

# Ky'Era V. Actkins

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## EDUCATION

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- 2021     **Ph.D.**     **Meharry Medical College**, Nashville, TN  
Biomedical Sciences with High Honors  
Concentration: Physiology and Human Genetics  
Dissertation: *Leveraging Electronic Health Records to Disentangle Clinical and Genomic Risk of Polycystic Ovary Syndrome on Diverse Populations*
- 2016     **B.S.**     **The University of Alabama**, Tuscaloosa, AL  
Biology with Honors

## EXPERIENCE

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**Postdoctoral Fellow**, National Institute of Environmental Health Sciences, National Institutes of Health

Research Triangle Park, NC | November 2021 – Present

- Analyze genetic and environmental risk factors for uterine fibroids in a prospective study of Black/African-American women

**Postdoctoral Visiting Research Fellow**, Vanderbilt University Medical Center

Nashville, TN | January 2022 – Present

- Investigate women's health conditions in diverse populations using a large-scale hospital biobank with over 3 million patients

**Data Analytics Intern**, ObjectiveHealth

Franklin, TN | October 2019 – May 2020

- Curated a medical record database to identify patients at high risk for non-alcoholic steatohepatitis (NASH)

## PUBLICATIONS

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\* Contributed equally

### Articles in Refereed Journals

1. Meng X\*, Navoly G\*, Giannakopoulou O\*, Levey D, Koller D, Pathak G, Koen N, Lin K, Rentería ME, Feng Y, Gaziano JM, Stein DJ, Zar HJ, Campbell ML, van Heel DA, Trivedi B, Finer S, McQuillin A, Bass N, Chundru VK, Martin H, Huang QQ, Valkovskaya M, Kuo PH, Chen HC, Tsai SJ, Liu YL, Kendler KS, Peterson RE, Cai N, Fang Y, Sen S, Scott L, Burmeister M, Loos R, Preuss M, **Actkins KV**, Davis LK, Uddin M, Wani A, Wildman W, Aiello A, Ursano RJ, Kessler RC, Kanai M, Okada Y, Sakaue S, Rabinowitz J, Maher B, Uhl G, Eaton W, Cruz-Fuentes CS, Martinez-Levy GA, Campos AI, Millwood IY, Chen Z, Li L, Wassertheil-Smoller S, Jiang Y, Tian C, Martin NG, Mitchell BL, Byrne EM, Wray NR, Awasthi S, Coleman JRI, Ripke S, PGC MDD Working Group, China Kadoorie Biobank Collaborative Group, the 23andMe Research Team, Genes & Health Research Team, Sofer T, Walters RG, Polimanti R, Dunn EC, Stein MB, Gelernter J, Kuchenbaecker K. Including samples of diverse ancestry in a genome-wide association study of major

depression aids locus discovery, fine-mapping, gene prioritization, and causal inference. *Nature Genetics*. In press. Preprint DOI: [10.1101/2022.07.20.500802](https://doi.org/10.1101/2022.07.20.500802)

2. **Actkins KV**, Jean-Pierre G, Velez Edwards DR, Aldrich MC, and Davis LK. Sex Modifies the Effect of Genetic Risk Scores for Polycystic Ovary Syndrome on Metabolic Phenotypes. *PLOS Genetics*. 19(5):e1010764. PMID: 37256887
3. **Actkins KV**, Srinivasan S, Spees LP, Turbitt E, Allen CG, and Roberts MC. (2021) Uptake of Genetic Testing Among Patients with Cancer at Risk for Lynch Syndrome in the National Health Interview Survey. *Cancer Prevention Research*. 14(10):927-932. PMID: 34341014
4. **Actkins KV\***, Beasley HK\*, Faucon AB\*, Davis LK, and Sakwe AM. (2021) Calcium-Sensing Receptor Polymorphisms at rs1801725 are Associated with Increased Risk of Secondary Malignancies. *Journal of Personalized Medicine*. 11(7):642. PMID: 34357109
5. Dennis JK, Sealock JM, Straub P, Hucks D, **Actkins K**, Faucon A, Feng YA, Ge T, Goleva S, Nirachou M, Singh K, Morley T, Smoller JW, Ruderfer DM, Mosley JD, Chen G, and Davis LK. (2021) Clinical laboratory test-wide association scan of polygenic scores identifies biomarkers of complex disease. *Genome Medicine*. 13(6). PMID: 33441150
6. **Actkins KV**, Singh K, Hucks D, Velez Edwards DR, Aldrich M, Cha J, Wellons M, and Davis LK. (2021) Characterizing the clinical and genetic spectrum of polycystic ovary syndrome in electronic health records. *The Journal of Clinical Endocrinology & Metabolism*. 106(1):153-167. PMID: 32961557
7. Zhang Y, Ho K, Keaton JM, Hartzel DN, Day F, Justice AE, Pendergrass SA, **Actkins K**, Davis LK, Velez Edwards DR, Holohan B, Ramirez A, Stanaway IB, Crosslin DR, Jarvik GP, Sleiman P, Hakonarson H, Williams MS, and Michael Lee MT. (2020) A genome-wide association study of polycystic ovary syndrome identified from electronic health records, *American Journal of Obstetrics and Gynecology*. 223(4):559.e1-559.e21. PMID: 32289280
8. Joo YY, **Actkins K**, Pacheco JA, Basile AO, Carroll RJ, Crosslin DR, Day F, Denny JC, Velez Edwards DR, Hakonarson H, Harley JB, Hebring SJ, Ho K, Jarvik GP, Jones M, Karden T, Mentch FD, Meun C, Pendergrass S, Ritchie MD, Stanaway IB, Urbanek M, Walunas TL, Smith ME, Chisholm RL, International PCOS Consortium, Kho AN, Davis L, and Hayes MG (2020) A polygenic and phenotypic risk prediction for Polycystic Ovary Syndrome evaluated by Phenome-wide association studies, *The Journal of Clinical Endocrinology & Metabolism*. 105(6):1918–1936. PMID: 31917831

