Matthew M. Hernandez, MD, PhD, D(ABMM)
Curriculum Vitae

Date Prepared:	03/06/2026
Name:	Matthew M. Hernandez
Office Address:	3373 Hillview Ave., Room 230A, Palo Alto, CA 94304
Work Phone:	650-724-3154
Work Email:	mherna17@stanford.edu; matt.hernandez@stanford.edu
Alternative Email:	matthew.m.hernandez@gmail.com

EDUCATION:

06/2012 – 05/2020	MD/PhD	Microbiology (PhD) Dissertation: "Mapping genetic variation in HIV and APOBEC3 host defenses" (advisor: Viviana Simon, MD, PhD)	Icahn School of Medicine at Mount Sinai (ISMMS)
09/2007 – 06/2011	Bachelor of Science (with Honors)	Biochemistry and Molecular Biology	Brown University

POSTDOCTORAL TRAINING:

07/2023 – 06/2024	ACGME Fellow	Medical Microbiology	Beth Israel Deaconess Medical Center (BIDMC)
07/2020 – 06/2023	Resident Physician *Chief Resident (2022-2023)*	Clinical Pathology, Physician-Scientist Track	ISMMS

FACULTY ACADEMIC APPOINTMENTS:

12/2024 – Present	Assistant Professor – University Medical Line	Department of Pathology	Stanford University School of Medicine
07/2024 – 12/2024	Clinical Instructor	Department of Pathology	Stanford University School of Medicine

REPORT OF CLINICAL ACTIVITIES:

Current Licensure and Certification:

Aug. 2024 – Present	Board Certified in Medical and Public Health Microbiology by the American Board of Medical Microbiology
May 2024 – Present	California State Medical License
Jun. 2023 – Present	Board Certified in Clinical Pathology by the American Board of Pathology
Jan. 2023 – Present	Massachusetts State Medical License
Feb. 2022 – Present	New York State Medical License

Practice Activities:

2024 – Present	Associate Director – Clinical Microbiology and Clinical Virology Laboratories	Stanford University School of Medicine, Palo Alto, CA	Co-director of the Clinical Microbiology and Clinical Virology Laboratories where I oversee infectious disease diagnostic testing for patients at Stanford Healthcare and Lucille Packard Children's Hospital. I also directly oversee infectious disease serology testing, serve as clinical consultant to providers, and teach infectious disease and pathology trainees.
2022 – 2023	Pathology Chief Resident	ISMMS, New York, NY	Leader of Pathology Resident trainees where I supervised clinical duties and administrative functions for the residency program and shaped clinical pathology curricula.
2016 – 2023	Contributing Investigator	Pathogen Surveillance Program (PSP), ISMMS, New York, NY	Helped establish the Personalized Virology Initiative arm of the ISMMS PSP to bring together geneticists, microbiologists, and physicians to survey, track, and genetically characterize pathogens in the Mount Sinai Health System.

HONORS AND AWARDS:

2024	Clinical Pathology Fellow Teaching Award	BIDMC Department of Pathology	Recognition of one clinical pathology fellow for excellence in trainee education as honored by departmental faculty, residents, and students.
2024	Peggy Cotter Award for Early Career Branch Members	American Society for Microbiology (ASM)	Travel award for the 2024 ASM Microbe meeting in recognition of academic goals and professional progress for early career members of the Northeast Branch of ASM.

2023	Top 5 - 40 Under Forty	American Society for Clinical Pathology (ASCP)	Recognition of an ASCP member under 40 years old for achievements and leadership qualities in making an impact on pathology and laboratory medicine. Highlighted as one of the top 5 honorees as selected by the ASCP committee and peer voting.
2023	Alpha Omega Alpha (AOA)	ISMMS, AOA Lambda Chapter	Recognition for service as an outstanding clinician, scholar, mentor, teacher and role model.
2021	Paul E. Strandjord Young Investigator Award	Association for Clinical Laboratory Physicians and Scientists (ACLPS) Meeting	Recognition of my research as one of the top scoring abstracts at the 2021 ACLPS Meeting.
2020	Graduate with Distinction in Medical Education	ISMMS	Recognition of select students who have dedicated significant time to education, demonstrated excellence in teaching and curriculum development, and who have taken a scholarly approach to works in education.
2020	Graduate with Distinction in Research	ISMMS	Recognition of select students who take ownership of an original research project and publish the results as a first author during medical school.
2017	NYC Department of Education Recognition of Mentorship	Center for Excellence in Youth Education, ISMMS	Recognition of select graduate student and faculty mentors at ISMMS for their guidance and mentorship of high school students in the clinical and basic lab setting.
2017	Medical Student Excellence in Teaching Award	Institute of Medical Education, ISMMS	Recognition of student educators across the Mount Sinai Health System for their dedication and commitment to teaching and learning.
2016	Best Talk Award	Twenty-Ninth Virus-Host Interactions Symposium	Selected as the best talk by graduate student or post-doctorate researchers at the symposium. Cash award.
2016	Young Investigator Scholarship Award	Conference on Retroviruses and Opportunistic Infections (CROI)	Selected as a top scoring abstract and provided a travel award with access to exclusive sessions on career development, networking, and research by leaders in the field.
2012	Science and Leadership Merit Award	ISMMS	Selected from a competitive applicant pool of MD/PhD candidates for having demonstrated dedication and excellence in academics and research. Scholarship award.

2011	Intramural NIAID Research Training Opportunities Training Award	NIH/NIAID	Selected through a competitive evaluation process and awarded a stipend for research training in infectious diseases at the Rocky Mountain Laboratories under Stephen Porcella, PhD.
2011	Scientific Research Society Membership Award	Sigma Xi, Brown University	Recognition for undergraduate senior thesis.
2010	Travel Award	Annual Biomedical Research Conference for Minority Students (ABRCMS)	Selected as one of the top scoring abstracts from a competitive pool of undergraduate and graduate presenters and provided monetary award.
2009	Undergraduate Teaching and Research Award (UTRA)	Brown University	Selected from a competitive pool of undergraduate and graduate students for summer research under Richard J. Bennett, PhD.

