CURRICULUM VITAE

Fuqing Wu, Ph.D.
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A. EDUCATION

2012.08 – 2017.08	Ph.D. in Biomedical Engineering, School of Biological Health Systems Engineering, Arizona State University, Tempe, AZ
2009.09 – 2012.06	M.S. in Biochemistry and Molecular Biology, University of Chinese Academy of Sciences Wuhan, China
2005.09 – 2009.06	B.S. in Biological Sciences, Jiangxi Normal University, Nanchang, China

B. ACADEMIC APPOINTMENTS

2025.02 – present	Regular Faculty Member, The University of Texas MD Anderson Cancer Center UTHealth Houston Graduate School of Biomedical Sciences, Microbiology and Infectious Diseases Program
2022.02 – present	Tenure-track Assistant Professor, School of Public Health The University of Texas Health Science Center, Houston, TX
2021.06 – 2022.01	Research Scientist, Department of Biological Engineering Massachusetts Institute of Technology, Cambridge, MA
2018.05 – 2021.05	Postdoctoral Associate, Department of Biological Engineering Massachusetts Institute of Technology, Cambridge, MA
2017.08 – 2018.05	Postdoctoral Associate, Department of Biomedical Engineering Arizona State University, Tempe, AZ

C. RESEARCH

I. Patents

1. **F. Wu**, X Wang, Y Kuang, X Chen, Q Zhang, C He, S Bayakhmetov. Methods and systems for generating complex spatial patterns. US 2025/12312591
2. Q. Zhang, X. Wang, A. Green, D. Ma, **F. Wu**, K. Standage-Beier, X. Chen. Rational design of upstream enhancement RNA for circuit dynamics regulation and viral diagnostics optimization. Publication Number: WO 2021/178557.
3. X. Wang, Q. Zhang, **F. Wu**. Methods and systems for quantifying gene expression in synthetic gene circuits and for tuning synthetic gene circuits. Publication Number: US 2019/0221281.

II. Preprints

*#: co-first authorship; *: corresponding authorship; Underline: Mentored trainees at UTHealth*

1. Joseph KM, Chen X, Parikh D, Rios J, Troisi CL, Tisza MJ, Maresso AW, Hanson BM, Gitter A, Deegan J, Bauer CX, Balliew JE, Mena KD, Boerwinkle E, **Wu F***. 2025. Detection of Measles in Texas Wastewater. medRxiv https://doi.org/10.1101/2025.04.08.25325475.
2. Lee WL, Gu X, Armas F, **Wu F**, Chandra F, Chen H, Xiao A, Leifels M, Chua FJD, Kwok GW, Tay JY, Lim CY, Thompson J, Alm EJ. 2022. Quantitative detection of SARS-CoV-2 Omicron variant in wastewater through allele-specific RT-qPCR. medRxiv https://doi.org/10.1101/2021.12.21.21268077.
3. Lee WL, Gu X, Armas F, Chandra F, Chen H, **Wu F**, Leifels M, Xiao A, Chua FJD, Kwok GW, Jolly S, Lim CY, Thompson J, Alm EJ. 2021. Quantitative SARS-CoV-2 tracking of variants Delta, Delta

plus, Kappa, and Beta in wastewater by allele-specific RT-qPCR. medRxiv https://doi.org/10.1101/2021.08.03.21261298.

III. Peer-Reviewed Publications

Google Scholar: https://scholar.google.com/citations?user=48DkbRoAAAAJ&hl=en
Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/fuqing.wu.1/bibliography/public/

Publications at UTHealth (Independent since February 2022)

