

Stanford



Niaz Banaei

Professor of Pathology and of Medicine (Infectious Diseases)

CLINICAL OFFICE (PRIMARY)

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

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Bio

BIO

Niaz Banaei received his medical education from Stanford University. During medical school he developed a passion for infectious diseases diagnostics while conducting diagnostic research on *Mycobacterium tuberculosis* in Mexico and South Africa. After medical school he completed residency training in Clinical Pathology at the University of California, San Francisco. He then completed a postdoctoral fellowship in tuberculosis pathogenesis at the New York University. He then moved back to Stanford University to join the department of Pathology and serve as Medical Director of the Clinical Microbiology Laboratory at Stanford Health Care. He is currently a Professor of Pathology and Medicine (Division of Infectious Diseases & Geographic Medicine) at Stanford University and is the Director of Stanford Clinical Microbiology Fellowship and Stanford Global Health Diagnostics Fellowship. He is also the associate program director for Clinical Pathology training program. His research interests include (1) development, assessment, improvement, clinical impact of novel infectious diseases diagnostics and (2) immunopathogenesis of *M. tuberculosis*. He was the recipient of several teaching awards. He has authored over 170 scientific articles and holds a number of invention patents.

CLINICAL FOCUS

- Mycobacterium Infections
- Clinical Laboratory Techniques
- Anatomic and Clinical Pathology

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Pathology
- Professor - University Medical Line, Medicine - Infectious Diseases
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Director, Pathology Global Health Diagnostic Fellowship, Stanford University, (2012- present)
- Associate Program Director, Clinical Pathology Residency Training, Stanford University (2016 - Present), (2016- present)
- Medical Director, Clinical Microbiology Laboratory, Stanford University (2007 - Present), (2007- present)

- Director, Medical Microbiology Fellowship, Stanford University, (2016- present)

PROFESSIONAL EDUCATION

- Medical Education: Stanford University School of Medicine (2001) CA
- Residency: UCSF Pathology Residency (2003) CA
- Board Certification: Clinical Pathology, American Board of Pathology (2004)
- MD, Stanford University , Medicine (2001)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

His research interests include (1) development, assessment, and improvement of novel infectious diseases diagnostics, (2) enhancing the quality of *C. difficile* diagnostic results, and (3) characterization of *M. tuberculosis* virulence determinants.

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Karolina Pusz Bochenska

Publications

PUBLICATIONS

- **A blueprint for broadly effective bacteriophage-antibiotic cocktails against bacterial infections.** *Nature communications*
Kim, M. K., Chen, Q., Echterhof, A., Pennetzdorfer, N., McBride, R. C., Banaei, N., Burgener, E. B., Milla, C. E., Bollyky, P. L.
2024; 15 (1): 9987
- **Yield of solid AFB culture in addition to automated liquid culture for diagnosis of mycobacterial infections.** *Journal of clinical microbiology*
Han, D., Banaei, N.
2024: e0155124
- **"Keeping us on our toes": a review of what clinicians need to know about vancomycin-variable *Enterococcus*** *ANTIMICROBIAL STEWARDSHIP & HEALTHCARE EPIDEMIOLOGY*
Hawkins, M. R., Medvedeva, N., Wang, H., Banaei, N., Holubar, M. K.
2024; 4 (1)
- **"Keeping us on our toes": a review of what clinicians need to know about vancomycin-variable *Enterococcus*.** *Antimicrobial stewardship & healthcare epidemiology : ASHE*
Hawkins, M. R., Medvedeva, N., Wang, H., Banaei, N., Holubar, M. K.
2024; 4 (1): e200
- **High-resolution 3D spatial distribution of complex microbial colonies revealed by mass spectrometry imaging.** *Journal of advanced research*
Shen, Y., Wang, Y., Wang, J., Xie, P., Xie, C., Chen, Y., Banaei, N., Ren, K., Cai, Z.
2024
- **Application of Diagnostic Stewardship to Fungal Polymerase Chain Reaction: Low Yield of Follow-up Testing on Plasma and Bronchoalveolar Lavage After a Negative Result.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Wang, T., Park, B., Anderson, G., Shaller, B., Budvytiene, I., Banaei, N.
2024
- **Rapid, antibiotic incubation-free determination of tuberculosis drug resistance using machine learning and Raman spectroscopy.** *Proceedings of the National Academy of Sciences of the United States of America*
Ogunlade, B., Tadesse, L. F., Li, H., Vu, N., Banaei, N., Barczak, A. K., Saleh, A. A., Prakash, M., Dionne, J. A.