REPORT OF SCHOLARSHIP:

Peer-Reviewed Scholarship (*, indicates equal contribution; ‡, corresponding author):

Published Manuscripts

1. Karan A, Higerd-Rusli G, **Hernandez MM#**, Dhillon R, Pinsky B. *Expanding testing early in the H5N1 outbreak.*
   Lancet. 2025. Mar 8;405(10481):779-780. Doi: 10.1016/S0140-6736(25)0090-X. PubMed PMID: 40057336; PubMed Central PMCID: PMC11987165.
   #Participated in the conceptualization, literature search, writing, and editing/revision.
2. Gleason C, Terry SN, **Hernandez MM#,** Jacob S, Fenyo D, Johnson JR, Deikus G, Francoeur N, Hahn A, Sebra R, Zamarin D, Molina H, Simon V, Mulder LCF. *An integrated approach for the accurate detection of HERV-K HML-2 transcription and protein synthesis*.
   Nucleic Acid Res. 2025. Jan 11;53(2). doi: 10.1093/nar/gkaf011. PubMed PMID: 39831303; PubMed Central PMCID: PMC11744191.
   #Participated in the sequencing and data analysis.
3. Paniz-Mondolfi A, Reidy J, Pagani N, Lednicky JA, McGrail JP, Kasminskaya Y, Patino LH, Garcia-Sastre A, Palacios G, Gonzalez-Reiche AS, van Bakel H, Firpo Betancourt A, **Hernandez MM#,** Cordon-Cardo C, Simon V, Sordillo EM, Ramírez JD, Guerra S. *Genomic and ultrastructural analysis of monkeypox virus in skin lesions and in human/animal infected cells reveals further morphofunctional insights into viral pathogenicity.*
   J Med Virol. 2023 Jun;95(6):e28878. doi: 10.1002/jmv.28878. PubMed PMID: 37322614.
   #Participated in curation of specimen data, development of methodologies, and writing and editing the manuscript and figure design.

4. Patiño LH, Guerra S, Muñoz M, Luna N, Farrugia K, van de Guchte A, Khalil Z, Gonzalez-Reiche AS, **Hernandez MM[#],** Banu R, Shrestha P, Liggayu B, Betancourt AF, Reich D, Cordon-Cardo C, Albrecht R, Pearl R, Simon V, Rooker A, Sordillo EM, van Bakel H, García-Sastre A, Bogunovic D, Palacios G, Mondolfi AP, Ramírez JD. *Phylogenetic landscape of Monkeypox Virus (MPV) during the early outbreak in New York City, 2022.*
Emerg Microbes Infect. 2023 Mar 17;:1-111. doi: 10.1080/22221751.2023.2192830. [Epub ahead of print] PubMed PMID: 36927408; PubMed Central PMCID: PMC10114986.
[#]Participated in curation of specimen data, utilization of diagnostic testing, and writing and editing the manuscript and figures.

5. Paniz-Mondolfi A, Guerra S, Muñoz M, Luna N, **Hernandez MM[#],** Patino LH, Reidy J, Banu R, Shrestha P, Liggayu B, Umeaku A, Chen F, Cao L, Patel A, Hanna A, Li S, Look A, Pagani N, Albrecht R, Pearl R, Garcia-Sastre A, Bogunovic D, Palacios G, Bonnier L, Cera F, Lopez H, Calderon Y, Eiting E, Mullen K, Shin SJ, Lugo LA, Urbina AE, Starks C, Koo T, Uychiat P, Look A, van Bakel H, Gonzalez-Reiche A, Betancourt AF, Reich D, Cordon-Cardo C, Simon V, Sordillo EM, Ramírez JD. *Evaluation and validation of an RT-PCR assay for specific detection of monkeypox virus (MPXV).*
J Med Virol. 2023 Jan;95(1):e28247. doi: 10.1002/jmv.28247. Epub 2022 Nov 1. PubMed PMID: 36271493.
[#]Participated in curation of specimen data and writing and editing the manuscript and figures.

6. **Hernandez MM[‡],** Banu R, Shrestha P, Gonzalez-Reiche AS, van de Guchte A, Farrugia K, Sebra R, Gitman MR, Nowak MD, Cordon-Cardo C, Simon V, van Bakel H, Sordillo EM, Luna N, Ramirez A, Castañeda SA, Patiño LH, Ballesteros N, Muñoz M, Ramírez JD, Paniz-Mondolfi AE[‡]. *A Robust, Highly Multiplexed Mass Spectrometry Assay to Identify SARS-CoV-2 Variants.*
Microbiol Spectr. 2022 Oct 26;10(5):e0173622. doi: 10.1128/spectrum.01736-22. Epub 2022 Sep 7. PubMed PMID: 36069609; PubMed Central PMCID: PMC9604185.

7. **Hernandez MM[‡],** Banu R, Gonzalez-Reiche AS, Gray B, Shrestha P, Cao L, Chen F, Shi H, Hanna A, Ramírez JD, van de Guchte A, Sebra R, Gitman MR, Nowak MD, Cordon-Cardo C, Schutzbank TE, Simon V, van Bakel H, Sordillo EM, Paniz-Mondolfi AE[‡]. *RT-PCR/MALDI-TOF Diagnostic Target Performance Reflects Circulating SARS-CoV-2 Variant Diversity in New York City.*
J Mol Diagn. 2022 Jul;24(7):738-749. doi: 10.1016/j.jmoldx.2022.04.003. Epub 2022 May 4. PubMed PMID: 35525388; PubMed Central PMCID: PMC9067105.

8. Ramírez JD, Castañeda S, Ballesteros N, Muñoz M, **Hernandez MM[#],** Banu R, Shrestha P, Chen F, Shi H, van Bakel H, Simon V, Cordon-Cardo C, Sordillo EM, Paniz-Mondolfi AE. *Hotspots for SARS-CoV-2 Omicron variant spread: Lessons from New York City.*
J Med Virol. 2022 Jul;94(7):2911-2914. doi: 10.1002/jmv.27691. Epub 2022 Mar 14. PubMed PMID: 35243662; PubMed Central PMCID: PMC9088473.
[#]Participated in conceiving the study and writing and editing the manuscript and figures.

9. **Hernandez MM[‡],** Riollano-Cruz M, Boyle MC, Banu R, Shrestha P, Gray B, Cao L, Chen F, Shi H, Paniz-Perez DE, Paniz-Perez PA, Rishi AL, Dubinsky J, Dubinsky D, Dubinsky O, Baine S, Baine L, Arinsburg S, Baine I, Ramirez JD, Cordon-Cardo C, Sordillo EM, Paniz-Mondolfi AE[‡]. *Food for thought: Eating before saliva collection and interference with SARS-CoV-2 detection.*
J Med Virol. 2022 Jun;94(6):2471-2478. doi: 10.1002/jmv.27660. Epub 2022 Feb 23. PubMed PMID: 35171508; PubMed Central PMCID: PMC9088375. **BACK COVER.**

10. **Hernandez MM[‡],** Banu R, Gonzalez-Reiche AS, van de Guchte A, Khan Z, Shrestha P, Cao L, Chen F, Shi H, Hanna A, Alshammary H, Fabre S, Amoako A, Obla A, Alburquerque B, Patiño LH, Ramírez JD, Sebra R, Gitman MR, Nowak MD, Cordon-Cardo C, Schutzbank TE, Simon V, van Bakel H, Sordillo EM, Paniz-Mondolfi AE[‡]. *Robust clinical detection of SARS-CoV-2 variants by RT-PCR/MALDI-TOF multitarget approach.*
J Med Virol. 2022 Apr;94(4):1606-1616. doi: 10.1002/jmv.27510. Epub 2021 Dec 16. PubMed PMID: 34877674; PubMed Central PMCID: PMC8854350.

