Curriculum Vitae

LUIS ANTONIO HADDOCK III SOTO

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EDUCATION

PhD Candidate, Cell and Molecular Biology Program — **2019-Present**
M.S., Cell and Molecular Biology — **2019-2021**
Concentration: Virology | Viral Evolution — Madison, WI
Minor: Quantitative Biology
University of Wisconsin, Madison

M.S., Molecular Microbiology — **2017-2019**
Minor: Bioinformatics — San Juan, PR
Interamerican University of Puerto Rico, Metropolitan Campus

B.Sc., Cell and Molecular Biology — **2011-2016**
University of Puerto Rico, Rio Piedras Campus — San Juan, PR

RESEARCH EXPERIENCE

Research Assistant – Pathobiological Sciences Department — **March 2020-Present**
University of Wisconsin-Madison
Principal Investigator: Dr. Thomas C. Friedrich
-Understanding the role of physical and biological factors in driving influenza A virus diversity
-Assessing the evolution of H7N9 avian influenza viruses during infection and transmission in ferrets
-Genomic surveillance of SARS-CoV-2 community spread in Wisconsin (USA)

Research Technician - Institute of Neurobiology — **June 2017-August 2019**
University of Puerto Rico, Medical Sciences Campus
Principal Investigator: Dr. Andrew M. Seeds
-Implementing machine learning to detect behavioral responses in Drosophila using targeted mechanical stimuli

Undergraduate - Biological Sciences Research Building, Julio García Díaz — **January 2014 – July 2016**
University of Puerto Rico, Rio Piedras Campus
Principal Investigator: Dr. Carlos I González (under the PR-LSAMP program)
-Determining the functional role of Upf2 phosphorylation in translation termination in yeast

HONORS AND RECOGNITIONS

Graduate Student Research Grants Competition – Travel Award	September 2022
American Society for Virology – Travel Award	July 2022
Cell and Molecular Biology Program – Travel Award	March 2022
Genomic Sciences Training Program (Fellowship #T32HG002760)	May 2020-September 2022
Yale Ciencia Academy Fellow (NIH/NIGMS #1R25GM114000)	January 2020-December 2020
SciMed Fellowship - UW Madison	August 2019 - Present
LSAMP (PR) fellowship and Travel Awards (#1400868)	August 2014 – July 2016
Dean's Honor List	2012, 2013, 2015, 2016

SKILLS

Software**:** Proficient in Python, command line interface, and R; proficient with Microsoft Office and Adobe (Photoshop and Illustrator); Basic MATLAB programing; Bioinformatics tools (BEAST, BLAST, MEGA, among others)

Languages**:** Fully bilingual in Spanish and English; Basic Spanish ASL

SCIENTIFIC PUBLICATIONS *(not including manuscripts in preparation)*

- Amato KM, **Haddock III LA**, Braun KM, Schaack GA, Higgins CA, Boehm EC, Barry GL, Meliopoulos V, Livingston B, Honce R, Schultz-Cherry S, Friedrich TC, Mehle A. 2022. Influenza A virus undergoes compartmentalized replication *in vivo* dominated by stochastic bottlenecks. Nature Communications 13:3416. PMID: 35701424
- **Braun KM*, Haddock III, LA*,** Crooks CM, Barry GL, Lalli J, Neumann G, Watanabe T, Kawaoka Y, Friedrich T. 2022. Avian H7N9 influenza viruses are evolutionary constrained by stochastic processes during replication and transmission in mammals. *BioRxiv preprint (under review at Virus Evolution)*
- Halfman PJ*, Minor NR*, **Haddock III, LA,** Maddox RM, Moreno, GM, Braun KM, … Friedrich, TC, O'Connor DH. Evolution of a globally unique SARS-CoV-2 Spike E484T monoclonal antibody escape mutation in a persistently infected, immunocompromised individual. *(accepted at Virus Evolution)*
- Riemersma KK, **Haddock III LA**, Wilson NA, Minor N, Eickhoff J, Grogan BE, Kita-Yarbro A, Halfmann PJ, Segaloff HE, Kocharian A, Florek KR. Shedding of infectious SARS-CoV-2 despite vaccination. PLoS pathogens. 2022 Sep 30;18(9):e1010876.
- Newman CM, Ramuta MD, McLaughlin MT, Wiseman RW, Karl JA, Dudley DM, Stauss MR, Maddox RJ, Weiler AM, Bliss MI, Fauser KN, **Haddock III LA**, … Friedrich TC, O'Connor SL, O'Connor DH. 2021. Initial evaluation of a mobile SARS-CoV-2 RT-LAMP testing strategy. Journal of Biomolecular Techniques Sep;32(3):137-147 PMID: 35035293
- Colón EM, **Haddock III LA,** Lasalde C, Lin Q, Ramírez-Lugo JS, González CI. 2021. Characterization of *S. cerevisiae* Upf2 mIF4G domains. (*under review at to PlosOne*)

