Curriculum Vitae: updated May 22, 2025

A. Personal Information: **Samuel Yang, MD, FACEP**
Professor of Emergency Medicine, UML
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B. Academic History:

Universities Attended

6/1994	B.S. (Biology), Massachusetts Institute of Technology
5/1999	M.D., University of California, Los Angeles

Residency and Fellowship Training

7/1999	Residency, Emergency Medicine, Johns Hopkins School of Medicine
7/2001	Research Fellowship, Emergency Medicine, Johns Hopkins School of Medicine

C. Board Certification:

American Board of Emergency Medicine, 2007 and 2017, certification #00221101

D. Professional Experience:

Academic Appointments

7/2001- 6/2005	Clinical Instructor, Emergency Medicine, Johns Hopkins School of Medicine
7/2005 -10/2012	Assistant Professor, Emergency Medicine, Johns Hopkins School of Medicine
10/2012 - 5/2014	Associate Professor, Emergency Medicine, Johns Hopkins School of Medicine
8/2014 - 4/2024	Associate Professor (UML), Emergency Medicine, Stanford University School of Medicine
5/1/2024 – present	Professor (UML), Emergency Medicine, Stanford University School of Medicine

Other Appointments

6/2025-present	Co-Founder, Pheresys Inc
9/2017-5/2021	Co-Founder/Scientific Advisor, COMBiNATi Inc (now Thermo Fisher).
12/2018-present	Scientific Advisor for Roche
01/2019	Ad Hoc Scientific Advisor for Abbott Laboratories
10/2019	Ad Hoc Consultant for MEDACorp

E. Honors and Awards:

1993	New England Biomedical Research Award, MIT
1993	John Asinari Outstanding Undergraduate Research Award, MIT
1996	First Star Research Fellowship Award, UCLA School of Medicine
2000	Outstanding Research Award, Johns Hopkins Department of Emergency Medicine
2001	Outstanding Research Award, Johns Hopkins Department of Emergency Medicine
2002	Research Training Grant Award, Society for Academic Emergency Medicine
2004	Clinician Scientist Award, Johns Hopkins University
2007	Mentored Clinician-Scientist Career Development Award, NIAID-MARCE
2009	The Hartwell Foundation Individual Biomedical Research Award
2011	Mentor for Early Career Award from the Thrasher Research Fund
2012	E.W. Al Thrasher Research Award
2013	The Gerber Foundation Pediatric Research Award
2013	Principal Mentor for Burroughs Wellcome Fund Career Award at the Scientific Interface
2017	Principal Mentor for Big Data-Scientist Enhancement Training Program

2021 SAEM selected NIH Standing Study Section Reviewer
2022 NIH COVID RECOVER Omics Task Force Committee Member
2023 NIH NIGMS Sepsis Human Biospecimens Investigator Group

F. Scholarly Publications

F.1. Peer-reviewed Journal Publications: Original Research Articles (70 total)

1. Lin S, **Yang S,** Hopkins N. LacZ expression in germline transgenic zebrafish can be detected in living embryos. **Developmental Biology**, 1994; 161:77-83.
2. **Yang S**, Lin S, Kelen GD, Quinn TC, Dick JD, Gaydos CA, Rothman RE. Quantitative multiprobe PCR assay for the simultaneous detection and identification to species level of bacterial pathogens. **J Clin Microbiol**, 2002; 40:3449-3454.
3. Hardick J, **Yang S**, Lin S, Duncan D, Gaydos G. Real-time PCR for *trichomonas vaginalis* in female and male urine samples utilizing the Roche Lightcycler®. **J Clin Microbiol** 2003; 41: 5619-22.
4. Hardick J, Maldeis N, Theodore M, Wood B, **Yang S**, Lin S, Quinn T, Gaydos C. Real-time PCR for *chlamydia pneoumoniae* based on primer set CPN90/91 for the Roche Lightcycler. **J Mol Diag** 2004; 6:132-6.
5. **Yang S**, Lin S, Khalil A, Gaydos C, Nuemberger E, Juan G, Hardick J, Bartlett JG, Auwaerter PG, Rothman RE. Evaluation of a quantitative PCR assay for rapid diagnosis of pneumococcal pneumonia. **J Clin Microbiol**, 2005; 43:3221-3226.
6. Ho YP, Kung MC, **Yang S**, Wang TH. Homogeneous multiplexed hybridization detection with quantum dots colocalization. **Nano Letters**, 2005; 5:1693-7.
7. Sampath R, Russell KL, Massire C, Eshoo MW, Harpin V, Blyn LB, Melton R, Ivy C, Pennella T, Li F, Levene H, Hall TA, Libby B, Fan N, Walcott DJ, Ranken R, Pear M, Schink A, Gutierrez J, Drader J, Moore D, Metzgar D, Addington L, Rothman R, Gaydos CA, **Yang S**, St George K, Fuschino ME, Dean AB, Stallknecht DE, Goekjian G, Yingst S, Monteville M, Saad MD, Whitehouse CA, Baldwin C, Rudnick KH, Hofstadler SA, Lemon SM, Ecker DJ. Global surveillance of emerging influenza virus genotypes by mass spectrometry. **PLos One**, 2007; 30:e489.
8. **Yang S**, Rothman RE, Hardick J, Kuroki M, Hardick A, Doshi V, Ramachandran P, Gaydos CA. Rapid PCR-based screening assay for bacterial biothreat agents. **Acad Emerg Med**. 2008; 15:388-92.
9. **Yang S**, Ramachandran P, Hardick A, Hsieh YH, Quianzon C, Kuroki M, Hardick J, Kecojevic A, Abeygunawardena A, Zenilman J, Melendez J, Doshi V, Gaydos C, Rothman RE. Rapid PCR-based diagnosis of septic arthritis by early Gram-type classification and pathogen identification. **J Clin Microbiol**. 2008; 46:1386-90.
10. Hsieh YH, Rothman RE, Bartlett J, **Yang S**, Kelen GD. HIV Seropositivity Predicts Longer Duration of Stay and Re-hospitalization among Nonbacteremic febrile injection drug users with skin/soft tissue infections. **J Acquir Immune Defic Syndr**. 2008; 49:398-405.
11. **Yang S**, Ramachandran P, Rothman R, Hsieh YH, Hardick A, Won H, Kecojevic A, Jackman J, Gaydos C. Rapid identification of biothreat and other clinically relevant bacterial species using universal PCR coupled with high resolution melt curve profile analysis. **J Clin Microbiol** 2009; 47: 2252-2255.
12. Rothman R, Ramachandran P, **Yang S**, Hardick A, Won H, Kecojevic A, Quianzon C, Hsieh YH, Gaydos C. Use of quantitative broad-based polymerase chain reaction (PCR) for detection and identification of common bacterial pathogens in cerebrospinal fluid (CSF). **Acad Emerg Med** 2010; 17:741-7.
13. Zhang Y, Park S, **Yang S**, Wang TH. An all-in-one microfluidic device for parallel DNA extraction and gene analysis. **Biomedical Microdevices** 2010; 12:1043-9.
14. Won H, Rothman R, Ramachandran P, Hsieh YH, Kecojevic A, Carroll KC, Aird D, Gaydos C, **Yang S**. Rapid identification of bacterial pathogens in positive blood culture bottles using a broad based PCR assay coupled with High-Resolution Melt Analysis. **J Clin Microbiol** 2010; 48:3410-3.
15. Zhang Y, Park S, **Yang S**, Wang TH. A Surface Topography Assisted Droplet Manipulation Platform for Biomarker Detection and Pathogen Identification. **Lab on a Chip** 2011; 11:398-406.
16. Park S, Zhang Y, Wang TH, **Yang S**. Continuous dielectrophoretic bacterial separation and concentration from physiological media of high conductivity. **Lab on a Chip** 2011; 11:2893-900.

