

Ashley Marie Ortiz Rivera
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EDUCATION

Tufts University School of Medicine— <i>Post-Baccalaureate Research Program</i>	2017- Present
State University of New York at Potsdam— <i>Bachelor of Science in Biochemistry</i>	2013- 2017
State University of New York at Potsdam— <i>Bachelor of Arts in Spanish Language</i>	2012- 2016

ACADEMIC AWARDS

Post-Baccalaureate Research Program Scholar, Tufts University	Fall 2017
Sigma Delta Phi National Honor Society in Spanish— SUNY Potsdam	Spring 2016
Omicron Delta Kappa National Honor Society in Leadership— SUNY Potsdam	Spring 2016
Honorific Mention in Oral Presentation: Biological Sciences Category 24th Annual Collegiate Science and Technology Entry Program (CSTEP) Statewide Student Conference— Bolton Landing, NY	Spring 2016
National Honor Society— John Adams High School	Spring 2012
Angelo Del Toro Scholarship— New York State Assembly Puerto Rican/ Hispanic Task Force	Spring 2012
Latino Caucus Scholarship— Council of School Supervisors and Administrators	Spring 2012

RESEARCH EXPERIENCE

“The role of interneuron death in traumatic brain injury”

Faculty Mentor: Dr. Chris Dulla— Department of Neuroscience, Tufts University School of Medicine	Fall 2017- Present
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I focused on understanding the pathophysiology of traumatic brain injury. Post-TBI pathologies include motor and cognitive dysfunction, as well as post-traumatic epilepsy (PTE). We hypothesize that loss of interneurons leads to PTE and we tested the idea by genetically eliminating cortical interneurons to recapitulate the hyperexcitability seen following TBI. Using activated Caspase-3 virus, cell-specific ablation was achieved through stereotaxic cortical injections in the absence of TBI to elucidate the link between interneuron loss and PTE. Preliminary findings suggest that motor dysfunction and hyperexcitability occur following viral-induced apoptosis.

Presentations:

- Neuroscience Student Research Seminar, Tufts University, May 2018
- Post-Baccalaureate Research Program (PREP) Symposium, Tufts University, June 2018
- Society for Neuroscience (SfN), San Diego CA November 2018

“Controlled delivery of Cancer Drugs”

Faculty Mentor: Dr. Maria Hepel— Department of Chemistry, SUNY Potsdam	Spring 2016- Summer 2017
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I conducted model studies to modify the surface of gold nanoparticles with various therapeutic agents. The modification of these gold nanoparticles helped produce nanocarriers to do a controlled delivery of Doxorubicin and Methotrexate to the tumor tissues, preventing the high levels of toxicity in the body while minimizing side effects. Different pHs were tested to measure the release of the drug over time in healthy and unhealthy cells.

Presentations:

- The Learning and Research Fair, SUNY Potsdam— April 2016
- 8th Annual Undergraduate and Graduate Chemistry and Biology Research Symposium of the Northern New York Local Section of the American Chemical Society Potsdam, NY— April 2017
- 25th Annual Collegiate Science and Technology Entry Program (CSTEP) Statewide Student Conference Bolton Landing, NY— April 2017

“Synthesis of t-Butyldimethylsiloxy (TBDMS) protective groups”

Faculty Mentor: Dr. Clifford Rossiter— Department of Chemistry, SUNY Potsdam	Summer 2015- Fall 2015
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I created a new class of time-resolved fluorescence assays based on supramolecular tandem enzyme assays (STEAs). To avoid side reactions, TBDMS ethers were used for the protection of the hydroxyl groups. The compounds were identified using infrared spectroscopy, and nuclear magnetic resonance spectroscopy. Using a fluorescence spectrometer, the enzyme activity was measured using each one of these compounds. After a series of trials, the enzyme seems to bind to the synthesized compounds; however, current changes and tests are being made to optimize the binding periods.

“Isolation of Cinnamyl Esters from *Ceanothus velutinus*”

Faculty Mentor: Dr. Anthony A. Molinero— Department of Chemistry, SUNY Potsdam	Summer 2014- Fall 2015
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I conducted model studies towards the isolation and identification of the unknown compounds obtained from *Ceanothus velutinus*. *C. velutinus* is a shrub that grows in the western area of North America that has a very potent sticky residue. The residue was isolated to identify its chemical components. These compounds, when isolated and purified, seemed to be very sensitive to light, water, and air conditions. Preliminary findings showed that two of the compounds isolated and identified were cinnamyl esters, known compounds. Three other compounds that were isolated, were determined to be o-coumaryl esters and as far as we are aware, new compounds.