  ** co-first authors*

SCIENTIFIC PRESENTATIONS

Narrow bottlenecks constrain the evolution of influenza a virus during direct contact transmission

- Evolution Seminar Series, University of Wisconsin-Madison [oral presentation] October 2022
- OPTIONS XI for the control of influenza, Waterfront Belfast, UK [poster presentation] September 2022
- American Society for Virology Annual meeting, University of Wisconsin-Madison [poster presentation] July 2022

Using barcodes for the detection and characterization of influenza A virus infection bottlenecks

- The Social life of Viruses 2022, St. Johns College Oxford, UK [oral presentation] March 2022
- NHGRI Research Training and Career Development Meeting, Duke University, NC [oral presentation] April 2022

Stochastic Processes Constrain the adaptation of Mammalian H7N9 viruses

- Molecular Virology Seminar, University of Wisconsin-Madison [oral presentation] February 2022

Quantifying influenza virus diversity during infection using molecular barcodes

- Genomic Sciences Training Program seminar [oral presentation] November 2021
- 2021 NHGRI Research Training and Career Development Annual Meeting [virtual poster] April 2021

Generation of a Neuron-Behavior Map in Drosophila Larvae

- Janelia Research Campus JUS Fellowship, Ashburn, VA [poster presentation] August 2018
- 2nd Puerto Rico Drosophila Neurobiology Meeting, San Juan, PR, [poster presentation] August 2018

Determining the Functional Role of Upf2 Phosphorylation in Translation Termination in yeast.

- ASBMB Annual Meeting at Experimental Biology 2016, San Diego, CA. [poster presentation] April 2016
- 36th Puerto Rico Interdisciplinary Scientific Meeting and 51st Junior Technical Meeting, University of Puerto Rico, Rio Piedras Campus [oral presentation] March 2016
- 65th American Medical Student Association Annual Convention, Washington, DC [poster presentation] February 2015
- 1st American Society for Biochemistry and Molecular Biology, University of Puerto Rico, Rio Piedras Campus Meeting [poster presentation] November 2014

WORKSHOPS ATTENDED

- Spatial Statistics in Epidemiology and Public Health, SISMID University of Washington [virtual] July 18-20, 2021
- Pathogen Evolution, Selection and Immunity, SISMID University of Washington [virtual] July 13-15, 2022
- Machine Learning for Biologists, University of Wisconsin-Madison [virtual] August 3-5, 2021
- Evolutionary Dynamics and Molecular Epidemiology of Viruses, SISMID University of Washington [virtual] July 14-16, 2021
- Resilient Scientist Virtual Workshop (NIH-OITE, NIH-NIGMS and UW-SMPH) January 21-May 1, 2021
- ARTIC network and CLIMB-BIG-DATA joint workshop on COVID-19 data analysis [virtual] January 18-21, 2021
- Yale Ciencia Academy Fellowship workshops:
  - Individual Development Plan (IDP) April 20, 2020
  - Outreach, Effective Communication, Mentoring and Community Building, January-December 2020
  - Scientific Teaching, October 6, 2020
- Software Carpentries: Python, Command Line and R for data science, University of Wisconsin-Madison Fall 2019

