

CURRICULUM VITAE

YIXUAN HE, PhD

PRESENT TITLE: Assistant Professor, Tenure-track

ADDRESS: Department of Epidemiology

Human Genetics Center

University of Texas Health Science Center at Houston (UTHealth Houston)

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ACADEMIC POSITIONS:

- 2025 – *Assistant Professor, Tenure-track*
Department of Epidemiology, UTHealth Houston SPH
Houston, TX
- 2023 – 2024 *NIH Precision and Genomic Medicine T32 Fellow*
Massachusetts General Hospital
Center for Genomic Medicine
Directors: Jordan Smoller, MD, ScD, Heidi Rehm, PhD, FACMG
- 2022 – 2024 *Research Fellow*
Analytical and Translational Genetics Unit
Broad Institute of MIT and Harvard
Cambridge, MA
Primary advisor: Alicia Martin, Ph.D.
Secondary advisor: Alexander Gusev, Ph.D

EDUCATION & TRAINING:

- 2014 - 2018 Bachelor of Arts: *magna cum laude*
Mathematics
Biology, with high honors
Dartmouth College, Hanover, NH
Advisor: Dorothy Wallace, Ph.D.
- 2018 – 2022 Doctor of Philosophy
Bioinformatics and Integrative Genomics
Harvard University, Cambridge, MA
Advisor: Chirag Patel, Ph.D.

AWARDS:

- 2024 ASHG Trainee Research Excellence Awards (Semi-finalist), American Society of Human Genetics
- 2024 Early Career Investigator Program (ECIP) Award, World Congress of Psychiatric Genetics
- 2023 Eliana Hechter Memorial Prize, The Broad Institute
- 2023 "Reviewers' Choice" Award (Top 10%), American Society of Human Genetics
- 2022 Early Career Researcher Award, Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) Consortium
- 2020 Early Career Researcher Scholarship, International Conference in Quantitative Genomics
- 2020 "Reviewers' Choice" Award (Top 10%), American Society of Human Genetics
- 2020 Epstein Award (Semi-finalist), American Society of Human Genetics

2019 UK Biobank Early-Career Researcher of the Year (Semi-finalist), UK Biobank
 2019 Program in Quantitative Genomics (PQG) Student/Postdoc Travel Fund, Harvard School of Public Health
 2018 Travel Fund, Harvard Medical School
 2018 Christopher G. Reed Biologist Award, Dartmouth College Biology Department
 2017 MAA Outstanding Presentation Award (Top 5%), Mathematical Association of America Mathfest
 2017 Rufus Choate Scholar (Top 5% GPA), Dartmouth College
 2017 First Place AWM Essay Contest, American Women in Mathematics Association, Math for America
 2016 Mathematics Department Poster Award (1st place), Dartmouth College.
 2016 Wetterhahn Library Research Award, Dartmouth College
 2016 James O. Freedman Presidential Scholar, Dartmouth College

PUBLICATIONS/COMMUNICATIONS:

Peer reviewed publications *Denotes co-primary authorship. Trainee papers and presentations under Dr. He's direct supervision are underscored.