1. **Wu F#**, He C#, Bayakhmetov S#, Harris D, Fang X, Baez J, Ohnmacht T, Zhang Q, Chen X, Allison KR, Kuang Y, Wang X. 2026. Self-assembly of bacterial volumetric patterns directed by a synthetic reaction-diffusion circuit. **Science Advances** (In press)
2. Li J, Parikh D, Phan T, Li R, Brozak S, Pell B, Balliew J, Mena KD, Kuang Y, and **Wu F***. 2026. A wastewater-based modeling framework for inferring norovirus transmission dynamics. **Environmental Science & Technology** 60: 23736–23749.
3. Pell B, Brozak S, Phan T, **Wu F**, and Kuang Y. 2026. Stability Switches Induced by Cross-Immunity in a Virus Competition Model with Time Delay Calibrated with Wastewater Data. **SIAM Journal on Applied Dynamical Systems** (in press).
4. Bauer C, Reger N, Rustem HAL, Tisza M, Triosi CL, Javornik Cregeen S, Ghobrial L, Gitter A, **Wu F**, Surathu A, Deegan J, Mena KD, Petrosino J, Boerwinkle E, Hanson BM, Maresso AW. 2026. SeqBoard: a genomics-based data dashboard for comprehensive wastewater virome monitoring. **Journal of the American Medical Informatics Association** 33:1446–1456.
5. Bi K, Sandoval M, Nguyen T, Perez I, Ghosh L, Krause T, Cazaban CG, Pasco R, Meyers L, **Wu F**, Rios J, Tisza M, Clark J, Maresso A, Boerwinkle E, Bauer C. 2026. Early Release - Temporal Alignment of Wastewater Signals with Clinical Indicators of Respiratory Illness Postpandemic, Texas, USA. **Emerging Infectious Diseases** 32:S43–52.
6. Chen X, Phan T, Lee WL, Clark K, Rhode SF, Brozak S, Pell B, Palden T, Leifels M, Gitter A, Kuang Y, Wuertz S, Thompson J, Mena KD, Alm EJ, **Wu F***. 2026. An integrated framework for early detection and transmissibility assessment of emerging variants in wastewater. **International Journal of Hygiene and Environmental Health** 274:114790.
7. Clark JR, Chirman D, Prakash H, Terwilliger A, McNeese M, Ross M, Tisza M, Javornik Cregeen SJ, Hopkins L, Deegan J, Troisi CL, Boerwinkle E, Mena K, **Wu F**, Kimata JT, Johnson M, Gregory D, Fletcher FE, Giordano TP, Maresso AW. 2026. Statewide multi-year wastewater sequencing reveals dual origins of HIV-1 signal. **Nature Communications** 17:7428.
8. Joseph KM, Parikh D, Xuan Q, Li F, Balliew J, Mena KD, **Wu F***. 2026. First Detection of Xylazine in Texas Wastewater and Its Association with Fentanyl Use. **ACS ES&T Water** 6: 946–953.
9. **Wu F***, Yu XA, Angeles-Albores D, Erdman SE, Alm EJ. 2025. Sulfated dietary fiber protects gut microbiota from antibiotics. **Microbiome** 13:183.
10. Phan T, Brozak S, Pell B, Ciupe SM, Ke R, Ribeiro RM, Gitter A, Mena KD, Perelson AS, Kuang Y, **Wu F***. 2025. Post-recovery viral shedding shapes wastewater-based epidemiological inferences. **Communications Medicine** 5:193.
11. Leifels M, Dey R, Wiedmann A, Dan C, Kolm C, **Wu F**, Sirikanchana K, Farnleitner AH, Ashbolt NJ. 2025. Enteric Viruses and Free-Living Amoebae: Protozoa as Potential Reservoirs and Transport Vessels for Human Norovirus and Adenovirus. **Water & Ecology** 100018.
12. Gitter A, Ruvalcaba V, Clark K, Tran Carapucci T, **Wu F**, Hanson BM, Deegan J, Balliew J, Boerwinkle E, Maresso AW, Mena KD. 2025. Turning analysis into action: opportunities and challenges in implementing wastewater science for public health decision-making. **Frontiers in Public Health** 13:1562659.
13. Chen X, Balliew J, Bauer CX, Deegan J, Gitter A, Hanson BM, Maresso AW, Tisza MJ, Troisi CL, Rios J, Mena KD, Boerwinkle E, **Wu F***. 2024. Revealing patterns of SARS-CoV-2 variant

emergence and evolution using RBD amplicon sequencing of wastewater. **Journal of Infection** 89:106284.

14. Yu XA, McLean C, Hehemann J-H, Angeles-Albores D, **Wu F**, Muszyński A, Corzett CH, Azadi P, Kujawinski EB, Alm EJ, Polz MF. 2024. Low-level resource partitioning supports coexistence among functionally redundant bacteria during successional dynamics. **The ISME Journal** 18:wrad013.
15. Tisza MJ, Hanson BM, Clark JR, Wang L, Payne K, Ross MC, Mena KD, Gitter A, Javornik Cregeen SJ, Cormier J, Avadhanula V, Terwilliger A, Balliew J, **Wu F**, Rios J, Deegan J, Piedra PA, Petrosino JF, Boerwinkle E, Maresso AW. 2024. Sequencing-Based Detection of Avian Influenza A(H5N1) Virus in Wastewater in Ten Cities. **New England Journal of Medicine** 391:1157–1159.
16. Gitter A, Mena KD, Mendez KS, **Wu F**, Gerba CP. 2024. Eye infection risks from Pseudomonas aeruginosa via hand soap and eye drops. **Applied and Environmental Microbiology** e02119-23.
17. Alkhulaifi F, Al-Hooti S, Al-Zenki S, Alomirah H, Xiao Q, Chan W, **Wu F**, Darkoh CC. 2024. Association of Nightly Fasting, Meal Frequency, and Skipping Meals with Metabolic Syndrome among Kuwaiti Adults. **Nutrients** 16:984.
18. Oghuan J, Chavarria C, Vanderwal SR, Gitter A, Ojaruega AA, Monserrat C, Bauer CX, Brown EL, Javornik S, Deegan J, Hanson BM, Tisza M, Ocaranza HI, Balliew J, Maresso AW, Rios J, Boerwinkle E, Mena KD*, **Wu F***. 2023. Wastewater analysis of mpox virus in a city with low prevalence of Mpox disease: an environmental surveillance study. **The Lancet Regional Health – Americas** 28:100639.
19. Phan T, Brozak S, Pell B, Oghuan J, Gitter A, Hu T, Ribeiro RM, Ke R, Mena KD, Perelson AS, Kuang Y, **Wu F***. 2023. Making waves: Integrating wastewater surveillance with dynamic modeling to track and predict viral outbreaks. **Water Research** 243:120372.
20. Tisza M, Cregeen SJ, Avadhanula V, Zhang P, Ayvaz T, Feliz K, Hoffman KL, Clark JR, Terwilliger A, Ross MC, Cormier J, Henke D, Troisi C, **Wu F**, Rios J, Deegan J, Hansen B, Balliew J, Gitter A, Zhang K, Li R, Bauer CX, Mena KD, Piedra PA, Petrosino JF, Boerwinkle E, Maresso AW. 2023. Comprehensive Wastewater Sequencing Reveals Community and Variant Dynamics of the Collective Human Virome. **Nature Communications** 14:6878.
21. Gitter A, Oghuan J, Godbole AR, Chavarria CA, Monserrat C, Hu T, Wang Y, Maresso AW, Hanson BM, Mena KD, **Wu F***. 2023. Not a waste: Wastewater surveillance to enhance public health. **Frontiers in Chemical Engineering** 4:1112876.
22. **Wu F***. 2023. Updated analysis to reject the laboratory-engineering hypothesis of SARS-CoV-2. **Environmental Research** 224:115481.
23. Gitter A, Bauer C, **Wu F**, Ramphul R, Chavarria C, Zhang K, Petrosino J, Mezzari M, Gallegos G, Terwilliger AL, Clark JR, Feliz K, Avadhanula V, Piedra T, Weesner K, Maresso A, Mena KD. 2023. Assessment of a SARS-CoV-2 wastewater monitoring program in El Paso, Texas, from November 2020 to June 2022. **International Journal of Environmental Health Research** 1–11.
24. Clark JR, Terwilliger A, Avadhanula V, Tisza M, Cormier J, Javornik-Cregeen S, Ross MC, Hoffman KL, Troisi C, Hanson B, Petrosino J, Balliew J, Piedra PA, Rios J, Deegan J, Bauer C, **Wu F**, Mena KD, Boerwinkle E, Maresso AW. 2023. Wastewater pandemic preparedness: Toward an end-to-end pathogen monitoring program. **Frontiers in Public Health** 11:1137881.
25. **Wu F***, Oghuan J, Gitter A, Mena KD, Brown EL. 2023. Wide mismatches in the sequences of primers and probes for monkeypox virus diagnostic assays. **Journal of Medical Virology** 95:e28395.

