Stanford



Matthew (Matt) Hernandez

Assistant Professor of Pathology (Clinical)

NIH Biosketch available Online Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

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Bio

BIO

Matthew (Matt) Hernandez, MD, PhD, D(ABMM) is an Assistant Professor of Pathology at Stanford University and an Associate Director of the Clinical Microbiology and Clinical Virology Laboratories at Stanford Health Care. He received his ScB in Biochemistry and Molecular Biology from Brown University and his MD/PhD from the Icahn School of Medicine at Mount Sinai, where he also completed residency training in Clinical Pathology and served as Chief Resident. He completed his fellowship in Medical and Public Health Microbiology at Beth Israel Deaconess Medical Center and Harvard Medical School. He is board certified in Clinical Pathology and Medical and Public Health Microbiology.

His clinical work focuses on the evaluation, implementation, and development of infectious disease testing, including novel serologic assays to diagnose and stage distinct infections. His research integrates clinical data, microbial genomics, and systems-level approaches organized around three areas: (1) pathogen-host interactions driving evolution and virulence, (2) using serologic and genomic data to characterize microbial diversity, spread, and pathogenesis, and (3) linking pathogen diversity to diagnostic performance to optimize testing strategies. Current projects include characterizing the patho-genomic diversity of clinical Aeromonas infections, defining the true burden of Hepatitis D Virus in the United States, evaluating syphilis testing algorithms, investigating the role of anaerobes in pilonidal disease outcomes in pediatric patients, and expanding surveillance for emerging pathogens.

He is an active member of the American Society for Microbiology and the American Society for Clinical Pathology, recognized as one of the Top 5 of the ASCP 40 Under Forty and elected to Alpha Omega Alpha. He is committed to mentoring the next generation of physician-scientists and laboratory medicine leaders.

CLINICAL FOCUS

- Pathology
- Microbiology
- Virology
- Infectious Diseases

- Pathogen Surveillance
- Serologic Diagnostics
- Molecular Diagnostics

ACADEMIC APPOINTMENTS

- Assistant Professor-Univ Med Line, Pathology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Associate Director, Clinical Virology Laboratory, (2024- present)
- Associate Director, Clinical Microbiology Laboratory, (2024- present)

HONORS AND AWARDS

- Clinical Pathology Fellow Teaching Award, Beth Israel Deaconess Medical Center (2024)
- Peggy Cotter Award for Early Career Branch Members, American Society for Microbiology (ASM) (2024)
- Top 5 - 40 Under Forty, American Society for Clinical Pathology (ASCP) (2023)
- Paul E. Strandjord Young Investigator Award, Association for Clinical Laboratory Physicians and Scientists (ACLPS) (2021)
- Graduate with Distinction in Medical Education, Icahn School of Medicine at Mount Sinai (2020)
- Graduate with Distinction in Research, Icahn School of Medicine at Mount Sinai (2020)
- Medical Student Excellence in Teaching Award, Icahn School of Medicine at Mount Sinai (2017)
- Young Investigator Scholarship Award, Conference on Retroviruses and Opportunistic Infections (CROI) (2016)
- Science and Leadership Merit Award, Icahn School of Medicine at Mount Sinai (2012)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Pan American Society for Clinical Virology (PASCV) (2026 - present)
- Member, ASM, Northern California Branch Member (2025 - present)
- Member, Association for Diagnostics & Laboratory Medicine (ADLM) (2025 - present)
- Member, Northeast Branch Member (2024 - 2025)
- Member, Association of Clinical Laboratory Physicians and Scientists (ACLPS) (2021 - present)
- Member, American Society for Microbiology (ASM) (2020 - present)
- Member, American Society for Clinical Pathology (ASCP) (2020 - present)
- Member, College of American Pathologists (CAP) (2020 - present)

