

# Stanford

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## Niaz Banaei

Associate Professor of Pathology and of Medicine (Infectious Diseases) at the Stanford University Medical Center

### CLINICAL OFFICES

- **Stanford Healthcare Clinical Microbiology Laboratory**  
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### ACADEMIC CONTACT INFORMATION

- **Alternate Contact**  
Lua Tiedemann - Administrative Assistant  
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### Bio

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#### BIO

Niaz Banaei received his medical education from Stanford University and completed residency training in laboratory medicine at the University of California, San Francisco. He then completed a postdoctoral fellowship in infectious diseases at the New York University. He is currently an Associate Professor of Pathology and Medicine (Division of Infectious Diseases & Geographic Medicine) at Stanford University and is the Medical Director of the Clinical Microbiology Laboratory at Stanford Health Care. In addition, he is the Director of Stanford Clinical Microbiology Fellowship. He serves on the board of advisors for the Center for Disease Control Tuberculosis Epidemiologic Studies Consortium II (TBESC). 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. He was the recipient of Kenneth L. Vosti Infectious Diseases and Stanford University clinical pathology junior faculty teaching awards.

#### CLINICAL FOCUS

- Clinical Pathology
- Mycobacterium Infections
- Clinical Laboratory Techniques

#### ACADEMIC APPOINTMENTS

- Associate Professor - Med Center Line, Pathology
- Associate Professor - Med Center Line, Medicine - Infectious Diseases
- Member, Bio-X

#### ADMINISTRATIVE APPOINTMENTS

- 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, Clinical Microbiology Fellowship, Stanford University, (2016- present)

#### PROFESSIONAL EDUCATION

- Residency: UCSF Clinical Pathology Residency (2003) CA

- Internship: UCSF Clinical Pathology Residency (2002) CA
- Fellowship: New York University (2007) NY
- Board Certification: Clinical Pathology, American Board of Pathology (2004)
- Medical Education: Stanford University School of Medicine (2001) CA
- MD, Stanford University , Medicine (2001)

## Research & Scholarship

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### 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

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### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Raja Kalluru, Kanagavel Murugesan

## Publications

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### PUBLICATIONS

- **Metagenomic DNA Sequencing for the Diagnosis of Intraocular Infections.** *Ophthalmology*  
Doan, T., Acharya, N. R., Pinsky, B. A., Sahoo, M. K., Chow, E. D., Banaei, N., Budvytiene, I., Cevallos, V., Zhong, L., Zhou, Z., Lietman, T. M., DeRisi, J. L.  
2017
- **Are Cystic Fibrosis *Aspergillus fumigatus* Isolates Different? Intermicrobial Interactions with *Pseudomonas*** *MYCOPATHOLOGIA*  
Nazik, H., Moss, R. B., Karna, V., Clemons, K. V., Banaei, N., Cohen, K., Choudhary, V., Stevens, D. A.  
2017; 182 (3-4): 315-318
- **Clostridium difficile rates in asymptomatic and symptomatic hospitalized patients using nucleic acid testing.** *Diagnostic microbiology and infectious disease*  
Truong, C., Schroeder, L. F., Gaur, R., Anikst, V. E., Komo, I., Watters, C., McCalley, E., Kulik, C., Pickham, D., Lee, N. J., Banaei, N.  
2017; 87 (4): 365-370
- **New and developing diagnostic technologies for urinary tract infections.** *Nature reviews. Urology*  
Davenport, M., Mach, K. E., Shortliffe, L. M., Banaei, N., Wang, T., Liao, J. C.  
2017
- **Infection Rates.** *Journal of clinical microbiology*  
Truong, C. Y., Gombar, S., Wilson, R., Sundararajan, G., Tekic, N., Holubar, M., Shepard, J., Madison, A., Tompkins, L., Shah, N., Deresinski, S., Schroeder, L. F., Banaei, et al  
2017
- **Is Follow-up Testing with FilmArray Gastrointestinal Multiplex PCR Panel Necessary?** *Journal of clinical microbiology*  
Park, S., Hitchcock, M. M., Gomez, C. A., Banaei, N.  
2017
- **Determining the cause of recurrent Clostridium difficile infection using whole genome sequencing** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*  
Sim, J. H., Truong, C., Minot, S. S., Greenfield, N., Budvytiene, I., Lohith, A., Anikst, V., Pourmand, N., Banaei, N.  
2017; 87 (1): 11-16
- **Are Cystic Fibrosis *Aspergillus fumigatus* Isolates Different? Intermicrobial Interactions with *Pseudomonas*.** *Mycopathologia*  
Nazik, H., Moss, R. B., Karna, V., Clemons, K. V., Banaei, N., Cohen, K., Choudhary, V., Stevens, D. A.