*This work was acknowledged in **a Congress letter** sent to CDC by the 170th Congress of the United States, House of Representatives, Committee on Energy and Commerce. The work was also reported by The Medical News and AskBbyGeeks.*

26. Pell B, Brozak S, Phan T, **Wu F**, Kuang Y. 2023. The emergence of a virus variant: dynamics of a competition model with cross-immunity time-delay validated by wastewater surveillance data for COVID-19. **Journal of Mathematical Biology** 86:63.
27. Phan T, Brozak S, Pell B, Gitter A, Xiao A, Mena KD, Kuang Y*, **Wu F***. 2023. A simple SEIR-V model to estimate COVID-19 prevalence and predict SARS-CoV-2 transmission using wastewater-based surveillance data. **Science of The Total Environment** 857:159326.
28. Lee WL, Gu X, Armas F, Leifels M, **Wu F**, Chandra F, Chua FJD, Syenina A, Chen H, Cheng D, Ooi EE, Wuertz S, Alm EJ, Thompson J. 2022. Monitoring human arboviral diseases through wastewater surveillance: Challenges, progress and future opportunities. **Water Research** 223:118904.
29. Lee WL, Armas F, Guarneri F, Gu X, Formenti N, **Wu F**, Chandra F, Parisio G, Chen H, Xiao A, Romeo C, Scali F, Tonni M, Leifels M, Chua FJD, Kwok GW, Tay JY, Pasquali P, Thompson J, Alborali GL, Alm EJ. 2022. Rapid displacement of SARS-CoV-2 variant Delta by Omicron revealed by allele-specific PCR in wastewater. **Water Research** 221:118809.
30. **Wu F**[#*], Lee WL[#], Chen H[#], Gu X, Chandra F, Armas F, Xiao A, Leifels M, Rhode SF, Wuertz S, Thompson J, Alm EJ*. 2022. Making Waves: Wastewater Surveillance of SARS-CoV-2 in an Endemic Future. **Water Research** 118535.
31. Varian BJ, Weber KT, Kim LJ, Chavarria TE, Carrasco SE, Muthupalani S, Poutahidis T, Zafarullah M, Al Olaby RR, Barboza M, Solakyildirim K, Lebrilla C, Tassone F, **Wu F**, Alm EJ, Erdman SE. 2022. Maternal Microbiota Modulate a Fragile X-like Syndrome in Offspring Mice. **Genes** (Basel) 13:1409.

Publications Prior to UTHealth (before February 2022)

32. Duvallet C[#], **Wu F**[#], McElroy KA, Imakaev M, Endo N, Xiao A, Zhang J, Floyd-O'Sullivan R, Powell MM, Mendola S, Wilson ST, Cruz F, Melman T, Sathyanarayana CL, Olesen SW, Erickson TB, Ghaeli N, Chai P, Alm EJ, Matus M. 2022. Nationwide Trends in COVID-19 Cases and SARS-CoV-2 RNA Wastewater Concentrations in the United States. **ACS ES&T Water** 2:1899–1909.
33. **Wu F**[#], Xiao A[#], Zhang J[#], Moniz K, Endo N, Armas F, Bonneau R, Brown MA, Bushman M, Chai PR, Duvallet C, Erickson TB, Foppe K, Ghaeli N, Gu X, Hanage WP, Huang KH, Lee WL, Matus M, McElroy KA, Nagler J, Rhode SF, Santillana M, Tucker JA, Wuertz S, Zhao S, Thompson J, Alm EJ. 2022. SARS-CoV-2 RNA concentrations in wastewater foreshadow dynamics and clinical presentation of new COVID-19 cases. **Science of The Total Environment** 805:150121.

