Curriculum Vitae

PERSONAL INFORMATION

Dana C. Crawford

EDUCATION

Institution and Location	Degree	Years	Scientific Field
Vanderbilt University, Nashville, TN	B.S. Cum Laude	1991-1995	Molecular Biology
Emory University, Atlanta, GA	Ph.D.	1995-2000	Genetics and Molecular Biology

POST-DOCTORAL FELLOWSHIPS

Dr. Deborah Nickerson, Department of Genome Sciences, University of Washington, Seattle, WA (July 2002- January 2006).

Epidemic Intelligence Service Officer, Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities, Atlanta, GA (July 2000-July 2002).

PH.D. THESIS

Title: Factors involved in fragile X CGG repeat instability and their ultimate impact on world populations
Ph.D. Thesis Committee (list): Drs. Stephanie L. Sherman (advisor), Judy Fridovich Keil, Douglas Wallace, and Stephen T. Warren.

CONTACT INFORMATION

Office Address: Wolstein Research Building, 2103 Cornell Road, Suite 2527, Cleveland, Ohio 44106-7295
Office Phone: (216) 368-5546
E-mail: dana.crawford@case.edu

PROFESSIONAL/ACADEMIC APPOINTMENTS

Associate Professor with tenure, Department of Epidemiology and Biostatistics, Institute for Computational Biology, Case Western Reserve University (January 13, 2015 - present)

Associate Professor (secondary appointment), Department of Genetics and Genome Sciences, Case Western Reserve University (June 2016- present)

Visiting Associate Professor, Department of Epidemiology and Biostatistics, Institute for Computational Biology, Case Western Reserve University (July 8, 2014 – January 12, 2015)

Associate Professor with tenure, Department of Molecular Physiology and Biophysics,

Vanderbilt University (July 2012-July 2014)

Assistant Director and Investigator, Center for Human Genetics Research, Vanderbilt University (July 2013-March 2014)

Assistant Professor, Division of Human Genomics, Department of Molecular Physiology and Biophysics; Investigator, Center for Human Genetics Research, Vanderbilt University (September 18, 2006 – 2012)

Acting Assistant Professor, Department of Genome Sciences, University of Washington (February 1 – September 1, 2006)

HONORS AND AWARDS

Collierville High School Valedictorian	1991
Vanderbilt University's Chancellor's Scholar	1991-1995
Vanderbilt Undergraduate Howard Hughes Research Fellowship	1993
C.W. Cotterman Award (best post-doctoral paper, American Journal of Human Genetics)	2004
NCMHD/NIH Health Disparities Research Scholar	2005-2011
Rippel Scholars Award for New Investigators (finalist)	2007
Tomorrow's PI, Genome Technology	2007
Vanderbilt Clinical and Translational Research Scholar	2008-2009
FASEB MARC Travel Award for Genetics and Genomics of Infectious Disease (GGID) meeting in Singapore	2009
Fellow, Keystone Symposia on Molecular and Cellular Biology	2009-2010
Pacific Symposium on Biocomputing Travel Award	2013
Kavli Frontiers of Science fellow	2012-2014
Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Distinguished Research Mentor Award	2014

CONTINUING EDUCATION AND TRAINING

Epidemiology in Action: Intermediate Methods Course. Philip S. Brachman, Coordinator. The Rollins School of Public Health, Emory University and the Centers for Disease Control and Prevention. Atlanta, Georgia, Feb. 26-March 2, 2001.

Genetic Analysis of Complex Human Disease. Marcy C. Speer, Margaret A. Pericak-Vance, Jonathan L. Haines, Co-organizers. Duke University. Durham, North Carolina, May 6-9, 2001.

What's Next? A Leadership and Professional Development Program for Tenured Women Faculty, Flora Stone Mather Center for Women, Case Western Reserve University. Cleveland, OH, September 2015 – January 2016.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Society of Human Genetics (ASHG)	1997-present
American Public Health Association	2010
Human Genome Organisation (HUGO)	2012
American Association for the Advancement of Science (AAAS)	2013-present
American Heart Association (AHA)	2013-present
Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)	2014-present
American Medical Informatics Association (AMIA)	2016-present