2016: -?

- **Adenosine triphosphate bioluminescence for bacteriological surveillance and reprocessing strategies for minimizing risk of infection transmission by duodenoscopes.** *Gastrointestinal endoscopy*  
Sethi, S., Huang, R. J., Barakat, M. T., Banaei, N., Friedland, S., Banerjee, S.  
2016
- **Determining the cause of recurrent Clostridium difficile infection using whole genome sequencing.** *Diagnostic microbiology and infectious disease*  
Sim, J. H., Truong, C., Minot, S. S., Greenfield, N., Budvytiene, I., Lohith, A., Anikst, V., Pourmand, N., Banaei, N.  
2016
- **Serial testing for latent tuberculosis using QuantiFERON-TB Gold In-Tube: A Markov model** *SCIENTIFIC REPORTS*  
Moses, M. W., Zwerling, A., Cattamanchi, A., Denkinger, C. M., Banaei, N., Kik, S. V., Metcalfe, J., Pai, M., Dowdy, D.  
2016; 6
- **Rapid Diagnosis of Tuberculosis from Analysis of Urine Volatile Organic Compounds** *ACS SENSORS*  
Lim, S. H., Martino, R., Anikst, V., Xu, Z., Mix, S., Benjamin, R., Schub, H., Eiden, M., Rhodes, P. A., Banaei, N.  
2016; 1 (7): 852-856
- **Organism burden, toxin concentration, and lactoferrin concentration do not distinguish between clinically significant and nonsignificant diarrhea in patients with Clostridium difficile** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*  
Anikst, V. E., Gaur, R. L., Schroeder, L. F., Banaei, N.  
2016; 84 (4): 343-346
- **Interferon Gamma Release Assays for Latent Tuberculosis: What Are the Sources of Variability?** *Journal of clinical microbiology*  
Banaei, N., Gaur, R. L., Pai, M.  
2016; 54 (4): 845-850
- **Bacterial culture detection and identification in blood agar plates with an optoelectronic nose.** *Analyst*  
Lim, S. H., Mix, S., Anikst, V., Budvytiene, I., Eiden, M., Churi, Y., Queralto, N., Berliner, A., Martino, R. A., Rhodes, P. A., Banaei, N.  
2016; 141 (3): 918-925
- **First case of infectious endocarditis caused by Parvimonas micra.** *Anaerobe*  
Gomez, C. A., Gerber, D. A., Zambrano, E., Banaei, N., Deresinski, S., Blackburn, B. G.  
2015; 36: 53-55
- **Next-Generation Sequencing for Infectious Disease Diagnosis and Management A Report of the Association for Molecular Pathology** *JOURNAL OF MOLECULAR DIAGNOSTICS*  
Lefterova, M. I., Suarez, C. J., Banaei, N., Pinsky, B. A.  
2015; 17 (6): 623-634
- **Molecular Testing for Plasmodium falciparum by Use of Serum or Plasma and Comparison with Microscopy and Rapid Diagnostic Testing in Febrile Nigerian Patients.** *Journal of clinical microbiology*  
Waggoner, J. J., Okangba, C., Mohamed-Hadley, A., Lefterova, M. I., Banaei, N., Oyibo, W., Pinsky, B. A.  
2015; 53 (11): 3596-3600
- **First case of mesh infection due to Coccidioides spp. and literature review of fungal mesh infections after hernia repair.** *Mycoses*  
Forrester, J. D., Gomez, C. A., Forrester, J. A., Nguyen, M., Gregg, D., Deresinski, S., Banaei, N., Weiser, T. G.  
2015; 58 (10): 582-587
- **A small-molecule antivirulence agent for treating Clostridium difficile infection.** *Science translational medicine*  
Bender, K. O., Garland, M., Ferreyra, J. A., Hryckowian, A. J., Child, M. A., Puri, A. W., Solow-Cordero, D. E., Higginbottom, S. K., Segal, E., Banaei, N., Shen, A., Sonnenburg, J. L., Bogyo, et al  
2015; 7 (306): 306ra148-?
- **A small-molecule antivirulence agent for treating Clostridium difficile infection** *SCIENCE TRANSLATIONAL MEDICINE*  
Bender, K. O., Garland, M., Ferreyra, J. A., Hryckowian, A. J., Child, M. A., Puri, A. W., Solow-Cordero, D. E., Higginbottom, S. K., Segal, E., Banaei, N., Shen, A., Sonnenburg, J. L., Bogyo, et al  
2015; 7 (306)
- **In vitro immunomodulation for enhancing T cell-based diagnosis of Mycobacterium tuberculosis infection** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*