*This work was reported by the **New York Times** ("Watching What We Flush Could Help Keep a Pandemic Under Control") and **Nature Biotechnology** ("Watcher in the Wastewater")*

34. Xiao A[#], **Wu F**[#], Bushman M[#], Zhang J, Imakaev M, Chai PR, Duvallet C, Endo N, Erickson TB, Armas F, Arnold B, Chen H, Chandra F, Ghaeli N, Gu X, Hanage WP, Lee WL, Matus M, McElroy KA, Moniz K, Rhode SF, Thompson J, Alm EJ. 2021. Metrics to relate COVID-19 wastewater data to clinical testing dynamics. **Water Research** 212:118070.
35. **Wu F**[#], Xiao A[#], Zhang J, Moniz K, Endo N, Armas F, Bushman M, Chai PR, Duvallet C, Erickson TB, Foppe K, Ghaeli N, Gu X, Hanage WP, Huang KH, Lee WL, McElroy KA, Rhode SF, Matus M, Wuertz S, Thompson J, Alm EJ. 2021. Wastewater surveillance of SARS-CoV-2 across 40 U.S. states from February to June 2020. **Water Research** 202:117400.
36. Lee WL, Imakaev M, Armas F, McElroy KA, Gu X, Duvallet C, Chandra F, Chen H, Leifels M, Mendola S, Floyd-O'Sullivan R, Powell MM, Wilson ST, Berge KLJ, Lim CYJ, Wu F, Xiao A, Moniz K, Ghaeli N, Matus M, Thompson J, Alm EJ. 2021. Quantitative SARS-CoV-2 Alpha Variant B.1.1.7 Tracking in Wastewater by Allele-Specific RT-qPCR. **Environmental Science & Technology Letters** 8:675–682.
37. Zhang Q, Ma D, **Wu F**, Standage-Beier K, Chen X, Wu K, Green AA, Wang X. 2021. Predictable control of RNA lifetime using engineered degradation-tuning RNAs. 7. **Nature Chemical Biology** 17:828–836.

38. **Wu F**, Zhang J, Xiao A, Gu X, Lee WL, Armas F, Kauffman K, Hanage W, Matus M, Ghaeli N, Endo N, Duvallet C, Poyet M, Moniz K, Washburne AD, Erickson TB, Chai PR, Thompson J, Alm EJ. 2020. SARS-CoV-2 Titers in Wastewater Are Higher than Expected from Clinically Confirmed Cases. **mSystems** 5:e00614-20.

This paper was highlighted as Editor's Pick in mSystems; and covered by social media: ***New York Post****; Boston Globe; Newsweek; Boston Herald; Chemical & Engineering News; Bostinno; MIT News*

39. **Wu F**[#], Zhang Q[#], Wang X. 2018. Design of Adjacent Transcriptional Regions to Tune Gene Expression and Facilitate Circuit Construction. **Cell Systems** 6:206-215.e6.
40. **Wu F**, Su R-Q, Lai Y-C, Wang X. 2017. Engineering of a synthetic quadrastable gene network to approach Waddington landscape and cell fate determination. **eLife** 6:e23702.

This work was highlighted by Cell Systems (June 2017).

41. Wang L-Z, **Wu F**, Flores K, Lai Y-C, Wang X. 2016. Build to understand: synthetic approaches to biology. **Integrative Biology** 8:394–408.
42. **Wu F**, Wang X. 2015. Applications of synthetic gene networks. **Science Progress** 98:244–252.
43. **Wu F**, Menn DJ, Wang X. 2014. Quorum-sensing crosstalk-driven synthetic circuits: from unimodality to trimodality. **Chemistry & Biology** 21:1629–1638.

This work was highlighted by Chemistry & Biology, December 2014.

44. **Wu F**, Long J, Wang S, Xing J, Li M, Zheng C. 2012. Live cell imaging fails to support viral-protein-mediated intercellular trafficking. **Archives of Virology** 157:1383–1386.
45. **Wu F**, Wang S, Xing J, Li M, Zheng C. 2012. Characterization of nuclear import and export signals determining the subcellular localization of WD repeat-containing protein 42A (WDR42A). **FEBS Letters** 586:1079–1085.
46. **Wu F**, Xing J, Wang S, Li M, Zheng C. 2011. Screening and identification of host factors interacting with UL14 of herpes simplex virus 1. **Medical Microbiology and Immunology** 200:203–208.
47. Xing J[#], **Wu F**[#], Wang S, Krensky AM, Mody CH, Zheng C. 2010. Granulysin Production and Anticryptococcal Activity Is Dependent upon a Far Upstream Enhancer That Binds STAT5 in Human Peripheral Blood CD4+ T Cells. **The Journal of Immunology** 185:5074–5081.
48. Xing J, **Wu F**, Pan W, Zheng C. 2010. Molecular anatomy of subcellular localization of HSV-1 tegument protein US11 in living cells. **Virus Research** 153:71–81.
49. Zha M, **Wu F**, Wang S, Fu M. 2010. A specific protein, flammutoxin expressed in the *Flammulina velutipes* stipe. **Chinese Journal of Applied & Environmental Biology**. 16:738–740.