11. Forero-Peña DA, **Hernandez MM[#],** Mozo Herrera IP, Collado Espinal IB, Páez Paz J, Ferro C, Flora-Noda DM, Maricuto AL, Velásquez VL, Camejo-Avila NA, Sordillo EM, Delgado-Noguera LA, Perez-Garcia LA, Morantes Rodríguez CG, Landaeta ME, Paniz-Mondolfi AE. *Remitting neuropsychiatric symptoms in COVID-19 patients: Viral cause or drug effect?.*
J Med Virol. 2022 Mar;94(3):1154-1161. doi: 10.1002/jmv.27443. Epub 2021 Nov 19. PubMed PMID: 34755347; PubMed Central PMCID: PMC8661670.
[#]Participated in analyzing and interpreting trends in case outcomes and writing and editing the manuscript and table contents.

12. Peña N, Zhang W, Watkins C, Halucha M, Alshammary H**, Hernandez MM[#],** Liu WC, Albrecht RA, Garcia-Sastre A, Simon V, Katanski C, Pan T. *Profiling Selective Packaging of Host RNA and Viral RNA Modification in SARS-CoV-2 Viral Preparations.*
Front Cell Dev Biol. 2022 Feb 3;10:768356. doi: 10.3389/fcell.2022.768356. eCollection 2022. PubMed PMID: 35186917; PubMed Central PMCID: PMC8851031.
[#]Participated in culturing SARS-CoV-2 viruses and extracting total and viral RNA as well as editing the manuscript and figures.

13. Tan J, O'Dell G, **Hernandez MM[#],** Sordillo EM, Kahn Z, Kriti D, van Bakel H, Ellebedy AH, Wilson PC, Simon V, Krammer F, McMahon M. *Human Anti-neuraminidase Antibodies Reduce Airborne Transmission of Clinical Influenza Virus Isolates in the Guinea Pig Model.*
J Virol. 2022 Jan 26;96(2):e0142121. doi: 10.1128/JVI.01421-21. Epub 2021 Oct 20. PubMed PMID: 34669506; PubMed Central PMCID: PMC8791283.
[#]Participated in curation of clinical viral isolates and reviewing and editing the manuscript and figures.

14. Javaid W, Ehni J, Gonzalez-Reiche AS, Carreño JM, Hirsch E, Tan J, Khan Z, Kriti D, Ly T, Kranitzky B, Barnett B, Cera F, Prespa L, Moss M, Albrecht RA, Mustafa A, Herbison I, **Hernandez MM[#],** Pak TR, Alshammary HA, Sebra R, Smith ML, Krammer F, Gitman MR, Sordillo EM, Simon V, van Bakel H. *Real-Time Investigation of a Large Nosocomial Influenza A Outbreak Informed by Genomic Epidemiology.*
Clin Infect Dis. 2021 Dec 6;73(11):e4375-e4383. doi: 10.1093/cid/ciaa1781. PubMed PMID: 33252647; PubMed Central PMCID: PMC8653627.
[#]Participated in clinical sample accessioning, viral RNA extraction and viral subtyping, analysis and interpretation of clinical data.

15. **Hernandez MM[‡],** Banu R, Shrestha P, Patel A, Chen F, Cao L, Fabre S, Tan J, Lopez H, Chiu N, Shifrin B, Zapolskaya I, Flores V, Lee PY, Castañeda S, Ramírez JD, Jhang J, Osorio G, Gitman MR, Nowak MD, Reich DL, Cordon-Cardo C, Sordillo EM, Paniz-Mondolfi AE[‡]. *RT-PCR/MALDI-TOF mass spectrometry-based detection of SARS-CoV-2 in saliva specimens.*
J Med Virol. 2021 Sep;93(9):5481-5486. doi: 10.1002/jmv.27069. Epub 2021 May 19. PubMed PMID: 33963565; PubMed Central PMCID: PMC8242556.

16. Patiño LH, Ballesteros N, Muñoz M, Castañeda S, Hernández C, Gomez S, Florez C, Rico A, Pardo L, Hernandez-Pereira CE, Delgado-Noguera L, Grillet ME, **Hernandez MM[#],** Khan Z, van de Guchte A, Dutta J, Gonzalez-Reiche AS, Simon V, van Bakel H, Sordillo EM, Ramírez JD, Paniz-Mondolfi AE. *SARS-CoV-2 in Transit: Characterization of SARS-CoV-2 Genomes From Venezuelan Migrants in Colombia.*
Int J Infect Dis. 2021 Sep;110:410-416. doi: 10.1016/j.ijid.2021.07.069. Epub 2021 Jul 29. PubMed PMID: 34333122; PubMed Central PMCID: PMC10130730.
[#]Participated in curation, analysis and interpretation of data as well as drafting and critical revising of the manuscript and figures.

17. (**Hernandez MM**, Gonzalez-Reiche AS)*, Alshammary H, Fabre S, Khan Z, van De Guchte A, Obla A, Ellis E, Sullivan MJ, Tan J, Alburquerque B, Soto J, Wang CY, Sridhar SH, Wang YC, Smith M, Sebra R, Paniz-Mondolfi AE, Gitman MR, Nowak MD, Cordon-Cardo C, Luksza M, Krammer F, van Bakel H, Simon V, Sordillo EM. *Molecular evidence of SARS-CoV-2 in New York before the first pandemic wave.*
Nat Commun. 2021 Jun 8;12(1):3463. doi: 10.1038/s41467-021-23688-7. PubMed PMID: 34103497; PubMed Central PMCID: PMC8187428.

18. Ballesteros N, Muñoz M, Patiño LH, Hernández C, González-Casabianca F, Carroll I, Santos-Vega M, Cascante J, Angel A, Feged-Rivadeneira A, Palma-Cuero M, Flórez C, Gomez S, van de Guchte A, Khan Z, Dutta J, Obla A, Alshammary HA, Gonzalez-Reiche AS, **Hernandez MM[#],** Sordillo EM, Simon V, van Bakel H, Paniz-Mondolfi AE, Ramírez JD. *Deciphering the introduction and transmission of SARS-CoV-2 in the Colombian Amazon Basin.*
PLoS Negl Trop Dis. 2021 Apr;15(4):e0009327. doi: 10.1371/journal.pntd.0009327. eCollection 2021 Apr. PubMed PMID: 33857136; PubMed Central PMCID: PMC8078805.
[#]Participated in analysis and interpretation of epidemiologic data, facilitating sequencing of viral isolates, and reviewing and editing the manuscript.