- Slater, M., Minh-Chi Tran, M. C., Platt, L., Luu, L. T., Phan, H. T., Pham, P. T., Do, T. B., Nguyen, H. T., Gaur, R. L., Parsonnet, J., Cattamanchi, A., Luo, R., Nahid, et al  
2015; 83 (1): 41-45
- **Inhibition of *Aspergillus fumigatus* and Its Biofilm by *Pseudomonas aeruginosa* Is Dependent on the Source, Phenotype and Growth Conditions of the Bacterium** *PLOS ONE*  
Ferreira, J. A., Penner, J. C., Moss, R. B., Haagenen, J. A., Clemons, K. V., Spormann, A. M., Nazik, H., Cohen, K., Banaei, N., Carolino, E., Stevens, D. A.  
2015; 10 (8)
  - **Fatal West Nile Virus Encephalitis in a Heart Transplant Recipient** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Gomez, A. J., Waggoner, J. J., Itoh, M., Hollander, S. A., Gutierrez, K. M., Budvytiene, I., Banaei, N., Pinsky, B. A.  
2015; 53 (8): 2749-2752
  - **Optimized Protocol for Simple Extraction of High-Quality Genomic DNA from *Clostridium difficile* for Whole-Genome Sequencing** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Sim, J. H., Anikst, V., Lohith, A., Pourmand, N., Banaei, N.  
2015; 53 (7): 2329-2331
  - **Molecular epidemiology of *Aspergillus* collected from cystic fibrosis patients** *JOURNAL OF CYSTIC FIBROSIS*  
Sabino, R., Ferreira, J. A., Moss, R. B., Valente, J., Verissimo, C., Carolino, E., Clemons, K. V., Everson, C., Banaei, N., Penner, J., Stevens, D. A.  
2015; 14 (4): 474-481
  - **Simple Real-Time PCR and Amplicon Sequencing Method for Identification of *Plasmodium* Species in Human Whole Blood** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Lefterova, M. I., Budvytiene, I., Sandlund, J., Faernert, A., Banaei, N.  
2015; 53 (7): 2251-2257
  - **Rapid Detection of Acquired and Inducible Clarithromycin Resistance in *Mycobacterium abscessus* Group by a Simple Real-Time PCR Assay** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Luo, R. F., Curry, C., Taylor, N., Budvytiene, I., Banaei, N.  
2015; 53 (7): 2337-2339
  - **Burden of *Clostridium difficile* infection in the United States.** *New England journal of medicine*  
Banaei, N., Anikst, V., Schroeder, L. F.  
2015; 372 (24): 2368-2369
  - **Inhibition of *Aspergillus fumigatus* and Its Biofilm by *Pseudomonas aeruginosa* Is Dependent on the Source, Phenotype and Growth Conditions of the Bacterium.** *PloS one*  
Ferreira, J. A., Penner, J. C., Moss, R. B., Haagenen, J. A., Clemons, K. V., Spormann, A. M., Nazik, H., Cohen, K., Banaei, N., Carolino, E., Stevens, D. A.  
2015; 10 (8)
  - **Reproducibility of interferon gamma (IFN- $\gamma$ ) release Assays. A systematic review.** *Annals of the American Thoracic Society*  
Tagmouti, S., Slater, M., Benedetti, A., Kik, S. V., Banaei, N., Cattamanchi, A., Metcalfe, J., Dowdy, D., van Zyl Smit, R., Dendukuri, N., Pai, M., Denking, C.  
2014; 11 (8): 1267-1276
  - **Environmental Sampling for *Clostridium difficile* on Alcohol-Based Hand Rub Dispensers in an Academic Medical Center** *SURGICAL INFECTIONS*  
Forrester, J. D., Banaei, N., Buchner, P., Spain, D. A., Staudenmayer, K. L.  
2014; 15 (5): 581-584
  - **Using cerebrospinal fluid for the diagnosis of tuberculous meningitis with GeneXpert.** *European respiratory journal*  
Luo, R. F., Gaur, R. L., Banaei, N.  
2014; 44 (4): 1094-1095
  - ***Mycobacterium tuberculosis* Lipoprotein LprG Binds Lipoarabinomannan and Determines Its Cell Envelope Localization to Control Phagolysosomal Fusion** *PLOS PATHOGENS*  
Shukla, S., Richardson, E. T., Athman, J. J., Shi, L., Wearsch, P. A., McDonald, D., Banaei, N., Boom, W. H., Jackson, M., Harding, C. V.  
2014; 10 (10)
  - **LprG-Mediated Surface Expression of Lipoarabinomannan Is Essential for Virulence of *Mycobacterium tuberculosis*** *PLOS PATHOGENS*  