#### Commentary

9. Harmon QE, **Actkins KV**, and Baird DD. Fibroid Prevalence: Still so Much to Learn. *JAMA Network Open*. PMID: 37163271

#### Manuscripts Under Review

10. Mbarek H, Gordon SD, Mortlock S, Duffy DL, Beck JJ, Nikki Hubers, Hottenga J, Pool R, Dolan CV, **Actkins KV**, Gerring ZF, van Dongen J, Ehli EA, Iacono WG, McGue M, Chasman DI, Gallagher CS, Schilit SLP, Morton CC, Paré G, Willemsen G, Whiteman DC, Olsen CM, Derom C, Vlietinck R, Gudbjartsson D, Cannon-Albright L, Krapohl E, Plomin R, Magnusson PKE, Pedersen NL, Hysi P, Mangino M, Spector TD, Palviainen T, Milanesch Y, Penninx BW, Campos AI, Ong KK, Perry JRB, Lambalk CB, Kaprio J, Ólafsson I, Duroure K, Revenu C, Rentería ME, Yengo L, Davis L, Derks EM, Medland SE, Stefansson H, Stefansson K, Bene FD, Reversade B, Montgomery GW, Boomsma DI\*, Martin NG\*. GWAS meta-analysis of dizygotic twinning illuminates genetic regulation of female fecundity.
11. **Actkins KV**, Stallings S, Rao JS, Aldrich MC, Bland S, Straub P, Benn-Torres J, Cox NJ, Wilkins C, and Davis LK. Racism in the residuals: Disentangling the health effects of race and genetic ancestry.

12. Carmona D\*, Adarve I\*, Marshall AG, Vue Z, Hall DD, Miller-Fleming TW, **Actkins KV**, Beasley HK, Almonacid PM, Barturen-Larrea P, Wells QS, Lopez MG, Garza-Lopez E, Mobley BC, Dai D, Shao J, Neikirk K, Billings FT, Curci JA, Davis LK, Cox NJ, Gama V, Hinton, Jr. A, Gomez JA. Sox6 Expression is Linked to Abdominal and Thoracic Aortic Aneurysm. Preprint DOI: [10.1101/2022.05.23.22275278](https://doi.org/10.1101/2022.05.23.22275278)
13. **Actkins KV**, Velez Edwards DR, Aldrich MC, Cha J, Wellons M, and Davis LK. Comorbidity Differences by Race and Ethnicity in Polycystic Ovary Syndrome Patients.
14. Burns KA, Mullin BH, Moolhuijsen LME, Laisk T, Tyrmi JS, Cui J, **Actkins KV**, Louwers Y, Metspalu A, Milani L, Esko T, Nelis M, Hudjashov G, Davis LK, Daly M, Dudbridge F, Azziz R, Goodarzi MO, Laivuori H, Mägi R, Visser J, Laven JSE, Wilson SG, International PCOS Consortium, Day F, Lindgren C, Stuckey BGA. Body mass index stratified meta-analysis of genome-wide association studies of polycystic ovary syndrome in women of European ancestry.
15. Vue Z\*, Neikirk K\*, Vang L\*, Garza-Lopez E, Christensen TA, ShaoJ, Lam J, Beasley HK, Marshall AG, Crabtree A, Anudokem, Jr. J, Rodriguez B, Kirk B, Bacevac S, Barongan T, Shao B, Stephens DC, Kabugi K, Koh H, Koh A, Evans CS, Taylor B, Reddy AK, Miller-Flemming T, **Actkins KV**, Daneshgar N, Murray SA, Mobley BC, Damo S, Gaddy JA, Riggs B, Wanjalla C, Gomez JA, Phillips MA, Exil V\*, Dai D\*, Hinton, Jr A\*. Three-Dimensional Mitochondria Reconstructions of Murine Cardiac Muscle Changes in Size Across Aging.