2024; 121 (25): e2315670121

- **Dynamics and prognostic value of plasma cell-free DNA PCR in patients with invasive aspergillosis and mucormycosis.** *Journal of clinical microbiology*
Moreno, A., Mah, J., Budvytiene, I., Ho, D. Y., Schwenk, H. T., Banaei, N.
2024: e0039424
- **A retrospective longitudinal study of adenovirus group F, norovirus GI and GII, rotavirus, and enterovirus nucleic acids in wastewater solids at two wastewater treatment plants: solid-liquid partitioning and relation to clinical testing data.** *mSphere*
Boehm, A. B., Shelden, B., Duong, D., Banaei, N., White, B. J., Wolfe, M. K.
2024: e0073623
- **A rationally designed antimicrobial peptide from structural and functional insights of Clostridioides difficile translation initiation factor 1.** *Microbiology spectrum*
Alanis, E., Aguilar, F., Banaei, N., Dean, F. B., Villarreal, A., Alanis, M., Lozano, K., Bullard, J. M., Zhang, Y.
2024: e0277323
- **Neuroinvasive Francisella tularensis Infection: Report of 2 Cases and Review of the Literature.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Cash-Goldwasser, S., Beeson, A., Marzec, N., Ho, D. Y., Hogan, C. A., Budvytiene, I., Banaei, N., Born, D. E., Gephart, M. H., Patel, J., Dietrich, E. A., Nelson, C. A.
2024; 78 (Supplement_1): S55-S63
- **Sequential Treatment Failure With Aztreonam-Ceftazidime-Avibactam Followed by Cefiderocol Due to Preexisting and Acquired Mechanisms in a New Delhi Metallo- β -lactamase-Producing Escherichia coli Causing Fatal Bloodstream Infection.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Senchyna, F., Murugesan, K., Rotunno, W., Nadimpalli, S. S., Deresinski, S., Banaei, N.
2024
- **Effective Approaches to Diagnostic Stewardship of Syndromic Molecular Panels.** *The journal of applied laboratory medicine*
Hitchcock, M. M., Gomez, C. A., Pozdol, J., Banaei, N.
2024; 9 (1): 104-115
- **Erratum for Buron and Banaei, "Inflated Gamma Interferon Response with QuantiFERON-TB Gold Plus Using the Automated Liaison XL Analyzer: a Testing Algorithm To Mitigate False-Positive Results in Low-Incidence Settings".** *Journal of clinical microbiology*
Buron, V., Banaei, N.
2023: e0106723
- **Accuracy of QuantiFERON in active tuberculosis suspects with comorbidities and nontuberculous mycobacterial infection in Northern California.** *Journal of clinical microbiology*
Lu, J., Murugesan, K., Senchyna, F., Budvytiene, I., Banaei, N.
2023: e0077523
- **Investigation of discordant positive Sona lateral flow assay results for detection of Coccidioides antibodies.** *Journal of clinical microbiology*
Lu, J., Banaei, N.
2023: e0062323
- **Case Report: Relapsing Leptospirosis in an Immunocompromised Host.** *The American journal of tropical medicine and hygiene*
Prasad, R., Narsana, N. K., Ajayi, A. A., Wang, H., Patel, J., Ho, D. Y., Banaei, N., Blackburn, B. G.
2023
- **Human norovirus (HuNoV) GII RNA in wastewater solids at 145 United States wastewater treatment plants: comparison to positivity rates of clinical specimens and modeled estimates of HuNoV GII shedders.** *Journal of exposure science & environmental epidemiology*
Boehm, A. B., Wolfe, M. K., White, B. J., Hughes, B., Duong, D., Banaei, N., Bidwell, A.
2023
- **Culture-Independent Multiplexed Detection of Drug-Resistant Bacteria Using Surface-Enhanced Raman Scattering.** *ACS sensors*
Dai, T., Xiao, Z., Shan, D., Moreno, A., Li, H., Prakash, M., Banaei, N., Rao, J.
2023
- **Postpandemic Effects of COVID-19 Shelter-in-Place Orders on the Gastrointestinal Pathogen Landscape.** *Journal of clinical microbiology*
Bulterys, P. L., Leung, N. Y., Saleem, A., Budvytiene, I., Pinsky, B. A., Banaei, N.