19. Ramírez JD, Florez C, Muñoz M, Hernández C, Castillo A, Gomez S, Rico A, Pardo L, Barros EC, Castañeda S, Ballesteros N, Martínez D, Vega L, Jaimes JE, Cruz-Saavedra L, Herrera G, Patiño LH, Teherán AA, Gonzalez-Reiche AS, **Hernandez MM[#],** Sordillo EM, Simon V, van Bakel H, Paniz-Mondolfi A. *The arrival and spread of SARS-CoV-2 in Colombia.*
J Med Virol. 2021 Feb;93(2):1158-1163. doi: 10.1002/jmv.26393. Epub 2020 Aug 13. PubMed PMID: 32761908; PubMed Central PMCID: PMC7436700.
[#]Participated in sequencing of viral isolates and reviewing and editing the manuscript.

20. (Stadlbauer D, Tan J, Jiang K)*, **Hernandez MM[#],** Fabre S, Amanat F, Teo C, Arunkumar GA, McMahon M, Capuano C, Twyman K, Jhang J, Nowak MD, Simon V, Sordillo EM, van Bakel H, Krammer F. *Repeated cross-sectional sero-monitoring of SARS-CoV-2 in New York City.*
Nature. 2020 Nov 3;. doi: 10.1038/s41586-020-2912-6. [Epub ahead of print] PubMed PMID: 33142304.
[#]Participated in collection, organization, and banking of clinical specimens as well as reviewing and editing the manuscript.

21. Paniz-Mondolfi A, Muñoz M, Florez C, Gomez S, Rico A, Pardo L, Barros EC, Hernández C, Delgado L, Jaimes JE, Pérez L, Teherán AA, Alshammary HA, Obla A, Khan Z, Dutta J, van de Guchte A, Gonzalez-Reiche AS, **Hernandez MM[#],** Sordillo EM, Simon V, van Bakel H, Llewellyn MS, Ramírez JD. *SARS-CoV-2 spread across the Colombian-Venezuelan border.*
Infect Genet Evol. 2020 Dec;86:104616. doi: 10.1016/j.meegid.2020.104616. Epub 2020 Nov 4. PubMed PMID: 33157300; PubMed Central PMCID: PMC7609240.
[#]Participated in quantitating and sequencing of viral isolates and reviewing and editing the manuscript.

22. Pujadas E, Ibeh N, **Hernandez MM[#],** Waluszko A, Sidorenko T, Flores V, Shiffrin B, Chiu N, Young-Francois A, Nowak MD, Paniz-Mondolfi AE, Sordillo EM, Cordon-Cardo C, Houldsworth J, Gitman MR. *Comparison of SARS-CoV-2 detection from nasopharyngeal swab samples by the Roche cobas 6800 SARS-CoV-2 test and a laboratory-developed real-time RT-PCR test.*
J Med Virol. 2020 Sep;92(9):1695-1698. doi: 10.1002/jmv.25988. Epub 2020 May 22. PubMed PMID: 32383179; PubMed Central PMCID: PMC7267546.
[#]Participated in leading the development and validation of the SARS-CoV-2 nucleic acid amplification test in the clinical laboratory, generation of diagnostic data, and reviewing and editing the manuscript.

23. (Gonzalez-Reiche AS, **Hernandez MM**)*, Sullivan MJ, Ciferri B, Alshammary H, Obla A, Fabre S, Kleiner G, Polanco J, Khan Z, Alburquerque B, van de Guchte A, Dutta J, Francoeur N, Melo BS, Oussenko I, Deikus G, Soto J, Sridhar SH, Wang YC, Twyman K, Kasarskis A, Altman DR, Smith M, Sebra R, Aberg J, Krammer F, García-Sastre A, Luksza M, Patel G, Paniz-Mondolfi A, Gitman M, Sordillo EM, Simon V, van Bakel H. *Introductions and early spread of SARS-CoV-2 in the New York City area.*
Science. 2020 Jul 17;369(6501):297-301. doi: 10.1126/science.abc1917. Epub 2020 May 29. PubMed PMID: 32471856; PubMed Central PMCID: PMC7259823.

24. (**Hernandez MM,** Fahrny A)*, Jayaprakash A, Gers-Huber G, Dillon-White M, Audigé A, Mulder LCF, Sachidanandam R, Speck RF, Simon V. *Impact of Suboptimal APOBEC3G Neutralization on the Emergence of HIV Drug Resistance in Humanized Mice.*
J Virol. 2020 Feb 14;94(5). doi: 10.1128/JVI.01543-19. Print 2020 Feb 14. PubMed PMID: 31801862; PubMed Central PMCID: PMC7022346.

25. Manganaro L, Hong P, **Hernandez MM[#],** Argyle D, Mulder LCF, Potla U, Diaz-Griffero F, Lee B, Fernandez-Sesma A, Simon V. *IL-15 regulates susceptibility of CD4+ T cells to HIV infection.* **Proc Natl Acad Sci U S A.** 2018 Oct 9;115(41):E9659-E9667. doi: 10.1073/pnas.1806695115. Epub 2018 Sep 26. PubMed PMID: 30257946; PubMed Central PMCID: PMC6187195.
[#]Participated in processing of primary cells, cell culture and protein detection experiments, as well as reviewing and editing the manuscript.

26. Mackey-Lawrence NM, Guo X, Sturdevant DE, Virtaneva K, **Hernandez MM[#],** Houpt E, Sher A, Porcella SF, Petri WA Jr. *Effect of the leptin receptor Q223R polymorphism on the host transcriptome following infection with Entamoeba histolytica.*
Infect Immun. 2013 May;81(5):1460-70. doi: 10.1128/IAI.01383-12. Epub 2013 Feb 19. PubMed PMID: 23429533; PubMed Central PMCID: PMC3647980.
[#]Participated in processing of nucleic acids and quantitative gene expression studies as well as reviewing and editing the manuscript.