The synthesis of o-coumaryl cinnamate and o-coumaryl butyrate is currently in progress to confirm their identity. (On-going under mentorship of Dr. Walker, SUNY Potsdam)

Presentations:

- 19th Annual NNY CSTEP Symposium, Clarkson University, Potsdam, NY January 2015
- 6th Annual Undergraduate and Graduate Chemistry and Biology Research Symposium of the Northern New York Local Section of the American Chemical Society Potsdam, NY March 2015
- 23rd Annual Collegiate Science and Technology Entry Program (CSTEP) Statewide Student Conference Bolton Landing, NY April 2015
- The Learning and Research Fair, SUNY Potsdam April 2015
- 24th Annual Collegiate Science and Technology Entry Program (CSTEP) Statewide Student Conference Bolton Landing, NY April 2016

TEACHING EXPERIENCE**SPANISH TUTOR** — *SPAN 203 Oral and Written Spanish I*

- Conducts individualized tutorial sessions for students with academic deficiencies; determines what skill areas require additional assistance.
- Adapted teaching style to unique needs of students.
- Effectively communicated student needs to instructor of the course.
- Held weekly lessons outside the classroom to help students prepare for the course.

SPANISH TEACHER ASSISTANT— *SPAN 103 Contemporary Spanish Language III*

- Emphasis on basic grammatical concepts and reading techniques.
- Design and implement lesson plans and curriculum.
- Tutor students and assist with assignments and concepts discussed in lectures.
- Organize and distribute learning resources.
- Monitor students during class work and exams

CHEMISTRY TEACHER ASSISTANT—*CHEM 341 Organic Chemistry Lab*

- Maintenance of the laboratory and its surroundings.
- Insurance safety during experiments.
- Preparation of stock solutions needed for experiments.

WORK EXPERIENCE

Pharmacy Technician,
Walgreens Pharmacy— Malden, MA

11/2017- Present

Responsibilities:

- Receive written prescription or refill requests and verify that information is complete and accurate.
- Fill bottles with prescribed medications and type and affix labels.
- Order, label, and count stock of medications, chemicals, and supplies, and enter inventory data into computer.

Pharmacy Technician,
CVS Pharmacy— New York, NY

08/ 2016- 01/2017

SKILLS

Neuroscience skills:	Brain slice electrophysiology- extracellular field recording. In vivo intracortical injection. Immunohistochemistry. Fluorescence imaging. Genetic models of brain disorders. Viral-mediated delivery of exogenous DNA. Quantitative anatomical approaches. Mouse behavioral analysis (rotarod, open field, home cage locomotor assay, Morris water maze). Animal genotyping.
Microbiology skills:	Aseptic and sterile techniques, optical microscopy, bacterial staining, plating methods (streak, spread, pour, replica), enumeration and identification of bacteria, media and buffer preparation, water sample analysis by membrane filtration, diagnostic biochemical tests for enteric bacteria, use of selective media, plaque assay and conjugation.
Biochemistry skills:	Protein purification, HPLC (affinity, gel filtration, ion exchange and reverse phase), preparative column chromatography, membrane filtration, SDS-PAGE, Western blot, bacterial protein expression, protein refolding and mammalian cell protein expression.
Molecular Biology skills:	DNA extraction, plasmid DNA preparation, restriction enzyme digests, PCR, agarose gel electrophoresis, site-directed mutagenesis and cell fractionation by differential centrifugation.
Chemistry skills:	Solution preparation, titrations, extractions filtrations, simple and fractional distillation, determination of index of refraction, simple syntheses, thin-layer chromatography, liquid chromatography, gas chromatography, reflux and recrystallization.
Spectroscopy skills:	Ultraviolet- visible (UV-Vis), raman, infrared (IR), nuclear magnetic resonance (NMR), homonuclear correlation (COSY), nuclear overhauser effect (NOESY), heteronuclear multiple bond correlation (HMBC), heteronuclear multiple quantum coherence (HMQC), attached proton test (APT) and gas chromatography mass spectrometry (GC-MS).
Computer skills:	Adobe (Illustrator and Photoshop), MS Office (Word, Excel, and PowerPoint), ChemDoodle, Origin 6.0, and GraphPad Prism4.0.