

# Nicholas Moskwa

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## PERSONAL SUMMARY

I love learning new ideas and perspectives. My main driver for pursuing my PhD and learning computer skills was because I enjoy thinking abstractly. Science and technology are where I want to be because you are playing a game you can never win, but playing the game is what's fun.

## EDUCATION

### *Graduate*

2021:

University at Albany: Doctor of Philosophy  
Degree: Molecular Cellular Developmental Biology  
Thesis: Stromal contributions in salivary gland organoid development

### *Undergraduate*

2013:

University of Connecticut: Bachelor of Science  
Major: Molecular and Cellular Biology  
Minor: Chemistry (17 credit hours)  
GPA: 3.75

### *Honors*

2009-2013: Cum Laude: University of Connecticut

2010: New England Scholar

## WORK EXPERIENCE

### *Graduate Research Assistant and Doctor of Philosophy thesis work: August 2015 – Current*

PhD Thesis (University at Albany): Probed cellular and molecular pathways in mouse salivary gland development. Optimized organoid creation for cell and growth factor screening. Isolated and cultured various primary mammalian cells from organs and organoids. Developed organ and organoid decellularization for extracellular matrix physical property analysis. Developed programs for transcriptomic (Single cell and bulk RNA sequencing and microarray) data analysis. Researched instrument efficacy and performance for Tony Hoang's startup company.

### *Scientist I: March 2015 – August 2015*

Life Technologies (Thermo Fisher Scientific): Worked with engineering team to troubleshoot Ion Chef Instrument cDNA library creation software and hardware. Increased tip usage efficiency and discovered cartridge manufacturing flaw. We compared automated libraries to manually produced libraries for efficiency and purity. We tested library creation using Real-Time PCR and Ion Proton Next-Gen whole genome sequencing. Had to verify template enrichment using Millipore guava easyCyte Single Sample Flow Cytometer.

### *Laboratory Technician: Dec 2013 – March 2015*

Ultimate Nutrition Inc.: Performed quality control assays for microbial growth using agarose and 3M Petrifilm plates as growth and identification media. Operated and maintained a LECO FP-628 Nitrogen Analyzer, CEM Sprint Protein Analyzer, Varian 640-IR FTIR, and Shimadzu UPLC for analysis of raw materials and finished products for chemical compound identification and quantification. Maintained both GMP and GLP for industrial laboratory settings. Edited and revised laboratory SOPs. Researched genes for real-time PCR alternative microbial method identification.

### *Research Assistant: Jan 2011 – Dec 2013*

Laboratory of Dr. Goffinet (University of Connecticut): Collected data for mitochondrial genome phylogenetic analysis to know if certain markers provided phylogenetic data and specify how certain species are related. Involved in extracting and sequencing DNA to confirm and/or determine phylogenetic relationships in species of bryophytes and lichens. Utilized DNA extraction, PCR, gel electrophoresis, preparation and sequencing reactions for Sanger method DNA sequencing. Operated an Applied Biosystems 3130 Genetic Analyzer and utilized Sequencher and MacClade software for evaluating and aligning DNA sequences. Acquired basic knowledge of phylogenetic tree building. Wrote macros in MS Word and Excel for data formatting.

### *Researcher: Jan 2013 – May 2013*

Independent Project for Advanced Cell Biology Laboratory: Researched phototaxis and multicellular development of *Dictyostelium discoideum*. Tried to determine actin/myosin's roles. Used two cell lines for experiments: Ax<sub>2</sub> being the control line developed to survive in liquid media and another genetically engineered research line that lacked all three actin binding proteins. Studied morphological differences using brightfield and fluorescence microscopy. Quantified movement results and morphological changes using ImageJ software. Familiarized with proper sterile technique for handling liquid cultured cell lines.

## PUBLICATIONS

- Hosseini, Z. F., Nelson, D. A., **Moskwa, N.**, & Larsen, M. (2019). Generating embryonic salivary gland organoids. *Current Protocols in Cell Biology*, e76. doi: 10.1002/cpcb.76
- Hoang, T., **Moskwa, N.**, & Halvorsen, K. (2018). A 'smart' tube holder enables real-time sample monitoring in a standard lab centrifuge. *PLoS ONE*, 13(4), 1–10. <http://doi.org/10.1371/journal.pone.0195907>
- Hosseini, Z. F., Nelson, D. A., **Moskwa, N.**, Sfakis, L. M., Castracane, J., & Larsen, M. (2018). FGF2-Dependent Mesenchyme and Laminin-111 are Niche Factors in Salivary Gland Organoids. *Journal of Cell Science*, 131(January). <http://doi.org/doi: 10.1242/jcs.208728>
- Liu, Y., **Moskwa, N. L.**, & Goffinet, B. (2012). Development of eight mitochondrial markers for Funariaceae (Musci) and their amplification success in other mosses. *American Journal of Botany*, 99(2), e62–e65. <http://doi.org/10.3732/ajb.1100402>