1. He Y, Lu W, Jee YH, Wang Y, Tsuo K, Qian DC, Diao JA, Huang H, Patel CJ, Byun J, Pasaniuc B, Atkinson EG, Amos CI, Moll M, Cho MH, Martin "Multi-trait and multi-ancestry genetic analysis of comorbid lung diseases and traits improves genetic discovery and polygenic risk prediction". *Nature Genetics* (2026). DOI: 10.1038/s41588-025-02470-1
2. He Y, Qian DC. "Building the Human Infrastructure for Cancer Data Reuse." *JCO Clinical Cancer Informatics* (2026). DOI: 10.1200/CCI-26-00241
3. Wang Y, Truong B, Lu W, Fadil C, He Y, [...], Martin AR. "Phenome-derived polygenic scores and social determinants jointly shape context-dependent disease risk." *medRxiv* (2026). DOI: 10.64898/2026.04.16.26351039.
4. Zhang C, Konigsberg IR, He Y, [...], Moll MR. "Multi-trait polygenic scores for COPD and COPD exacerbations implicate druggable proteins." *JCI Insights* (2026). DOI: 10.1172/jci.insight.199951
5. Adams F, Abdelaziz S, Zhang Z, Ahern J, He Y, Touloupoulou T, Fan CH, Ivanov I, Frangou S, Thompson WK, Patel CJ, Parvaz MA. "A cumulative polyexposure score to predict early adolescent substance use based on environmental exposures." *Communications Medicine* (2026).
6. Jee YH, He Y, Lu W, Shi Y, Lazarev D, Daly MJ, Reeve MP, Martin AR. "Dissecting pleiotropy to gain mechanistic insights into human disease." *Nature Reviews Genetics* (2025). DOI: 10.1038/s41576-025-00908-0
7. Tubbs JD, He Y, Tsuo K, Yohannes MT, Lee YH, Madsen EM, Ghimire DJ, Hermosilla S, Ge T, Martin AR, Choi KW, Smoller JW, Axinn WG. "Genetic architecture of alcohol use disorder in Nepal." *medRxiv* (2025). DOI: 10.64898/2025.12.13.25342207
8. Chen Y, Akhtari FS, He Y, Yu L, Nguyen VK, Tsui MTK, Mizuno Y, Funk WE, Chan CY, Tse LA, Ho KF, Patel CJ, Motsinger-Reif A, Chung MK. "Exposome-wide associations and polyexposure risks of workplace chemical exposures on adult asthma: The Personalized Environment and Genes Study (PEGS)". *Environmental Research* (2025) DOI: 10.1016/j.envres.2025.123137
9. Choi KW*, Tubbs J*, Lee H, He Y, Tsuo K, Yohannes M, Madsen E, Ghimire D, Hermosilla S, Ge T, Martin AR, Axinn W, Smoller JW. "Genetic Architecture and Socio-Environmental Risk Factors for Major Depressive Disorder in Nepal". *Psychological Medicine* (2024) DOI: 10.1017/S0033291724001284
10. Diao JA, He Y, Khazanchi R, Tiako MJN, Witonsky JL, Pierson E, Rajpurkar P, Elhawary JR, Melas-Kyriazi L, Yen A, Martin AR, Levy S, Patel CJ, Farhat M, Borrell LN, Cho M, Silverman EK, Burchard EG, Manrai AK. "Implications of Race Adjustment in Lung Function Equations". *New England Journal of Medicine* (2024) DOI: 10.1056/NEJMsa2311809
11. Wang Y*, He Y*, Shi Y, Qian DC, Gray KJ, Winn R, Martin AR "Boldly aspiring towards equitable benefits from genomic advances to individuals of ancestrally diverse backgrounds". *The American Journal of Human Genetics* (2024) DOI: 10.1016/j.ajhg.2024.04.002
12. Ciobanu O, He Y, Martin AR, Remick JS, Shelton JW, Eng TY, Qian CQ. "Patterns of under- and over-treatment in adjuvant radiotherapy for early-stage endometrial cancer based on molecular classification". *JAMA Oncology* (2024) DOI:10.1001/jamaoncol.2024.0104.
13. Carvalho NRG, He Y, Smadbeck P, Flannick J, Mercader JM, Udler m, Manrai AK, Moreno J, Patel CJ "Assessing the genetic contribution of cumulative behavioral factors associated with longitudinal type 2 diabetes risk highlights adiposity and the brain-metabolic axis". *medRxiv* (2024) DOI: 10.1101/2024.01.30.24302019

