

Wei Zhao, PhD

Survey Research Center, Institute for Social Research
University of Michigan
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EDUCATION

- 2008** **Ph. D. Psychology (concentration: biopsychology and neuroscience)**
Department of Psychology, University of Michigan, Ann Arbor, MI
- 2006** **M. A. Statistics**
Department of Statistics, University of Michigan, Ann Arbor, MI
- 2005** **M. A. Psychology**
Department of Psychology, University of Michigan, Ann Arbor, MI
- 2003** **B. S. Psychology**
Honored graduate from the Elite Yuanpei Interdisciplinary Science Program
Peking University, Beijing, China

ACADEMIC APPOINTMENTS

- 2022-present **Research Assistant Professor**
Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, MI
Assistant Professor
Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor, MI
- 2019-2022 **Assistant Research Scientist**
Department of Epidemiology, University of Michigan, Ann Arbor, MI
- 2009-2018 **Research Area Specialist Lead**
Department of Epidemiology, University of Michigan, Ann Arbor, MI

CENTER AND PROGRAM AFFILIATIONS

- 2022-present Faculty member and Co-Investigator, Panel Study of Income Dynamics (PSID)
Institute for Social Research, University of Michigan, Ann Arbor, MI
- 2023-present Affiliate, Population Dynamics and Health Program
Institute for Social Research, University of Michigan, Ann Arbor, MI
- 2022-present Member, Precision Health Initiative
University of Michigan, Ann Arbor, MI
- 2022-present Affiliate, Eisenberg Family Depression Center
University of Michigan, Ann Arbor, MI
- 2019-present Affiliate, Michigan Center on the Demography of Aging (MiCDA)
Institute for Social Research, University of Michigan, Ann Arbor, MI
- 2019-present Affiliate, Population, Neurodevelopment, and Genetics Program (PNG)

Institute for Social Research, University of Michigan, Ann Arbor, MI

2019-present Affiliate (2022-present) and Core Faculty member (2019-2022)
Center for Social Epidemiology and Population Health (CSEPH)
School of Public Health, University of Michigan, Ann Arbor, MI

RESEARCH GRANTS

Current Grants

PDPH Pilot Grant University of Michigan	Zhao (PI) \$15,000 (Direct Costs)	04/18/25 – 04/30/26
Pilot project supporting feasibility of studying epigenetic signatures of early life adversity over the life course and across generation in the Panel Study of Income Dynamics. <i>Role: Principal Investigator</i>		
R03HD114686 NIH/NICHD	Zhao (PI) \$156,000 (Total Costs)	08/01/24 - 07/31/26
Enhancing and Archiving Genomic Data of the PSID Child Development Supplement <i>Role: Principal Investigator</i>		
R01AG079554 NIH/NIA	Galama/Faul (MPI) \$2,368,887 (Total Costs to UM Subcontract)	09/01/23 - 05/31/28
Genotyping the Understanding America Study to generate novel opportunities for research on cognitive functioning and dementia <i>Role: Co-Investigator</i>		
R25HD083146 NIH/NICHD	Insolera (PI) \$798,926 (Total Costs)	12/01/23-11/30/28
PSID, CDS, and TAS: Data Enhancement and Use Training, Support, and Outreach <i>Role: Co-Investigator</i>		
R01AG040213 NIH/NIA	Friedman (PI) \$12,688,757 (Total Cost)	06/01/21 - 02/01/26
Health and Well-being over the Life Course and Across Multiple Generations <i>Role: Co-Investigator</i>		
R01-HD069609 NIH/NICHD	Sastry (PI) \$3,329,042 (Total Cost)	04/01/21 - 01/31/26
Family Dynamics, Fertility, and Investments in Children across Generations <i>Role: Co-Investigator</i>		
R01HL156991 NIH/NHLBI	Rao (PI)/Zhao (subcontract PI) \$180,606 (Total Costs to UM Subcontract)	04/27/21 - 03/31/25
A multi-ancestry study of gene-lifestyle interactions and multi-omics in cardiometabolic traits <i>Role: Principal Investigator of UM subcontract</i>		
U01 AG064948 NIH/NIA	Lee/Kardia (MPI) \$2,268,745 (Total Costs to UM Subcontract)	09/15/19 - 08/31/25
Harmonized Diagnostic Assessment of Dementia (DAD) for Longitudinal Aging Study of India (LASI) – Genomic study. <i>Role: Co-Investigator</i>		

U01 AG009740 Weir (PI) 05/01/24 - 12/31/29
NIH/NIA \$195,122,882 (Total Costs)
Health and Retirement Study Years 35-40
Role: Co-Investigator

Population Dynamics and Health Program (PDHP) Zhao (PI) 06/01/24-05/30/25
University of Michigan \$15,500 (Direct Costs)
New Investigator Mentoring Award
Role: Primary mentee

Finished Grants

PDHP Mini-Seed Grant Zhao (PI) 10/15/23 – 05/30/24
University of Michigan \$3,500 (Direct Costs)
Evaluate imputation performance of SNIPAR – an algorithm that imputes parental genotypes
Role: Principal Investigator