## INVITED PRESENTATIONS

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1. Advocating for Diversity, Equity, and Inclusion in Genetics, Spring 2022 UConn Institute for Systems (ISG) Genomics Genome Ambassadors Program Seminar Series, University of Connecticut, Virtual, 03/2022
2. The Road to Health Equity: How Electronic Health Records Uncovered Disparities for Polycystic Ovary Syndrome, The Diversity and Science Lecture Series at the University of California San Diego, Virtual, 04/2021
3. Clinical and Genomic Data Integration Elucidates Polycystic Ovary Syndrome Etiology, Vanderbilt University Medical Center Biomedical Informatics Research Colloquium, Virtual, 03/2021
4. Graduate Experiences from Diversity and Inclusion Initiatives, Diversity and Inclusion in Genetics Seminar at the University of Connecticut, Virtual, 03/2021
5. Leveraging Genomic Data to Disentangle Polycystic Ovary Syndrome Etiology, Women in Data Science Nashville Regional Conference, Virtual, 03/2021
6. Characterizing the clinical and genetic spectrum of polycystic ovary syndrome in electronic health records, 2020 North Coast Conference on Precision Medicine, Virtual, 09/2020

## PRESENTATIONS

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### *Oral Presentations*

1. **Actkins K** and Davis LK. Metabolic Disorders Genetically Modify Polycystic Ovary Syndrome through its Candidate Hormones, Androgen Excess and PCOS Society Update Meeting, Atlanta, GA, 06/2022
2. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Genetic Regulation of Obesity Explains Cardiovascular Sex Differences in Polycystic Ovary Syndrome for Predisposed Individuals, American Physiological Society 7<sup>th</sup> New Trends in Sex and Gender Medicine Conference, Virtual, 10/2021

3. **Actkins K**, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Partitioning risk for complex diseases by race and genetic ancestry, International Conference of Quantitative Genetics, Virtual, 11/2020
4. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Polycystic ovary syndrome comorbidity patterns differ between racially and ethnically diverse patients, American Society of Reproductive Medicine Scientific Congress, Virtual, 10/2020, Proceedings DOI: [10.1016/j.fertnstert.2020.08.135](https://doi.org/10.1016/j.fertnstert.2020.08.135)
5. **Actkins K**, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Disentangling the effects of race and genetic ancestry, Precision Medicine and Health Disparities Collaborative Meeting, Nashville, TN, 12/2019
6. **Actkins K, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Understanding Intersectionality in Health Disparities through Genetic Models. Interdisciplinary Association for Population Health Science Conference, Seattle, WA, 10/2019**
7. **Actkins K**, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Using electronic health records to identify health disparities, Annual Grantees Meeting of the National Institutes on Minority Health and Health Disparities Transdisciplinary Collaborative Centers on Precision Medicine, Bethesda, MD, 12/2018
8. **Actkins K**, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Using electronic health records to identify health disparities, Precision Medicine and Health Disparities Collaborative Meeting, Miami, FL, 11/2018