14. He Y, Martin AR. "We need more-diverse biobanks to improve behavioural genetics". *Nature Human Behavior* (2023). DOI: 10.1038/s41562-0D23-01795-3
15. He Y, Qian DC, Diao JA, Cho MH, Silverman EK, Gusev A, Manrai AK, Martin AR, Patel CJ "Prediction and stratification of longitudinal risk for chronic obstructive pulmonary disease across smoking behaviors". *Nature Communications* (2023). DOI: 10.1038/s41467-023-44047-8
16. He Y, Patel CJ. "Software Application Profile: PXStools -- an R package of tools for conducting exposure-wide analysis and deriving polyexposure risk scores". *International Journal of Epidemiology* (2022). DOI: 10.1093/ije/dyac216
17. He Y, Patel CJ. "Polygenic and polyexposure risks of type 2 diabetes predict chronic conditions in participants of the UK Biobank". *Acta Diabetologica* (2022). DOI: 10.1007/s00592-022-01864-5
18. He Y, Lakhani CM, Rasooly D, Manrai AK, Tzoulaki I, Patel CJ. "Comparisons of Polyexposure, Polygenic, and Clinical Risk Scores in Risk Prediction of Type 2 Diabetes". *Diabetes Care* (2020) DOI: 10.2337/dc20-2049
19. Tierney BT, He Y, Church GM, Segal E, Kostic AD, Patel CJ. "The Predictive Power of the Microbiome Exceeds That of Genome-Wide Association Studies in the Discrimination of Complex Human Disease". *bioRxiv* (2020). DOI: 10.1101/2019.12.31.891978
20. He Y, Kodali A, Wallace DI. "Predictive Modeling of Neuroblastoma Growth Dynamics in Xenograft Model after Anti-VEGF Therapy". *Bulletin of Mathematical Biology* (2018). DOI: 10.1007/s11538-018-0441-3
21. Qian DC, Jin JL, Titus AJ, He Y, Vaissie M, Li Y, Molfese DL, Salas R, Amos CI. "Genome-wide imaging association study implicates functional activity and glial homeostasis of the caudate in smoking addiction". *BMC Genomics* (2017). DOI: 10.1186/s12864-017-4124-5

Invited talks:

1. "Integration of polygenic risk scores with social health for precision medicine". Festival of Genomics & Biodata. Boston, MA. 06/2024
2. "Multi-trait and multi-ancestry prediction of respiratory diseases". STATGEN 2024: Conference on Statistics in Genomics and Genetics; Pittsburgh, PA. 05/2024
3. "Big data for precision medicine: an integrative gene & environment approach in global biobanks". Feigin Rising Stars Symposium, Baylor College of Medicine. Houston, TX. 01/2024
4. "Comprehensive analyses of genetic and environmental factors in global biobanks". Center for Genomic Medicine Seminar Series, Massachusetts General Hospital. Boston, MA. 11/2023
5. "Prediction and stratification of disease risk through integrative multi-omics analysis of global biobanks". Faculty Retirement Conference, Dartmouth College; Hanover, NH 06/2023

Selected Platform Presentations:

1. Tu J, Fard P, Maihemuti M, Hu H, Yang S, Martin AR, Gusev A, Zhu H, Sun R, Patel CJ, Qian DC*, He Y*. "Neighborhood environmental exposures are associated with tumor genomic alterations and clinical outcomes across cancers. AACR Conference on The Science of Cancer Health Disparities, Atlanta, GA. 10/2026
2. Yang S, Wang Y, Mulford AJ, Dombrowska S, Eggers S, Dodson J, Favé MJ, Tu J, Hu H, Awadalla P, Sanders AR, Qian D, Hirbo J*, Martin A*, He Y*. "A Global-Biobank Analysis of Environmental and Genetic Risk Across Complex Diseases". Advances in Polygenic Precision Genomics (APPG) Symposium, virtual. 09/2026
3. Tu J, Taraszka K, Groha S, Lakhani CM, Martin AR, Patel CJ, Qian DC*, Gusev A*, He Y*. "Genetic Ancestry and Environmental Differences in Somatic Alterations and Clinical Outcomes for Five Common Cancers". ESHG Annual Meeting, Gothenburg, Sweden. 06/2026
4. Tu J, Taraszka K, Groha S, Lakhani CM, Martin AR, Qian DC, Patel CJ, Gusev A*, He Y*. "Genetic Ancestry and Environmental Differences in Somatic Alterations and Clinical Outcomes for Five Common Cancers". ASHG Annual Meeting, Boston, MA. 10/2025
5. He Y, Lu W, Jee YH, Wang Y, Tsuo K, Moll M, Cho MH, Martin AR. "Multi-trait and multi-ancestry genetic analysis of comorbid lung diseases and traits improves genetic discovery and polygenic risk prediction". ASHG Annual Meeting, Denver, CO. 11/2024
6. He Y, Lu W, Jee YH, Wang Y, Tsuo K, Moll M, Cho MH, Martin AR. "Multi-trait and multi-ancestry polygenic risk score approach improves genetic discovery and risk prediction of respiratory diseases". International Conference of Quantitative Genomics (ICQG7). Vienna, Austria. 07/2024
7. He Y, Patel CJ. "Polyexposure risk score offers greater predictive performance for COPD than polygenic score or smoking". IGES Annual Meeting. Paris, France. 08/2022