27. Adam RD, Dahlstrom EW, Martens CA, Bruno DP, Barbian KD, Ricklefs SM, **Hernandez MM[#],** Narla NP, Patel RB, Porcella SF, Nash TE. *Genome sequencing of Giardia lamblia genotypes A2 and B isolates (DH and GS) and comparative analysis with the genomes of genotypes A1 and E (WB and Pig).*
Genome Biol Evol. 2013;5(12):2498-511. doi: 10.1093/gbe/evt197. PubMed PMID: 24307482; PubMed Central PMCID: PMC3879983.
[#]Participated in processing of nucleic acids and sample preparation of sequencing libraries.

Case Reports

1. Higerd-Rusli GP, Karan A, Hoffman SA, Morante IEA, Huang C, Sahoo MK, **Hernandez MM[#]**, Pinsky BA. *One confirmed and one potential human case of influenza A(H5N1) detected through an expanded subtyping protocol.*
ASM Case Rep. 2026 Jan;1(2). doi: 10.1128/asmcr.00165-25. eCollection 2026 Jan. PubMed PMID: 41503532; PubMed Central PMCID: PMC12772291.
[#]Participated in the conceptualization, literature search, writing, and editing/revision.

2. (**Hernandez MM,** Buckley A)*, Mills A, Meislin R, Cromwell C, Bianco A, Strong N, Arinsburg S. *Multidisciplinary management of a pregnancy complicated by Glanzmann thrombasthenia: A case report.* **Transfusion**. 2023 Nov 12;. doi: 10.1111/trf.17594. [Epub ahead of print] PubMed PMID: 37952246.

3. Fabre S, Malik Y, van De Guchte A, Delgado-Noguera LA, Gitman MR, Nowak MD, Sordillo EM, **Hernandez MM[#],** Paniz-Mondolfi AE. *Catheter-related bloodstream infection due to biofilm-producing Capnocytophaga sputigena.*
IDCases. 2021 Jul 24;25:e01231. doi: 10.1016/j.idcr.2021.e01231. eCollection 2021. PubMed PMID: 34377666; PubMed Central PMCID: PMC8329477.
[#]Participated in conception of the case description and associated experiments, imaging of bacterial isolates, analysis of results, and writing and reviewing the manuscript.

Published Abstracts

1. **Hernandez MM,** Banu R, Gonzalez-Reiche AS, van de Guchte A, Khan Z, Shrestha P, Cao L, Chen F, Shi H, Hanna A, Alshammary H, Fabre S, Amoako A, Obla A, Alburquerque B, Patiño L, Ramírez JD, Sebra R, Gitman MR, Nowak MD, Cordon-Cardo C, Schutzbank T, Simon V, van Bakel H, Sordillo EM, Paniz-Mondolfi AE. *Genetic Variation in circulating SARS-CoV-2 is detected by RT-PCR/MALDI-TOF diagnostic targets.*
J. Mol. Diagn. Published 2021 Nov 01;23(11):1567-1649. doi: 10.1016/S1525-1578(21)00315-9.

2. **Hernandez MM,** Banu R, Shrestha P, Patel A, Chen F, Cao L, Fabre S, Tan J, Lopez H, Chiu N, Shifrin B, Zapolskaya I, Flores V, Lee PY, Castañeda S, Ramírez JD, Jhang J, Osorio G, Gitman MR, Nowak MD, Reich DL, Cordon-Cardo C, Sordillo EM, Paniz-Mondolfi AE. *Comparison of real-time RT-PCR and RT-PCR/MALDI-TOF methods for SARS-CoV-2 detection in saliva.*

Am. J. Clin. Pathol. Published 2021 Oct 28;156(Supplement_1):S9. doi: 10.1093/ajcp/aqab189.015.

3. **Hernandez MM,** Gitman M, Altman D, Woods KL, Javaid W, Gabasan A, Schwing D, Ehni J, Moss M, Tan J, Khan Z, Kriti D, Ly T, Samaroo F, Hirsch E, Polanco J, Luksza M, Mustafa A, Powell J, Carreno-Quiroz JM, Pak T, Kasarskis A, Sebra R, Smith M, Garcia-Sastre A, Krammer F, Simon V, van Bakel H, Sordillo EM. *Real time outbreak investigation informed by whole-genome sequencing and data mining: expecting the unexpected.*
J. Mol. Diagn. Published 2019 Oct 18;21(6):1119-1249. doi: 10.1016/S1525-1578(19)30391-5.
4. Shaw PA and **Hernandez MM**. *Histology Education in the Next Generation.*
The FASEB Journal. Published 2017;31(1_supplement):583.582-583.582. doi: 10.1096/fasebj.31.1_supplement.583.2.

THESIS:

Hernandez MM. Mapping Genetic Variation in HIV and APOBEC3 Host Defenses. Order No. 10840942 ed. Icahn School of Medicine at Mount Sinai; 2018.
https://www.proquest.com/docview/2099966800/9D3FA47487D949F7PQ

REPORT OF FUNDED AND UFUNDED PROJECTS:

Current

2026 – 2028 *Closing the Delta Gap: Universal HDV Screening and Epidemiology in a US Medical Center*
SPEARHEAD 2.0, Gilead Sciences, IN-US-980-7914
PI: Matthew M. Hernandez, MD, PhD

Hepatitis D Virus (HDV) infection can severely exacerbate liver disease in HBV-infected patients. However, HDV epidemiology in the US is poorly defined due to inconsistent screening and limited population-based data. The goal of this project is to examine provider testing utilization and to broadly screen HBV infected patients to address these gaps and better inform testing guidelines.

2025 – 2026 *Unveiling the phenotypic and genotypic diversity of clinical Aeromonas isolates*
Pathology Trainee Mentored Award
Stanford University, Department of Pathology, 1194947-190-DHCRE
PI: Matthew M. Hernandez, MD, PhD. (Trainee: William Wey, MD)

Aeromonas species are an underrecognized bacterial cause of disease and source of antimicrobial resistance. However, diagnostic limitations hinder our understanding of pathogenic species, particularly in the US. The goal of this project is to dissect the outcomes of *Aeromonas* infections in SHC patients through clinical data review and to interrogate the genomic diversity of isolates through whole genome sequencing (WGS).

2024 – 2028 Department of Pathology Startup Funds
Stanford University
PI: Matthew M. Hernandez, MD, PhD

These funds support essential work in two areas: (1) genomic epidemiology and development of molecular tools to interrogate pathogen evolution and spread; and (2) clinical pathology informatics to dissect utilization of infectious disease testing and elucidate the arrival and spread of underrecognized and emerging pathogens.