17. Jeng K, **Yang S**, Won H, Gaydos CA, Hsieh YH, Kecojevic A, Carroll KC, Hardick J, Rothman RE. Application of a 16S rRNA PCR-High-Resolution Melt Analysis assay for rapid detection of salmonella bacteremia. **J Clin Microbiol**. 2012; 50:1122-4.
18. Hardick J, Won H, Jeng K, Hsieh YH, Gaydos CA, Rothman RE, **Yang S**. Identification of bacterial pathogens in ascitic fluids from patients with suspected spontaneous bacterial peritonitis by use of broad-based PCR (16S PCR) coupled with High-Resolution Melt Analysis (HRMA). **J Clin Microbiol**. 2012; 50:2428-32.
19. Jeng K, Gaydos C, Blyn L, **Yang S**, Won H, Matthews H, Toleno D, Hsieh YH, Carroll K, Hardick J, Masek BJ, Sampath R, Peterson S, Rothman R. Comparative analysis of two broad-range PCR assays for pathogen diagnosis in positive blood culture bottles: PCR-High Resolution Melting Analysis versus PCR-mass spectrometry. **J. Clin Microbiol** 2012; 50:3287-92.
20. Won H, **Yang S**, Gaydos C, Hardick J, Ramachandra P, Hsieh YH, Kecojevic A, Njanpop-Lafourcade BM, Mueller JE, Tameklo TA, Badziklou K, Genner BD, Rothman RE. A broad range assay for rapid detection and etiologic characterization of bacterial meningitis: performance testing samples from sub-Sahara. **Diag Microbiol and Infect Dis** 2012; 74:22-7.
21. Rothman, RE, **Yang S**, Hardick J, Gaydos CA. Harnessing genomic approaches for infectious disease diagnosis in emergency medicine: getting closer to primer time. **Annals of Emerg Med.** 2012; 60:621-3.
22. Hsu EB, Li Y, Bayram JD, Levinson D, **Yang S**, Monahan C. State of virtual reality based disaster preparedness and response training. **PLoS Curr**. 2013; 24;5.
23. Jeng K, Hardick J, Rothman R, **Yang S**, Won H, Peterson S, Hsieh YH, Masek BJ, Carroll KC, Gaydos CA. Reverse transcription-PCR-electrospray ionization mass spectrometry for rapid detection of biothreat and common respiratory pathogens. **J Clin Microbiol**. 2013; 51:3300-7.
24. Fraley SI, Hardick J, Masek BJ, Athamanolap P, Rothman RE, Gaydos C, Carroll KC, Wakefield T, Wang TH, **Yang S.** Universal Digital High Resolution Melt: A novel approach to broad-based profiling of heterogeneous biological samples. **Nucleic Acid Res.** 2013; 41:e175.
25. Masek BJ, Hardick J, Won H, **Yang S**, Rothman RE, Gaydos C. Sensitive Detection and Serovar Differentiation of Typhoidal and Non-typhoidal *Salmonella enterica* Species Using 16S rRNA gene PCR Coupled with High Resolution Melt Analysis. **J Mol Diag** 2014; 16:261-6.
26. Panda A, Tatarov I, Masek BJ, Hardick J, Crusan A, Wakefield T, Carroll K, **Yang S**, Hsieh YH, Lipsky MM, McLeod CG, Levine MM, Rothman RE, Gaydos CA, DeTolla LJ. A rabbit model of non-typhoidal Salmonella bacteremia. **Comp Immunol Microbiol Infect Dis.** 2014; 37:211-20.
27. Athamanolap P, Parekh V, Fraley SI, Agarwal V, Shin DJ, Jacobs MA, Wang TH, **Yang S**. Trainable High Resolution Melt Curve Machine Learning Classifier for Large-Scale, Reliable Genotyping of Sequence Variants. **Plos One.** 2014; 9:e109094.
28. Fraley SI, Athamanolap P, Masek BJ, Hardick J, Carroll KC, Hsieh YH, Rothman RE, Gaydos CA, Wang TH, **Yang S**. Nested Machine Learning Facilitates Increased Sequence Content for Large-Scale Automated High Resolution Melt Genotyping. **Sci Rep.** 2016; 6:19218.
29. Nguyen, T, Bhatti, A, **Yang, S#**, Nahavandi, S. RNA-Seq Count Data Modelling by Grey Relational Analysis and Nonparametric Gaussian Process **PLos One.** 2016; 11 (10)e0164766. (#contributed to data interpretation and manuscript review).
30. Andini N, Bo W, Athamanolap N, Hardick J, Masek BJ, Thair S, Hu A, Avornu G, Peterson S, Cogill S, Rothman RE, Carroll KC, Gaydos CA, Wang JT, Batzoglou S, **Yang S**. Microbial Typing by Machine Learned DNA Melt Signatures. **Sci Rep**. 2017; 7:42097.
31. Rogan, DT, Kochar, MS, **Yang, S***, Quinn, JV. Impact of Rapid Molecular Respiratory Virus Testing on Real-Time Decision Making in a Pediatric Emergency Department. **J Mol Diag** 2017; 19(3):460-467. (*equal contribution as senior author).
32. Lei J, Paules C, Nigrini E, Rosenzweig JM, Bahabry R, Farzin A, **Yang S#**, Northington FJ, Oros D, McKenney S, Johnston MV, Graham EM, Burd I. Umbilical Cord Blood NOS1 as a Potential Biomarker of Neonatal Encephalopathy. **Front Pediatr** 2017; 5:112. (#contributed to study design, data collection, manuscript review).
33. Athanmanolap P, Hsieh K, Chen L, **Yang S#**, Wang TH. Integrated Bacterial Identification and Antimicrobial Susceptibility Testing Using PCR and High-Resolution Melt. **Anal Chem** 2017; 89(21):11529-11536. (#contributed to study design, data interpretation, manuscript review).