8. He Y, Lakhani CM, Rasooly D, Manrai AK, Tzoulaki I, Patel CJ. "Comparisons of Polyexposure, Polygenic, and Clinical Risk Scores in Risk Prediction of Type 2 Diabetes". ASHG Annual Meeting. Virtual. 10/2020
9. He Y, Lakhani CM, Manrai AK, Patel CJ. "Poly-Exposure Scores for Disease Prediction". UK Biobank Annual Meeting. London, UK. 07/2019
10. He Y, Lakhani CM, Manrai AK, Patel CJ. "Poly-Exposure Scores for Disease Prediction". NHGRI Research Training and Career Development Meeting. St. Louis, MO. 04/2019
11. He Y, Kodali A, Wallace, DI. "Mathematical Model of Tumor Growth In Vivo". Society for Industrial and Applied Mathematics (SIAM) Annual Meeting. Pittsburgh, PA. 06/2017

Selected Poster Presentations:

1. Yang S, Diao JA, Patel CJ, Ning MS, Yu B, Liao Z, Qian DC, He Y,. "Evolving Landscape of Cardiovascular Disease-Associated Mortality in Lung Cancer: A 25-Year National Population Analysis (1999-2024)." World Lung. Seoul, Korea. 09/2026
2. He Y, Diao JA, Martin AR, Manrai AK, Qian DC, Patel CJ. "SBG-LUNG: Integrating raw spirogram, blood markers, and genetic data in a hybrid learning model for lung cancer prediction". Symposium in Artificial Intelligence for Learning Health Systems. San Juan, Puerto Rico. 05/2024
3. He Y, Wang Y, Tsuo K, Martin AR. "Comprehensive polygenic prediction of respiratory diseases: a cross biobank multi-trait and multi-ancestry approach". ASHG Annual Meeting. Washington, D.C. 11/2023
4. He Y, Martin AR, Patel CJ. "Socioeconomic and environmental risk assessment of chronic obstructive pulmonary disease across smoking behaviors and populations". European Human Genetics Conference. Glasgow, Scotland, UK. 06/2023
5. He Y, Patel CJ. "PXStools: an R package for conducting exposure-wide analysis and deriving polyexposure risk scores". CHARGE Annual Meeting; Philadelphia, PA. 04/2022
6. He Y, Gusev A. "Genetic Ancestry Differences in Oncogenic Mutations and Driver Genes". ASHG Annual Meeting. Houston, TX. 10/2018

GRANT FUNDING:

Active Grant Awards

UTHealth Houston School of Public Health PRIME Award	\$25,000	2026-2027
PI: Yixuan He		

Completed Grant Awards

Mass General Brigham (MGB) Precision and Genomic Medicine Training Grant T32; 5T32HG010464, PI: Jordan Smoller, Heidi Rehm	\$56,880	2023–24
NSF Graduate Research Fellowship Program	\$102,000	2020–22
NHGRI Institutional National Training Grant T32; 5T32HG002295-17, PI: Peter Park	\$73,464	2018–20
AWS Cloud Credits, Amazon Web Services Research Grants Support for research through AWS promotional credits applicable to AWS services	\$2000	2018
Student Experiential Learning Fund, Center for Professional Development and the Dartmouth Center for the Advancement of Learning Fund to support "students' skill, confidence, and capacity building through unpaid or low-paid, intentional experiences"	\$5000	2017
Hellman Family Foundation Research Grant, Dartmouth College Support for full-time leave term research given to "projects in which students are intellectually engaged and playing a key role in the project"	\$5,200	2017
Neukom Travel Grant, William H. Neukom Institute for Computational Science Awarded to "excellent and deserving proposals" to students who presenting their research at conferences, workshops, or symposia	\$1,000	2017
Rockefeller Mini Grant, Nelson A. Rockefeller Center for Public Policy and the Social Sciences	\$300	2017

TEACHING:

Course Development Curriculum designed and taught by Dr. He

2026 PH2612: Introduction to Epidemiology, UTHealth Houston

2023 Global Initiative for Neuropsychiatric Genetics Education in Research (GINGER)

2019 – 2020 Topics in Translational Biomedical Informatics (BMI 722) Tutorials. Harvard Medical School