IV. Book Chapters

1. Chen X, Zheng C, **Wu F***. 2025. RBD Amplicon Sequencing and Evolutionary Analysis of SARS-CoV-2 Variants from Wastewater Samples, p. 319–328. *In* Zheng, C (ed.), **Molecular Virology: Methods and Protocols**. Springer US, New York, NY.
2. Chen X, Xu J, Vanderwal SR, **Wu F***. 2025. Chapter 13 - Primers and probes for the diagnostics of mpox virus, p. 227–244. *In* Rajendram, R, Patel, VB, Preedy, VR (eds.), **The Scientific Basis of Mpox (Monkeypox)**. Academic Press.
3. Leifels M, Lee WL, Armas F, Gu X, Chandra F, Cheng D, Kwok WC, Chua D, Kim SY, Ng WJ, Nainai D, Sirikanchana K, Sozzi E, Farnleitner AH, **Wu F**, Wuertz S, Thompson J. 2023. Surveillance of SARS-CoV-2 in Wastewater at the Population Level: Insights into the Implementation of Non-invasive Targeted Monitoring in Singapore and the USA, p. 1–20. **Wastewater Surveillance for COVID-19 Management**. Springer, Berlin, Heidelberg.

V. Talks and Presentations (not including those contributed presentations)

1. Invited talk: Advancing wastewater surveillance with dynamic modeling and sequencing – Texas Tech Institutional Research Symposium (2026.04)

2. Poster: Sulfated dietary fiber protects gut microbiota from antibiotics @ Microbiome Editing - Gordon Research Conference (2026.01)
3. Invited talk: Wastewater-based epidemiology for public health @ The International Society for Neglected Tropical Diseases (2025.11)
4. Invited talk: Sulfated dietary fiber protects gut microbiota from antibiotics @ Microbiome Virtual International Form (2025.11)
5. Poster: Understanding viral variant community ecology through wastewater-based epidemiology @ IWA 11th Microbial Ecology and Water Engineering Conference at Georgia Tech (2025.06)
6. Invited talk: “Advancing wastewater surveillance with dynamic modeling and sequencing” @ Infectious Disease Surveillance through Wastewater Analysis Workshop at the Netherlands (2024.10)
7. Invited talk: “Advancing wastewater surveillance to wastewater epidemiology” @ Human Genetic Center at UTHealth (2023.12)
8. Invited talk: “Advancing wastewater-based epidemiology with dynamic modeling” @ American Public Health Association Annual Meeting (2023.11)
9. Invited talk: “Enhance wastewater surveillance with dynamic modeling” @ Society for Mathematical Biology Annual Meeting (2023.08)
10. Poster: “Modeling of wastewater surveillance data to predict infection prevalence and transmission dynamics” @ ASM Microbe by the American Society for Microbiology (2023.06)
11. Poster: “Reject the laboratory engineering hypothesis of SARS-CoV-2” @ ASM Microbe by the American Society for Microbiology (2023.06)
12. Invited talk: “Enhance Wastewater Surveillance with Dynamic Modeling” @ Public Health Agency of Canada (2023.04)
13. Invited talk: “Wastewater surveillance of infectious diseases from pandemic to endemic” @ Department of Microbiology and Molecular Genetics at UTHealth (2022.11)
14. Invited talk: “Wastewater Surveillance of Infectious Diseases for Population Health” @ World Biological Science and Technology Conference at Japan (2022.07).
15. Invited talk: “Bridging synthetic biology to epidemiology for pandemic preparedness” @ Synthetic Biology Young Speaker Series (SynBYSS, 2022.06)
16. Invited talk: “Wastewater monitoring of infectious diseases for population health” @ Environmental and Occupational Health Sciences (EOHS) Research Seminar Series (2022.04)
17. Poster: “Wastewater surveillance of SARS-CoV-2 across the United States” @ IWA MEWE 2021 (2021.10)
18. Invited talk: “Wastewater surveillance of SARS-CoV-2 across the United States” @ Corona 2021 Virtual Conference (2021.07).
19. Invited talk: “Wastewater surveillance of SARS-CoV-2 and its applications” @ COVID 2019 Virtual (2020.11).
20. Invited talk: “SARS-CoV-2 titers in wastewater are higher than expected from clinically confirmed cases” @ Virtual Podium 2020 (2020.05).
21. Invited talk: “A synthetic biology approach to multistability and pattern formation” @ Pacific Northwest National Laboratory (2018.02).
22. Invited talk: “Engineering of synthetic gene networks for Waddington landscape and cell fate determination” @ Massachusetts Institute of Technology (2017.09).
23. Invited talk: “Development of synthetic tunable patterns from engineered single cells” @ School of Mathematical & Statistical Science, ASU (2016.10).
24. Poster: “Wastewater surveillance of SARS-CoV-2 across the United States” @ World Microbe Forum (2021.06).

25. Poster: “Dietary fiber protects gut microbiota from antibiotics” @ MIT Microbiome Symposium (2021.04).
26. Poster: “Engineering of a synthetic quadrastable gene network to approach Waddington landscape and cell fate determination” @ BMES Annual Meeting (2017.10).
27. Poster: “Engineering Quorum-sensing Crosstalk to Generate Complex of Synthetic Gene Networks” @ BMES Annual Meeting (2014.10).