2023: e0038523

- **Superior accuracy of Aspergillus plasma cell-free DNA PCR over serum galactomannan for the diagnosis of invasive aspergillosis.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Mah, J., Nicholas, V., Tayyar, R., Moreno, A., Murugesan, K., Budvytiene, I., Banaei, N.
2023
- **Answer to June 2023 Photo Quiz.** *Journal of clinical microbiology*
Zimmet, A. N., Mah, J. K., Budvytiene, I., Banaei, N., Salinas, J.
2023; 61 (6): e0175422
- **Photo Quiz: A 50-Year Old Man with Fever and Headache.** *Journal of clinical microbiology*
Zimmet, A. N., Mah, J. K., Budvytiene, I., Banaei, N., Salinas, J. L.
2023; 61 (6): e0172522
- **Predicting tuberculosis drug resistance with machine learning-assisted Raman spectroscopy.** *ArXiv*
Ogunlade, B., Tadesse, L. F., Li, H., Vu, N., Banaei, N., Barczak, A. K., Saleh, A. A., Prakash, M., Dionne, J. A.
2023
- **Mycobacterium marinum Infection after Iguana Bite in Costa Rica.** *Emerging infectious diseases*
Mah, J., Walding, K., Liang, B., Rinsky, L., Mathew, R., Budvytiene, I., Banaei, N.
2023; 29 (6): 1278-1280
- **Inflated Gamma Interferon Response with QuantiFERON-TB Gold Plus Using the Automated Liaison XL Analyzer: a Testing Algorithm To Mitigate False-Positive Results in Low-Incidence Settings.** *Journal of clinical microbiology*
Buron, V., Banaei, N.
2023: e0029523
- **Bioluminogenic Probe for Rapid, Ultrasensitive Detection of #-Lactam-Resistant Bacteria.** *Analytical chemistry*
Dai, T., Xie, J., Buonomo, J. A., Moreno, A., Banaei, N., Bertozzi, C. R., Rao, J.
2023
- **An Electronic Health Record Intervention to Limit Viral Testing of Cerebrospinal Fluid.** *The Neurohospitalist*
Lyman, K. A., Madill, E., Thatikunta, P., Threlkeld, Z. D., Banaei, N., Gold, C. A.
2023; 13 (2): 173-177
- **Genome-wide tiled detection of circulating Mycobacterium tuberculosis cell-free DNA using Cas13.** *Nature communications*
Thakku, S. G., Lirette, J., Murugesan, K., Chen, J., Theron, G., Banaei, N., Blainey, P. C., Gomez, J., Wong, S. Y., Hung, D. T.
2023; 14 (1): 1803
- **Piperacillin/tazobactam versus cefepime or carbapenems for ceftioxin-non-susceptible Enterobacter cloacae, Klebsiella aerogenes, Citrobacter freundii, Serratia marcescens and Morganella morganii bacteraemia in immunocompromised patients.** *The Journal of antimicrobial chemotherapy*
Lu, B., Wong, M., Ha, D., Bounthavong, M., Banaei, N., Deresinski, S., Diep, C.
2023
- **Combining Acoustic Bioprinting with AI-Assisted Raman Spectroscopy for High-Throughput Identification of Bacteria in Blood.** *Nano letters*
Safir, F., Vu, N., Tadesse, L. F., Firouzi, K., Banaei, N., Jeffrey, S. S., Saleh, A. A., Khuri-Yakub, B. P., Dionne, J. A.
2023
- **Fusarium and Lomentospora co-infection in a pediatric patient with acute myelogenous leukemia: When Occam's razor may not always apply.** *International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases*
Mah, J., Orkusyan, R., Joerger, T., Banaei, N.
2022
- **Erratum for Hogan et al., "Clinical Outcomes of Treated and Untreated C. difficile PCR-Positive/Toxin-Negative Adult Hospitalized Patients: a Quasi-Experimental Noninferiority Study".** *Journal of clinical microbiology*
Hogan, C. A., Hitchcock, M. M., Frost, S., Kapphahn, K., Holubar, M., Tompkins, L. S., Banaei, N.
2022: e0151822
- **Using the Digital Phenotype of Disease in Human Plasma for Simplified and Accurate Prediction of Tuberculosis and HIV Infection**
Gupta, C., Murugesan, K., Jia, Z., Fischer, S., Hui, J., Quevy, E., Theron, G., Banaei, N.