U01 AG009740 Weir (PI) 01/01/18 - 12/31/23
NIH/NIA \$17,306,462 (Annual Direct Costs)
Health and Retirement Study Years 29-34
Role: Research staff

R01 AA026687 Birditt (PI) 09/20/19 – 08/31/23
NIH/NIAAAA \$411,863 (Annual Total Costs)
Alcohol consumption and cardiovascular health among older couples: The roles of genetics and marital quality
Role: Participating without effort

R00 AG056599 Schmitz (PI) 09/01/19 – 08/31/23
NIH/NIA \$494,218 (Total Direct Costs)
Life Course Determinants of Epigenetic Age Acceleration and Subsequent Dementia
Role: Participating without Effort

U01 AG017719 Harlow (PI) 09/15/16 - 05/31/22
NIH/NIA \$914,234 (Annual Direct Costs)
SWAN Repository IV
Role: Co-Investigator

R01 HL141292 Smith (PI) 04/01/18 - 01/31/22
NIH/NHLBI \$1,888,652 (Total Direct Costs)
A Social Epigenomic Approach to Health Disparities in Cardiovascular Risk Factors
Role: Co-Investigator

Social Sciences Annual Institute Becker (PI) 09/01/16 - 06/30/21
University of Michigan \$50,000 (Total Direct Cost)
Gender, Microhistories and Epigenetics: Focus on Stress and Addiction
Role: Co-Investigator

Mcubed 3.0 Diamond Project Zhou/Zhao/Zhang (MPI) 07/01/19 - 12/31/20
University of Michigan \$60,000 (Total Direct Costs)
Causal epigenetic mechanism underlying arteriosclerosis in African Americans
Role: Principal Investigator

MCubed 3.0 Project Zhao/Smith/Sen (MPIs) 03/21/19 - 12/31/20

Fall, 2004 **Graduate Student Instructor**, Introduction to Psychology (PSYCH 111), Department of Psychology, University of Michigan, Ann Arbor, MI

PRESENTATIONS AND GUEST LECTURES

- Mar. 13, 2025 “Quality control of genetic data” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Nov 13, 2024 “Polygenic risk scores for Alzheimer's disease and general cognitive function are associated with measures of cognition in older South Asians from LASI-DAD”, The Gerontological Society of America (GSA) 2024 Annual Scientific Meeting: This is the Year That was, The Best of the Journal of Gerontology Biological Sciences Symposium (invited presentation)
- Oct 25, 2024 “Saliva collection in Panel Study of Income Dynamics (PSID)”, PSID Board Meeting, Washington DC
- Sept. 11, 2024 “Update on Alzheimer’s Disease Genomics in LASI-DAD”, Longitudinal Study of Aging in Indian – Diagnostic Assessment of Dementia (LASI-DAD) Project Meeting, Washington DC
- June 12, 2024 “Structural and rare variants”, Genomics for Social Scientist Workshop, Institute for Social Research, University of Michigan, Ann Arbor, MI
- June 10, 2024 “Quality control for genomic data”, Genomics for Social Scientist Workshop, Institute for Social Research, University of Michigan, Ann Arbor, MI
- Apr. 17, 2024 “Genomic data in PSID”, Panel Study of Income Dynamics Workshop for New and Prospective Users. Population Association of America Annual Meeting, Columbus, OH
- Oct. 21, 2023 “Genetic predisposition to depression and its impact on children and adolescents: the Panel Study of Income Dynamics”, Annual Integrating Genetics and Social Sciences Conference, Boulder, CO
- June 8, 2023 “Examining direct and indirect genetic effects on depression in children and adolescents in the Panel Study of Income Dynamics (PSID)” The Advances in Social Genomics Conference, Madison, WI
- July 30, 2023 “Longitudinal Study of Aging in Indian – Diagnostic Assessment of Dementia (LASI-DAD): Whole Genome Sequencing”, Longitudinal Study of Aging in Indian – Diagnostic Assessment of Dementia (LASI-DAD) Project Meeting, Amsterdam, Netherlands
- Apr. 12, 2023 “Genomic Data in PSID”, Panel Study of Income Dynamics Workshop for New and Prospective Users. Population Association of America, New Orleans, LA
- Apr. 4, 2023 “Genome sequencing and rare variant analysis” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Mar. 9, 2023 “Quality control of genetic data” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Nov 8, 2022 “Introduction to ADSP Asian Cohorts and Progress – LASI-DAD” Alzheimer’s Disease Sequencing Project meeting (virtual)
- May 26, 2022 “Multi-omics approaches to the genetics of complex disease”, Institute for Social Research, University of Michigan, Ann Arbor, MI
- Apr. 5, 2022 “Genome sequencing and rare variant analysis” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI

- Mar. 10, 2022 “Quality control of genetic data” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Jul. 29, 2021 “Polygenic risk score for general cognitive function is associated with measures of cognition in South Asians from the LASI-DAD study”, The Alzheimer’s Association International Conference (AAIC) 2021: Genetic: Multi-ethnic Genetics of AD.
- Apr. 11, 2019 “Genome sequencing and rare variant analysis” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Apr. 9, 2019 “Genetic risk scores” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Mar. 19, 2019 “Quality control of genetic data” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Nov 15, 2018 “Multi-omics approaches to the genetics of complex disease”, Department of Epidemiology, University of Michigan, Ann Arbor, MI
- Mar. 8, 2018 “Quality control of genetic data” Genomics in Epidemiology (EPID 516), University of Michigan, Ann Arbor, MI
- Jun. 14, 2017 “SNP-based heritability” Genomics for Social Scientists Workshop, Institute for Social Research, University of Michigan, Ann Arbor, MI
- Jun. 12, 2017 “Quality control for genetic data” Genomics for Social Scientists Workshop, Institute for Social Research, University of Michigan, Ann Arbor, MI
- Oct. 21, 2016 “Social and psychosocial factors modify the effect of genetic variants on body mass index: a gene environment interaction analysis in longitudinal setting”, Annual Integrating Genetics and Social Sciences Conference, Boulder, CO
- Aug. 4, 2007 “Cocaine sensitization fails to enhance extracellular dopamine in striatum in both male and female rats”, Gordon Research Conference on Catecholamines, Oxford, UK

ADVISING/MENTORING

Ph.D. Dissertation Committees

Hasan Abu-Amara, Epidemiology, University of Michigan 2021-present
 Lisha Lin, Epidemiology, University of Michigan, 2021-2024
 Yi Zhe Wang, Epidemiology, University of Michigan, 2020-2024
 Dima Char, Epidemiology, University of Michigan, 2020-2023
 Farah Ammous, Epidemiology, University of Michigan, 2018-2021

PhD Level

Zheng Li, Biostatistics, University of Michigan, 2020-present
 Lauren Opsasnick, Epidemiology, University of Michigan, 2021-2024
 Christopher Crowe, Epidemiology, University of Michigan 2021-2023
 Lulu Shang, Biostatistics, University of Michigan, 2018-2023
 Kristen Kelly, Epidemiology, University of Michigan, 2019-2020

Master’s Level

Qiyu Yang, Survey and Data Science, University of Michigan, 2024-2025
 Lingxuan Zhu, Biostatistics, University of Michigan, 2024 summer
 Yifei Dai, Biostatistics, University of Michigan, 2023-2024
 Xinman Zhang, Epidemiology, University of Michigan, 2021-2022

Lisha Lin, Epidemiology, University of Michigan, 2019-2021
Amir Carter, Epidemiology, University of Michigan, 2020-2021
Yi Zhe Wang, Biostatistics, University of Michigan, 2018-2020
Kalee Rumfelt, Epidemiology, University of Michigan, 2019-2020
Kim Nguyen, Epidemiology, University of Michigan, 2019-2020
Kelli Peterman, Epidemiology, University of Michigan, 2019-2020
Jiaxuan Liu, Epidemiology, University of Michigan, 2016-2018

AD-HOC SCIENTIFIC JOURNAL REVIEW

BMC Medical Genomics, Human Genetics and Genomics Advances, PLOS One, Nutrition Metabolism and Cardiovascular Disease, International Journal of Obesity, Nutrients, International journal of environmental research and public health, Journal of women's health, Lipids in Health and Disease, Genes, Immunobiology Journal of Aging and Health, Biology of Sex Difference, Frontiers in Genetics, Aging, Frontiers in Endocrinology

PROFESSIONAL SERVICE

2024-2025 Abstract Reviewer, The Alzheimer's Association International Conference (AAIC)
2020-2022 Member, Admission Committee, Department of Epidemiology, University of Michigan
2019 Grant Reviewer, Precision Health Investigator Award, University of Michigan

PROFESSIONAL MEMBERSHIP

The Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment
The International Genetic Epidemiology Society
The American Society of Human Genetics
The Population Association of America

AWARDS

2024 Population Dynamics and Health Program's New Investigator Mentoring Award, University of Michigan
2023 Integrating Genetics and Social Science Conference Travel Grant
2023 The Advances in Social Genomics Conference Travel Grant
2016 Integrating Genetics and Social Sciences Conference Travel Grant
2007 Gordon Research Conference Travel Grant
2007 Rackham Predoctoral Fellowship, University of Michigan
2004-2007 Rackham Conference Travel Grant, University of Michigan
2001 Young Eagle Scholarship, Peking University
2000 Procter & Gamble Scholarship, Peking University

Peer Reviewed Publications

*(underlined author is a student/mentee; * Starred authors contributed equally to the work)*

1. Schmitz LL, Opsasnick LA, Ratliff SM, Faul JD, **Zhao W**, Hughes TM, Ding J, Liu Y, Smith JA. Epigenetic biomarkers of socioeconomic status are associated with age-related chronic diseases and mortality in older adults. *PNAS Nexus*. 2025 Apr 16;4(4): pgaf121. doi: 10.1093/pnasnexus/pgaf121. PMID: 40309465; PMCID:PMC12041747.
2. **Opsasnick LA**, **Zhao W**, Schmitz LL, Ratliff SM, Faul JD, Zhou X, Needham BL, Smith JA. Depressive symptoms partially mediate the relationship between psychosocial factors and epigenetic age acceleration in a multi-racial/ethnic sample of older adults. *Brain Behav Immun Health*. 2025 Apr 12;45:100994. doi:10.1016/j.bbih.2025.100994. PMID: 40291341; PMCID: PMC12022486.