34. Zhang J, Nguyen T, Cogill S, Bhatti A, Luo L, **Yang S**[#], Nahavandi S.A review on cluster estimation methods and their application to neural spike data. **J Neural Eng**. 2018;15(3):031003. (#contribute to data interpretation and manuscript review).
35. Pedersen CJ. Rogan DT, **Yang S***, Quinn JV. Using a novel rapid viral test to improve triage of emergency department. Patients with acute respiratory illness during flu season. **J Clin Virol**. 2018; 108:72-76. (*equal contribution as senior authors).
36. Andini N, Hu A, Zhou L, Cogill S, Wang TH, Wittwer CT, **Yang S**. A "Culture" Shift: Broad Bacterial Detection, Identification, and Antimicrobial Susceptibility Testing Directly from Whole Blood. **Clin Chem**. 2018; 64(10):1453-1462.
37. Pedersen CJ. Rogan DT, **Yang S***, Quinn JV. Factors Associated with Influenza in Emergency Department Setting. **J Emerg Medicine.** 2018; pii: S0736-4679(18)31203-4. (* equal contribution as senior authors).
38. Blauwkamp TA, Thair S, Rosen MJ, Blair L, Lindner MS, Vilfan ID, Kawli T, Christians FC, Venkatasubrahmanyam S, Wall GD, Cheung A, Rogers ZN, Meshulam-Simon G, Huijse L, Balakrishnan S, Quinn JV, Hollemon D, Hong DK, Vaughn ML, Kertesz M, Bercovici S, Wilber JC, **Yang S**. Analytical and Clinical Validation of a Microbial Cell-Free DNA Sequencing Test for Infectious Disease. **Nature Microbiol.** 2019; 4(4):663-674.
39. Athamanolap P, Hsieh K, O'Keefe CM, Zhang Y, **Yang S**, Wang TH. Nanoarray Digital Polymerase Chain Reaction with High-Resolution Melt for Enabling Broad Bacteria Identification and Pheno-Molecular Antimicrobial Susceptibility Test. **Anal Chem**. 2019; 91(20):12784-12792.
40. Liu Q, Johnson EM, Lam RK, Wang Q, Bo Ye H, Wilson EN, Minhas PS, Liu L, Swarovski MS, Tran S, Wang J, Mehta SS, Yang X, Rabinowitz JD, **Yang SS**[#], Shamloo M, Mueller C, James ML, Andreasson KI. Peripheral TREM1 responses to brain and intestinal immunogens amplify stroke severity. **Nat Immunol.** 2019; 20(8):1023-1034. (#contribute to data generation and manuscript review)
41. Yang X, Hashemi MM, Andini N, Li MM, Kuang S, Carroll KC, Wang TH, **Yang S.** RNA markers for ultra-rapid molecular antimicrobial susceptibility testing in fluoroquinolone-treated Klebsiella pneumoniae. **J Antimicrob Chemother** 2020; 75(7):1747-1755.
42. Hashemi MM, Ram-Mohan N, Yang X, Andini N, Gessner NR, Carroll KC, Wang TH, **Yang S.** A novel platform to accelerate 1 antimicrobial susceptibility testing in Neisseria gonorrhoeae using RNA signatures. **J Clin Microbiol.** 2020; 58(12):e01152-20.
43. Ram-Mohan N, Kim D, Zudock EJ, Hashemi MM, Tjandra KC, Rogers AJ, Blish CA, Nadeau KC, Newberry JA, Quinn JV, O'Hara R, Ashley E, Nguyen H, Jiang L, Hung P; Stanford COVID-19 Biobank Study Group, Blomkalns AL, **Yang S.** SARS-CoV-2 RNAemia predicts clinical deterioration and extrapulmonary complications from COVID-19. **Clin Infect Dis.** 2021; ciab394.
44. Delaveris CS, Wilk AJ, Riley NM, Stark JC, **Yang S**[#], Rogers AJ, Ranganath T, Nadeau KC; Stanford COVID-19 Biobank, Blish CA, Bertozzi CR. Synthetic Siglec-9 Agonists Inhibit Neutrophil Activation Associated with COVID-19. **ACS Cent Sci** 2021; 7(4):650-657. (#contribute to clinical protocol design, sample and data acquisition, and manuscript review)
45. Ram-Mohan N, Thair S, Litzenburger U, Cogill S, Andini N, Yang X, Chang H, **Yang S**. Profiling chromatin accessibility responses in human neutrophils with sensitive pathogen detection. **Life Sci Alliance.** 2021; 4(8):e202000976.
46. Wilk AJ, Lee MJ, Wei B, Parks B, Pi R, Martínez-Colón GJ, Ranganath T, Zhao NQ, Taylor S, Becker W; Stanford COVID-19 Biobank, Jimenez-Morales D, Blomkalns AL, O'Hara R, Ashley EA, Nadeau KC, **Yang S**[#], Holmes S, Rabinovitch M, Rogers AJ, Greenleaf WJ, Blish CA.Multi-omic profiling reveals widespread dysregulation of innate immunity and hematopoiesis in COVID-19. **J Exp Med**. 2021; 218(8):e20210582. (#contribute to sample and data acquisition and manuscript review)
47. Forsyth B, Torab P, Lee JH, Malcom T, Wang TH, Liao JC, **Yang S**[#], Kvam E, Puleo C, Wong PK. A Rapid Single-Cell Antimicrobial Susceptibility Testing Workflow for Bloodstream Infections. **Biosensors (Basel)**. 2021; 11(8):288. (#contribute to conceptualization, data generation and manuscript review)
48. Hu J, Chen L, Zhang P, Hsieh K, Li H, **Yang S**[#], Wang TH. A vacuum-assisted, highly parallelized microfluidic array for performing multi-step digital assays. **Lab Chip.** 2021; 21(23):4716-4724. (#contribute to conceptualization, data generation and manuscript review)