Gaur, R. L., Ren, K., Blumenthal, A., Bhamidi, S., Gibbs, S., Jackson, M., Zare, R. N., Ehrst, S., Ernst, J. D., Banaei, N.  
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- **LprG-mediated surface expression of lipoarabinomannan is essential for virulence of Mycobacterium tuberculosis.** *PLoS pathogens*  
Gaur, R. L., Ren, K., Blumenthal, A., Bhamidi, S., González-Nilo, F. D., Jackson, M., Zare, R. N., Ehrst, S., Ernst, J. D., Banaei, N.  
2014; 10 (9)
- **Engineering the stereochemistry of cephalosporin for specific detection of pathogenic carbapenemase-expressing bacteria.** *Angewandte Chemie (International ed. in English)*  
Shi, H., Cheng, Y., Lee, K. H., Luo, R. F., Banaei, N., Rao, J.  
2014; 53 (31): 8113-8116
- **Multiplex nucleic Acid amplification test for diagnosis of dengue Fever, malaria, and leptospirosis.** *Journal of clinical microbiology*  
Waggoner, J. J., Abeynayake, J., Balassiano, I., Lefterova, M., Sahoo, M. K., Liu, Y., Vital-Brazil, J. M., Gresh, L., Balmaseda, A., Harris, E., Banaei, N., Pinsky, B. A.  
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- **Adult and Pediatric Intra-Institutional Trends of Ciprofloxacin Susceptibility in E. coli Positive Urinary Cultures.** *Antibiotics (Basel, Switzerland)*  
Owumi, W., Banaei, N., Shortliffe, L. D.  
2014; 3 (2): 163-173
- **Occupational Screening for Tuberculosis. A Testing Time for Interferon- $\gamma$  Release Assays.** *Annals of the American Thoracic Society*  
Pai, M., Kik, S. V., Banaei, N.  
2014; 11 (3): 399-401
- **Colorimetric Sensor Array Allows Fast Detection and Simultaneous Identification of Sepsis-Causing Bacteria in Spiked Blood Culture** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Lim, S. H., Mix, S., Xu, Z., Taba, B., Budvytiene, I., Berliner, A. N., Queralto, N., Churi, Y. S., Huang, R. S., Eiden, M., Martino, R. A., Rhodes, P., Banaei, et al  
2014; 52 (2): 592-598
- **Economic Evaluation of Laboratory Testing Strategies for Hospital-Associated Clostridium difficile Infection.** *Journal of clinical microbiology*  
Schroeder, L. F., Robilotti, E., Peterson, L. R., Banaei, N., Dowdy, D. W.  
2014; 52 (2): 489-496
- **Gamma Interferon Release Assays for Detection of Mycobacterium tuberculosis Infection** *CLINICAL MICROBIOLOGY REVIEWS*  
Pai, M., Denkinger, C. M., Kik, S. V., Rangaka, M. X., Zwerling, A., Oxlade, O., Metcalfe, J. Z., Cattamanchi, A., Dowdy, D. W., Dheda, K., Banaei, N.  
2014; 27 (1): 3-20
- **Traveler's encounter with nymphs in a hotel bed.** *IDCases*  
Sandlund, J., Banaei, N.  
2014; 1 (2): 24-25
- **False-Positive Quantiferon Results at a Large Healthcare Institution.** *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*  
2014
- **Pretreatment of sinus aspirates with dithiothreitol improves yield of fungal cultures in patients with chronic sinusitis** *INTERNATIONAL FORUM OF ALLERGY & RHINOLOGY*  
Chisholm, K. M., Getsinger, D., Vaughan, W., Hwang, P. H., Banaei, N.  
2013; 3 (12): 992-996
- **A Pediatric Case of New Delhi Metallo- $\beta$ -Lactamase-1-Producing Enterobacteriaceae in The United States.** *Pediatric infectious disease journal*  
Green, D. A., Srinivas, N., Watz, N., Tenover, F. C., Amieva, M., Banaei, N.  
2013; 32 (11): 1291-1294
- **Impact of Blood Volume, Tube Shaking, and Incubation Time on Reproducibility of QuantiFERON-TB Gold In-Tube Assay.** *Journal of clinical microbiology*  
Gaur, R. L., Pai, M., Banaei, N.  
2013; 51 (11): 3521-3526
- **Alerting Physicians during Electronic Order Entry Effectively Reduces Unnecessary Repeat PCR Testing for Clostridium difficile.** *Journal of clinical microbiology*  
Luo, R. F., Spradley, S., Banaei, N.

