

Nelson Barrientos

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Education

Johns Hopkins University
School of Medicine, Department of Genetic Medicine
Doctor of Philosophy, Human Genetics

Baltimore, MD
July 2021 - Present

University of Virginia
School of Medicine, Department of Public Health
Master of Science, Clinical Research

Charlottesville, VA
Graduated in May 2020

University of Virginia
School of Engineering and Applied Sciences
Bachelor of Science, Biomedical Engineering

Charlottesville, VA
Graduated in May 2017

Northern Virginia Community College
Mathematics and Science

Annandale, VA
Transferred out in May 2014

Colegio Salesiano Santa Cecilia
High School Diploma

Santa Tecla, El Salvador
Graduated in October 2010

Publications

Ma, W. F., Hodonsky, C. J., Turner, A. W., Wong, D., Song, Y., Mosquera, J. V., Ligay, A. v., Slenders, L., Gancayco, C., Pan, H., **Barrientos, N. B.**, Mai, D., Alencar, G. F., Owsiany, K., Owens, G. K., Reilly, M. P., Li, M., Pasterkamp, G., Mokry, M., ... Miller, C. L. (2022). Enhanced single-cell RNA-seq workflow reveals coronary artery disease cellular cross-talk and candidate drug targets. *Atherosclerosis*, 340, 12–22. <https://doi.org/10.1016/j.atherosclerosis.2021.11.025>

Hodonsky, C. J., Turner, A., Khan, M. D., López, N. G., Wong, D., **Barrientos, N.**, Kovacic, J. C., Leeper, N. J., Björkegren, J. L. M., & Miller, C. (2021). Ancestrally diverse study populations benefit eQTL discovery and characterization in coronary artery tissue. *Atherosclerosis*, 331, e215. <https://doi.org/10.1016/j.atherosclerosis.2021.06.659>

Ma, W. F., Hodonsky, C., Turner, A., Wong, D., Song, Y., **Barrientos, N.**, Verdezoto Mosquera, J., & Miller, C. (2021).). Single-cell RNA-seq analysis of human coronary arteries using an enhanced workflow reveals SMC transitions and candidate drug targets. *BioRxiv*. <https://doi.org/https://doi.org/10.1101/2020.10.27.357715>

Research Experience

McCallion Lab

Johns Hopkins University School of Medicine

Department of Genetic Medicine

Graduate Student

Professor: Dr. Andrew McCallion, Ph.D.

Thesis Research Plan:

My thesis will help elucidate the biological relevance of functional noncoding variation in the context of Parkinson disease (PD) and their impact in disease risk and progression. This will be accomplished by integrating genomic, computational, and experimental strategies. We will use as our model, human induced pluripotent stem cell-derived dopaminergic (hiPSC-DA) neurons with and without α -syn preformed fibril (PFF) treatment.

Baltimore, MD

November 2021 – Present

Florea Lab

Johns Hopkins University School of Medicine

Department of Genetic Medicine

Rotation Graduate Student

Professor: Dr. Liliana Florea, Ph.D.

- Mapping splice QTLs in 467 lymphoblastoid cell lines from the GEUVADIS and 1000 Genomes Projects using sQTLseeker2.

Baltimore, MD

July 2021 – October 2021

Miller Lab

University of Virginia School of Medicine

Center for Public Health Genomics

Graduate Research Assistant

Professor: Dr. Clint Miller, Ph.D.

- Differential splicing analysis and mapping splice QTLs in CAD using RNAseq data from 149 samples and the software LeafCutter.

Charlottesville, VA

August 2019 – June 2021

Druzgal Lab

University of Virginia School of Medicine

Department of Radiology and Medical Imaging

Biomedical Engineering Capstone Student

Professor: Dr. Jason Druzgal, M.D., Ph.D.

- Imaging genetics using multimodal MRI and PET scans to create statistical correlations of external medical imaging data with brain genetic information from the Allen Human Brain Atlas.

Charlottesville, VA

August 2016 – May 2017

Shin Lab

University of Virginia School of Medicine

Department of Neuroscience

Undergraduate Research Assistant

Professor: Dr. Jung-Bum Shin, Ph.D.

- Conducted an independent research project to generate knock-in mice for a detailed biochemical characterization of the mechanotransduction complex in the stereocilia of hair cells.

Charlottesville, VA

May 2015 – May 2016

Conferences and Meetings

The Jackson Laboratory

Human and Mammalian Genetics and Genomics:

The 63rd McKusick Short Course

Bar Harbor, ME

July 2022

American Society of Human Genetics

Remote - October 2020

Session: Improving our understanding of the causes and consequences of cardiometabolic dysfunction.

Abstract and Presentation Title: Differential splicing analysis and mapping splicing quantitative trait loci in coronary artery disease.

Presenter: Nelson Barrientos

Teaching Experience

Emergency Training Solutions, LLC

Assistant EMT Instructor

Charlottesville, VA

October 2017 – December 2019

- Assisted with teaching and mentorship of EMT students.
- Provided workshops for new EMT students to practice their skills.

BME Teaching Fellowship – University of Virginia

Teaching Assistant

Charlottesville, VA

Spring 2017

- Assisted Dr. William Guilford, Ph.D. in teaching the BME Design and Discovery class that is divided in modules where students learn to use machine shop equipment appropriately. Other skills taught include electromechanics with Arduino, CAD for 3D printing and laser cutting, vacuum press, soldering, etc.

Technical Knowledge

Laboratory Skills

- Tissue culture, cell transfection and transformation
- CRISPR/Cas editing and differentiation of human induced pluripotent stem cells
- Gateway BP and LR recombination cloning
- Next Generation Sequencing with Oxford Nanopore technology
- Functional genomics

Computer and Software Skills

- Operating Systems: Windows, IOS, Unix, Linux
- Software: RStudio and R, Python, GitHub, MATLAB, Microsoft Office, CAD

Language

- Spanish: Native
- English: Fluent

Other Work and Volunteer Service

Charlottesville-Albemarle Rescue Squad

Charlottesville, VA

Basic and Advance Emergency Medical Technician

October 2016 – January 2020

- Provided pre-hospital care and transport to patients in need for urgent and emergent medical attention.
- Task included emergency care, scribing, ambulance driving under pressure, training and teaching new EMTs.

University of Virginia Health Center

Charlottesville, VA

Rehabilitation Services Technician

August 2017 – July 2019

- Assisted physical, occupational, and speech language pathology therapists with their in-clinical duties.

Madison House – University of Virginia

Charlottesville, VA

Student Volunteer

Fall 2015 – Spring 2016

- Greeted and assisted patients and their family members to find their destinations inside UVA Health Center.
- Provided indoor transportation to patients and their family members with UVA Health Center's golf cart.
- Assisted patients to get to their vehicles upon discharge.

Academic References

Dr. Andrew McCallion, Ph.D.

Assistant Director, Human Genetics Graduate Program

Professor of Genetic Medicine

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Telephone: 410-502-7533

Email: andy@jhmi.edu

Dr. Liliana Florea, Ph.D.

Associate Professor of Genetic Medicine

Address: 733 N. Broadway, 515 Baltimore, MD 21205

Email: florea@jhu.edu

Dr. Clint Miller, Ph.D.

Assistant Professor of Public Health Sciences

Address: PO Box 800717, Center for Public Health Genomics, MSB 3231 Charlottesville, VA 22908

Telephone: 434-982-0502

Email: clintm@virginia.edu