49. Ram-Mohan N, Kim D, Rogers AJ, Blish CA, Nadeau KC, Blomkalns AL, **Yang S.** Association Between SARS-CoV-2 RNAemia and Post-Acute Sequelae of COVID-19. **Open Forum Infectious Diseases.** 2021; ofab646 (e-published).
50. Nguyen TT, Abdelrazek M, Nguyen DT, Aryal S, Nguyen DT, Reddy S, Nguyen QVH, Khatami A, Nguyen TT, Hsu EB, **Yang S.** Origin of novel coronavirus causing COVID-19: A computational biology study using artificial intelligence. **Mach Learn Appl.** 2022 Sep 15;9:100328.
51. Kratochvil MJ, Kaber G, Demirdjian S, Cai PC, Burgener EB, Nagy N, Barlow GL, Popescu M, Nicolls MR, Ozawa MG, Regula DP, Pacheco-Navarro AE, **Yang S**[#], de Jesus Perez VA, Karmouty-Quintana H, Peters AM, Zhao B, Buja ML, Johnson PY, Vernon RB, Wight TN; Stanford COVID-19 Biobank Study Group, Milla CE, Rogers AJ, Spakowitz AJ, Heilshorn SC, Bollyky PL. Biochemical, biophysical, and immunological characterization of respiratory secretions in severe SARS-CoV-2 infections. **JCI Insight**. 2022 Jun 22;7(12):e152629. (#contribute to clinical protocol design, sample and data collections, data generation and manuscript review)
52. Jia X, Cao S, Lee AS, Manohar M, Sindher SB, Ahuja N, Artandi M, Blish CA, Blomkalns AL, Chang I, Collins WJ, Desai M, Din HN, Do E, Fernandes A, Geng LN, Rosenberg-Hasson Y, Mahoney MR, Glascock AL, Chan LY, Fong SY; CLIAHUB Consortium; Chan Zuckerberg Biohub, Phelps M, Raeber O; Stanford COVID-19 Biobank Study Group, Purington N, Röltgen K, Rogers AJ, Snow T, Wang TT, Solis D, Vaughan L, Verghese M, Maecker H, Wittman R, Puri R, Kistler A, **Yang S**[#], Boyd SD, Pinsky BA, Chinthrajah S, Nadeau KC. Anti-nucleocapsid antibody levels and pulmonary comorbid conditions are linked to post-COVID-19 syndrome. **JCI Insight**. 2022 Jul 8;7(13):e156713. (#contribute to clinical protocol design, sample and data collections, data generation and manuscript review)
53. Parikh VN, Ioannidis AG, Jimenez-Morales D, Gorzynski JE, De Jong HN, Liu X, Roque J, Cepeda-Espinoza VP, Osoegawa K, Hughes C, Sutton SC, Youlton N, Joshi R, Amar D, Tanigawa Y, Russo D, Wong J, Lauzon JT, Edelson J, Mas Montserrat D, Kwon Y, Rubinacci S, Delaneau O, Cappello L, Kim J, Shoura MJ, Raja AN, Watson N, Hammond N, Spiteri E, Mallempati KC, Montero-Martín G, Christle J, Kim J, Kirillova A, Seo K, Huang Y, Zhao C, Moreno-Grau S, Hershman SG, Dalton KP, Zhen J, Kamm J, Bhatt KD, Isakova A, Morri M, Ranganath T, Blish CA, Rogers AJ, Nadeau K, **Yang S**[#], Blomkalns A, O'Hara R, Neff NF, DeBoever C, Szalma S, Wheeler MT, Gates CM, Farh K, Schroth GP, Febbo P, deSouza F, Cornejo OE, Fernandez-Vina M, Kistler A, Palacios JA, Pinsky BA, Bustamante CD, Rivas MA, Ashley EA. Deconvoluting complex correlates of COVID-19 severity with a multi-omic pandemic tracking strategy. **Nat Commun**. 2022 Aug 30;13(1):5107. (#contribute to clinical protocol design, sample and data collections, data generation and manuscript review)
54. Ram-Mohan N, Rogers AJ, Blish CA, Nadeau KC, Zudock EJ, Kim D, Quinn JV, Sun L, Liesenfeld O; Stanford COVID-19 Biobank Study Group; **Yang S.** Using a 29-mRNA Host Response Classifier To Detect Bacterial Coinfections and Predict Outcomes in COVID-19 Patients Presenting to the Emergency Department. **Microbiol Spectr**. 2022 Dec 21;10(6):e0230522.
55. Tjandra, K. C., Ram-Mohan, N., Abe, R., Wang, T. H., **Yang, S**. Rapid Molecular Phenotypic Antimicrobial Susceptibility Test for Neisseria gonorrhoeae Based on Propidium Monoazide Viability PCR. **ACS infectious diseases.** 2023 May 12;9(5):1160-1167.
56. Thaweethai T, Jolley SE, Karlson EW, Levitan EB, Levy B, et al**;** RECOVER Consortium. Development of a Definition of Postacute Sequelae of SARS-CoV-2 Infection. **JAMA.** 2023 Jun 13;329(22):1934-1946. (#contribute to manuscript review).
57. Haddock NL, Barkal LJ, Ram-Mohan N, Kaber G, Chiu CY, Bhatt AS, **Yang S**, Bollyky PL. Phage diversity in cell-free DNA identifies bacterial pathogens in human sepsis cases. **Nat Microbiol**. 2023 Jun 12. (#contribute to study design, funding, data generation and manuscript review).
58. Huang D, Cogill S, Hsia RY, **Yang S**[#], Kim D. Development and external validation of a pretrained deep learning model for the prediction of non-accidental trauma. **NPJ Digit Med.** 2023 Jul 19;6(1):131. (#contribute to study design, funding, data generation and manuscript review).
59. Shaukat MA, Nguyen TT, Hsu EB, **Yang S**, Bhatti A. Comparative study of encoded and alignment-based methods for virus taxonomy classification. **Sci Rep**. 2023 Oct 31;13(1):18662. (#contribute to manuscript review).

60. Haslund-Gourley, BS, et al. IgM N-glycosylation correlates with COVID-19 severity and rate of complement deposition. **Nat Comm.** 2024; 15 (1): 404.
61. Ozonoff, A, et al. Features of acute COVID-19 associated with post-acute sequelae of SARS-CoV-2 phenotypes: results from the IMPACC study. **Nat Comm.** 2024; 15 (1): 216
62. Pickering H, et al. Host-microbe multiomic profiling identifies distinct COVID-19 immune dysregulation in solid organ transplant recipients. **Nat Comm.** 2025 Jan 10;16(1):586.
63. Lee JH, Chin SM, Chan DC, Liao JC, **Yang S**, Zhang N, Wong PK. Rapid Microbial Profiling through Multimodal Biosensors for Transversal Analysis. **Anal Chem**. 2024 Jul 15.
64. Abe R, Ram-Mohan N, Zudock EJ, Lewis S, Carroll KC, **Yang S**. Host heterogeneity in humoral bactericidal activity can be complement independent. **Front Immunol**. 2024 Sep 18;15:1457174.
65. Tjandra, K. C., Ram-Mohan, N., Roshardt, M., Zudock, E. J., Qu, Z., Mach, K. E., Eminaga, O., Liao, J. C., Yang, S., Wong, P. K. Growth independent morphometric machine learning workflow for single-cell antimicrobial susceptibility testing of Klebsiella pneumoniae to meropenem. **Frontiers in Imaging.** 25 September 2024
66. Sun, J., Aikawa, M., Ashktorab, H., Beckmann, N. D., Enger, M. L., Espinosa, J. M., Gai, X., Horne, B. D., Keim, P., Lasky-Su, J., Letts, R., Maier, C. L., Mandal, M., Nichols, L., Roan, N. R., Russell, M. W., Rutter, J., Saade, G. R., Sharma, K., Shiau, S., Thibodeau, S. N., **Yang, S**., Miele, L., NIH RECOVER Consortium. **Front. Syst. Biol**., 06 January 2025; Volume 4 - 2024
67. Ku TH, Ram-Mohan N, Zudock EJ, Abe R, **Yang S**. Neutrophil extracellular traps have active DNAzymes that promote bactericidal activity. **Nucleic Acids Res.** 2025 Jan 24;53(3):gkae1262. doi: 10.1093/nar/gkae1262.
68. Abe R, Lee JH, Chin SM, Ram-Mohan N, Tjandra KC, Bobenchik AM, Mach KE, Liao JC, Wong PK, **Yang S**. Precision single cell analysis to characterize host dependent antimicrobial response heterogeneity in physiological medium. **Lab Chip**. 2025 Feb 11;25(4):714-728.
69. Chan L, Pinedo K, Stabile MA, Hamlin RE, Pienkos SM, Ratnasiri K; Stanford COVID-19 Biobank; **Yang S**, Blomkalns AL, Nadeau KC, Pulendran B, O'Hara R, Rogers AJ, Holmes SP, Blish CA. Prior vaccination prevents overactivation of innate immune responses during COVID-19 breakthrough infection. **Sci Transl Med.** 2025 Jan 29;17(783):eadq1086.
70. Zaslavsky ME, Craig E, Michuda JK, Sehgal N, Ram-Mohan N, Lee JY, Nguyen KD, Hoh RA, Pham TD, Röltgen K, Lam B, Parsons ES, Macwana SR, DeJager W, Drapeau EM, Roskin KM, Cunningham-Rundles C, Moody MA, Haynes BF, Goldman JD, Heath JR, Chinthrajah RS, Nadeau KC, Pinsky BA, Blish CA, Hensley SE, Jensen K, Meyer E, Balboni I, Utz PJ, Merrill JT, Guthridge JM, James JA, **Yang S**, Tibshirani R, Kundaje A, Boyd SD. Disease diagnostics using machine learning of B cell and T cell receptor sequences. **Science.** 2025 Feb 21;387(6736):eadp2407.