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- **Challenges with QuantiFERON-TB Gold Assay for Large-Scale, Routine Screening of U.S. Healthcare Workers** *AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE*  
Slater, M. L., Welland, G., Pai, M., Parsonnet, J., Banaei, N.  
2013; 188 (8): 1005-1010
- **Occupational screening of health care workers for tuberculosis infection: tuberculin skin testing or interferon-gamma release assays?** *OCCUPATIONAL MEDICINE-OXFORD*  
Pai, M., Banaei, N.  
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- **A Sensitive Multiplex, Real-Time PCR Assay for Prospective Detection of Shiga Toxin-Producing Escherichia coli from Stool Samples Reveals Similar Incidences but Variable Severities of Non-O157 and O157 Infections in Northern California.** *Journal of clinical microbiology*  
Lefterova, M. I., Slater, K. A., Budvytiene, I., Dadone, P. A., Banaei, N.  
2013; 51 (9): 3000-3005
- **Molecular Approaches and Biomarkers for Detection of Mycobacterium tuberculosis.** *Clinics in laboratory medicine*  
Luo, R. F., Banaei, N.  
2013; 33 (3): 553-566
- **Utility of DNA Sequencing for Direct Identification of Invasive Fungi From Fresh and Formalin-Fixed Specimens** *AMERICAN JOURNAL OF CLINICAL PATHOLOGY*  
Moncada, P. A., Budvytiene, I., Ho, D. Y., Deresinski, S. C., Montoya, J. G., Banaei, N.  
2013; 140 (2): 203-208
- **Sorting Inactivated Cells Using Cell-Imprinted Polymer Thin Films** *ACS NANO*  
Ren, K., Banaei, N., Zare, R. N.  
2013; 7 (7): 6031-6036
- **Images in clinical medicine. Strongyloides stercoralis embryonated ova in the lung.** *New England journal of medicine*  
Schroeder, L., Banaei, N.  
2013; 368 (12)
- **Use of Whole Genome Sequencing to Determine the Microevolution of Mycobacterium tuberculosis during an Outbreak** *PLOS ONE*  
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2013; 8 (3)
- **Trends in incidence and susceptibility among methicillin-resistant Staphylococcus aureus isolated from intranasal cultures associated with rhinosinusitis.** *American journal of rhinology & allergy*  
Rujanavej, V., Soudry, E., Banaei, N., Baron, E. J., Hwang, P. H., Nayak, J. V.  
2013; 27 (2): 134-137
- **Interferon  $\gamma$ -Release Assays for Diagnosis of Latent Tuberculosis in Healthcare Workers in Low-Incidence Settings: Pros and Cons.** *Clinical chemistry*  
2013
- **In Vitro Immunomodulation of a Whole Blood IFN-gamma Release Assay Enhances T Cell Responses in Subjects with Latent Tuberculosis Infection** *PLOS ONE*  
Gaur, R. L., Suhosk, M. M., Banaei, N.  
2012; 7 (10)
- **Investigation of False-Positive Results Given by the QuantiFERON-TB Gold In-Tube Assay** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Slater, M., Parsonnet, J., Banaei, N.  
2012; 50 (9): 3105-3107
- **Performance of BinaxNOW for Diagnosis of Malaria in a US Hospital** *JOURNAL OF CLINICAL MICROBIOLOGY*  
DiMaio, M. A., Pereira, I. T., George, T. I., Banaei, N.  
2012; 50 (9): 2877-2880
- **Sensitivity of QuantiFERON-TB GOLD In-Tube for diagnosis of recent versus remote M.tuberculosis infection** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*