3. Zhang X, Brody JA, Graff M et al (including **Zhao W**). Whole genome sequencing analysis of body mass index identifies novel African ancestry-specific risk allele. *Nat Commun*. 2025 Apr 11;16(1):3470. doi:10.1038/s41467-025-58420-2. PMID: 40216759; PMCID: PMC11992084.
4. Hatzikotoulas K, Southam L, Stefansdottir L et al (including **Zhao W**). Translational genomics of osteoarthritis in 1,962,069 individuals. *Nature*. 2025 Apr 9. doi: 10.1038/s41586-025-08771-z. Epub ahead of print. PMID: 40205036.
5. Nagarajan P, Winkler TW, Bentley AR et al (including **Zhao W**). A large-scale genome-wide study of gene-sleep duration interactions for blood pressure in 811,405 individuals from diverse populations. *Mol Psychiatry*. 2025 Apr 4. doi:10.1038/s41380-025-02954-w. Epub ahead of print. PMID: 40181193.
6. Chaar DL, Li Z, Shang L, Ratliff SM, Mosley TH, Kardia SLR, **Zhao W**, Zhou X, Smith JA. Multi-Ancestry Transcriptome-Wide Association Studies of Cognitive Function, White Matter Hyperintensity, and Alzheimer's Disease. *Int J Mol Sci*. 2025 Mar 9;26(6):2443. doi: 10.3390/ijms26062443. PMID: 40141087; PMCID:PMC11942532.
7. Roselli C, Surakka I, Olesen MS et al (including **Zhao W**). Meta-analysis of genome-wide associations and polygenic risk prediction for atrial fibrillation in more than 180,000 cases. *Nat Genet*. 2025 Mar;57(3):539-547. doi: 10.1038/s41588-024-02072-3. Epub 2025 Mar 6. PMID: 40050429.
8. Lin L, **Zhao W**, Li Z, Ratliff SM, Wang YZ, Mitchell C, Faul JD, Kardia SLR, Birditt KS, Smith JA. Poly-epigenetic scores for cardiometabolic risk factors interact with demographic factors and health behaviors in older US Adults. *Epigenetics*. 2025 Dec;20(1):2469205. doi: 10.1080/15592294.2025.2469205. Epub 2025 Feb 20. PMID: 39976511; PMCID: PMC11844928.
9. **Zhao W**, Lin L, Kelly KM, Opsasnick LA, Needham BL, Liu Y, Sen S, Smith JA. Epigenome-wide association study of perceived discrimination in the Multi-Ethnic Study of Atherosclerosis (MESA). *Epigenetics*. 2025 Dec;20(1):2445447. doi:10.1080/15592294.2024.2445447. Epub 2025 Jan 18. PMID: 39825881.
10. Chaar DL, Tu L, Moore K, Du J, Opsasnick LA, Ratliff SM, Mosley TH, Kardia SLR, **Zhao W**, Zhou X, Diez Roux AV, Faruque FS, Butler KR, Smith JA. Neighborhood environment associations with cognitive function and structural brain measures in older African Americans. *BMC Med*. 2025 Jan 13;23(1):15. doi:10.1186/s12916-024-03845-7. PMID: 39800688; PMCID: PMC11727707.
11. Bui H, Keshawarz A, Wang M et al (including **Zhao W**). Association analysis between an epigenetic alcohol risk score and blood pressure. *Clin Epigenetics*. 2024 Oct 28; 16(1):149. PMID: 39468603.
12. Opsasnick LA, **Zhao W**, Schmitz LL, Ratliff SM, Faul JD, Zhou X, Needham BL, Smith JA. Epigenome-wide association study of long-term psychosocial stress in older adults. *Epigenetics*. 2024 Dec;19(1):2323907. Epub 2024 Mar 3. PMID: 38431869; PMCID: PMC10913704.
13. Lundin JI, Peters U, Hu Y et al (including **Zhao W**). Methylation patterns associated with C-reactive protein in racially and ethnically diverse populations. *Epigenetics*. 2024 Dec;19(1):2333668. Epub 2024 Apr 3. PMID: 38571307; PMCID: PMC10996836.
14. Huffman JE, Nicholas J, Hahn J et al (including **Zhao W**). Whole-genome analysis of plasma fibrinogen reveals population-differentiated genetic regulators with utative liver roles. *Blood*. Epub 2024 Sept 3. PMID: 39226462;