F.2. Peer-reviewed Journal Publications: Review Articles and Invited Commentaries/Perspectives/Reviews (10 total, *Equal-contributing senior author)

1. **Yang S**, Rothman RE. PCR-based diagnostics for infectious diseases: current uses, limitations and future applications in acute care settings. **Lancet Infect Dis** 2004; 4:337-48.
2. Rothman RE, Hsieh YH, **Yang S**. Communicable respiratory threats in the ED: tuberculosis, influenza, SARS, and other aerosolized infections. **Emerg Med Clin North Am**. 2006 Nov;24(4):989-1017.
3. Lin S, **Yang S**. Molecular methods for pathogen detection in blood. **Lancet** 2010; 375:178-9.
4. Park S, Zhang Y, Lin S, Wang TH, **Yang S**. Advances in microfluidic PCR for point-of-care infectious disease diagnostics. **Biotechnol Adv** 2011; 29:830-9.
5. Zhang Y, Hu A, Andini N, **Yang S**. A 'culture' shift: Application of molecular techniques for diagnosing polymicrobial infections. **Biotechnol Adv** 2019 May;37(3):476-490.
6. Shin DJ, Andini N, Hsieh K, **Yang S***, Wang TH. Emerging analytical techniques for rapid pathogen identification and susceptibility testing. **Annu Rev Anal Chem** 2018 Apr 2. doi: 10.1146/annurev-anchem-061318-115529. (Invited, *equal contribution as senior author)
7. Zhang Y, Rogers A, Nadeau K, Gu J, **Yang S**. A Perspective on the Role of Point-of-Care "Immuno-Triaging" to Optimize COVID-19 Vaccination Distribution in a Time of Scarcity. **Front Public Health**. 2021 Aug 3;9:638316.

8. Tjandra KC, Ram-Mohan N, Abe R, Hashemi MM, Lee JH, Chin SM, Roshardt MA, Liao JC, Wong PK, **Yang S**. Diagnosis of Bloodstream Infections: An Evolution of Technologies towards Accurate and Rapid Identification and Antibiotic Susceptibility Testing. **Antibiotics** (Basel) 2022 Apr 12;11(4):511.
9. Abe R, Ram-Mohan N, **Yang S**. Re-visiting humoral constitutive antibacterial heterogeneity in bloodstream infections. **Lancet Infect Dis**. 2023 Nov 6:S1473-3099(23)00494-2. doi: 10.1016/S1473-3099(23)00494-2.
10. Lee, J., Chin, S., Mach, K. E., Bobenchik, A. M., Liao, J. C., **Yang, S**., Wong, P. Translating microbiota analysis for clinical applications. **Nature Reviews Bioengineering** 2024; 2 (4): 284-286

F.3. Book Chapters (5 total)

1. Marco CA, Rothman RE, **Yang S**. Human Immunodeficiency Virus Infection In Emergency Medicine, Emergency Medicine Reports, June 2004.
2. Ramachandran P, Hardick A, Gaydos C, **Yang S**, and Richard Rothman. PCR methods for infectious disease diagnosis. In PCR: Methods Express, Hughes S and Moody A (eds): Scion, Oxfordshire, UK, 2007, 243-263.
3. Rothman RE, **Yang S** and Marco C. Chapter 150. Infective endocarditis in emergency medicine. In: Tintinalli, JE. Stapczynski J, Ma O, Cline DM, Cydulka RK Meckler GD (eds). Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 73. New York, NY: McGraw-Hill; 2011. 1042-1046.
4. Rothman, RE, Marco C and **Yang S**. Chapter 149 Human Immunodeficiency Virus Infection and Acquired Immunodeficiency Syndrome. In: Tintinalli, JE. Stapczynski J, Ma O, Cline DM, Cydulka RK Meckler GD, T. eds. Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 73. New York, NY: McGraw-Hill; 2011. 1031-1041.
5. Rothman RE, Marco C, **Yang S**, and Kelen GD. Chapter 132. HIV Infection and AIDS. In: Rosen P and Barkin, R (eds). Rosen's Emergency Medicine: Concepts and Clinical Practice, Mosby, Denver, CO, 2014. 1751-1767.

F.4. Selected Abstract/Invited Presentations (recent 15 out of 54)

1. Fraley, SI, Athamanolap P, Masek BJ, Hardick J, Carroll KC, Hsieh YH, Rothman RE, Caydos CA, Want TH, **Yang S**. Digital High Resolution Melt and Machine Learning Enable Broad-Based Molecular Profiling, Biomedical Engineering Society (BMES) Annual Meeting, Oct 2015.
2. Nadya A, **Yang, S**. DNA Melt Signatures: Singleplex High Complexity Melt for Unknown Bacterial Species Identification. Society for Academic Emergency Medicine Annual Meeting, New Orleans. May 2016.
3. Thair, Y, **Yang S**. SEP-SEQ Trial: A pilot study characterizing the performance of a novel plasma next-generation sequencing assay to detect cell-free microbial DNA in patients with sepsis. American Society of Microbiology, May 2017
4. Andini N, Hu A, **Yang S**. Combined Bacterial Identification and Antimicrobial Susceptibility Testing Directly from Whole Blood. ID Week, Sep 2017.
5. Kim D, Cogill S, **Yang S.** Predicting First Episodes of Non-Accidental Trauma with Machine Learning. American College of Emergency Physicians Annual Meeting, October 2018.
6. Rogan DT, Andini N, Yang S, Quinn J. Elevated Cell-Free DNA as a Predictor of Admission Outcomes in Emergency Department Sepsis Patients. Society for Academic Emergency Medicine Annual Meeting, Las Vegas. May 2019.
7. Cogill S, Kim D, **Yang S.** Knowledge Discovery for Rare Adverse Events Using an Ensemble of Interpretable Machine Learning Methods. Society for Academic Emergency Medicine Annual Meeting, Las Vegas. May 2019.
8. Kim, D.A., Cogill, S.B. & **Yang, S**. (2019). An Interpretable Deep Learning Model for the Prevention of Self-Harm and Suicide [Abstract]. Annals of Emergency Medicine, 74(4), https://doi.org/10.1016/j.annemergmed.2019.08.014
9. **Yang S**. Absolute Quantification of SARS-CoV-2 RNAemia by Digital PCR Predicts Severity and Extrapulmonary Complications. Invited Keynote Speaker, IEEE-Nanomedicine, Taiwan. December 2020.
10. **Yang S.** COVID-19 Prognosis by Digital PCR. Invited Speaker, Taipei Veterans General Hospital. February 2021.

