Eduardo Llamas

Education

Bachelor of Science in Biochemistry — Expected May 2008
Department of Chemistry and Biochemistry
New Mexico State University
Las Cruces, NM

Professional and Research Experience

Biology Department — October 2005-present
New Mexico Sate University
Las Cruces, NM

Research assistant in the neurobiology laboratory headed by Dr. Elba Serrano. Research focused on ototoxic drugs and hair cell regeneration. Proficient in histology work including obtaining tissue from *Xenopus laevis*, fixing and labeling for fluorescent and confocal microscopy, maintaining sterility of bio-safety level 2 tissue and cell culture laboratory. Research and data curating for ototoxic drug database; collaborative project with Dr. peter Sorger at Harvard University.

Biology Department — July 2006-August2006
Massachusetts Institute of Technology
Cambridge, MA

Research assistant in the laboratory of Dr. Elba Serrano (on sabbatical) hosted by Dr. Peter K. Sorger at the Cell Decision Process Center. Researched various drugs with alleged ototoxic effects, including their use, ototoxic effects, and modes of action. Used Excel spreadsheet to develop a database of these drugs in collaboration with Jeremy Muhlich. Assisted in annotations made to curated RNA microarray data obtained from *Xenopus laevis* ear, brain, kidney, and *Xenopus* A-6 kidney cell line.

Horticulture Department — June 2006
New Mexico State University
Las Cruces, NM

Lab assistant for the Medicinal Plants of the Southwest Workshop directed by Dr. Mary O'Connell. Supervised and assisted students during the three week chemistry portion of the program. Assisted with lab preparations, instrument and

technique demonstrations, created necessary Word documents, and addressed questions.

Presentations

- NMSU Biosymposium. Poster: “Adapting a Molecular Targets Database for Otic Specificity”. March 24, 2007.
- NMSU Research and Creative Arts Symposium (URCAS). Poster: “Adapting a Molecular Targets Database for Otic Specificity”. April 13, 2007.
- Expanding Horizons IV New Mexico AMP Student Research Conference. Oral presentation: “Adapting a Molecular Targets Database for Otic Specificity”. October 5, 2007.
- Annual Biomedical Research Conference for Minority Students (ABRCMS). Poster: “Adapting a Molecular Targets Database for Otic Specificity”. November 9, 2007.

Research Techniques

Techniques learned in work laboratory

- Culture of *Xenopus laevis* A-6 kidney cell line, including thawing, feeding, passage, and freezing.
- Dissection of various *Xenopus laevis* tissues (ears, kidneys, heart, thigh muscle) for imaging studies, protein extraction, and RNA isolation.
- Isolation and characterization of protein for Western blot analysis from *X. laevis* and rat tissues.
- DNA plasmid extraction from *E.coli* DH5α for transfection of A-6 cells.
- Organ culture of *X. laevis* ears.
- Fluorescent labeling of fixed and cultured *Xenopus laevis* ears using CellTraker Red, Alexa 488 Phalloidin, and immunolabeling with Alexa 488 Phalloidin.
- Isolation and quantification of total RNA from *Xenopus laevis* kidney and ear. Quantification done with Agilent 2100 Bioanalyzer using 2100 Expert software.

Techniques learned in teaching laboratories (organic chemistry, microbiology, and biochemistry labs)

- Isolation and purification of proteins, including affinity chromatography, for enzyme kinetic observation and SDS-PAGE analysis.
- Transformation of BL21(de3)pMgK *E.coli* with DNA plasmid, extraction of the plasmid, exonuclease treatment, and agarose gel electrophoresis analysis.
- Preparation, casting, and analysis of SDS-PAGE and agarose gels.

- Staining techniques of bacteria including simple, Gram, capsular, spore, and acid fast staining.
- Synthesis and characterization of organic compounds using NMR and TLC.
- Plasmid and fosmid DNA extraction using QIAprep Spin Miniprep Kit.

Training and Certification

- Employee and hazardous communication (Right to Know), laboratory standard practice, hazardous waste management and disposal, blood-borne pathogens safety, lab bio-safety, and fire extinguisher training.
- IACUC certification in the handling and care of animals for research purposes; specifically *Xenopus laevis* and *tropicalis.*

Other Skills

- Native Spanish speaker.
- Working knowledge of Microsoft Word, Excel, and PowerPoint as well as Metaview imaging software.

Memberships and Awards

- February 2006-January 2007
  Minority Biomedical Research Support-Research Initiative for Scientific Enhancement (MBRS-RISE) scholar.
- April 2006-Decemeber 2006
  Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS) member.
- September 2004-December 2006
  Pre-Professional Organization (PPO)-Pre-Med Club member.
- May-present
  Alliance for Minority Participation (AMP) summer undergraduate research assistantship.
- November 2007-present
  American Society for Pharmacology and Experimental Therapeutics member.

Research Interests

- Regeneration of neurons and hair cells in the vestibular and auditory systems of *X. laevis*.

- Biochemistry of the nervous system, specifically the effects and mechanisms of ototoxic drugs on hair cells and neurotransmitter/ligand interactions.
- Pharmacological characteristics of drug compounds on the various organ systems and tissues of the human body, emphasis on the nervous system.
- Characterization of the cellular and biochemical events of neuronal development and degeneration.