15. Stoldt M, Ammous F, Lin L, Ratliff SM, Ware EB, Faul JD, **Zhao W**, Kardia SLR, Smith JA. DNA methylation at C-Reactive Protein-Associated CpG Sites may mediate the pathway between educational Attainment and Cognition. *J Gerontol A Bio Sci Med Sci*. 2024 Aug 1; 79 (8). PMID: 38896024; PMCID: PMC11250242.
16. Wang YZ, **Zhao W**, Moorjani P, Gross AL, Zhou X, Dey AB, Lee J, Smith JA, Kardia SLR. Effect of apolipoprotein E ϵ 4 and its modification by sociodemographic characteristics on cognitive measures in South Asians from LASI-DAD. *Alzheimers Dement*. 2024 July; 20(7): 4854-4867. PMID: 38889280; PMCID: PMC11247697.
17. Hrytsenko Y, Shea B, Elgart M et al (including **Zhao W**). Machine learning models for predicting blood pressure phenotypes by combining multiple polygenic risk scores. *Sci Rep*. 2024 May 30; 14(1):12436. PMID: 38816422; PMCID: PMC11139858.
18. Lin L, Kiryakos J, Ammous F, Ratliff SM, Ware EB, Faul JD, Kardia SLR, **Zhao W**, Birditt KS, Smith JA. Epigenetic age acceleration is associated with blood lipid levels in a multi-ancestry sample of older U.S. adults. *BMC Med Genomics*. 2024 May 27; 17 (1):146. PMID: 38802805; PMCID: PMC11129464.
19. Gao T, Zheng Y, Joyce BT, Kho M, Terry JG, Wang J, Nannini D, Carr JJ, Nair S, Zhang K, **Zhao W**, Jacobs DR Jr, Schreiner PJ, Greenland P, Lloyd-Jones D, Smith JA, Hou L. Epigenetic Aging Is Associated With Measures of Midlife Muscle Volume and Attenuation in CARDIA Study. *J Gerontol A Biol Sci Med Sci*. 2024 Mar 1;79(3). PMID: 37956337; PMCID: PMC10876078.
20. Mei H, Simino J, Li L et al (including **Zhao W**). Multi-omics and pathway analyses of genome-wide associations implicate regulation and immunity in verbal declarative memory performance. *Alzheimers Res Ther*. 2024 Jan 20;16(1):14. PMID: 38245754; PMCID: PMC10799499.
21. Armstrong ND, Srinivasasainagendra V, Ammous F et al (including **Zhao W**). Whole genome sequence analysis of apparent treatment resistant hypertension status in participants from the Trans-Omics for Precision Medicine program. *Front Genet*. 2023 Dec 13; 14:1278215. PMID: 38162683; PMCID: PMC10755672.
22. de Vries PS, Conomos MP, Singh K et al (including **Zhao W**). Whole-genome sequencing uncovers two loci for coronary artery calcification and identifies ARSE as a regulator of vascular calcification. *Nat Cardiovasc Res*. 2023 Dec; 2(12):1159-1172. PMID: 38817323; PMCID: PMC11138106.
23. Schmitz LL, Duffie E, **Zhao W**, Ratliff SM, Ding J, Liu Y, Merkin SS, Smith JA, Seeman T. Associations of Early-Life Adversity With Later-Life Epigenetic Aging Profiles in the Multi-Ethnic Study of Atherosclerosis. *Am J Epidemiol*. 2023 Nov 10;192(12):1991-2005. PMID: 37579321; PMCID: PMC10988110.
24. de Las Fuentes L, Schwander KL, Brown MR et al (including **Zhao W**). Gene-educational attainment interactions in a multi-population genome-wide meta-analysis identify novel lipid loci. *Front Genet*. 2023 Nov 2;14:1235337. PMID: 38028628; PMCID: PMC10651736.
25. Willems SM, Ng NHJ, Fernandez J et al (including **Zhao W**). Large-scale exome array summary statistics resources for glycemic traits to aid effector gene prioritization. *Wellcome Open Res*. 2023; 8:483. PMID: 39280063; PMCID: PMC11399760.
26. Liu X, Sun X, Zhang Y, et al (including **Zhao W**). Association between Whole Blood-Derived Mitochondrial DNA Copy Number, Low-Density Lipoprotein Cholesterol, and Cardiovascular Disease Risk. *J Am Heart Assoc*. 2023 Oct 17;12(20):e029090. Epub 2023 Oct 7. PMID: 37804200; PMCID: PMC10757530.
27. Wang Y, Selvaraj MS, Li X, et al (including **Zhao W**). Rare variants in long non-coding RNAs are associated with blood lipid levels in the TOPMed whole-genome sequencing study. *Am J Hum Genet*. 2023 Oct 5;110(10):1704-1717. PMID: 37802043; PMCID: PMC10577076.
28. Van de Vegte YJ, Eppinga RN, van der Ende MY et al (including **Zhao W**). Genetic insights into resting heart rate and its role in cardiovascular disease. *Nat Commun*. 2023 Aug 2;14(1):4646. PMID: 37532724; PMCID: PMC10397318.