11. Ram-Mohan N, **Yang S**. A 29 mRNA Host Response Classifier Detects Bacterial co/Superinfection and Predicts Outcomes in COVID-19 Patients. Society for Academic Emergency Medicine Annual Meeting, New Orleans, May 2022
12. Ram-Mohan N, **Yang S**. A 29 mRNA Host Response Classifier Detects Bacterial co/Superinfection and Predicts Outcomes in COVID-19 Patients. Society for Academic Emergency Medicine Regional Meeting, Stanford, May 2022
13. Tjandra KC, **Yang S**. Ultra-rapid Antimicrobial Susceptibility Profiling for Multidrug Resistant Bacteria. ASM Microbe Annual Meeting, Washington D.C. June 2022
14. Abe R, Ram-Mohan N, Ku, TH, **Yang S**. Inter-Individual Heterogeneity in Humoral Innate Bactericidal Activity. Institute for Immunity, Transplantation, and Infection Human Immune Monitoring Technology & Bioinformatics Conference, Palo Alto, March 2023
15. Ku TH, Zulock EJ, Ram-Mohan, N, Abe R, **Yang S**. Neutrophil Extracellular Traps are DNAzymes with Bactericidal Activity Through Free Radical Generation. Institute for Immunity, Transplantation, and Infection Human Immune Monitoring Technology & Bioinformatics Conference, Palo Alto, March 2023

G. Grants (current, pending, completed)
G.1. Current (6 total active)

06/1/2024-05/31/2029
NIH R01AI181217
Single-cell based diagnostic platform with single-molecular transcriptional response profiling for rapid phenotypic antimicrobial susceptibility testing of gonorrhea
Wang & **Yang** (MPI)
Role: Principal Investigator

06/01/2024-05/31/2026
NIH R21AI178026
Neutrophil Extracellular Traps are Free-Radical Generating DNAzymes
Yang (PI)
Role: Principal Investigator

12/01/2020-11/31/2025
NIH R01A153133
Changing Cultures in Sepsis: Rapid single-cell pathogen identification and antibiotic susceptibility testing directly from whole blood.
Yang and Wong (MPI)
Role: Principal Investigator\

04/01/2023-03/31/28
NIH R01 (agreement #266621)
The immunology and impact of auto-antibody formation in COVID-19
Rogers (PI)
Role: Co-Investigator

G.2. Pending (1 total)

12/1/2024-11/30/2029
NIH R01AI187382
Personalized single-cell killing kinetics platform for urinary tract infections to combat antimicrobial resistance.
Yang & Wong (MPI)
Role: Principal Investigator

G.3. Completed (31 total)

07/01/02-06/01/04
Society for Academic Emergency Medicine
Research Training Grant: Molecular triage for Bacteremia: Design, Development and Clinical Testing of a Rapid PCR Assay
Yang (PI)
Role: Principal Investigator

07/01/04-06/30/06
Clinician Scientist Award, Johns Hopkins University
Molecular Triage: Development of novel diagnostic platforms for infectious pathogens
Yang (PI)
Role: Principal Investigator

09/01/05 – 08/30/06
NIH AI-02-031 Regional Center Grant for Excellence
New Opportunities Award: Supplement to evaluate the use of TIGER technology as a complementary diagnostic platform for rapid pathogen detection
Levine (PI)
Role: Co-Investigator, Diagnostic Section

3/1/07 – 2/28/09
NIH/NIAID-MARCE Regional Center Grant for Excellence
Diagnostic Core and research program for developing universal molecular diagnostic platforms for rapid detection of common and emerging pathogens and bioterrorist events.
Levine (PI)
Role: Co-Investigator, Diagnostic Section

7/01/06-6/30/09
USDHS Department of Homeland Security
Comparative evaluation of existing and innovative diagnostic technologies for civilian biofense
Kelen and Goldman (PI)
Role: Co-Investigator

3/1/07-2/28/09
NIH/NIAID-MARCE K23 Career Development Award for Mentor Patient-Oriented Research
Developing a universal pathogen diagnostic assay with high resolution melt analysis.
Yang (PI)
Role: Principal Investigator, Career Development Award

3/1/09-3/31/14
NIH/NIAID Regional Center Grant for Excellence
Diagnostic core and research program for developing universal molecular diagnostic platforms for rapid detection of common and emerging pathogens and bioterrorist events
Rothman (Project PI)
Role: Co-Investigator

3/1/09-2/28/11
NIH/NIAID Mid-Altlantic Regional Center Grant for Excellence
Developmental research projects in the area of diagnostics
Yang & Wang (MPI)

Role: Principal Investigator, Developmental Project

11/19/09 – 06/06/2012
IBIS Bioscience, Inc
Detection of pathogen nucleic acid in whole blood by the IBIS Plex-ID instrument
Rothman (PI)
Role: Co-Investigator

4/1/09-6/30/12
The Hartwell Foundation
Individual Biomedical Research Award: Development of electrokinetic based lab chip for rapid diagnosis of pediatric sepsis
Yang (PI)
Role: Principal Investigator

8/25/10-7/31/13
NSF CBET 0967375
Integrated single molecule color coding system for multiplexed detection of pathogens
Yang & Wang (MPI)
Role: Principal Investigator

7/1/11-6/30/12
The Thrasher Research Fund Early Career Award
Early Career Award: Microchip based rapid antimicrobial susceptibility testing for pediatric infectious diseases
Park/**Yang** (PI/Mentor)
Role: Mentor (in kind)

4/1/12-4/30/16
The Thrasher Research Fund
E.W. Al Thrasher Award: Developing a point-of-care diagnostics for acute bacterial meningitis in infants and children
Yang (PI)
Role: Principal Investigator

7/1/13-7/30/17
The Gerber Foundation Pediatric Research Award: Toward a molecular point of care diagnosis of early onset neonatal sepsis using umbilical cord blood
The Gerber Foundation
Yang (PI)
Role: Principal Investigator

7/1/13-6/30/18
Burroughs Wellcome Fund--Career Award at the Scientific Interface
Digitizing microRNA: integrated profiling and discovery for rapid, quantitative, and broad-scale detection in infectious disease
Fraley (PI)
Role: Principal Mentor

7/1/12-6/30/14
NSF CBET 1159771
Microfluidic single-cell melting curve analysis for broad-scale detection of microbial organisms
NSF

Yang & Wang (MPI)
Role: Principal Investigator

1/1/15-12/31/15
Stanford University
Spectrum Pilot Grant for Predictive and Diagnostics: Machine Vision for Broad Microbial Detection: A Rapid and Automated Approach for Identifying Pathogenic Bacteria through DNA Melting.
Yang (PI)
Role: Principal Investigator

9/1/16-8/31/17
Stanford University
Child Health Research Institute-Postdoctoral Research Grant
Personalized Dynamic Regulome for Pediatric Sepsis
Thair (PI)
Role: Principal Mentor

3/1/2016-11/30/2018
Roche Molecular Systems Inc.
Roche Molecular Systems: Evaluating the impact of rapid molecular respiratory virus testing in the Pediatric Emergency Department
Yang (PI)
Role: Principal Investigator

3/1/2016-1/31/2018
Karius Diagnostic Inc.
SEP-SEQ Trial: Determining the Etiology of Sepsis Using an Infectious Disease Diagnostic Sequencing Assay
Yang (PI)
Role: Principal Investigator

4/1/2019-3/31/2020
NIH STTR
Integrated Microbial Screening and Antimicrobial Susceptibility Test on Microfluidic Digital Array for Diagnosis of Urinary Tract Infections
Lin and **Yang** (PI)
Role: Principal Investigator