MEDIA ARTICLES & INTERVIEWS

- Spectrum News 1 article: *Variants 101: Understanding how the coronavirus mutates and why it matters* by Maddie Burakoff (2021)
  - *https://spectrumnews1.com/wi/milwaukee/news/2021/12/21/variants-101--understanding-how-the-coronavirus-mutates--and-why-it-matters*
- UW-Madison Interview: *UW-Madison Bioscience Graduate Programs & SciMed GRS* by Bioscience Graduate Programs (2021)
  - *https://www.youtube.com/watch?v=yoH8RXtGq1s*
- "El Nuevo Dia" column article: "*¿Puede propagarse el COVID-19 cuando las personas no presenten síntomas?"* by Luis A Haddock III (2020)
  - *https://www.elnuevodia.com/opinion/punto-de-vista/puede-propagarse-el-covid-19-cuando-las-personas-no-presenten-sintomas/*

SUMMER INTERNSHIPS

HHMI - Janelia Research Campus, Dr. Marta Zlatic — Ashburn, VA
Janelia Undergraduate Scholar — Summer 2018

- *Optogenetic activation of Drosophila neuronal components to generate a Neuron-Behavior Map*

Institute for Functional Nanomaterials — San Juan, PR
Nanotechnology Research Internship — June 2009

- *Development of nanoscale porous semiconductor films used for solar cells as energy sources in space*.

PUBLIC SERVICE AND LEADERSHIP

University of Wisconsin, Madison CMB recruitment and admissions committee member (2019 - Present)

- Volunteered to coordinate the Cell and Molecular Biology (CMB) recruitment weekend events to ensure that prospective applicants learn all about the program and the university. Following recruitment weekends, I. have been involved in the admissions process by discussing and recruiting applicants.

University of Wisconsin, Madison CMB Advising and Orientation committee member (2021-2022 academic year)

- Volunteered to serve as advisors for incoming students, guide them through course selection and laboratory rotations as well as scheduling regular meetings if needed.

National Science Policy Network "Ask a Scientist" initiative (volunteer) (March-April 2020)

- Answered questions from curious community members on the nature and molecular characteristics of SARS-CoV-2, epidemiology and public health data on outbreaks, spread prevention, traveling information, among many other topics. Also translated over 50 questions and answers into Spanish.

Community testing of SARS-CoV-2 using loop-mediated isothermal amplification (LAMP) in Wisconsin (May-October 2020)

- Volunteered to provide free SARS-CoV-2 testing in the vicinities of Madison, WI. We implemented SARS-CoV-2 testing in schools (E.A.G.L.E. and O.C.S elementary), as well as the UW National Primate Research Center (UW-NPRC) and UW Athletic Department. I was involved in sample collection, primary sample processing and interpretation of results.

PROFESSIONAL MEMBERSHIPS

American Society for Virology (ASV)	2019-Present
American Society for Microbiology (ASM)	2017-Present
American Association for the Advancement of Science (AAAS)	2018-Present
American Society for Biochemistry and Molecular Biology (ASBMB)	2015-Present
Neuroboricuas – "Explora tu Cerebro en las San Se", Volunteer	(2018 and 2019)

TUTORING AND TEACHING EXPERIENCE

Institute of Neurobiology – University of Puerto Rico, Medical Sciences Campus

- **Science Outreach for pre-college students** August 2017-June 2019

University of Puerto Rico, Rio Piedras Campus

- **Molecular Genetics Tutor**, (BIOL 5398) January 2016-May 2016
- **Biochemistry Tutor,** (BIOL 4545) January 2015-December 2015