- Bautista, J., Banaei, N.  
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- **Can a Simple Flotation Method Lower the Limit of Detection of Mycobacterium tuberculosis in Extrapulmonary Samples Analyzed by the GeneXpert MTB/RIF Assay?** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Taylor, N., Gaur, R. L., Baron, E. J., Banaei, N.  
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  - **First Isolation of Cryptococcus uzbekistanensis from an Immunocompromised Patient with Lymphoma** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Powel, M. S., Alizadeh, A. A., Budvytiene, I., Schaenman, J. M., Banaei, N.  
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  - **IMP-Producing Carbapenem-Resistant Klebsiella pneumoniae in the United States** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Limbago, B. M., Rasheed, J. K., Anderson, K. F., Zhu, W., Kitchel, B., Watz, N., Munro, S., Gans, H., Banaei, N., Kallen, A. J.  
2011; 49 (12): 4239-4245
  - **Preanalytical Delay Reduces Sensitivity of QuantiFERON-TB Gold In-Tube Assay for Detection of Latent Tuberculosis Infection** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Doberne, D., Gaur, R. L., Banaei, N.  
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  - **Suboptimal Activation of Antigen-Specific CD4(+) Effector Cells Enables Persistence of M. tuberculosis In Vivo** *PLOS PATHOGENS*  
Bold, T. D., Banaei, N., Wolf, A. J., Ernst, J. D.  
2011; 7 (5)
  - **Clinical Application and Limitations of Interferon-gamma Release Assays for the Diagnosis of Latent Tuberculosis Infection** *CLINICAL INFECTIOUS DISEASES*  
Herrera, V., Perry, S., Parsonnet, J., Banaei, N.  
2011; 52 (8): 1031-1037
  - **Brain Abscess Caused by Phaeoacremonium parasiticum in an Immunocompromised Patient** *JOURNAL OF CLINICAL MICROBIOLOGY*  
McNeil, C. J., Luo, R. F., Vogel, H., Banaei, N., Ho, D. Y.  
2011; 49 (3): 1171-1174
  - **Fluorescent DNA chemosensors: identification of bacterial species by their volatile metabolites** *CHEMICAL COMMUNICATIONS*  
Koo, C., Wang, S., Gaur, R. L., Samain, F., Banaei, N., Kool, E. T.  
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  - **Is Repeat PCR Needed for Diagnosis of Clostridium difficile Infection?** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Luo, R. F., Banaei, N.  
2010; 48 (10): 3738-3741
  - **Immediate Incubation Reduces Indeterminate Results for QuantiFERON-TB Gold In-Tube Assay** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Herrera, V., Yeh, E., Murphy, K., Parsonnet, J., Banaei, N.  
2010; 48 (8): 2672-2676
  - **Comparison of real-time polymerase chain reaction and conventional biochemical methods for identification of Mycobacterium chelonae-Mycobacterium abscessus group to the species level** *DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE*  
Guarin, N., Budvytiene, I., Ghafghaichi, L., Banaei, N.  
2010; 67 (4): 333-336
  - **Comparison of Single-Copy and Multicopy Real-Time PCR Targets for Detection of Mycobacterium tuberculosis in Paraffin-Embedded Tissue** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Luo, R. F., Scahill, M. D., Banaei, N.  
2010; 48 (7): 2569-2570
  - **Mixed infection involving Actinomyces, Aggregatibacter, and Fusobacterium species presenting as perispinal tumor** *ANAEROBE*  
Ghafghaichi, L., Troy, S., Budvytiene, I., Banaei, N., Baron, E. J.  
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- **Real-Time PCR Testing for mecA Reduces Vancomycin Usage and Length of Hospitalization for Patients Infected with Methicillin-Sensitive Staphylococci** *JOURNAL OF CLINICAL MICROBIOLOGY*  
Nguyen, D. T., Yeh, E., Perry, S., Luo, R. F., Pinsky, B. A., Lee, B. P., Sisodiya, D., Baron, E. J., Banaei, N.  
2010; 48 (3): 785-790
  - **Preferential Lower Respiratory Tract Infection in Swine-Origin 2009 A(H1N1) Influenza** *CLINICAL INFECTIOUS DISEASES*  
Yeh, E., Luo, R. F., Dynner, L., Hong, D. K., Banaei, N., Baron, E. J., Pinsky, B. A.  
2010; 50 (3): 391-394
  - **First documentation of isoniazid reversion in Mycobacterium tuberculosis** *INTERNATIONAL JOURNAL OF TUBERCULOSIS AND LUNG DISEASE*  
Richardson, E. T., Lin, S. G., Pinsky, B. A., Desmond, E., Banaei, N.  
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