

Elsa S. Freeborn

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BIOTECHNOLOGY QUALIFICATIONS

- Knowledge of genetic engineering, PCR, electrophoresis, bioreactors, and chromatography through research experience
- Experience with synthesis, purification, and identification of organic compounds and biopolymers
- Proficient in conducting experiments, analyzing research data, and performing industrial qualifications

EDUCATION

Bachelor of Science: Biotechnology

May 2015

State University of New York College of Environmental Science and Forestry (SUNY-ESF)

GPA: 3.75 (President's List: Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015)

Related Coursework: Research Problems in Biotechnology, Biochemistry, Scanning Electron Microscopy, Plant Biotechnology, Cell Biology, Fundamentals of Microscopy, Molecular Biology Techniques, and Principles of Genetics

RELEVANT EXPERIENCE

Independent Researcher: Honors Thesis

August 2013-May 2015

Dr. Christopher Whipps Laboratory, SUNY-ESF

- Strain typing *Mycobacterium marinum* from outbreaks at zebrafish research facilities
- Strain typed isolates from fish tissue analyzing variable number tandem repeats (VNTR)
- Prepared media, cultured bacteria, purified gDNA, PCR, performed gel electrophoresis, purified PCR for sequencing, prepared well plates for capillary gel electrophoresis, and analyzed results with Peak Scanner™ (Life Technologies ©)
- Objectives: Adapted existing VNTR methods using fluorescently labeled primers and fragment analysis, determined epidemiological relatedness of isolates, and evaluated epidemiological linkages to biosecurity and husbandry practices to make recommendations for controlling *Mycobacterium marinum*

QC Chemistry Intern

June 2015-August 2015

Regeneron Pharmaceuticals: Industrial Operations and Product Supply, Rensselaer, NY

- Developed a more efficient identification method for one company product using Raman spectroscopy
- Reprocessed HPLC experiment data for one company product using Empower software
- Performed a qualification of a particulate matter analysis method for another company product
- Participated in intern events and activities, including a Kid's Day event aimed at teaching science to children
- Presented on my summer projects to the senior leadership team and was in the top 5 of 50+ intern presentations

Organic Chemistry I/II Tutor

August 2014-May 2015

Academic Success Center, SUNY-ESF

- Co-tutored a large group of students (20+) once per week on topics covered in organic chemistry
- Studied relevant topics each week and prepared a teaching outline
- Equipped students with the skills to solve exam-level problems and organic chemistry mechanisms

Undergraduate Experience in College Teaching: Student Participant

January 2014-May 2014

Dept. of Environmental and Forestry Biology, SUNY-ESF

- Recruited by General Biology Lab professor for outstanding work in lab the previous year
- Taught at least one section or topic of the lab experiment each lab period
- Answered specific questions students had and assisted students with the lab exercises and experiments
- Graded day-to-day assignments and consulted with students over grading when they inquired

POSTER PRESENTATION

April 15, 2015. SUNY-ESF Spotlight on Research, Syracuse, NY. *Strain typing Mycobacterium marinum from outbreaks at zebrafish research facilities.* **Freeborn, E. S.**, Chang, C.T., Whipps, C.M.