29. Shang L, Zhao W, Wang YZ, Li Z, Choi JJ, Kho M, Mosley TH, Kardia SLR, Smith JA, Zhou X. meQTL mapping in the GENOA study reveals genetic determinants of DNA methylation in African Americans. *Nat Commun*. 2023 May 11;14(1):2711. PMID: 37169753; PMCID: PMC10175543.
30. Zhao W*, Smith JA*, Wang YZ, Chintalapati M, Ammous F, Yu M, Moorjani P, Ganna A, Gross A, Dey S, Banerjee J, Chatterjee P, Dey AB, Lee J, Kardia SLR. Polygenic risk scores for Alzheimer's disease and general cognitive function are associated with measures of cognition in older South Asians from LASI-DAD. *J Gerontol A Biol Sci Med Sci*. 2023 May 11; 78(5):743-752. PMID: 36782352.
31. Zhang Y, Liu X, Wiggins KL et al (including Zhao W). Association of Mitochondrial DNA Copy Number With Brain MRI Markers and Cognitive Function: A Meta-analysis of Community-Based Cohorts. *Neurology*. 2023 May 2; 100 (18):e1930-e1943. Epub 2023 Mar 16. PMID: 36927883; PMCID: PMC10159770.
32. Mathieson I, Day FR, Barban N et al (including Zhao W) Genome-wide analysis identifies genetic effects on reproductive success and ongoing natural selection at the FADS locus. *Nat Hum Behav*. 2023 May; 7(5):790-801. PMID: 36864135.
33. Chen J, Hui Q, Wang Z, Wilson FP, So-Armah K, Freiberg MS, Justice AC, Xu K, Zhao W, Ammous F, Smith JA, Kardia SLR, Gwinn M, Marconi VC, Sun YV. Epigenome-Wide Meta-Analysis Reveals Differential DNA Methylation Associated With Estimated Glomerular Filtration Rate Among African American Men With HIV. *Kidney Int Rep*. 2023 May; 8(5):1076-1086. PMID: 37180517; PMCID: PMC10166785.
34. Hahn J, Bressler J, Domingo-Relloso A et al (including Zhao W). DNA methylation analysis is used to identify novel genetic loci associated with circulating fibrinogen levels in blood. *J Thromb Haemost*. 2023 May; 21(5):1135-1147. PMID: 36716967.
35. Yang Y, Knol MJ, Wang R et al (including Zhao W). Epigenetic and integrative cross-omics analyses of cerebral white matter hyperintensities on MRI. *Brain*. 2023 Feb 13; 146(2):492-506. PMID: 35943854; PMCID: PMC9924914.
36. Chen F, Wang X, Jang SK et al (including Zhao W). Multi-ancestry transcriptome-wide association analyses yield insights into tobacco use biology and drug repurposing. *Nat Genet*. 2023 Feb; 55(2):291-300. PMID: 36702996; PMCID: PMC9925385.
37. Lee J, Petrosyan S, Khobragade P, Banerjee J, Chien S, Weerman B, Gross A, Hu P, Smith JA, Zhao W, Aksman L, Jain U, Shanthi GS, Kurup R, Raman A, Chakrabarti SS, Gambhir IS, Varghese M, John JP, Joshi H, Koul PA, Goswami D, Talukdar A, Mohanty RR, Yadati YSR, Padmaja M, Sankhe L, Rajguru C, Gupta M, Kumar G, Dhar M, Jovicich J, Ganna A, Ganguli M, Chatterjee P, Singhal S, Bansal R, Bajpai S, Desai G, Bhatankar S, Rao AR, Sivakumar PT, Muliya KP, Sinha P, Loganathan S, Meijer E, Angrisani M, Kim JK, Dey S, Arokiasamy P, Bloom DE, Toga AW, Kardia SLR, Langa K, Crimmins EM, Dey AB. Deep phenotyping and genomic data from a nationally representative study on dementia in India. *Sci Data*. 2023 Jan 20; 10(1):45. PMID: 36670106; PMCID: PMC9852797.
38. Li X, Quick C, Zhou H et al (including Zhao W). Powerful, scalable and resource-efficient meta-analysis of rare variant associations in large whole genome sequencing studies. *Nat Genet*. 2023 Jan; 55(1):154-164. PMID: 36564505; PMCID: PMC10084891.
39. Taylor JY, Huang Y, Zhao W, Wright ML, Wang Z, Hui Q, Potts-Thompson S, Barcelona V, Prescott L, Yao Y, Crusto C, Kardia SLR, Smith JA, Sun YV. Epigenome-wide association study of BMI in Black populations from InterGEN and GENOA. *Obesity (Silver Spring)*. 2023 Jan; 31(1):243-255. PMID: 36479596; PMCID: PMC10107734.
40. Kanoni S, Graham SE, Wang Y (including Zhao W). Implicating genes, pleiotropy, and sexual dimorphism at blood lipid loci through multi-ancestry meta-analysis. *Genome Biol*. 2022 Dec 27; 23(1):268. PMID: 36575460; PMCID: PMC9793579.

41. Xu H, Nguyen K, Gaynor BJ et al (including **Zhao W**). SiGN Consortium. Exome Array Analysis of 9721 Ischemic Stroke Cases from the SiGN Consortium. *Genes (Basel)*. 2022 Dec 24; 14(1):61. PMID: 36672803; PMCID: PMC9858999.
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Technical Reports and Other Publications

1. Faul J, Collins S, Smith JA, **Zhao W**, Kardia SLR, Weir D. APOE and Serotonin Transporter Alleles – Early Release, August 2021.
2. Weir D, Faul JD, Kardia SLR, Smith JA, **Zhao W**. Health Retirement Study: Quality Control Report for Genotypic Data – Phase 4 Release, November 2021.
3. Weir D, Faul JD, Kardia SLR, Smith JA, **Zhao W**, Jhun MA. Health Retirement Study: Combined Phase 1-4 Imputation report – HRC reference panel, November 2021.
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5. Smith JA, **Zhao W**, Yu M, Dey AB, Lee J, Kardia SLR. Diagnostic assessment of dementia for LASI: Quality Control Report for the 2019 Genome-wide genotype data. March 2021.
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Conference Abstracts