PROFESSIONAL EDUCATION

- Board Certification: Medical Microbiology, American Society for Microbiology (2024)
- Board Certification, American Board of Medical Microbiology (2024)
- Fellowship: Beth Israel Deaconess Med Center/Harvard (2024) MA
- Board Certification: Pathology, American Board of Pathology (2023)
- Residency: Icahn School of Medicine at Mount Sinai (2023) NY
- Medical Education: Icahn School of Medicine at Mount Sinai (2020) NY
- PhD, Icahn School of Medicine at Mount Sinai , Microbiology (2020)

- ScB, Brown University , Biochemistry and Molecular Biology (2011)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Development and optimization of infectious disease diagnostics; microbial genomics and pathogen surveillance; and the interplay between microbial diversity and clinical disease phenotypes.

PROJECTS

- Closing the Delta Gap: Universal HDV Screening and Epidemiology in a US Medical Center - Stanford University
- Patho-Genomic Diversity of Clinical Aeromonas Infections - Stanford University
- Impact of Syphilis Serologic Testing Algorithms on Screening at Delivery Amid Rising Incidence - Stanford University
- Role of Anaerobes in Pilonidal Disease Outcomes in Pediatric Patients - Stanford University

Publications

PUBLICATIONS

- **RT-PCR/MALDI-TOF Diagnostic Target Performance Reflects Circulating SARS-CoV-2 Variant Diversity in New York City.** *The Journal of molecular diagnostics : JMD*
  Hernandez, M. M., Banu, R., Gonzalez-Reiche, A. S., Gray, B., Shrestha, P., Cao, L., Chen, F., Shi, H., Hanna, A., Ramírez, J. D., van de Guchte, A., Sebra, R., Gitman, et al
  2022; 24 (7): 738-749

- **Molecular evidence of SARS-CoV-2 in New York before the first pandemic wave.** *Nature communications*
  Hernandez, M. M., Gonzalez-Reiche, A. S., Alshammary, H., Fabre, S., Khan, Z., van De Guchte, A., Obla, A., Ellis, E., Sullivan, M. J., Tan, J., Alburquerque, B., Soto, J., Wang, et al
  2021; 12 (1): 3463

- **Introductions and early spread of SARS-CoV-2 in the New York City area.** *Science (New York, N.Y.)*
  Gonzalez-Reiche, A. S., Hernandez, M. M., Sullivan, M. J., Ciferri, B., Alshammary, H., Obla, A., Fabre, S., Kleiner, G., Polanco, J., Khan, Z., Alburquerque, B., van de Guchte, A., Dutta, et al
  2020; 369 (6501): 297-301

- **Impact of Suboptimal APOBEC3G Neutralization on the Emergence of HIV Drug Resistance in Humanized Mice.** *Journal of virology*
  Hernandez, M. M., Fahrny, A., Jayaprakash, A., Gers-Huber, G., Dillon-White, M., Audigé, A., Mulder, L. C., Sachidanandam, R., Speck, R. F., Simon, V.
  2020; 94 (5)

- **One confirmed and one potential human case of influenza A(H5N1) detected through an expanded subtyping protocol.** *ASM case reports*
  Higerd-Rusli, G. P., Karan, A., Hoffman, S. A., Morante, I. E., Huang, C., Sahoo, M. K., Hernandez, M. M., Pinsky, B. A.
  2026; 1 (2)

- **Expanding testing early in the H5N1 outbreak.** *Lancet (London, England)*
  Karan, A., Higerd-Rusli, G., Hernandez, M., Dhillon, R., Pinsky, B. A.
  2025; 405 (10481): 779-780

- **An integrated approach for the accurate detection of HERV-K HML-2 transcription and protein synthesis.** *Nucleic acids research*
  Gleason, C., Terry, S. N., Hernandez, M. M., Jacob, S., Fenyo, D., Johnson, J. R., Deikus, G., Francoeur, N., Hahn, A., Sebra, R., Zamarin, D., Molina, H., Simon, et al
  2025; 53 (2)