Past

2016 – 2017 *Variation within HIV and APOBEC3 host defenses*
ISMMS-NYU Virus-Host Interactions Training Grant, NIH/NIAID, 5T32AI007647-17
Trainee. (PI: Peter Palese, PhD)

The focus of this project is to determine the impact of variation on viral and APOBEC3 variation. We will assess the role of APOBEC3B copy number variation on HIV pathogenesis in a cohort of HIV controllers. In addition, in parallel we will assess the impact of APOBEC3G and Vif variants on HIV diversification *in vivo.*

2014 – 2016 *HIV-1 evolution driven by intracellular defenses*
NIH/NIAID, Diversity Supplement to R01AI064001
Trainee. (PI: Viviana Simon, MD, PhD)

The focus of this project is to determine the relationships between Vif variants and its host protein targets. We will assess the anti-APOBEC3 activities of non-subtype B Vif variants, investigate the HIV-1 vif evolution over time in HIV infected patients and, lastly, determine the fitness of HIV Vif mutant viruses in a humanized mouse model system.

EDITORIAL SERVICE:

Ad hoc Reviewer

- Communications Medicine
- Clinical Chemistry
- Frontiers Emerging Tropical Diseases
- Frontiers in Microbiology
- Frontiers in Psychiatry
- Journal of Medical Virology
- PLOS Pathogens
- Microbiology Spectrum
- Scientific Reports
- BMC Public Health
- The Journal of the Association of Medical Microbiology and Infectious Disease Canada

ADMINISTRATIVE SERVICES:

Committee Service

2022, 2023	Distinction in Medical Education (DIME) Selection Committee 01/31/2022 – 03/08/2022; 01/27/2023 – 03/13/2023	ISMMS Committee Member / Reviewer

Teaching of Students in Courses:

2024	CP Microbiology Lecture, ID Serology – Intro and Focus on *Borrelia* and *Treponema* Clinical pathology residents and fellows (n=10-20)	Stanford University 5 hours / year

2024	CP Microbiology Lecture, Virology 5 *A deadly bite: rabies virus and arboviruses* Clinical pathology residents and fellows (n=10-20)	BIDMC 5 hours / year
2023	CP Microbiology Lecture *Deciphering cycle threshold values* Clinical pathology residents and fellows (n=10-20)	BIDMC 5 hours / year
2019, 2020	Structures (MSN 5019; histology labs and guest lecturer on *The Histology of the Female Reproductive Tract*) First-year medical students (n=100-200)	ISMMS 20 hours / year

Formal Teaching of Peers (e.g., CME and other continuing education courses):

☒ *No presentations below were sponsored by 3rd parties/outside entities*

☐ *Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.*

2023	*S. aureus and penicillin: lessons from history, testing, and evolution* Continuing education talk for clinical microbiology technologists.	2 one-hour sessions BIDMC, Boston, MA

Report of Teaching and Education Innovations

2015 – 2023	Developed basic histology educational videos that have become incorporated into the first-year syllabus of the Structures course for medical students at ISMMS. I filmed, narrated, and edited all videos that have been utilized today. These materials have been presented at national meetings and continue to be utilized by the course at ISMMS today.

PROFESSIONAL SOCIETIES:

2025 – Present	Association for Diagnostics & Laboratory Medicine (ADLM)	Member
2024 – Present	Pan American Society for Clinical Virology (PASCV)	Member
2021 – Present	Association of Clinical Laboratory Physicians and Scientists (ACLPS)	Member
2020 – Present	College of American Pathologists (CAP)	Member
2020 – Present	American Society for Microbiology (ASM) Northern California Branch Member (2025 – Present) Northeast Branch Member (2024)	Member
2020 – Present	American Society for Clinical Pathology (ASCP)	Member

PRESENTATIONS AND INVITED TEACHING:

☒ *No presentations below were sponsored by 3rd parties/outside entities*

☐ *Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.*

Regional

2021 New York Blood Center (NYBC) Fellows' Webinar Series
Emerging pathogens and transfusion medicine: lessons from the past and present
Presenter.
New York, NY / Virtual talk.

International

2025 American Society for Microbiology Virtual Journal Club
What We Gain, What We Risk: Evidence-Based Lessons on Moving the Micro Lab
Presenter, Panelist.
Washington DC / Virtual talk.

ABSTRACTS, POSTERS, AND EXHIBITS PRESENTED AT PROFESSIONAL MEETINGS:

Oct. 2025 – Farren M, Moore N, Wey W, **Hernandez MM**. *Uncovering the patho-genomic identities of Aeromonas species infecting SHC patients*. Stanford University Department of Pathology Research Retreat, Stanford University, Palo Alto, CA. POSTER.

Jun. 2024 – **Hernandez MM**, Gwiazdon M, Gold HS, Brennan-Krohn T, Arnaout R, Riedel S, Kirby JE. *Genomic diversity of a KPC-producing Aeromonas hydrophila in multiple compartments during natural infection*. Harvard Medical School Pathology Research Retreat, Harvard University, Boston, MA. POSTER.

Dec. 2023 – **Hernandez MM**, Gwiazdon M, Gold HS, Blair BM, Gordon PS, Pepe DE, McGloin JM, Brennan-Krohn T, Arnaout R, Riedel S, Kirby JE. *Characterization of a KPC-producing Aeromonas hydrophila from multiple anatomic compartments*. Boston Area Antimicrobial Resistance Network Meeting, Harvard University, Boston, MA. POSTER.

Apr. 2023 – Contreras A, Rodas G, Ramirez JD, Shi S, Miller E, Merino C, Ghrayeb R, Liggayu B, Paniz-Mondolfi AE, **Hernandez MM**. *Diagnostic performance of saliva for detection of respiratory pathogens in children.* Mount Sinai Child Health Research Fair (local). Icahn School of Medicine at Mount Sinai, New York, NY. POSTER.

Nov. 2021 – **Hernandez MM**, Banu R, Gonzalez-Reiche AS, Khan Z, Shrestha P, Cao L, Chen F, Shi H, Hanna A, Alshammary H, Fabre S, Amoako A, Alburquerque B, Patiño LH, Ramírez JD, Sebra R, Gitman MR, Nowak MD, Cordon-Cardo C, Schutzbank TE, Simon V, van Bakel H, Sordillo EM, Paniz-Mondolfi AE. *Genetic variation in circulating SARS-CoV-2 is detected by RT-PCR/MALDI-TOF diagnostic targets*. Association for Molecular Pathology 2021 Annual Meeting and Expo (AMP 2021, national). Virtual, SELECTED PLATFORM TALK.