1. **Zhao W**, Li Z, Zhou X, Moorjani P, Dey S, Lee J, Smith JA, Dey AB, Kardia SLR. A reference panel for linkage disequilibrium and genotype imputation using whole-genome sequencing data from 2680 LASI-DAD participants across India. American Society of Human Genetics, Denver, CO, Nov 2024
2. Wang YZ, **Zhao W**, Kerdoncuff E, Li Z, Moorjani P, Gross AL, Zhou X, Dey S, Dey AB, Lee J, Smith JA, Kardia SLR., Geographic and ancestral variations in the association between APOE ϵ 4 and cognitive function in South Asians from LASI-DAD. The Alzheimer's Association International Conference (AAIC), Philadelphia, PA, July 2024

3. Abu-Amara H, **Zhao W**, Li Z, Leung YY, Schellenberg GD, Wang L, Moorjani P, Dey AB, Dey S, Zhou X, Gross AL, Lee J, Kardia SLR, Smith JA. Indian-enriched genetic variants are associated with cognitive function. The Alzheimer's Association International Conference (AAIC), Philadelphia, PA, July 2024
4. Schmitz L, Opsasnick L, Ratliff S, Faul J, **Zhao W**, Smith J. Epigenetic biomarkers of socioeconomic status are associated with age-related chronic diseases and mortality in older adults. Population Association of America Annual Meeting, Columbus, OH, April 2024.
5. **Zhao W**, Wang YZ, Kerdoncuff E, Li Zheng, Moorjani P, Gross AL, Zhou X, Dey S, Dey AB, Lee J, Smith JA, Kardia SLR. Sociodemographic and ancestral variation in the association between APOE ϵ 4 and cognitive function in South Asians from LASI-DAD. The Alzheimer's Disease Sequence Project Program Review Meeting. Washington DC, March 2024.
6. Lin L, **Zhao W**, Birditt K, Smith JA. Methylation risk score are associated with cardiovascular risk factors in older U.S. adults. The Gerontological Society of American Annual Meeting, Tampa, FL, Nov 2023
7. **Zhao W**, Lin L, Kelly K, Opsasnick L, Needham B, Liu Y, Diez Roux A, Sen S, Smith JA. Epigenome-wide association study of perceived discrimination in the Multi-Ethnic Study of Atherosclerosis (MESA). American Society of Human Genetics, Washington DC, Oct 2023
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9. Wang YZ, **Zhao W**, Dey AB, Lee J, Smith JA, Kardia SLR. Effect of APOE ϵ 4 and its modification by sociodemographic characteristics on cognitive measures in South Asians from LASI-DAD. The Alzheimer's Association International Conference (AAIC), Amsterdam, Netherland, July 2023
10. Abu-Amara H, **Zhao W**, Li Z, Dey AB, Zhou X, Lee J, Kardia SLR, Smith JA. Gene-Based Analysis with functional annotation in 2680 South Asians from the LASI-DAD study, The Alzheimer's Association International Conference (AAIC), Amsterdam, Netherland, July 2023
11. **Zhao W**, Urban-Wojcik E, Seewald M, Satry N. Examining direct and indirect genetic effects on depression in children and adolescents in the Panel Study of Income Dynamics (PSID). The Advances in Social Genomics Conference Series (TAGC), Madison, WI, June 2023
12. Opsasnick LA, Ratliff SM, Faul JD, Schmitz L, **Zhao W**, Smith JA. Epigenome-wide association study of long-term psychosocial stress in older adults. The Advances in Social Genomics Conference Series (TAGC), Madison, WI, June 2023
13. Smith JA, Opsasnick L, Ratliff SM, Faul JD, **Zhao W**, Schmitz L. Epigenetic biomarkers of childhood and later life socioeconomic status are associated with age-related chronic diseases and mortality in older adults, The Advances in Social Genomics Conference Series (TAGC), Madison, WI, June 2023
14. Opsasnick LA, Ratliff SM, Faul JD, **Zhao W**, Smith JA. Epigenome-wide association study of long-term psychosocial stress in older adults. NHGRI Research Training & Career Development Annual Meeting, Salt Lake City, UT, April 2023.
15. Shang L, **Zhao W**, Wang YZ, LI Z, Choi JJ, Kho M, Mosley TH, Kardia SLR, Zhou X. Genetic determinants of DNA methylation in African Americans: An meQTL mapping study in GENOA. American Society of Human Genetics, Los Angeles, CA, October 2022.
16. Zhang X, Ammous F, Lin L, Ratliff S, **Zhao W**, Kardia SLR, Smith JA. The interplay of epigenetic, genetic, and traditional risk factors on blood pressure: Findings from the Health and Retirement Study. American Society of Human Genetics, Los Angeles, CA, October 2022.