- **Phylogenetic landscape of Monkeypox Virus (MPV) during the early outbreak in New York City, 2022.** *Emerging microbes & infections*
  Patiño, L. H., Guerra, S., Muñoz, M., Luna, N., Farrugia, K., van de Guchte, A., Khalil, Z., Gonzalez-Reiche, A. S., Hernandez, M. M., Banu, R., Shrestha, P., Liggayu, B., Firpo Betancourt, et al
  2023; 12 (1): e2192830

- **Multidisciplinary management of a pregnancy complicated by Glanzmann thrombasthenia: A case report.** *Transfusion*
  Hernandez, M. M., Buckley, A., Mills, A., Meislin, R., Cromwell, C., Bianco, A., Strong, N., Arinsburg, S.
  2023; 63 (12): 2384-2391

- **Genomic and ultrastructural analysis of monkeypox virus in skin lesions and in human/animal infected cells reveals further morphofunctional insights into viral pathogenicity.** *Journal of medical virology*
  Paniz-Mondolfi, A., Reidy, J., Pagani, N., Lednicky, J. A., McGrail, J. P., Kasminskaya, Y., Patino, L. H., Garcia-Sastre, A., Palacios, G., Gonzalez-Reiche, A. S., van Bakel, H., Firpo Betancourt, A., Hernandez, et al
  2023; 95 (6): e28878

- **Evaluation and validation of an RT-PCR assay for specific detection of monkeypox virus (MPXV).** *Journal of medical virology*
  Paniz-Mondolfi, A., Guerra, S., Muñoz, M., Luna, N., Hernandez, M. M., Patino, L. H., Reidy, J., Banu, R., Shrestha, P., Liggayu, B., Umeaku, A., Chen, F., Cao, et al
  2023; 95 (1): e28247

- **A Robust, Highly Multiplexed Mass Spectrometry Assay to Identify SARS-CoV-2 Variants.** *Microbiology spectrum*
  Hernandez, M. M., Banu, R., Shrestha, P., Gonzalez-Reiche, A. S., van de Guchte, A., Farrugia, K., Sebra, R., Gitman, M. R., Nowak, M. D., Cordon-Cardo, C., Simon, V., van Bakel, H., Sordillo, et al
  2022; 10 (5): e0173622

- **Hotspots for SARS-CoV-2 Omicron variant spread: Lessons from New York City.** *Journal of medical virology*
  Ramírez, J. D., Castañeda, S., Ballesteros, N., Muñoz, M., Hernández, M., Banu, R., Shrestha, P., Chen, F., Shi, H., van Bakel, H., Simon, V., Cordon-Cardo, C., Sordillo, et al
  2022; 94 (7): 2911-2914

- **Food for thought: Eating before saliva collection and interference with SARS-CoV-2 detection.** *Journal of medical virology*
  Hernandez, M. M., Riollano-Cruz, M., Boyle, M. C., Banu, R., Shrestha, P., Gray, B., Cao, L., Chen, F., Shi, H., Paniz-Perez, D. E., Paniz-Perez, P. A., Rishi, A. L., Dubinsky, et al
  2022; 94 (6): 2471-2478

- **A robust, highly multiplexed mass spectrometry assay to identify SARS-CoV-2 variants.** *medRxiv : the preprint server for health sciences*
  Hernandez, M. M., Banu, R., Shrestha, P., Gonzalez-Reiche, A. S., van de Guchte, A., Farrugia, K., Sebra, R., Mount Sinai PSP Study Group, Gitman, M. R., Nowak, M. D., Cordon-Cardo, C., Simon, V., van Bakel, H., et al
  2022

- **Robust clinical detection of SARS-CoV-2 variants by RT-PCR/MALDI-TOF multitarget approach.** *Journal of medical virology*
  Hernandez, M. M., Banu, R., Gonzalez-Reiche, A. S., van de Guchte, A., Khan, Z., Shrestha, P., Cao, L., Chen, F., Shi, H., Hanna, A., Alshammary, H., Fabre, S., Amoako, et al
  2022; 94 (4): 1606-1616