PROFESSIONAL SERVICES

ADVISORY GROUPS

American Society of Human Genetics (ASHG) Co-moderator for Session 31: Neurogenetics, San Diego, CA	2007
American Society of Human Genetics (ASHG) Co-moderator for Session 29: Genomics II, Philadelphia, PA	2008
Population Architecture using Genomics and Epidemiology (PAGE) Inflammation and Autoimmunity Working Group chair and Lipids Project Group chair	2008-2013
Northwest Institute of Genetic Medicine External Advisory Board	2009-2010
Electronic Medical Records & Genomics (eMERGE) Genomics Working Group co-chair	2009-2014
Pharmacogenomics Research Network (PGRN) Statistical Analysis Resource (P-STAR) expert consultant	2010-2015

American Society of Human Genetics (ASHG) Abstract reviewer for topic 5: Complex Traits and Polygenic Disorders	June 2012
American Society of Human Genetics (ASHG) Co-moderator for Session 61: Missing Heritability, Interactions, & Sequencing, San Francisco, CA	2012
Indonesian-American Kavli Frontiers of Science Symposium Organizer	2013-2014
Southern Community Cohort Study (SCCS) Publications Committee	2013-2014
Association for Computing Machinery (ACM) 5th ACM Conference on Bioinformatics, Computational Biology and Health Informatics (ACM BCB) Program Committee	2014
Pacific Symposium on Biocomputing (PSB) Session Co-Organizer "Detecting and Characterizing Pleiotropy: New Methods for Uncovering the Connection Between the Complexity of Genomic Architecture and Multiple Phenotypes" Co-chairs: Anna L. Tyler, Dana C. Crawford, Sarah A. Pendergrass	2014
"Precision Medicine: From Genotypes and Molecular Phenotypes Towards Improved Health and Therapies" Co-chairs: Bruce Aronow, Steven E. Brenner, Dana C. Crawford, Joshua C. Denny, Sean D. Mooney, Alexander A. Morgan	2017
"Preocision Meidcine: From Diplotypes to Disparities Towards Improved Health and Therapies" Co-chairs: Bruce Aronow, Steven E. Brenner, Dana C. Crawford, Joshua C. Denny, Alexander A. Morgan	2018
American Society of Human Genetics (ASHG) 10th Annual DNA Day Essay Contest Judge, Round One	March 2015
11th Annual DNA Day Essay Contest Judge, Round Two	March 2016
12th Annual DNA Day Essay Contest Judge, Round One	March 2017
Annual Biomedical Research Conference for Minority Students (ABRCMS) poster judge, Seattle, WA	2015-present
Keystone Symposia Health Disparities Workshops Working Group	2016-present
Million Veterans Program (MVP) Statistical Genetics Work Group	2016-present
Translational Bioinformatics (TBI) Summit Scientific Program Committee	2016-2017

External Advisory Committee member, Orofacial Pain: Prospective Evaluation and Risk Assessment (OPPERA) project funded by NIH/NIDCR	2016-present
Informatics Domain Task Force (iDTF) member, Clinical & Translational Science Awards (CTSA)	2017-present

NIH STUDY SECTIONS/GRANT REVIEW COMMITTEES

Center for Scientific Review Special Emphasis Panel 2008/01 ZRG1 HOP-D (03) M	Nov 28, 2007
Center for Scientific Review Special Emphasis Panel ZRG1 HOP-D (02)	July 24, 2008
Center for Scientific Review, Behavioral Genetics and Epidemiology Study (BGES) Section	Feb 5-6, 2009
Challenge Grants Panels (RFA-OD-09-003): 2009/10 ZRG1 PSE-J (58) R (Panel 1), 2009/10 ZRG1 CVRS-B (58) R (Panel 19), 2009/10 ZRG1 PSE-C (58) R	Jun 12, 2009
Grand Opportunity Grants Panels (RFA-OD-09-004): NIA ZRG1 CVRS B (58) and NCI ZCA1 RTRB-2 (O9)	July 29, 2009 Aug 5-6, 2009
National Institute of Neurological Disorders and Stroke, Udall Centers Review: 2011/08 ZNS1 SRB-E (51)	Jul 14-15, 2011
National Heart, Lung, and Blood Institute Special Emphasis Panel, RFA-HL-13-007: Targeted Analyses of Jackson Heart Study Data (R01)	Aug 15, 2012
National Heart Lung and Blood Institute Re-sequencing and Genotyping (RSnG) Program	Oct 2, 2008 Dec 29, 2008 Dec 16, 2009 Aug 27, 2010 Apr 25, 2012 Sept 12, 2012 Sep 13, 2013 Dec 4, 2014 Mar 17, 2015 June 19, 2015 Sept 14, 2015 Dec. 2, 2015
National Heart, Lung, and Blood Institute Special Emphasis Panel, 2015/05 HLBP 1	Feb 2, 2015 Sept 10, 2015