D. FUNDING SUPPORT

I. Active Grants

- Agency: **National Institutes of Health – NIAID** (1R01AI192873-01, 8/2025 – 7/2030)
  Title: A Wastewater Approach to Viral Transmission, Evolution, and Ecology
  Role: PI
  Total funding: $2,674,737
- Agency: **Houston Health Department** (WS1151815252, 4/2025 –)
  Title: Monitoring the usage of opioids in the population from municipal wastewater
  Role: PI
  Total funding: $90,000/year (updating)
- Agency: **National Science Foundation** (DMS/2421257, 9/2024 – 8/2027)
  Title: Collaborative Research: IHBEM: Beneath the surface: integrating wastewater surveillance and human behavior to decode epidemiological patterns
  Role: PI (Lead)
  Total funding: $640,859
- Agency: **National Institutes of Health – NIDA** (R01DA059394-01A1, 9/2023 – 8/2028)
  Title: Wastewater sampling: A new tool to accelerate ending the HIV epidemic
  PI: Dr. Thomas Peter Giordano (Baylor College of Medicine)
  Role: Co-Investigator
  Total funding: $940,500

II. Completed Grants

- Agency: **Texas Legislature**
  Title: Texas Epidemic Public Health Institute (TEPHI, 6/2022 – 10/2026)
  PI: Dr. Eric Boerwinkle (UTHealth)
  Role: Wu leads wastewater early detection and validation
  Funding to Wu lab: $327,650
- Agency: **CDC & Texas Department of State Health Services** (HS001089700001-292484, 8/2021 – 7/2026, funding cancelled in 3/2025 due to CDC ELC fund callback)
  Title: Texas SARS-CoV-2 Variant Network
  PI: Dr. Boerwinkle (UTHealth)
  Role: Co-Investigator
  Funding to Wu lab: $2,025
- Agency: **National Institutes of Health - RADxUP** Phase III (1U01TR004355-01, 12/2022 – 11/2024)
  Title: Addressing COVID-19 testing disparities in vulnerable populations using a community JITAI (just in time adaptive intervention)
  PI: Dr. Maria E. Fernandez (UTHealth)
  Role: Co-Investigator
  Total funding: $2,176,708
- Agency: **Complete Genomics Inc**. (10/2023 – 9/2024)
  Title: Wastewater sequencing of SARS-CoV-2 for emerging mutations

Role: PI
Total funding: $10,000

- Agency: **University of Texas School of Public Health PRIME Award** (9/2023 – 8/2024)
  Title: Advance wastewater surveillance for predictive epidemiology and evolution of SARS-CoV-2
  Role: PI
  Total funding: $25,000
- Agency: **Southwest Center for Occupational and Environmental Health** Education and Research Center Pilot Projects Training Program; CDC/NIOSH (7/2023 – 6/2024)
  Title: Monitoring the consumption of fentanyl and its adulterant xylazine by wastewater-based epidemiology
  Role: PI
  Total funding: $11,318
- Agency: **The University of Texas** (2/2022 – 8/2025)
  Type of Grant: UT System Rising STARs award
  Role: PI
  Total costs: $250,000
- Agency: **The University of Texas Health Science Center at Houston** (2/2022 – 8/2025)
  Type of Grant: Faculty Startup Funding
  Role: PI
  Total funding: $250,000
- Agency: **American Heart Association** (15PRE25710303, 7/2015 – 6/2017)
  Title: Engineering a multistable MINPA gene network to regulate cell fate determination
  Role: PI
  Total funding: $50,000

E. ACADEMIC AND PROFESSIONAL HONOR/AWARDS/SCHOLARSHIPS

I. Honors and Awards

- UTHealth-SPH: Research Mentor-Mentee Award (2026.04)
- 'Best Presentation Award' at the Microbiome Virtual International Form (2025.11)
- UT Systems Rising STARs Award (2022.02)
- 'Best Research Award' in International Conference on Infectious Diseases 2022 (2022.05)
- American Heart Association Predoctoral Fellowship (2015.06)
- Peter E. Crouch Excellence Fund Fellowship (2015)
- Special Awards of Changhua Scholarship in WIV, CAS (2012)
- Outstanding Graduate Students in WIV, CAS (2011)
- Outstanding Graduate Students in WIV, CAS (2010)
- Excellent Graduates in Jiangxi Normal University (2009)
- National Encouragement Scholarship (2008)
- The Third, Second, and First Prize Scholarships (2006~2009)

II. Professional Membership

- Member, American Chemical Society (2026 – present)
- Member, International Water Association (2025 – present)
- Member, American Public Health Association (2023 - present)
- Member, Society for Mathematical Biology (2023 - present)
- Member, American Society for Microbiology (2021 - present)

- Member, American Heart Association (2015 - 2017)
- Member, American Society for Cell Biology (2014 - 2015)

F. TEACHING

1. Molecular Epidemiology and Genomics – Viruses (new course, Spring 2026, Teaching effort = 100%)
2. Water Environment (Spring 2023, Spring 2024, Spring 2025, Spring 2026, Teaching effort = 100%)
3. Public Health Ecology (Fall 2024, Fall 2025, Fall 2026, Teaching effort = 100%)
4. CRISPR in Public Health: The Science and Ethics of Genetic Engineering (Guest lecturer, 2024 Fall)
5. Current Topics in Infectious Disease Epidemiology (Guest lecturer, 2023 Summer)