4/1/2015-3/31/2020
NIH R01AI117032
Partnerships for diagnostics to address antimicrobial resistance of select bacterial pathogens: A Droplet-based single cell platform for pathogen identification and AST for UTI
Wang (PI)
Role: Co-Investigator

8/1/2016-7/31/2021
NIH T32AI007502-21
Applied Genomics in Infectious Diseases
Singh and Relman (MPI)
Role: Faculty Mentor

12/15/2018-12/14/2021
DoD MCDC RPP 18-01

Integrated and Rapid Bacterial Identification and Antimicrobial Susceptibility Testing using Digital High-Resolution Melt Analysis at the Point-of-Need.
Wang (PI)
Role: Site Principal Investigator

05/15/2020-03/31/2022
NIH 3U19AI057229 – 17W1 COVID SUPP #2
Influenza responses and repertoire in vaccination, infection and tonsil organoids.
The goal is to understand the fundamental processes with which the human immune system responds to vaccination and combats influenza and COVID-19 infection.
Davis (PI)
Role: Co-Investigator

07/01/2020 – 6/01/2022
Inflammatix, Inc.
HostDx™-ViralSeverity: a COVID-19 prognostic tool
Yang (PI)
Role: Principal Investigator

06/1/2018-5/31/2023
NIH R01AI138978
Technology development for point-of-care detection and antimicrobial susceptibility
testing of *Neisseria gonorrhoeae*
Wang (PI)
Role: Site Principal Investigator

01/23/2018-01/22/2023
NIH R01AI137272
A "Culture" Shift: Integrated Bacterial Screening and Antibacterial Susceptibility Test on Microfluidic Digital Array for Bloodstream Infections"
Yang and Wang (MPI)
Role: Principal Investigator

12/15/2018-06/30/2023
DoD MCDC RPP 18-01
Integrated and Rapid Bacterial Identification and Antimicrobial Susceptibility Testing using Digital High-Resolution Melt Analysis at the Point-of-Need.
Wang (PI)
Role: Site Principal Investigator

09/30/2022-09/29/2024
Stanford Institute for Immunity, Transplantation & Infection and Stanford Autoimmune & Allergy Supergroup
Single Cell Antimicrobial Susceptibility Testing Using Body Fluid or Tissues
Rogers (PI)
Role: Co-Investigator

07/01/2022-06/30/24
NIH R21/33 GM147838
Circulating Bacteriophages for the Diagnosis of Sepsis
Bollyky and **Yang** (MPI)
Role: Principal Investigator

H. Clinical Trials (1 total)
4/2016-10/2017
SEP-SEQ Trial: NCT02730468
Determining the Etiology of Sepsis Using an Infectious Disease Diagnostic
Yang (PI)
Role: Principal Investigator

I. Inventions, Patents, Copyrights (pending, awarded) (12 total)
1. US Patent # 6699670: Quantitative assay for the simultaneous detection and speciation of bacterial infections (Awarded 3/2/2004, Licensed by Lonza Bioscience, Inc).
2. US and International Patent Application (PCT/US2009/031583): Methods for identifying eubacteria, (Filed 1/21/2009, Awarded 11/5/2009).
3. JHU Ref C11183: Self-sustained droplet microfluidic chip and system for integrated sample preparation and nucleic acids detection (PCT filed 7/26/2011).
4. JHU Ref C11562: Method and apparatus for continuous microfluidic sample separation and concentration using AC electric field (disclosed 5/11/2011, provisional filed 5/26/2011).
5. JHU Ref C12222: Single tube semi-nested PCR for broad range detection of bacterial DNA in human clinical samples (disclosed 10/24/2012).
6. JHU Ref C12403. Method for comprehensive, quantitative, and highly sensitive discrimination of nucleic acid sequences in homogeneous and heterogeneous populations (provisional filed 8/13/2013).
7. JHU Ref C12600. Trained melt profile analysis methods and systems for reliable genotyping of sequence variants. (disclosed 7/24/2013).
8. JHU Ref C13503 Novel algorithm and database for highly specific and automated identification of nucleic acid sequences based on their melting curves. (disclosed 3/31/2014).
9. SU Docket# S15-267P Bacterial pathogen identification by high resolution melting analysis (disclosed 8/11/15)
10. SU Docket#S17-128P Combined antimicrobial susceptibility testing and bacterial identification by high resolution melting analysis (disclosed 3/30/2017)
11. SU Docket# S18-530 Method for multiplexed detection of nucleic acids using spectrally encoded beads. (disclosed 5/28/2019)
12. SU Docket# S21-370 Rapid Neisseria gonorrhea antimicrobial susceptibility test using viability PCR (disclosed 10/6/2021)
13. SU Docket# S23-092 Single Cell Antimicrobial Susceptibility Testing Using Body Fluid or Tissues (disclosed 3/2/2023)

J. Editorial Services
Nature Medicine 10/2014, 2/2020
Chemical Reviews 1/2017
Annals of Internal Medicine 4/2022
Nature Microbiology 4/2022
Nature Communications 5/2016, 6/2023, 3/2024
Lancet 10/2009
Biotechnology Advances 11/2013
PNAS 12/2019
Clin Chem 5/2013, 5/2014
Pediatric Research 3/2018
BMJ Open 6/2022
J. Clin Microbiol 4/2011, 7/2011, 11/2011, 4/2012, 11/ 2012, 8/2018, 4/2019
Methods 1/2021
PlosOne 11/2011, 1/2013, 8/2015, 8/2015
BMC Microbiol 12/2009, 7/2010
BMC Infectious Disease 12/2015

Diagnostic Microbiology and Infectious Diseases 11/2009, 2/2010
Open Forum Infectious Disease 6/2022
Communications Medicine 5/2023

I. Grant Reviewer

11/2011 NIAID Peer Review Group for Diagnostic Device Development
10/2016 DoD CDMRP PRMRP DIS-EID Panel Reviewer
3/2018 Medical Research Council, UK Research and Innovation
8/2018 Finovi Foundation, France
4/2019 DoD CDMRP PRMRP DIS-Infectious Disease 2 Panel Reviewer
2/2020 Wellcome Trust Peer Review
7/2020 DoD USAMRMC Peer Review
10/2020 SAEM Grant Review
2/2021 NIH CSR Interdisciplinary Molecular Science and Training (IMST) Study Section Reviewer
9/2022 NIH/NIAID ZAI1 SAS-M (J1) Special Emphasis Panel (SEP) Reviewer
11/2022 DoD CRRP Wound Care Solutions Panel Reviewer

J. University Administrative Services

3/2016 MCL Search Committee Member, Dept. of Emergency Medicine, Stanford University School of Medicine
5/2018-present MCL Search Committee Chair, Dept. of Emergency Medicine, Stanford University School of Medicine
4/2020-Stanford COVID-19 Biobanking Leadership

K. National Committees and Professional Organizations

American College of Emergency Physicians
2002-present, Member
2012-present Research Committee Member
Society for Academic Emergency Medicine
2002-present, Member
2013-present Research Committee Member
NIH COVID RECOVER Oversight Committee
2022-present Omics Oversight Committee Member
NIH NIGMS Sepsis Human Biospecimens Investigator Group
2023, Member