National Human Genomic Research Institute (NHGRI) Genome Research Review Committee (GNOM-G): study section member	2010-2016
National Human Genome Research Institute (NHGRI) Special Emphasis Panel ZHG1 HGR-M (J1) U41 SEP	Nov 8, 2016
Center for Scientific Review Special Emphasis Panel 2017/01 ZRG1 BDCN-N (90) Epilepsy and Alcohol Dependence	Dec 20, 2016
Center for Scientific Review Special Emphasis Panel 2017/05 ZDK1 GRB-N (M2) 1 Inflammatory Bowel Disease Genetics Consortium	Mar 7, 2017
Infectious Diseases, Reproductive Health, Asthma and Pulmonary Conditions Member Conflicts 2017/05 ZRG1 PSE-U (02)M	April 7, 2017
National Heart Lung and Blood Institute (NHLBI) TOPMED: Omics, Phenotypes of Heart, Lung and Blood Disorders (X01) 2017/10 ZHL1 CSR-G(01)1	May 12, 2017

OTHER REVIEWS

NHANES: Genetic Component Technical Review for the National Center for Health Statistics, Centers for Disease Control and Prevention	Feb, Aug, and October 2009
Ontario Research Fund	Dec 14, 2009
Wellcome Trust	Jan 14, 2011
Vanderbilt Physician Scientist Development (VPSD) Program and Vanderbilt Clinical & Translational Research Scholars (VCTRS) Program Review Committee	Apr 30, 2012 Feb 28, 2013
Centers for Disease Control and Prevention Field Review DD12-006 Coordinating Center for Research and Training to Promote the Health of People with Developmental and Other Disabilities	Jun 19, 2014
Austrian Science Fund	Mar 24, 2017

EDITORIAL DUTIES

Academic Editor, *PLoS One*	2012-present
Editor (Genetics section), *Pediatric Research*	2012-2016

AD HOC JOURNAL REVIEWER

Acta Cardiologica
American Heart Journal
American Journal of Epidemiology
American Journal of Human Genetics
American Journal of Medical Genetics
American Journal of Obstetrics and Gynecology
American Medical Informatics Association Joint Summits on Translational Science
Annals of Human Genetics
BioData Mining
Bioinformatics and Biology Insights
BMC Evolutionary Biology
BMC Infectious Diseases
BMC Medical Genetics
BMC Sports Science, Medicine and Rehabilitation
Cancer Epidemiology
Circulation Cardiovascular Research
Circulation Research
Clinical and Experimental Medicine
Computers in Biology and Medicine
Coronary Artery Disease
Diabetes
Epidemiology and Infection
European Journal of Human Genetics
European Journal of Medical Genetics
Expert Review of Precision Medicine and Drug Development
Gene
Genetic Epidemiology
Genetics
Genetics in Medicine
Genome Research
Hepatology
Human Biology
Human Molecular Genetics
Human Mutation
Influenza and Other Respiratory Viruses
Investigative Ophthalmology & Visual Science
Journal of the American College of Cardiology
Journal of American Medical Association
Journal of the American Medical Informatics Association
Journal of Cellular and Molecular Medicine
Journal of Human Genetics
Journal of Pediatric Endocrinology and Metabolism
Molecular Biology and Evolution
Molecular Genetics and Metabolism
Nature Genetics

Neurogenetics
Neurosurgery
New England Journal of Medicine
Pacific Symposium on Biocomputing
Pediatric and Blood Cancer
PLoS Computational Biology
PLoS Genetics (also guest editor)
Physiological Genomics
Science
Scientific Reports
Tropical Medicine
The Pharmacogenomics Journal

COMMITTEE SERVICE

VANDERBILT UNIVERSITY

Center for Human Genetics Research Annual Genetics Symposium
Vanderbilt University, Nashville TN
"Making Sense of the Senses"
Speakers: Drs. Toni Pollin (University of Maryland), Stephen Wooding (UT Southwestern Medical Center), Jane Gitschier (University of California San Francisco), Jennifer Blackford (Vanderbilt University), David Calkins (Vanderbilt University), and Samuel Crish (Vanderbilt University)
Organizing Committee Chair 2008

Vanderbilt University Program in Human Genetics Oversight Committee 2007-2014

Vanderbilt Institute for Clinical and Translational Research (VICTR) Studio expert and panel member, ad-hoc 2008-2013