## MENTORING

- 2011-2021 Instructed children, teens and adults in dance and music relating to Capoeira (Hamilton Hills Arts Center, Rensselaer Polytechnic Institute, University of Connecticut, University at Albany).
- 2018-2021 Taught undergraduate and graduate students common lab protocols and computer science. Instructed writing and presentation improvement (University at Albany).
- 2020-2021 Group leader in summer bioinformatics workshops. Led students through genomic analyses, including providing support on using UNIX, SLURM on high performance computer nodes and R for data analysis and graphing. Mentored students on biological projects with a genomics focus ranging from muscular dystrophy to development (University at Albany)
- 2021-2021 Guest lecturer about my research for Professional development lecture series (University at Albany).
- 2021-2021 Guest lecturer on DNA in cell biology course (University at Albany).
- 2015-2021 Teaching assistant for Applied Environmental Biology Laboratory, Cell Biology Laboratory, Development Laboratory, Human Physiology Laboratory, Microbiology Laboratory, Vertebrate Histology Laboratory (University at Albany).
- 2020-2020 Instructed online fitness classes for children (Hamilton Hills Arts Center).
- 2016-2017 Trained and oversaw an undergraduate's work in lentiviral production workflow (University at Albany).
- 2015-2015 Trained Scientist I replacement in standard library creation, QC and sequencing workflow (Thermo Fisher Scientific).
- 2015-2015 Trained both Laboratory Technician replacement and Supervisor all current QC assays (Ultimate Nutrition).
- 2013-2013 Helped fellow undergraduate in PCR and gel electrophoresis training (University of Connecticut).
- 2008-2008 Instructed middle school students basic capoeira movements once a week for six months (Mansfield Middle School).

## CONFERENCES

- July 2021 International Association for Dental Research General Session: Poster presentation
- Mar 2021 The Northeast Region Society for Developmental Biology Regional Meeting: Poster presentation
- Jan 2021 University at Albany Life Science Research Symposium: Oral presentation
- Nov 2019 University at Albany Life Science Research Symposium: Poster presentation
- Apr 2019 The Northeast Region Society for Developmental Biology Regional Meeting: Poster presentation
- Mar 2019 6<sup>th</sup> Annual RNA Symposium: Poster presentation
- Feb 2019 Gordon Research Conference and Seminar on Salivary Glands and Exocrine Biology: Poster and oral presentation
- Oct 2018 University at Albany Life Science Research Symposium: Poster presentation
- Apr 2018 The Northeast Region Society for Developmental Biology Regional Meeting: Poster presentation

## GRANTS AND AWARDS

- Jan 2019 University at Albany RNA Institute travel award: Gordon Research Conference and Seminar on Salivary Glands and Exocrine Biology
- Apr 2018 University at Albany travel award: The Northeast Region Society for Developmental Biology Regional Meeting

## COMPUTER COMPETENCY:

Self-taught multiple programming languages to increase data analysis efficiency and perform repetitive tasks: Java-script for ImageJ picture analysis, R for large data analysis and graphing, Perl for genetic data formatting and querying, Python for instrument communication and data analysis, and UNIX functions for large transcriptomic data formatting.

Self-taught database creation in Microsoft Access to create a mouse colony tracking database

Developed Gene Set Enrichment Analysis workflow for microarray data analysis

**EXTRACURRICULAR ACTIVITIES:**

- 2015-2021 Capoeira Club (University at Albany, Rensselaer Polytechnic Institute, Hamilton Hills Arts Center): Taught adult and middle school students dancing and singing. Performed for various on and off campus organizations.
- 2021-2021 International Association for Dental Research General Session: Poster session chair.
- 2020-2020 Seminar in College Teaching (University at Albany): 12-week course dissecting and demonstrating how students learn. Create college course syllabus and 2 lesson plans for an expected course that would be taught. Used 1 lesson plan to teach a guest lecture in 2021.
- 2019-2019 Grant Writing Training Seminar: 1-day seminar about navigating NIH grant submission and components. Drafted F31 grant submission and edited peer's grant drafts.
- 2018-2018 CapSci Workshop: 1-day workshop about science communication with the public. Created an elevator talk summarizing current work into a 3-minute talk meant for public consumption.
- 2017-2017 ComSciCom Seminar: 2-day seminar about science communication with the public. Wrote an article means for public consumption and edited peer articles. Presented a 3-minute talk to gauge simplicity of language used.
- 2015-2015 College Teaching Symposium: 1-day course introducing basic teaching at the college level. Conversations included ideas about critical thinking inquires, how to approach feedback, and driving self-regulating learners.
- 2007-2014 Capoeira Club (University of Connecticut): Capoeira is a Brazilian martial art. Coordinated and managed a group of peers to promote Capoeira on campus. Interacted with community organizations and university services to acquire funding and training space. Organized performances for student organizations. Instructed fellow students in both music and choreography. Club president between years 2011-2013.