G. STUDENT MENTORING

I. Academic Advisees (Current & Graduated)

1. Amani Brown (MPH in EOHS) 2026 Fall – present
2. Hussain Nigar (MPH in EOHS) 2026 Spring – present
3. Zai-Lin Sheu (MPH in Epidemiology) 2026 Spring – present
4. Phi-Christopher Ly (MPH in EOHS) 2025 Fall – present
5. Sudha Khakurel (PhD in Epidemiology) 2025 Fall – present
6. Siah Green (MPH in Epidemiology) 2024 Fall – present
7. Jinze Li (PhD in EOHS) 2024 Spring – present
8. Dhvani A. Parikh (MPH in Epidemiology) 2023 – 2026, Graduated
9. Jiaoyang Xu (PhD in Epidemiology) 2023 Fall – 2026 Spring
10. Peichun Han (PhD in Epidemiology) 2023 Fall – 2024 Spring
11. Himabindu R. Basani (MPH in Epidemiology) 2023 – 2025, Graduated
12. Priyesha Sanjay Patel (MPH in Epidemiology) 2023 – 2025, Graduated
13. Rakshitha Vijendra (MPH in Epidemiology) 2023 – 2025, Graduated
14. Yi Chen (PhD in EOHS) 2024, Graduated
15. Jennifer N. Nguyen (MPH in EOHS) 2023 – 2024, Graduated
16. Jeremiah Oghuan (MPH in Epidemiology) 2023 – 2024, Graduated
17. Muhammad H. Rehan (MPH in Epidemiology) 2022 – 2024, Graduated
18. Bhavikkumar N. Trivedi (MPH in Epidemiology) 2022 – 2024, Graduated

II. Students & Postdoc Trained in My Laboratory

1. Vivian Doung, Research Assistant, 2025 November - present
2. Katie Clark, PhD in Epidemiology, 2025 June – present
3. Minglun Wang, PhD in Environmental Science, 2025 April – present
4. Runze Li, PhD in Biostatistics, 2024 September – present
5. Katherine Joseph, PhD in Environmental Science, 2024 March – present
6. Jinze Li, PhD in Environmental Science, 2024 January – present
7. Dhvani Parikh, MPH in Epidemiology, 2023 September – 2026 April

8. Xingwen Chen, Postdoctoral researcher, 2023 June – 2026 March (position terminated due to visa cancelling)
9. Jiao yang Xu, PhD in Epidemiology, 2023 August – 2023 December
10. Scout R. Vanderwal, MPH in Epidemiology, 2022 December – 2023 December
11. Jeremiah Oghuan, MPH in Epidemiology, 2022 Fall – 2023 Fall
12. Anuja Rajendra Godbole, MPH in Epidemiology, 2022 Summer
13. Carlos Chavarria, MPH and PhD student (El Paso campus), 2022 Summer – 2023 Fall
14. Carlos Monserrat, Research Assistant (El Paso campus), 2022 Summer – 2023 Fall
15. Layne Smith, MS in Microbiology and Infectious Diseases at GSBS, 2025 September (Rotation)
16. Samantha Mota, PhD in Genetics at GSBS, 2025 June (Rotation)
17. Josh Wu, high school student, 2023 Summer
18. Chris Qiu, high school student, 2025 – present

III. Students Who Completed Practicum / Integrated Learning Experience / Independent Study in My Laboratory

1. Rakshitha Vijendra, MPH in Epidemiology, 2025 Spring and Summer
2. Abena K Agyei, MPH in Epidemiology, 2025 Spring
3. Weixin Lu, PhD in Epidemiology, 2024 Spring
4. Jeremiah Oghuan, MPH in Epidemiology, 2023 Fall
5. Scout R. Vanderwal, MPH in Epidemiology, 2023 Fall
6. Iheyinwa Odum-Nwabueze, MPH in Epidemiology, 2023 Summer
7. Vikram Gill, Visiting Scientist (Baylor College of Medicine), 2023 Spring
8. Anuja Rajendra Godbole, MPH in Epidemiology, 2022 Fall
9. William Hebel, MPH in Epidemiology, 2022 Summer

IV. Dissertation & Thesis Committees (Supervisor / Member)

1. Aodong Mei, PhD student in EOHS (2026 February – present)
   Role: Member
2. Runze Li, PhD student in Biostatistics (2026 January – present)
   Role: Member
3. Catherine Vaziri, PhD student in Epidemiology (2025 June – present)
   Role: Member
4. Katie Clark, PhD student in Epidemiology (2025 June – present)
   Role: Supervisor
5. Minglun Wang, PhD student in EOHS (2025 June – present)
   Role: Supervisor
6. Katherine Joseph, PhD student in EOHS (2025 June – present)
   Role: Supervisor
7. Alison Stephens, MS student in Biostatistics (2025 May – present)
   Role: Supervisor
8. Jinze Li, Ph.D. student in EOHS (2024 January – present)
   Role: Supervisor
9. Peichun Han, PhD student in Epidemiology (2024 December – present)
   Role: Member
10. Dionibe Some, PhD student in EOHS (2023 December – present)
    Role: Member