ELSEVIER SCIENCE INC.2022: S74

- **Evaluation of MetaSystems Automated Fluorescent Microscopy System for the Machine-Assisted Detection of Acid-Fast Bacilli in Clinical Samples.** *Journal of clinical microbiology*
Tomasello, G., Foroughi, F., Padron, D., Moreno, A., Banaei, N.
2022: e0113122
- **Pediatric Solid Organ Transplant Recipients Demonstrate Robust Cell-Mediated and Humoral Responses to 3 Doses of mRNA SARS-CoV-2 Vaccine.** *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons*
Bratic, J. S., Gans, H. A., Chen, S. F., Banaei, N., Johnston, E. M., Sear, K., Samreth, S., Nadimpalli, S. S.
2022
- **Near-fatal Legionella pneumonia in a neonate linked to home humidifier by metagenomic next generation sequencing.** *Med (New York, N.Y.)*
West, P. T., Brooks, E. F., Costales, C., Moreno, A., Jensen, T. D., Budvytiene, I., Khan, A., Pham, T. H., Schwenk, H. T., Bhatt, A. S., Banaei, N.
2022
- **Filamentous bacteriophage delays healing of Pseudomonas-infected wounds.** *Cell reports. Medicine*
Bach, M. S., de Vries, C. R., Khosravi, A., Sweere, J. M., Popescu, M. C., Chen, Q., Demirdjian, S., Hargil, A., Van Belleghem, J. D., Kaber, G., Hajfathalian, M., Burgener, E. B., Liu, et al
2022; 3 (6): 100656
- **Cellular and humoral immune response to SARS-CoV-2 vaccination and booster dose in immunosuppressed patients: An observational cohort study.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Yang, L. M., Costales, C., Ramanathan, M., Bulterys, P. L., Murugesan, K., Schroers-Martin, J., Alizadeh, A. A., Boyd, S. D., Brown, J. M., Nadeau, K. C., Nadimpalli, S. S., Wang, A. X., Busque, et al
2022; 153: 105217
- **Clinical Outcomes of Treated and Untreated C. difficile PCR-Positive/Toxin-Negative Adult Hospitalized Patients: a Quasi-Experimental Noninferiority Study.** *Journal of clinical microbiology*
Hogan, C. A., Hitchcock, M. M., Frost, S., Kapphahn, K., Holubar, M., Tompkins, L. S., Banaei, N.
2022: e0218721
- **Balamuthia mandrillaris brain infection: a rare cause of a ring-enhancing central nervous system lesion. Illustrative case.** *Journal of neurosurgery. Case lessons*
Levinson, S., Kumar, K. K., Wang, H., Tayyar, R., Dunning, M., Toland, A., Budvytiene, I., Vogel, H., Chang, A., Banaei, N., Shuer, L.
2022; 3 (15)
- **Accuracy of Pneumocystis jirovecii Plasma Cell-Free DNA PCR for Noninvasive Diagnosis of Pneumocystis Pneumonia.** *Journal of clinical microbiology*
Moreno, A., Epstein, D., Budvytiene, I., Banaei, N.
2022: e0010122
- **A modular and reconfigurable open-channel gated device for the electrokinetic extraction of cell-free DNA assays.** *Analytica chimica acta*
Futai, N., Fukazawa, Y., Kashiwagi, T., Tamaki, S., Sakai, R., Hogan, C. A., Murugesan, K., Ramachandran, A., Banaei, N., Santiago, J. G.
2022; 1200: 339435
- **Clinical accuracy of malaria loop-mediated isothermal amplification assay as a stand-alone screening tool at a non-endemic Northern California regional health system.** *Diagnostic microbiology and infectious disease*
Costales, C., Broadhurst, M. J., Budvytiene, I., Banaei, N.
2022; 103 (2): 115680
- **Author Correction: The immunoregulatory landscape of human tuberculosis granulomas.** *Nature immunology*
McCaffrey, E. F., Donato, M., Keren, L., Chen, Z., Delmastro, A., Fitzpatrick, M. B., Gupta, S., Greenwald, N. F., Baranski, A., Graf, W., Kumar, R., Bosse, M., Fullaway, et al
2022
- **Filamentous Bacteriophage Delay Healing Of Pseudomonas-Infected Wounds**
Khosravi, A., Bach, M. S., de Vries, C. R., Sweere, J. M., Popescu, M., Chen, Q., Hargil, A., Van Belleghem, J. D., Kaber, G., Burgener, E. B., Liu, D., Quynh-Lam Tran, Dharmaraj, T., et al
WILEY.2022: A27
- **Rare transmission of commensal and pathogenic bacteria in the gut microbiome of hospitalized adults.** *Nature communications*
Siranosian, B. A., Brooks, E. F., Andermann, T., Rezvani, A. R., Banaei, N., Tang, H., Bhatt, A. S.