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18. **Zhao W**, Carter A, Bares C, Lin L, Reed BG, Bowden M, Zucker RA, Smith JA, Becker JB. Sex specific and generational effects of alcohol use and tobacco smoking on epigenetic age acceleration in the Michigan Longitudinal Study. American Society of Human Genetics (Virtual), October 2021 (**featured in press release**)
19. Li Z, **Zhao W**, Shang L, Mosley TH, Kardia SLR, Smith JA, Zhou X. The METRO method improves identification of gene-disease associations through multi-ancestry transcriptome-wide association studies. American Society of Human Genetics (Virtual), October 2021.
20. Smith JA, Kho M, Bressler J, Sarnowski C, **Zhao W**, Chaar D, Wang YZ, Bis J, Fornage M, Seshadri S, on behalf of the TOPMed Neurology Working Group. Whole genome sequencing analysis of general cognitive function in a multi-ethnic sample from the Trans-Omics for Precision Medicine (TOPMed) Program. American Society of Human Genetics (Virtual), October 2021
21. Ammous F, **Zhao W**, Lin L, Ratliff SM, Mosley TH, Bielack LF, Zhou X, Peyser PA, Kardia SLR, Smith JA. Epigenetics of single and multisite atherosclerosis in African Americans from the Genetic Epidemiology Network of Arteriopathy (GENOA). American Society of Human Genetics (Virtual), October 2021
22. **Zhao W**, Smith JA, Yu M, Moorjani P, Ganna A, Dey AB, Lee J, Kardia SLR. Polygenic risk score for general cognitive function is associated with measures of cognition in South Asians from the LASI-DAD study. The Alzheimer's Association International Conference, Denver, CO, July 2021 (**featured oral presentation in the session "Genetics: Multi-ethnic Genetics of AD"**)
23. Smith JA, **Zhao W**, Yu M, Moorjani P, Ganna A, Dey AB, Lee J, Kardia SLR. Common and rare variants in topologically associated domains for cognitive function in South Asians from the LASI-DAD study. The Alzheimer's Association International Conference (Virtual), July 2021.
24. Smith JA, **Zhao W**, Peyser PA, Crandall CJ, Thuston RC, Ruiz-Narvaez E, Yu M, Hood MM, Kardia SLR, Harlow SD. Genetics of reproductive timing are associated with vasomotor symptom trajectories at the menopausal transition in women of multiple ethnicities. American Society of Human Genetics (Virtual), October 2020.
25. Wang YZ, **Zhao W**, Song Y, Ratliff SM, Kelly KJ, Needham BL, Diez Roux AV, Liu Y, Faruque F, Butler KR, Kardia SLR, Mukherjee B, Zhou X, Smith JA. DNA Methylation Mediates the Association between Individual and Neighborhood Social Disadvantage and Cardiovascular Risk Factors. American Society of Human Genetics (Virtual), October 2020.
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27. Shang L, Smith JA, **Zhao W**, Turner ST, Mosley TH, Kardia SLR, Zhou X. Genetic determinants of DNA methylation and gene expression in African Americans: An mQTL mapping study in GENOA. American Society of Human Genetics (Virtual), October 2020.
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33. Faul JA, Kho M, **Zhao W**, Rumfelt KE, Mitchell C, Smith JA. Trans-ethnic meta-analysis of interactions between genetics and early life socioeconomic status on memory performance and decline in older Americans. Alzheimer's Association International Conference (Virtual), July 2020.
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35. **Zhao W**, Ammous F, Ratliff S, Mosley TH, Kardia SLR, Smith JA. The association between common risk factors for age-related disease and DNA methylation clocks in an African American population. International Genetic Epidemiology Society, Houston, TX, October 2019
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37. **Zhao W**, Smith JA, Bielak LF, Ruiz-Narvaez E, Yu M, Hood MM, Peyser PA, Kardia SLR, Harlow SD. The association between genetic risk score for age at menarche or menopause and women's reproductive health-related traits in the Study of Women's Health Across the Nation. American Society of Human Genetics, Houston, TX, October 2019
38. Smith JA, Shang L, **Zhao W**, Turner ST, Mosley TH, Kardia SLR, Zhou X. Contrasting the genetic architecture underlying gene expression levels in European American and African Americans: An eQTL mapping study in GENOA. American Society of Human Genetics, Houston, TX, October 2019
39. Kho M, Ratliff SM, Ammous F, **Zhao W**, Mosley TH, Kardia SLR, Zhou X, Smith JA. Epigenetic loci for blood pressure are associated with hypertensive target organ damage in an older African American population. International Genetic Epidemiology Society, Houston, TX, October 2019
40. Ammous F, **Zhao W**, Ratliff SM, Mosley TH, Kardia SLR, Zhou X, Smith JA. Epigenome-wide association study identifies DNA methylation sites associated with target organ damage in elderly African Americans. American Heart Association: Hypertension, New Orleans, LA, September 2019
41. Liu X, Wiggins K, Raffield L, Bielak L, **Zhao W**, Smith JA, Pitsillides A, Guo X, Heckbert S, Seshadri S, Fitzpatrick AL, Fornage M, Psaty B, Wilson J, Levy D, Rotter J, Bis JC, Satizabal CL, Liu C. Association analysis of mitochondrial DNA copy number and metabolic disease phenotypes. Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) Meeting, St Louis, MO, June 2019
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