- **Remitting neuropsychiatric symptoms in COVID-19 patients: Viral cause or drug effect?** *Journal of medical virology*
  Forero-Peña, D. A., Hernandez, M. M., Mozo Herrera, I. P., Collado Espinal, I. B., Páez Paz, J., Ferro, C., Flora-Noda, D. M., Maricuto, A. L., Velásquez, V. L., Camejo-Avila, N. A., Sordillo, E. M., Delgado-Noguera, L. A., Perez-Garcia, et al
  2022; 94 (3): 1154-1161

- **Profiling Selective Packaging of Host RNA and Viral RNA Modification in SARS-CoV-2 Viral Preparations.** *Frontiers in cell and developmental biology*
  Peña, N., Zhang, W., Watkins, C., Halucha, M., Alshammary, H., Hernandez, M. M., Liu, W. C., Albrecht, R. A., Garcia-Sastre, A., Simon, V., Katanski, C., Pan, T.
  2022; 10: 768356

- **Human Anti-neuraminidase Antibodies Reduce Airborne Transmission of Clinical Influenza Virus Isolates in the Guinea Pig Model.** *Journal of virology*
  Tan, J., O'Dell, G., Hernandez, M. M., Sordillo, E. M., Kahn, Z., Kriti, D., van Bakel, H., Ellebedy, A. H., Wilson, P. C., Simon, V., Krammer, F., McMahon, M.
  2022; 96 (2): e0142121

- **Real-Time Investigation of a Large Nosocomial Influenza A Outbreak Informed by Genomic Epidemiology.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
  Javaid, W., Ehni, J., Gonzalez-Reiche, A. S., Carreño, J. M., Hirsch, E., Tan, J., Khan, Z., Kriti, D., Ly, T., Kranitzky, B., Barnett, B., Cera, F., Prespa, et al

2021; 73 (11): e4375-e4383

- **Comparison of real-time RT-PCR and RT-PCR/MALDI-TOF methods for SARS-CoV-2 detection in saliva**
  Hernandez, M. M., Banu, R., Shrestha, P., Patel, A., Chen, F., Cao, L., Fabre, S., Tan, J., Lopez, H., Chiu, N.
  OXFORD UNIV PRESS INC.2021: S9

- **SARS-CoV-2 in Transit: Characterization of SARS-CoV-2 Genomes From Venezuelan Migrants in Colombia.** *International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases*
  Patiño, L. H., Ballesteros, N., Muñoz, M., Castañeda, S., Hernández, C., Gomez, S., Florez, C., Rico, A., Pardo, L., Hernandez-Pereira, C. E., Delgado-Noguera, L., Grillet, M. E., Hernandez, et al
  2021; 110: 410-416

- **RT-PCR/MALDI-TOF mass spectrometry-based detection of SARS-CoV-2 in saliva specimens.** *Journal of medical virology*
  Hernandez, M. M., Banu, R., Shrestha, P., Patel, A., Chen, F., Cao, L., Fabre, S., Tan, J., Lopez, H., Chiu, N., Shifrin, B., Zapolskaya, I., Flores, et al
  2021; 93 (9): 5481-5486

- **Catheter-related bloodstream infection due to biofilm-producing Capnocytophaga sputigena.** *IDCases*
  Fabre, S., Malik, Y., van De Guchte, A., Delgado-Noguera, L. A., Gitman, M. R., Nowak, M. D., Sordillo, E. M., Hernandez, M. M., Paniz-Mondolfi, A. E.
  2021; 25: e01231

- **Deciphering the introduction and transmission of SARS-CoV-2 in the Colombian Amazon Basin.** *PLoS neglected tropical diseases*
  Ballesteros, N., Muñoz, M., Patiño, L. H., Hernández, C., González-Casabianca, F., Carroll, I., Santos-Vega, M., Cascante, J., Angel, A., Feged-Rivadeneira, A., Palma-Cuero, M., Flórez, C., Gomez, et al
  2021; 15 (4): e0009327