1800; 13 (1): 586

- **Immunogenicity of a Third COVID-19 mRNA Vaccine Dose in PID Patients with Functional B-cell Defects.** *The journal of allergy and clinical immunology. In practice*
Gernez, Y., Murugesan, K., Cortales, C. R., Banaei, N., Hoyte, L., Pinsky, B. A., Lewis, D. B., Pham, M.
2022
- **Microbiota dynamics in a randomized trial of gut decontamination during allogeneic hematopoietic cell transplantation** *JCI Insight*
Severyn, C. J., et al
2022
- **Long Term Accuracy of SARS-CoV-2 Interferon- γ Release Assay and its Application in Household Investigation.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Murugesan, K., Jagannathan, P., Altamirano, J., Maldonado, Y. A., Bonilla, H. F., Jacobson, K. B., Parsonnet, J., Andrews, J. R., Shi, R. Z., Boyd, S., Pinsky, B. A., Singh, U., Banaei, et al
2022
- **The immunoregulatory landscape of human tuberculosis granulomas.** *Nature immunology*
McCaffrey, E. F., Donato, M., Keren, L., Chen, Z., Delmastro, A., Fitzpatrick, M. B., Gupta, S., Greenwald, N. F., Baranski, A., Graf, W., Kumar, R., Bosse, M., Fullaway, et al
2022
- **Immunogenicity and Tolerability of COVID-19 mRNA Vaccines in PID patients with functional B-cell defects.** *The Journal of allergy and clinical immunology*
Pham, M. N., Murugesan, K., Banaei, N., Pinsky, B. A., Tang, M., Hoyte, E., Lewis, D. B., Gernez, Y.
1800
- **Effect of rapid methicillin-resistant Staphylococcus aureus nasal polymerase chain reaction screening on vancomycin use in the intensive care unit.** *American journal of health-system pharmacy : AJHP : official journal of the American Society of Health-System Pharmacists*
Diep, C., Meng, L., Pourali, S., Hitchcock, M. M., Alegria, W., Swayngim, R., Ran, R., Banaei, N., Deresinski, S., Holubar, M.
2021
- **"Barcode" cell sensor microfluidic system: Rapid and sample-to-answer antimicrobial susceptibility testing applicable in resource-limited conditions.** *Biosensors & bioelectronics*
Chan, C., Sun, H., Wang, Y., Zhao, Z., O'Neill, R., Siu, S., Chu, X., Banaei, N., Ren, K.
2021; 192: 113516
- **Novel electronic biosensor for automated inoculum preparation to accelerate antimicrobial susceptibility testing.** *Scientific reports*
Putney, S., Theiss, A. H., Rajan, N. K., Deak, E., Buie, C., Ngo, Y., Shah, H., Yuan, V., Botbol-Ponte, E., Hoyos-Urias, A., Knopfmacher, O., Hogan, C. A., Banaei, et al
2021; 11 (1): 11360
- **Impact of COVID-19 shelter-in-place order on transmission of gastrointestinal pathogens in Northern California.** *Journal of clinical microbiology*
Bulterys, P. L., Leung, N. Y., Saleem, A., Budvytiene, I., Banaei, N.
2021
- **Discontinuation Patterns and Cost Avoidance of a Pharmacist-Driven Methicillin-Resistant Staphylococcus aureus Nasal Polymerase Chain Reaction Testing Protocol for De-escalation of Empiric Vancomycin for Suspected Pneumonia.** *Open forum infectious diseases*
Meng, L., Pourali, S., Hitchcock, M. M., Ha, D. R., Mui, E., Alegria, W., Fox, E., Diep, C., Swayngim, R., Chang, A., Banaei, N., Deresinski, S., Holubar, et al
2021; 8 (4): ofab099
- **Discontinuation Patterns and Cost Avoidance of a Pharmacist-Driven Methicillin-Resistant Staphylococcus aureus Nasal Polymerase Chain Reaction Testing Protocol for De-escalation of Empiric Vancomycin for Suspected Pneumonia** *OPEN FORUM INFECTIOUS DISEASES*
Meng, L., Pourali, S., Hitchcock, M. M., Ha, D. R., Mui, E., Alegria, W., Fox, E., Diep, C., Swayngim, R., Chang, A., Banaei, N., Deresinski, S., Holubar, et al
2021; 8 (4)
- **Impact of T-Cell Xtend on T-SPOT.TB Assay in High-Risk Individuals after Delayed Blood Sample Processing.** *Journal of clinical microbiology*
Feng, P. J., Wu, Y. n., Ho, C. S., Chinna, L. n., Whelen, A. C., Largen, A. n., Brostrom, R. n., Reves, R. n., Belknap, R. n., Cattamanchi, A. n., Banaei, N. n.
2021
- **Comparative genomics of Enterobacter cloacae complex before and after acquired clinical resistance to Ceftazidime-Avibactam.** *Diagnostic microbiology and infectious disease*

Senchyna, F., Tamburini, F. B., Murugesan, K., Watz, N., Bhatt, A. S., Banaei, N.

