacterium*-mediated transformation
- Poplar plant regeneration
- *E. coli* and *Agrobacterium tumefaciens* plasmid chemical transformation
- Bacteria and plant (poplar and eucalypts) expression vector construction

Bioinformatics training (outside of college classes)

Jan. 31-Feb. 1 2014, iPlant, Linfield College, McMinnville, OR.

Website: <http://www.iplantcollaborative.org/>

Honors and awards

2015-2016 OSU Foundation Fellow Tuition Support Scholarship

2015-2016 Wessala Graduate Fellowship, COF, Oregon State University (\$17,650)

2015 Graduate School, Oregon State University, Travel Award for Plant Biology 2015 (\$500)

2014-2015 OSU Foundation Fellow Tuition Support Scholarship

2014-2015 Wessala Graduate Fellowship, COF, Oregon State University (\$17,650)

2014 American Society of Plant Biologists, Travel Award for Plant Biology 2014 (\$575)

2012 Arnold and Vera Meier Education Fellowship, COF, Oregon State University (\$2000)

2012 The Future of Evo-Devo, Travel Award (\$200)

Peer-review publications

Elorriaga E, Brunner A, Ma C, Etherington E, Meilan R, Skinner JS, and Strauss SH. 2014. "A Tapetal Ablation Transgene Induces Stable Male Sterility and Slows Field Growth in Populus." Tree Genetics & Genomes, August, 1–11. doi:10.1007/s11295-014-0781-6.

Talks

Lighting talk (4 minutes maximum) entitled *CRISPR-Cas mutagenesis for tree containment*

Poster presentations

Embleton C, **Elorriaga E**, and Strauss SH. “Is Coexistence Possible? New Biotechnology Opens Doors to GMO Containment.” Saturday Academy, Apprenticeships in Science and Engineering, Symposium 2015. Portland, OR. August 2015.

Elorriaga E, Klocko AL, Ma C, and Strauss SH. “CRISPR-Cas Nuclease Mutagenesis for Genetic Containment of Genetically Engineered Forest Trees.” American Society of Plant Biologists, 2015 Plant Biology Conference. Minneapolis, MN. July 2015.

Elorriaga E, Brunner A, Ma C, Etherington E, Meilan R, Skinner JS, and Strauss SH. “A tapetal ablation transgene induces stable male-sterility and slows field growth in Populus.” American Society of Plant Biologists, 2014 Plant Biology Conference. Portland, OR. July 2014. Poster presentation.

Elorriaga E, Brunner A, Ma C, Etherington E, Meilan R, Venkatesh V, Skinner JS, and Strauss SH. “Birth control technology for trees: Field performance of a male sterility transgene in poplar.” Oregon State University, Center for Genome Research and Biocomputing Fall Conference. Corvallis, OR. 20 September 2013. Poster presentation.

Klocko AL, Ault KA, Ma C, Vining KJ, Robertson JS, Dow M, Lu H, **Elorriaga E**, Strauss SH. “Genetic Containment Technology for Poplar Biofuels Plantations.” USDA-AFRI, Systems for Advanced Biofuels Production From Woody Biomass In The Pacific Northwest, Annual Meeting. Boardman, OR. 10 September 2012. Poster presentation.

Lecturing and public speaking experience

Spring 2015 Guest lecture on **Biofortification in the developing world**

BI/FES/MCB/TOX 435/535: Genes and Chemicals in Agriculture: Value and Risk

April 2015 Guest lecture on plant genetics and breeding entitled **Genes in my jeans**

Environmental Science class at McNary High School in Keizer, OR

March 2015 Guest lecture on **Biofortification in the developing world**

Science class at Mountain View Middle School in Newberg, OR

Spring 2014 Guest lecture on **Biofortification in the developing world**

BI/FES/MCB/TOX 435/535: Genes and Chemicals in Agriculture: Value and Risk

Spring 2013 Guest lecture on **Biofortification in the developing world**

BI/FES/MCB/TOX 435/535: Genes and Chemicals in Agriculture: Value and Risk
Oregon State University

Mentoring experience

Summer 2015, ASE, High School student Clark Embleton

I am mentoring Clark on the following techniques and how to troubleshoot them: DNA isolation, DNA quantification, Polymerase Chain Reaction, DNA extraction from agarose gels, and sequence alignment.

Summer 2015, volunteer, High School student Ruchi Agarwal

I am mentoring Ruchi on the following techniques and how to troubleshoot them: DNA isolation, DNA quantification, Polymerase Chain Reaction, DNA extraction from agarose gels, sequence alignment, floral staging, flower pollination and crossing, tissue fixation, pollen viability and germination assays, and microscopy.

Spring 2014, Oregon State University, Undergraduate student Katherine Walgrave

I mentored Katherine on proposal writing for her summer 2014 research experience.

August 2015 - present, Master Plant Science Mentor for American Society of Plant Biologists (www.plantingscience.org)

I mentor teams of middle and high school students via online communication on their plant biology in-class research projects.

Meetings Attended

*presented poster **presented a talk

2015 ASE Symposium, Portland, Oregon*

2015 Plant Biology, American Society of Plant Biologists, Minneapolis, Oregon*

2015 Center for Genome Research and Biocomputing Spring Conference, Corvallis, Oregon**

2014 Center for Genome Research and Biocomputing Fall Conference, Corvallis, Oregon

2014 Plant Biology, American Society of Plant Biologists, Portland, Oregon*

2014 Center for Genome Research and Biocomputing Spring Conference, Corvallis, Oregon

2013 Center for Genome Research and Biocomputing Fall Conference, Corvallis, Oregon*

2012 Center for Genome Research and Biocomputing Fall Conference, Corvallis, Oregon

2012 The Future of Evo-Devo symposium

Grants submitted (awaiting notification)

Steven H. Strauss, Amy Klocko, **Estefania Elorriaga** (2014). Targeted mutagenesis of eucalypt reproductive genes. The Consortium for Plant Biotechnology Research, Inc. 2016 Competition – Bioenergy and biomass conversion. \$100,000 requested.

Steven H. Strauss, Amy Klocko, **Estefania Elorriaga**, and Bing Yang (2014). CRISPR-mediated mutagenesis of meiotic genes to produce sterile Eucalyptus. The Consortium for Plant Biotechnology Research, Inc. \$300,000 requested.

Unfunded grants

Steven H. Strauss, **Estefania Elorriaga** (2013). Effector nucleases for genetic containment, The Consortium for Plant Biotechnology Research, Inc. 2015 Competition – Bioenergy and biomass conversion. \$200,000 requested.

Member organizations

American Society of Plant Biologists (ASPB)

Association for Women in Science (AWIS)

Outreach

Interview by Layla Katirae on site-directed nucleases as part of her “**Better Know a Scientist**” series published in Biology Fortified (www.biofortied.org) and also in Spanish in Sí Quiero Transgénicos (www.siquierotransgenicos.com), a pro-GM blog from Chile

Lab tours of the Strauss lab for visiting undergraduate classes at Oregon State University.

These tours are for introducing forestry students to molecular biology and genetic tools and to showcase our lab’s research interests.

Language skills

Proficient in Spanish (native tongue) and English. Fluent in French and Italian.

References available upon request.