Guest Lectures

2023 BMI 704: Data Science for Medical Decision Making, Harvard Medical School

2019 – 2020 BMI 722: Topics in Translational Biomedical Informatics, Harvard Medical School

2019 Medlytics: Data Science for Health and Medicine, MIT Beaverworks Summer Institute

MENTORSHIP:

Ph.D. Students

1. Jiawei Tu. 2025 – . Department of Epidemiology, UTHealth Houston. Cancer genomics between populations.

Honors: ESHG 2026 Early Career Award Candidate (2026), AACR Scholar in Training Award (2026)

2. Huiying Hu. 2025 – . Department of Biostatistics, UTHealth Houston. Multi-omic prediction of common diseases.

Honors: Aurelia Murphy Killian Endowment in Public Health (2026)

3. Siqi Yang. 2025 – . Department of Epidemiology, UTHealth Houston. Genetic and environment interactions in disease phenotypes.

Honors: UTHealth Houston School of Public Health Doctoral Student Fellowship (2026)

4. Maihediya Maihemuti. 2025 – . Department of Epidemiology, UTHealth Houston. Patterns of lung cancer in never smokers.

Honors: UTHealth Outstanding New Student Scholarship (2026)

Undergraduate Students

1. Alethea Nagahara. 2025 – . BIG-TCR Training Program, UTHealth Houston. Currently undergraduate student at University of Southern California

2. Muhammad Rehan. 2025. UTHealth Houston SPH CPRIT Innovation in Cancer Prevention Summer Undergraduate Research Program. Multi-omic prediction of lung cancer in diverse populations. Currently master's student at Rice University.

3. Natalia Morado-Mata. 2023. All of Us Research Program Research Scholar Program. Currently undergraduate at University of Texas at San Antonio

Master's Student

1. Yixin Sun. 2026 – . Department of Biostatistics, Boston University. Developing methods integrate genetic and multi-omic data.

2. Pauline Gabrieli. 2020. Master of Medical Sciences (MMSc) in Biomedical Informatics, Harvard Medical School. Current medical student at Harvard Medical School.

SERVICE:

Ad-Hoc Reviewer	<i>Nature Genetics</i>	2025, 2026
Ad-Hoc Reviewer	<i>The American Journal of Human Genetics</i>	2025, 2026
Ad-Hoc Reviewer	<i>Nature Communications</i>	2025, 2026
Ad-Hoc Reviewer	<i>Science Translational Medicine</i>	2025
Ad-Hoc Reviewer	<i>Genome Biology</i>	2025
Ad-Hoc Reviewer	<i>New England Journal of Medicine AI</i>	2024
Ad-Hoc Reviewer	<i>Journal of Translational Medicine</i>	2023
Ad-Hoc Reviewer	<i>Diabetes Care</i>	2022
Ad-Hoc Reviewer	<i>Acta Diabetologica</i>	2021
Ad-Hoc Reviewer	<i>Diabetologia</i>	2021
Ad-Hoc Reviewer	<i>European Heart Journal</i>	2021
Panelist	Harvard DBMI SIBMI Trainee Workshop	2020, 2021
Program Representative	Harvard Medical School and Harvard Medical Visiting Committee	2021
Program Representative	Harvard Integrative Life Sciences welcome event	2020
Co-Chair	Harvard Graduate Women in Science (HGWISSE) mentoring program	2019 – 2021
Organizer	Monthly Research Seminar, Program in Bioinformatics and Integrative Genomics, Harvard Medical School	2019 – 2020

Planning Committee	Annual Retreat, Program in Bioinformatics and Integrative Genomics, Harvard Medical School	2019
Invited Panelist	Graduate Student Panel, Program in Bioinformatics and Integrative Genomics, Harvard Medical School	2019
Planning Committee	PhD Student Admissions Events, Program in Bioinformatics and Integrative Genomics, Harvard Medical School	2018 – 2019

AFFILIATIONS/MEMBERSHIP:

Member, American Human Genetics Society	2019 –
Associate, Program in Quantitative Genomics	2018 – 2022
Member, Landry Cancer Biology Consortium	2018 – 2022
Member, Association for Women in Mathematics	2016 – 2018
Member, Gamma Sigma Alpha National Academic Greek Honor Society	2016 – 2018