May 2021 – **Hernandez MM**, Banu R, Shrestha P, Patel A, Chen F, Cao L, Fabre S, Tan J, Lopez H, Chiu N, Shifrin B, Zapolskaya I, Flores V, Lee PY, Castañeda S, Ramírez JD, Jhang J, Osorio G, Gitman MR, Nowak MD, Reich DL, Cordon-Cardo C, Sordillo EM, Paniz-Mondolfi AE. *Comparison of real-time RT-PCR and RT-PCR/MALDI-TOF methods for SARS-CoV-2 detection in saliva.* Academy of Clinical Laboratory Physicians and Scientists Annual Meeting (ACLPS 2021). Virtual, TALK. **Paul E. Strandjord Young Investigator Award.**

May 2020 – Terry SN, **Hernandez MM**, Young GR, Jacob S, McKerrow W, Heissel S, Simon V, Fenyo D, Mulder LCF. *HERV-Ks: Transcription, translation and protein identification.* Retroviruses (international), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. TALK.

Feb. 2020 – Fabre S, Tan J, Polanco J, Alshammary H Gitman M, Altman D, Khan Z, Kriti D, Ly T, Samaroo F, Bermudez-Gonzalez M, Luksza M, Smith M, Nowak M, Krammer F, Paniz-Mondolfi A, van Bakel H, Sordillo EM, **Hernandez MM**, Simon V. *Precision surveillance of influenza virus infections in the Mount Sinai Health System.* Thirty-Sixth Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. POSTER.

Nov. 2019 – **Hernandez MM**, Gitman M, Altman D, Woods KL, Javaid W, Gabasan A, Schwing D, Ehni J, Moss, M, Tan J, Khan Z, Kriti D, Ly T, Samaroo F, Hirsch E, Polanco J, Luksza M, Mustafa A, Powell J, Carreno-Quiroz JM, Pak T, Kasarskis A, Sebra R, Smith M, Garcia-Sastre A, Krammer F, Simon, V, van Bakel H, Sordillo EM. *Real time outbreak investigation informed by whole-genome sequencing and data mining: expecting the unexpected.* Association for Molecular Pathology 2019 Annual Meeting and Expo (AMP 2019, national), Baltimore, MD. POSTER.

May 2019 – McGregor E, **Hernandez MM**, Mulder LCF, Simon V. *Variation and regulation of APOBEC3A expression in primary human cells.* Retroviruses (international), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. POSTER.

May 2019 – Butta GM, Crosti MC, **Hernandez MM**, Kim EH, Simon V, de Francesco R, Manganaro L. *Analysis of the role of IL-15 in HIV latency establishment in different primary human CD4+ T cell subsets.* Retroviruses (international), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. POSTER.

May 2019 – Terry SN, Jacob S, Young GR, **Hernandez MM**, Molina H, Simon V, Fenyo D, Mulder LCF. *Mapping of the HIV-dependent HERV-K protein expression, a proteogenomic approach.* Retroviruses (international), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. POSTER.

Apr. 2019 – **Hernandez MM**, Hirsch E, Tan J, Khan Z, Kriti D, Ly T, Luksza M, Altman D, Mustafa A, Powell J, Kasarskis A, Sebra R, Smith M, Garcia-Sastre A, Krammer F, Carreno-Quiroz JM, Gitman M, Sordillo EM, van Bakel H, Simon V. *Surveillance of disease causing respiratory viruses in the New York metropolitan area.* Department of Medicine Research Day 2019 (local). Icahn School of Medicine at Mount Sinai, NY. POSTER.

Feb. 2018 – **Hernandez MM**, Fahrny A, Jayaprakash A, Dillon-White M, Audige A, Gers-Huber G, Sachidanandam R, Speck RF, Simon V. *HIV diversification in different compartments of infected humanized mice.* Thirty-Second Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. TALK.

Feb. 2018 – Jurcyszak D, Terry S, Mulder LCF, **Hernandez MM**, Eckwahl M, Pan T, Simon V. *HIV incorporation of m^6A reader (effector) proteins.* Thirty-Second Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. POSTER.

Feb. 2018 - McGregor E, **Hernandez MM**, Terry SN, Simon V, Mulder LCF. *Activation of endogenous APOBEC3A expression by a CRISPR-Cas9 system in CD4+ T cells.* Thirty-Second Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. POSTER.

Jul. 2017 - **Hernandez MM**, Fahrny A, Ovbude A, Jayaprakash A, Audige A, Sachidanandam R, Speck RF, Simon V. *High-Resolution Mapping and Phasing of HIV Diversification in Humanized Mice.* Ninth IAS Conference on HIV Science (international), Paris, France. POSTER.

Jun. 2017 – **Hernandez MM**, Ooms M, Muñoz-Moreno R, García-Sastre A, Simon V. *HIV-Vif libraries as a tool to interrogate HIV evolution.* Thirty-First Symposium on Virus-Host Interactions, The New York Academy of Medicine (local), New York, NY. POSTER.

May 2017 **– Hernandez MM**, Fahrny A, Ovbude A, Jayaprakash A, Audige A, Sachidanandam R, Speck RF, Simon V. *High-Resolution haplotype mapping of HIV diversification in humanized mice.* Retroviruses (international), Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. TALK.

Apr. 2017 – Shaw PA and **Hernandez MM.** *Histology Education in the Next Generation.* Experimental Biology (national), Chicago, IL. POSTER.

Jan. 2017 – **Hernandez MM**, Ovbude A, Fahrny A, Jayaprakash A, Audige A, Sachidanandam R, Speck RF, Simon V. *High-Resolution mapping of HIV drug-resistance development driven by human APOBEC3G.* Thirtieth Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. POSTER.

Jan. 2017 – Bermudez-Gonzalez M**,** Argyle D, Meade P, Buta S, Mena N, Nachbagauer R, Bernal-Rubio D, Malloy T, Potla U, **Hernandez MM**, Stein K, Koellhoffer J, Brooks D, Smalls-Mantey A, Liu S, Hamula C, Aberg J, Tortorella D, García-Sastre A, Bogunovic D, Fernandez-Sesma A, Palese Pl, Krammer F, Simon V. *The Personalized Virology Initiative at the Icahn School of Medicine at Mount Sinai, NYC.* Thirtieth Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. TALK.

Jan. 2017 – Argyle D, **Hernandez MM**, Manganaro L, Simon V. *Genetic Diversity in the APOBEC3 Locus of HIV Infected Patients.* Thirtieth Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. POSTER.

Sept. 2016 – Fahrny A, **Hernandez MM**, Gers-Huber G, Jayaprakash A, Dillon-White M, Audige A, Sachidanandam R, Simon V, Speck RF. *APOBEC3G modulates the response to antiretroviral drugs in humanized mice* (regional). Frontiers of Retrovirology Conference. Erlangen, Germany. POSTER.