#### Poster Presentations

9. **Actkins K**, Wegienka GR, Baird DD, Wise LA, Harmon QE. Dairy Intake and Uterine Fibroid Development: A Prospective Study. Society for Pediatric and Perinatal Epidemiologic Research 36<sup>th</sup> Annual Meeting, Portland, OR, 06/2023
10. **Actkins K**, Moolhuijsen LME, Day FR, Karaderi T, Mullin BH, Zhu J, Pujol-Gualdo N, Welt CK, Davis LK on behalf of the International PCOS Consortium. A Large-Scale Genome Wide Association Study of Polycystic Ovary Syndrome in Over 540,000 Females Provides Insights into Biological Mechanisms, 72<sup>nd</sup> Annual Meeting of the American Society of Human Genetics, Los Angeles, CA, 10/2022
11. **Actkins K** and Davis LK. Utility of Hormone Polygenic Risk Scores in Identifying Reproductive Dysfunction Associated with Polycystic Ovary Syndrome, American Society of Reproductive Medicine Scientific Congress, Anaheim, CA, 10/2022, Proceedings DOI: [10.1016/j.fertnstert.2022.08.607](https://doi.org/10.1016/j.fertnstert.2022.08.607)
12. **Actkins KV**, Khankari N, Davis LK. Sex Hormones Minimally Contribute to the Effect of Body Mass Index on Reproductive Dysfunction: A Mendelian Randomization Study, International Genetic Epidemiology Society Annual Meeting, Paris, France, 09/2022, Proceedings DOI: [10.1002/gepi.22503](https://doi.org/10.1002/gepi.22503)
13. **Actkins K** and Davis LK. Metabolic Disorders Genetically Modify Polycystic Ovary Syndrome through its Candidate Hormones, ENDO 2022, Atlanta, GA, 06/2022
14. **Actkins K**, Aldrich M, and Davis L. A Polycystic Ovary Syndrome Diagnosis is a Marker of Socioeconomic Advantage, Interdisciplinary Association for Population Health Science Conference, Virtual, 10/2021
15. **Actkins K**, Aldrich M, and Davis L. A Polycystic Ovary Syndrome Diagnosis is a Marker of Socioeconomic Advantage, Transdisciplinary Conference for Future Leaders in Precision Public Health, Virtual, 10/2021
16. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Obesity Partially Mediates Sex Differences in Cardiovascular Profiles Associated with Polycystic Ovary Syndrome Risk, International Genetics Epidemiology Society Annual Meeting, Virtual, 10/2021, Proceedings DOI: [10.1002/gepi.22431](https://doi.org/10.1002/gepi.22431)

17. **Actkins K**, Aldrich M, and Davis L. A Polycystic Ovary Syndrome Diagnosis is a Marker of Socioeconomic Advantage, American Society of Reproductive Medicine Scientific Congress, Virtual, 10/2021, Proceedings DOI: [10.1016/j.fertnstert.2021.07.1082](https://doi.org/10.1016/j.fertnstert.2021.07.1082)
18. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Genetic Regulation of Obesity Explains Cardiovascular Sex Differences in Polycystic Ovary Syndrome for Predisposed Individuals, 71<sup>st</sup> Annual Meeting of the American Society of Human Genetics, Virtual, 10/2021
19. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Testosterone Independent Biomarkers May Improve Prediction Models for Polycystic Ovary Syndrome, 2021 Society for Reproductive Investigation Annual Meeting, Boston, MA, 07/2021
20. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Genetic Sex Effects of Polycystic Ovary Syndrome Reveal Distinct Metabolic Etiology, ENDO 2021, Virtual, 03/2021, Proceedings DOI: [10.1210/jendso/bvab048.1558](https://doi.org/10.1210/jendso/bvab048.1558)
21. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Deciphering the genetic architecture of polycystic ovary syndrome, 70<sup>th</sup> Annual Meeting of the American Society of Human Genetics, Virtual, 10/2020
22. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Clinical and Genomic Data Integration Elucidates Polycystic Ovary Syndrome Etiology, Genome Informatics, Virtual, 09/2020
23. **Actkins K**, Straub P, Cox N, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative. Understanding Intersectionality in Health Disparities through Genetic Models, 69th Annual Meeting of The American Society of Human Genetics, Houston, TX 10/2019
24. **Actkins K**, Velez Edwards D, Aldrich M, and Davis L. Investigation of polycystic ovary syndrome ancestry-driven comorbidity patterns, Society for the Study of Reproduction 52nd Annual Conference, San Jose, CA, 07/2019
25. **Actkins K**, Beasley H, Faucon A, Davis L, and Sakwe A. Association of inactivating calcium sensing receptor exon 7 SNPs with hypercalcemia-related disease phenotypes, American Association for Cancer Research Annual Meeting, Atlanta, GA, 04/2019, Proceedings DOI: [10.1158/1538-7445.am2019-5127](https://doi.org/10.1158/1538-7445.am2019-5127)
26. **Actkins K**, Hucks D, Straub P, Wellons M, and Davis L. Development of a polycystic ovarian syndrome algorithm to identify cases in electronic health records, 68th Annual Meeting of The American Society of Human Genetics, San Diego, CA 10/2018
27. **Actkins K**, Straub P, Wellons M, and Davis L on behalf of the Precision Medicine and Health Disparities Collaborative, Discovery of Health Disparities among African American Patients at Vanderbilt University Medical Center, 67th Annual Meeting of The American Society of Human Genetics, Orlando, Florida, 10/2017