11. Lauren Jones, MPH student in Epidemiology (2025 June – 2026 Spring)
    Role: Supervisor
12. Fatema Alkhulaifi, PhD student in Epidemiology (2023 October – 2024 Spring)
    Role: Member
13. Caitlin Cotter, PhD student in Epidemiology (2023 February – May 2024)
    Role: Member
14. Bingjie Li, PhD in Epidemiology (2022 - 2023)
    Dissertation Title: An Overview of *Clostridium difficile* Infection and Its Prevention, Diagnosis and Treatment
    Role: Member
15. Yi Chen, PhD in Epidemiology (2022 September)
    Dissertation Title: Application of the mobile aerosol lung deposition apparatus (malda) to estimate occupational and environmental ultrafine particle exposure
    Role: Chair
16. Tzuruei Chao, MS in Biostatistics (2022 August)
    Dissertation Title: Sampling design of wastewater surveillance to detect SARS-CoV-2: A simulation study using geospatial Kriging method
    Role: Member

H. SERVICE TO THE INSTITUTION AND COMMUNITY

I. Academic Services

- **Reviewer** for NIH ZRG1 ZRG1 DCAI-U (82) – 2026 July
- **Reviewer** for NIH ZRG1 DCAI-B (80) – 2026 May
- **Reviewer** for PRIME award – 2025 August
- **Reviewer** for NIH ZTR1 CI 8(01) – 2025 April
- **Reviewer** for grants from the Natural Sciences and Engineering Research Council of Canada (NSERC) – 2024 August
- **Reviewer** for grants from the University of Notre Dame – 2024 Fall
- **Reviewer** for NIH GVE study section – 2024 February

- **Organizer** for a Mini-Symposium: “Novel Data Streams for Disease Modeling: Challenges and Opportunities” at Society for Mathematical Biology Annual Meeting – 2026 July
- **Organizer** for special session “Advanced Wastewater Surveillance for Public Health” at The Universities Council on Water Resources (UCOWR) / National Institutes For Water Resources (NIWR) – 2026 June
- **Organizer** for a Mini-Symposium at SIAM Life Sciences Annual Conference – 2023 December
- **Organizer** for a Mini-Symposium: “Integrating Data with Epidemic Models: Challenges and Opportunities" at the Society for Mathematical Biology Annual Meeting – 2023 June

II. Peer Reviewer for Academic Journals / Books

Water Research	Mathematical Biological Science
Environmental Research	Journal of Water Process Engineering
Water	Heliyon
Journal of Infection	International Journal of Environmental Research and Public Health
ERJ Open Research	Journal of Medical Virology
Environmental International	Virological Sinica

Biology Chemistry	Virology Journal
Current Research in Biotechnology	The Lancet Global Health
Frontiers of Microbiology	The Lancet Planetary Health
Frontiers in Bioengineering and Biotechnology	eBioMedicine
Frontiers in Public Health	Spring Nature Press
Frontiers in Cellular and Infection Microbiology	ACS EST Water
mSystems	Environmental Science & Technology
Journal of Advanced Research	Genome Biology
Journal of Biosafety and Biosecurity	Communications Medicine
Journal of Hazardous Materials	Drug and Alcohol Report
Journal of Environmental Management	Current Microbiology
Science of the Total Environment	Journal of Infection and Public Health
Science Advances	Environmental Advances
International Journal of Hygiene and Environmental Health	

III. Journal Editor

- JMIRx Med (Editor in Chief, 2026 – present);
- Frontiers in Microbiology (Virology);
- Frontiers in Bioengineering and Biotechnology (Synthetic biology);
- Genes;
- American Journal of Biomedical Science & Research

IV. Service to the Institution

- EOHS Curriculum Committee, 2026 – present
- EOHS IT Committee, 2026 – present
- GSBS Admission Committee (MID program), 2026 – 2029
- GSBS Admission interviewer, 2026
- Occupational and Environmental Medicine Interviewer, 2025
- EOHS Scholarship Selection Committee, 2025
- EOHS PhD Candidate Exam Grading, 2025
- SPH Research Day Poster Judge, 2025 and 2026
- EOHS Student Proposal Evaluation (volunteer), 2025 May
- EOHS Doctoral Dissertation Research Award Reviewer, 2025 March
- EOHS Admission Committee, 2024 – present
- EOHS Faculty Search Committee, 2024 – present
- EOHS Faculty Search Committee (El Paso), 2023 - 2024
- EHS Radiation Safety Program: Custodian for the GC/MS units at SPH, 2022 – 2024

V. Service to the Community

- Invited testimony: **Harris County Commissioners Court** – continued funding for wastewater surveillance (outcome: funding measure passed), September 8, 2026.
- Committee member in the Microbiome Virtual International Forum, 2025 – present

- Member in the PHR 4/5N Antimicrobial Stewardship Regional Advisory Committee (ASRAC), 2024 September – present
- Media interview: In Other Words, LLC (for Lawrence Technological University)
  Title: Wastewater Surveillance
  Date: September 11, 2023
- Consultation: **Science** (journal)
  Title: Monkeypox mismatch
  Date: November 7, 2022
- Citation: 117th **Congress of the United States, House of Representatives**, Committee on Energy and Commerce
  Title: CDC diagnostic testing procedures for monkeypox virus
  Date: November 2, 2022
- Media interview: Dallas Morning News
  Title: Wastewater Surveillance
  Date: July 19, 2022