Vanderbilt University Medical Scientist Training Program Faculty Advisory Committee 2011-2014

Vanderbilt University BioVU Operations and Oversight Board Jul 2011-2014

Vanderbilt University BioVU Review Committee (Member) Jun 2011-2014
(Vice-chair) Aug 2013-2014

Vanderbilt University Center for Human Genetics Faculty Search Committee 2012

Vanderbilt University Molecular Physiology and Biophysics Curriculum Review Committee 2012

Vanderbilt University Endowed Genomics Chair Faculty Search Committee 2013

Vanderbilt University Prize Scholar Award Committee 2013

CASE WESTERN RESERVE UNIVERSITY

Case Western Reserve University Committee on Appointments, Promotion, and Tenure (CAPT), Department of Epidemiology and Biostatistics committee member 2015-present

Case Western Reserve University, Department of Epidemiology and Biostatistics, Population Genomics Search Committee, Chair 2015

Case Western Reserve University, Department of Epidemiology and Biostatistics, Grievance Committee 2015

Case Western Reserve University, Department of Epidemiology and Biostatistics, EPBI Ad hoc Seminar Committee, Chair 2015

Case Western Reserve University, Institute for Computational Biology Annual Symposium, Cleveland, OH
"Present-Day Problems and Potentials for Precision Medicine"
Speakers: Drs. Jonathan Haines (Case Western Reserve University), Marylyn Ritchie (The Pennsylvania State University), Casey Overby (University of Maryland), Blanca Himes (University of Pennsylvania), Vence Bonham, (NHGRI), and William Stewart (The Ohio State University)
Organizing Committee Chair 2015

Case Western Reserve University, Institute for Computational Biology Annual Symposium Workshop, Cleveland, OH
"Mining Electronic Health Records for Precision Medicine Research"
Instructors: Drs. Sarah Pendergrass (The Pennsylvania State University) and Janina Jeff (Mount Sinai)
Organizing Committee Chair 2015

Case Western Reserve University, Department of Epidemiology and Biostatistics, Health Disparities Search Committee, member 2015-2016

Case Western Reserve University, School of Medicine, Committee on Appointments, Promotion, & Tenure, member 2016-2019

Case Western Reserve University, Institute for Computational Biology Annual Symposium, Cleveland, OH
"Precision Medicine for All: Ensuring Diversity in Participants and in Practice"
Speakers: Esteban Burchard (University of California San Francisco), Darcy Freedman (Case Western Reserve University), Aaron Goldenberg (Case Western Reserve University), David Kaelber (the MetroHealth System), the (Henrietta) Lacks family, Jacob McCauley (University of Miami), Minoli Perera

(Northwestern University), Tim Thornton (University of Washington)
Organizing Committee Chair 2016

Departmental Search Committee Officer for Inclusion, Diversity and Equal Opportunity
Biomedical Data Science Search Committee
Cancer Epidemiology Search Committee
Director of the MPH Program Search Committee 2016-present

TEACHING ACTIVITIES

INVITED PRESENTATIONS (LOCAL; NASHVILLE, TN)

1. *VLDLR*, carotid artery disease, and lipids. Center for Human Genetics Research, Genetic Interest Group, Vanderbilt University, Nashville, TN, October 19, 2006.

2. DNA resources for rare outcomes. An example in *Neisseria meningitidis*. Center for Human Genetics Research retreat, Vanderbilt University, Nashville, TN, June 13, 2007.

3. *VKORC1* and its association with bone mineral density in the general population. Department of Molecular Physiology and Biophysics, Vanderbilt University, May 8, 2008.

4. *VKORC1* and its association with bone mineral density in the general population. Vanderbilt Epidemiology Center, Nashville, TN, May 27, 2008.

5. The genetics of quantitative traits related to cardiovascular disease. Vascular Biology retreat, Vanderbilt University, Nashville, TN, October 31, 2008.

6. Of Biobanks and Cohorts: Using Large DNA Collections for Discovery and Characterization in the Era of Genome-Wide Association Studies. Vanderbilt Epidemiology Center, Nashville, TN, May 12, 2009.

7. Characterization of lipid-associated SNPs in the National Health and Nutrition Examination Surveys (NHANES). Vanderbilt Epidemiology Center, Nashville, TN, January 12, 2010.

8. Race Research and You: Genomic Tools for Health Disparities Research. Meharry Medical College, Nashville, TN, March 25, 2010.

9. Epidemiologic Architecture for Genes Linked to Environment. Department of Molecular Physiology and Biophysics, External Review, Nashville, TN, September 7, 2010.