L. Mentoring Activities

Advisee Level	*Name*	*Position as Advisee (date range: m/yr)*	*Awards during mentoring, current position*
Undergraduate Students	Marcos Kuroki	JHU Biomedical Engineering Student (8/2004-6/2006)	U. of Missouri, School of Medicine, MD/PhD candidate
	Hsiang-Jer (Jack) Tseng	JHU Biomedical Engineering Student (9/2005-6/2006)	Emory University, School of Medicine, Radiology Fellow
	Helen H. Won	JHU Biology student (7/2009-10/2012)	
	Alexia Haralambous	JHU Biomedical Engineering Student	

		(6/2012-5/2014)	
	Annie Hu	SU Biology (4/2015-6/2018)	Bio-X USRP, Wallace Sterling Award, UCSF medical student
	Melodyanne Chang	**SU Biology (4/2016-8/2017)**	**UAR Major Grant Award,**
	Michelle Min Rui Li	SU Comp Sci (2/2018-12/2019)	Same
Graduate Students	Shin Lin, MD, PhD, MPH	JHU MD/PhD student in School of Medicine (6/2002-9/2006)	Associate Professor, Cardiology, U of Wash
	Yi Ping Ho, PhD	JHU PhD student in School of Engineering (6/2003-9/2006)	Assistant Professor, Hong Kong City University
	Daniel Nogee	JHU MD student in School of Medicine (6/2004-8/2006)	Assistant Professor, Yale University
	Vishal Doshi, MD, MPH	JHU MPH Student in School of Public Health (3/2005-1/2006)	
	Celeste Quianzon, MD	JHU Research Fellow in School of Medicine (2/2007-5/2009)	
	Padmini Ramachandran, MS	JHU Research Assistant in School of Medicine (8/2007-7/2009)	FDA
	Yi Zhang, PhD	JHU PhD candidate in School of Engineering (7/2009-6/2014)	National Siebel Scholar, Assistant Professor of Nanyang Technological University
	Athamanolap Pornpat	JHU PhD student in School of Engineering (6/2012-present)	Same
	Dong Jin Shin	JHU PhD student in School of Engineering (6/2013-6/2014)	National Siebel Scholar
	Daniel Thomas Rogan	SU MD/MPH student (8/2015-6/2017)	Med Scholar Resident, Emergency

			Medicine, Stanford University
	Courtney Jo Pedersen	SU MD student (8/2017-present)	Same
	Elizabeth Jordan Zudock	SU MD Student (5/2020-present)	Med Scholar; Berg Scholar
Post-doctoral Fellows	Seungkyung Park, PhD	JHU Postdoc fellow in School of Medicine (8/2009-8/2011)	Thrasher Early Career Award, Assistant Professor, Korea University of Technology and Education
	Stephanie Fraley, PhD	JHU PhD Graduate from Dept. of Chemical and Biomolecular Engineering (1/2012-6/2014)	Assistant Professor, UCSD; Burroughs-Wellcome Fund CASI Fellow;
	Nadya Andini, PhD	SU Postdoc fellow (9/2014-7/2018)	Industry scientist
	Simone Thair, PhD	SU Postdoc fellow (11/2014-10/2017)	Child Health Research Institute Award
	Stephen Cogill, PhD	SU Postdoc fellow (11/2016-1/2019)	NCI-VA Big Data-STEP fellowship
	Xi Yang, PhD	SU Postdoc fellow (4/2018-8/2019)	Industry scientist
	David Kim, MD, PhD	SU ED Resident (7/2017-present)	Assistant Professor Stanford EM MCL
	Marjan Hashemi, PhD	SU Postdoc fellow (1/2019-9/2020)	Industry scientist
	Nikhil R. Moham, PhD	(6/2019-present)	Senior Scientist, Stanford EM
	Kristel Tjandra, PhD	(1/2020-present)	
	Ryuichiro Abe, MD, PhD	(4/2021-2/1/2024)	Assistant Professor, Osaka University
	Satoe Ogawa, MD	(11/2023-present)	
	Tevriz D. Demir, PhD	(7/2024-present)	
Staff Scientist	Ti-hsuan Ku, PhD	(8/2020-8/2023)	Same
Junior Faculty	Azadeh Farzin, MD, MPH	JHU Assistant Professor, Div of Neonatology, Dept of Pediatric (8/2012-6/2014)	Same

Service as Principal Mentor for Training Grants

Junior Faculty or Postdoctoral Fellows
7/1/11-6/30/12 (Awarded)
Early Career Award: Microchip based rapid antimicrobial susceptibility testing for pediatric infectious diseases
The Thrasher Research Fund Early Career Award
Mentee: Seungkyung Park, PhD

12/4/13 (Awarded)
Toward molecular point-of-care diagnosis of newborn and young infant sepsis
NIH Loan Repayment Program
Mentee: Azadeh Farzin, MD, MPH

9/1/12-8/31/17 (Awarded)
Digitizing microRNA: the integration of profiling and discovery for rapid, quantitative, and broad-scale detection in infectious disease
The Burroughs Wellcome Fund: Career Awards at the Scientific Interface
Mentee: Stephanie Fraley, PhD

7/1/16-6/30/17 (Awarded)
Personalized Dynamic Regulome for Pediatric Sepsis
Stanford Spectrum Child Health Research Institute Postdoctoral Training Grant
Mentee: Simone Thair, PhD

9/1/2017-8/31/2019 (Awarded)
National Cancer Institute-Department of Veterans Affairs: Big Data-Scientist Training Enhancement Program (BD-STEP)
Mentee: Steven Cogill, PhD

Graduate or Undergraduate Students
6/20/15-8/20/16 (Awarded)
Pneumococcal molecular serotyping using high resolution melt
Stanford Bio-X Undergraduate Research Grant
Mentee: Annie Hu

6/20/16-8/20/16 (Awarded)
Pathogen-mediated regulomic profiles of neutrophils in Toll-like receptor (TLR) mediated responses
Stanford UAR Major Grant
Mentee: Melodyanne Chang

6/2/20-8/31/20 (Awarded)
Multimodal molecular AST
Stanford MedScholar
Mentee: Elizabeth Jordan Zudock

5/17/2021 (Awarded)
Stanford Ignite Program (Graduate School of Business)
Mentee: Kristel Cahyadi Tjandra, PhD

11/30/2021 (Awarded)
Burroughs Wellcome Fund Berg Scholars Program
Development and optimization of a protocol for rapid and multiparametric phenotypic antimicrobial susceptibility testing for non-β-lactam antibiotics using live cell microscopy techniques.
Mentee Elizabeth Jordan Zudock

Service as Advisor/Faculty Grant Reviewer

4/2010 **Clinical Advisor for "Center for Bioengineering, Innovation, and Design", Johns Hopkins University**

Develop respiratory rate measurement device for emergency triage.

6/2011 **Co-Mentor for "Discovery to Market" course in Carey Business School, Johns Hopkins University**

Primary goal is to assess commercialization potential of our intellectual property JHU P10254-03
Presented at the 2011 JHU Annual Alliance Meeting

10/2013 **Committee Member of BME Graduate Board Oral Exam, Johns Hopkins University**

4/2015-4/2018 **Faculty Advisor for Bio-X, Stanford University**

3/2017 **Faculty Reviewer for Grant Writing Academy's Workshop, Stanford University**

1/2018-present **Clinical Advisor for StartX, Stanford University**