Sept. 2016 – **Hernandez MM**, Fahrny A, Ovbude A, Jayaprakash A, Audige A, Sachidanandam R, Speck RF, Simon V. *Mechanisms of HIV diversification and drug-resistance development in humanized mice.* Sixteenth Annual Icahn School of Medicine at Mount Sinai MD/PhD Retreat (local). Bushkill, PA. POSTER.

Jun. 2016 – **Hernandez MM**, Letko M, Manganaro L, Ooms M, Simon V. *Human APOBEC3A restricts HIV by a non-canonical mechanism.* Twenty-ninth Symposium on Virus-Host Interactions (local), The New York Academy of Medicine, New York, NY. TALK. **Best Talk Award.**

Feb. 2016 – **Hernandez MM**, Manganaro L, Ooms M, Mulder LCF, Iannucci V, Dillon-White M, Terry SN, Sharma E, Simon V. Characterization of novel human APOBEC3A variants. Conference on Retroviruses and Opportunistic Infections (international), Boston, MA. POSTER. **Young Investigator Scholarship Award.**

Feb. 2012 – **Hernandez MM**, Grigg ME, Matsuno K, Virtaneva K, Anzick SL, Ebihara H, Sher A, Porcella SF. *Optimizing techniques for efficient genomic analyses of orthobunyaviridae and apicomplexan pathogens.* Intramural NIAID Research Opportunities (INRO) Conference, Bethesda (regional), MD. TALK. **INRO Training Award.**

Nov. 2010 – **Hernandez MM**, Jorgez CJ, Lamb DJ. The effects of testosterone replacement therapy on leptin deficient mice. Tenth Annual Biomedical Research Conference for Minority Students (ABRCMS) (national), Charlotte, NC. POSTER. **Travel Award.**

Jul. 2009 – **Hernandez MM** and Bennett RJ. Sequence analysis of gene families of pathogenic yeasts. Brown University Summer Research Symposium (local), Brown University, Providence, RI. POSTER. **Undergraduate Research Training Award.**

REPORT OF MENTORSHIP:

2025-Present	Dustin P. DeMeo, MD; AP/CP Pathology Resident, Stanford University, Palo Alto, CA Mentee stage: Resident Directly supervise Dr. DeMeo during his residency training on his work examining syphilis diagnostics (e.g., performance and trends), cost analyses, and patient impacts.
2025-Present	William Wey, MD; AP/CP Pathology Resident, Stanford University, Palo Alto, CA Mentee stage: Resident

Directly supervise Dr. Wey during his residency training on his work examining patient outcomes of those infected with *Aeromonas* species and performing WGS of pathogenic isolates.

2024-Present Martina Farren, PhD; Life Science Research Professional 2 (LSRP2), Stanford University, Palo Alto, CA
Mentee stage: LSRP2

Directly supervise Dr. Farren on our genomic surveillance and epidemiology work of diverse pathogens (e.g., *Aeromonas* species, HDV).

2018-2022 Shelcie Fabre, BS; MD candidate, New York Medical College, New York, NY
Mentee stage: Post-baccalaureate

Mentored Shelcie as a pre-medical student in work in the clinical and basic science laboratory which resulted in one first-author publication, 5 co-authored publications, 2 co-authored published abstracts, and one poster presentation at a local meeting.

2016-2017 Anita Ovbude, BSE; Biomedical engineering, University of Michigan, Ann Arbor, MI
Mentee stage: High school student

Directly supervised Anita as a high school student in the lab of Dr. Viviana Simon which resulted in her giving a presentation at the New York State Science and Engineering Fair (NYSSEF) and one poster presentation at a local meeting. Recognized by the NYC Dept. of Education for my mentorship and involvement in through the Center for Excellence in Youth Education at ISMMS.

NARRATIVE REPORT:

As a physician-scientist, my career centers on three interconnected goals: developing and optimizing diagnostics for infectious diseases, using molecular tools and genomics to track emerging pathogens, and training the next generation of pathology leaders. My work integrates clinical laboratory medicine with cutting-edge molecular techniques to answer questions that matter for patient care and public health.

Growing up as a gay Latino on the US-Mexico border shaped how I understand disease burden and health disparities. These communities face disproportionate impacts from infectious diseases, often compounded by limited access to diagnostics and delayed public health responses. This lived experience drives my commitment to building diagnostic infrastructure that serves everyone, particularly vulnerable populations. My research training has reinforced this perspective by teaching me to approach clinical challenges through rigorous scientific inquiry and collaborative problem-solving.

When COVID-19 struck NYC in early 2020, the Mount Sinai Health System needed immediate diagnostic capacity. After establishing the assay in the research lab, I validated and implemented the institution's first in-house SARS-CoV-2 nucleic acid amplification test just two weeks after the first case. This work required coordinating with laboratory staff, navigating emergency use authorization pathways, and troubleshooting supply chain disruptions all while ensuring robust performance under pressure. More recently, I contributed to identifying and characterizing the first pediatric H5N1 avian influenza case in California during the 2024-2025 outbreak, demonstrating sustained ability to respond to emergent threats. Through the Pathogen Surveillance Program at Mount Sinai, I combined sequencing data with clinical diagnostics to reconstruct how SARS-CoV-2 arrived and spread through NYC months before the first detected case. These findings exposed critical gaps in surveillance and infection control systems. This work informed my development and implementation of assays for SARS-CoV-2 and Mpox that addressed diagnostic needs and shaped infection prevention decision-making.

My research agenda pursues two goals. First, I study diagnostic test utilization patterns across health systems to identify waste and opportunities for optimizing approaches and to standardize methods to study test over-/underutilization. At SHC, we are evaluating the cost-effectiveness and performance of syphilis testing algorithms against the backdrop of rising disease incidence in the US. Second, I use WGS and clinical data to understand the epidemiology of underrecognized pathogens. Current projects include characterizing *Aeromonas* species diversity in SHC patients and defining the true burden and transmission dynamics of HDV in a US academic medical center. This research will generate actionable insights for infection control, inform diagnostic algorithm design, and potentially guide therapeutic and vaccine development.

Throughout my training and faculty career, I have contributed to medical student education and pathology residency teaching. Mentoring future physicians and scientists matters to me because the field needs people who can bridge laboratory science and clinical medicine. I work to instill critical thinking skills and collaborative approaches in trainees, the same tools that are essential in my own career.

The clinical laboratory occupies a unique position in infectious disease management. It generates data that can predict outbreaks, guide treatment decisions, and reveal transmission patterns before they become obvious through traditional surveillance. I plan to expand collaborations with clinical departments and industry partners to translate laboratory innovations into better patient outcomes. My goals include leading research that transforms how we detect and track pathogens, training the next generation of laboratory leaders, and driving innovation that positions our institution at the forefront of diagnostic medicine.