2021; 101 (4): 115511

- **Nocardiosis in Immunocompromised Patients on Alternative Pneumocystis Prophylaxis.** *Emerging infectious diseases*
Puing, A. G., Epstein, D. J., Banaei, N., Subramanian, A. K., Liu, A. Y.
2021; 27 (10): 2734-2736
- **A dual-caged resorufin probe for rapid screening of infections resistant to lactam antibiotics** *Chemical Science*
Xie, J., Mu, R., Fang, M., Cheng, Y., Senchyna, F., Moreno, A., Banaei, N., Rao, J.
2021
- **Interferon-gamma release assay testing to assess COVID-19 vaccination response in a SARS-CoV-2 seronegative patient on rituximab: a case report.** *International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases*
Ferguson, J., Murugesan, K., Banaei, N., Liu, A.
2021
- **Reactivation of Chagas Disease in a Patient With an Autoimmune Rheumatic Disease: Case Report and Review of the Literature.** *Open forum infectious diseases*
Czech, M. M., Nayak, A. K., Subramanian, K. n., Suarez, J. F., Ferguson, J. n., Jacobson, K. B., Montgomery, S. P., Chang, M. n., Bae, G. H., Raghavan, S. S., Wang, H. n., Miranti, E. n., Budvytiene, et al
2021; 8 (2): ofaa642
- **SARS-CoV-2 infection and COVID-19 severity in individuals with prior seasonal coronavirus infection.** *Diagnostic microbiology and infectious disease*
Gombar, S. n., Bergquist, T. n., Pejaver, V. n., Hammarlund, N. E., Murugesan, K. n., Mooney, S. n., Shah, N. n., Pinsky, B. A., Banaei, N. n.
2021; 100 (2): 115338
- **Clinical Accuracy and Impact of Plasma Cell-Free DNA Fungal PCR Panel for Non-Invasive Diagnosis of Fungal Infection.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Senchyna, F. n., Hogan, C. A., Murugesan, K. n., Moreno, A. n., Ho, D. Y., Subramanian, A. n., Schwenk, H. T., Budvytiene, I. n., Costa, H. A., Gombar, S. n., Banaei, N. n.
2021
- **Concurrent Trypanosoma cruzi and Cytomegalovirus Reactivation in an Immunosuppressed Patient With Limited Cutaneous Systemic Sclerosis.** *The American Journal of dermatopathology*
Chang, M. S., Bae, G. H., Almazan, T., Raghavan, S. S., Wang, J. Y., Czech, M. M., Wang, H., Banaei, N., Blackburn, B. G., Novoa, R. A., Rieger, K. E.
2020