- **Repeated cross-sectional sero-monitoring of SARS-CoV-2 in New York City.** *Nature*
  Stadlbauer, D., Tan, J., Jiang, K., Hernandez, M. M., Fabre, S., Amanat, F., Teo, C., Arunkumar, G. A., McMahon, M., Capuano, C., Twyman, K., Jhang, J., Nowak, et al
  2021; 590 (7844): 146-150

- **The arrival and spread of SARS-CoV-2 in Colombia.** *Journal of medical virology*
  Ramírez, J. D., Florez, C., Muñoz, M., Hernández, C., Castillo, A., Gomez, S., Rico, A., Pardo, L., Barros, E. C., Castañeda, S., Ballesteros, N., Martínez, D., Vega, et al
  2021; 93 (2): 1158-1163

- **SARS-CoV-2 spread across the Colombian-Venezuelan border.** *Infection, genetics and evolution : journal of molecular epidemiology and evolutionary genetics in infectious diseases*
  Paniz-Mondolfi, A., Muñoz, M., Florez, C., Gomez, S., Rico, A., Pardo, L., Barros, E. C., Hernández, C., Delgado, L., Jaimes, J. E., Pérez, L., Teherán, A. A., Alshammary, et al
  2020; 86: 104616

- **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.** *Journal of medical virology*
  Pujadas, E., Ibeh, N., Hernandez, M. M., Waluszko, A., Sidorenko, T., Flores, V., Shiffrin, B., Chiu, N., Young-Francois, A., Nowak, M. D., Paniz-Mondolfi, A. E., Sordillo, E. M., Cordon-Cardo, et al
  2020; 92 (9): 1695-1698

- **Real-Time Outbreak Investigation Informed by Whole Genome Sequencing and Data Mining: Expecting the Unexpected**
  Hernandez, M. M., Gitman, M., Altman, D., Woods, K. L., Javaid, W., Gabasan, A., Schwing, D., Ehni, J., Moss, M. K., Tan, J., Khan, Z., Kriti, D., Ly, et al
  ELSEVIER SCIENCE INC.2019: 1181

- **IL-15 regulates susceptibility of CD4+ T cells to HIV infection.** *Proceedings of the National Academy of Sciences of the United States of America*
  Manganaro, L., Hong, P., Hernandez, M. M., Argyle, D., Mulder, L. C., Potla, U., Diaz-Griffero, F., Lee, B., Fernandez-Sesma, A., Simon, V.
  2018; 115 (41): E9659-E9667

- **Histology Education in the Next Generation**
  Shaw, P., Hernandez, M.
  WILEY.2017

- **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 biology and evolution*
  Adam, R. D., Dahlstrom, E. W., Martens, C. A., Bruno, D. P., Barbian, K. D., Ricklefs, S. M., Hernandez, M. M., Narla, N. P., Patel, R. B., Porcella, S. F., Nash, T. E.
  2013; 5 (12): 2498-511

- **Effect of the Leptin Receptor Q223R Polymorphism on the Host Transcriptome following Infection with Entamoeba histolytica (vol 81, pg 1460, 2013)** *INFECTION AND IMMUNITY*
  Mackey-Lawrence, N. M., Guo, X., Sturdevant, D. E., Virtaneva, K., Hernandez, M. M., Houpt, E., Sher, A., Porcella, S. F., Petri, W. A.
  2013; 81 (11): 4322

- **Effect of the leptin receptor Q223R polymorphism on the host transcriptome following infection with Entamoeba histolytica.** *Infection and immunity*
  Mackey-Lawrence, N. M., Guo, X., Sturdevant, D. E., Virtaneva, K., Hernandez, M. M., Houpt, E., Sher, A., Porcella, S. F., Petri, W. A.
  2013; 81 (5): 1460-70