## GRANTS

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2021	Ruth L. Kirschstein Pre-Doctoral National Research Service Award Meharry Medical College (F31HD103397)
2019 – 2021	Ruth L. Kirschstein Institutional National Research Service Award Vanderbilt University (T32GM007628)

## INSTITUTIONAL SERVICE

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2019 – 2023	Women's Health Research Symposium Planning Committee Vanderbilt University Medical Center <ul style="list-style-type: none"> <li>• Sex and Gender Differences Section Lead (2022)</li> <li>• Planning Committee Co-Chair (2019 – 2021)</li> </ul>
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- Awarded the 2020 Society for the Study for Reproduction Scientific Conferences Grant

2019 – 2020 Human Genetics Student Association Invited Speaker Seminar Chair  
Vanderbilt University Medical Center

## PROFESSIONAL SERVICE

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- 2019 – Present American Society of Human Genetics
- Digital Learning Committee (2021 – 2024)
  - Diversity, Equity, and Inclusion Task Force (2020 – 2023)
  - Career Development Committee (2020 – 2021)
  - Training and Development Committee (2019)
- 2022 – 2023 Researcher Ambassador  
National Institutes of Health *All of Us* Research Program
- 2020 – 2021 Graduate Women in Science Nashville Chapter
- Graduate Member-at-Large (2021)
  - Communications and Outreach Chair (2020 – 2021)

## HONORS AND AWARDS

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### *Honors and Awards*

- 2021 – 2023 American Society of Human Genetics Human Genetics Scholars Initiative
- 2021 Meharry Medical College Dean's Award for Scientific Productivity
- 2021 Meharry Medical College Outstanding Graduate Student Research Award
- 2021 Meharry Medical College Pre-Doctoral Fellowship Award
- 2020 Endocrine Society Future Leaders Advancing Research in Endocrinology (FLARE) Fellow
- 2019 – 2021 Meharry Medical College Top Student Award in Physiology Ph.D. Graduate Program
- 2019 – 2021 Meharry Medical College Rufus Brackett Jr. Memorial Scholarship
- 2017 – 2021 Meharry Medical College Dean's List
- 2017 Meharry Medical College Rufus Brackett Jr. Memorial Scholarship

### *Meeting and Travel Awards*

- 2022 Endocrine Society's Future Leaders Advancing Research in Endocrinology (FLARE) Alumni Travel Reimbursement
- 2022 epi@Columbia Scholarship for the Applied Logistic, Poisson, and Survival Course
- 2021 Women in Endocrinology Young Investigator Award
- 2021 The University of Washington's 26<sup>th</sup> Summer Institute of Genetic Statistics Scholarship
- 2021 Transdisciplinary Conference for Future Leaders in Precision Public Health Outstanding Abstract Award
- 2021 American Physiological Society New Trends in Sex and Gender Medicine Abstract Merit Award
- 2021 The New Trends in Sex and Gender Medicine Diversity Conference Scholarship

2021 Endocrine Society's ENDO 2021 Outstanding Abstract Award  
 2021 Endocrine Society Early Career Forum Award  
 2021 Meharry Medical College 65<sup>th</sup> Annual Student Research Day Grand Prize Winner  
 2020 Society for the Study for Reproduction Scientific Conferences Grant  
 2020 FASEB DREAM Program Travel Award for the American Physiological Society Professional Skills Training Course: Writing and Reviewing for Scientific Journals  
 2020 International Conference of Quantitative Genetics Early Career Researcher Scholarship  
 2019 Meharry Medical College 63<sup>rd</sup> Annual Student Research Day 1<sup>st</sup> Place Poster Presentation  
 2019 Women in Statistics and Data Science Conference Travel Award  
 2019 Interdisciplinary Association for Population Health Science Student Travel Scholarship  
 2019 Society for the Study of Reproduction Burroughs Wellcome Travel Fellowship  
 2019 American Association for Cancer Research Minority Scholar in Cancer Research Award

**PROFESSIONAL AFFILIATIONS**

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2021 – Present Society for Epidemiologic Research  
 2021 – Present Society for Pediatric and Perinatal Epidemiologic Research  
 2019 – Present Endocrine Society  
 2017 – Present American Society of Human Genetics