- **Electric field-driven microfluidics for rapid CRISPR-based diagnostics and its application to detection of SARS-CoV-2.** *Proceedings of the National Academy of Sciences of the United States of America*
Ramachandran, A., Huyke, D. A., Sharma, E., Sahoo, M. K., Huang, C., Banaei, N., Pinsky, B. A., Santiago, J. G.
2020
- **Significance of bacterial and viral genotypes as a risk factor in driving cancer (Review).** *Molecular and clinical oncology*
Jangam, D., Butzmann, A., Sridhar, K., Deresinski, S., Banaei, N., Shigeo Ohgami, R.
2020; 13 (1): 3-12
- **Impact of Rapid Antimicrobial Susceptibility Testing in Gram-negative Rod Bacteremia: A Quasi-Experimental Study.** *Journal of clinical microbiology*
Hogan, C. A., Eburnji, B., Watz, N., Kapphahn, K., Rigdon, J., Mui, E., Meng, L., Alegria, W., Holubar, M., Deresinski, S., Banaei, N.
2020
- **Clinical Impact of Clostridium difficile PCR Cycle Threshold-Predicted Toxin Reporting in Pediatric Patients** *JOURNAL OF THE PEDIATRIC INFECTIOUS DISEASES SOCIETY*
Schwenk, H. T., Bio, L. L., Kruger, J. F., Banaei, N.
2020; 9 (1): 44-50
- **Plasmonic and Electrostatic Interactions Enable Uniformly Enhanced Liquid Bacterial Surface-Enhanced Raman Scattering (SERS).** *Nano letters*
Tadesse, L. F., Ho, C. S., Chen, D. H., Arami, H. n., Banaei, N. n., Gambhir, S. S., Jeffrey, S. S., Saleh, A. A., Dionne, J. n.
2020
- **Reply to Muller and Chaudhury.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*
Hogan, C. A., Pinsky, B. A., Banaei, N. n.

2020

- **A predictive tool for identification of SARS-CoV-2 PCR-negative emergency department patients using routine test results.** *Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology*
Joshi, R. P., Pejaver, V. n., Hammarlund, N. E., Sung, H. n., Lee, S. K., Furmanchuk, A. n., Lee, H. Y., Scott, G. n., Gombar, S. n., Shah, N. n., Shen, S. n., Nassiri, A. n., Schneider, et al
2020; 129: 104502
- **Simultaneous Coccidioidomycosis and Phaeohiphomycosis in a Kidney Transplant Recipient: A Case Report and Literature Review.** *Transplant infectious disease : an official journal of the Transplantation Society*
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