10. The Genetics of Common Quantitative Traits in Diverse Populations. 11th Annual Vanderbilt Genetics Symposium (Beyond Disease Dichotomy. Quantitative traits and intermediate phenotypes), Nashville, TN, October 13, 2010.

11. Moving DNA from Bench to Bedside at Vanderbilt. Canby Robinson Society Board of

Directors Meeting, Vanderbilt University, Nashville, TN, April 19, 2011.

12. On the Generalization of GWAS-identified variants in Diverse Populations. Illumina User Group Meeting, Nashville, TN, September 15, 2011.

13. Genomics and race/ethnicity. Vanderbilt Meharry CFAR Scientific Retreat, Nashville, TN, February 8, 2013.

14. The Center for Human Genetics Research (CHGR) and the Population Architecture using Genomics and Epidemiology (PAGE) Study: An Overview. Vanderbilt Epidemiology Center, Nashville, TN, February 21, 2013

15. Genomic Predictors of Ages at Reproductive Milestones in African American Women. Meharry Medical College, 11th Annual Research Symposium, Nashville, TN, April 10, 2014.

INVITED PRESENTATIONS (LOCAL; CLEVELAND, OH)

1. EHRs and Large-scale Comparative Effectiveness Research. 2014 Biomedical & Health Informatics Workshop, Case Western Reserve University, Cleveland, OH, September 16, 2014.

2. All In! Cleveland and Precision Medicine. Genetics and Genome Sciences, Case Western Reserve University, September 30, 2015.

3. Precision Medicine Initiative: Challenges for Vision Research, Ophthalmology Grand Rounds, University Hospitals, March 23, 2016.

4. Crawford's in Cleveland. Graduate School and Beyond. Postbaccaleureate Research Education Program (PREP), Case Western Reserve University, February 15, 2017.

CONSORTIA PRESENTATIONS

1. EAGLE Overview. PAGE Steering Committee Meeting, Bethesda, MD, October 6, 2008.

2. EAGLE: Allele Frequencies and Associations. PAGE Steering Committee Meeting, Bethesda, MD, October 6, 2008.

3. EAGLE: Associations and Context Dependencies. PAGE Steering Committee Meeting, Bethesda, MD, October 6, 2008.

4. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, April 27, 2009.

5. EAGLE Update. PAGE Steering Committee Meeting, Seattle, WA, September 24, 2009.

6. Inflammation Workgroup Update. PAGE Steering Committee Meeting, Seattle, WA, September 24, 2009.

7. Preliminary Lipids Analysis in EAGLE. PAGE Steering Committee Meeting and External Scientific Panel, Seattle, WA, September 24-25, 2009.

8. Preliminary Data from Vanderbilt Genome-Electronic Records (VGER) QRS Study. eMERGE Steering Committee Meeting, Bethesda, MD, November 19, 2009.

9. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, January 14, 2010.

10. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Bethesda, MD, January 14, 2010.

11. Vanderbilt Genome-Electronic Records (VGER) QRS Study. eMERGE Steering Committee Meeting, Bethesda, MD, April 12, 2010.

12. Genomics Workgroup: Next Steps in Genomics. eMERGE Steering Committee Meeting, Bethesda, MD, April 12, 2010.

13. EAGLE Update. PAGE Steering Committee Meeting, Nashville, TN, June 8, 2010.

14. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Nashville, TN, June 8, 2010.

15. Fine mapping in African American samples for QRS and T2D. eMERGE Steering Committee Meeting, Bethesda, MD, August 30, 2010.

16. Hypothyroidism. eMERGE Steering Committee Meeting and External Scientific Panel, Bethesda, MD, August 31, 2010.

17. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, October 19, 2010.

18. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting and External Scientific Panel, Bethesda, MD, October 19-20, 2010.

19. EAGLE Update. PAGE Steering Committee Meeting, Marina del Rey, CA, February 14, 2011.

20. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Marina del Rey, CA, February 14, 2011.

21. Network-wide Phenotype Update: Hypothyroidism. eMERGE Steering Committee Meeting, Bethesda, MD, April 25, 2011.

22. Fine mapping and admixture mapping associated with ECG traits and type II diabetes in African Americans. eMERGE Steering Committee Meeting, Bethesda, MD, April 26, 2011.

23. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, June 8, 2011.

24. Phase 1 Genomics Workgroup Highlights. eMERGE Steering Committee Meeting, Bethesda, MD, July 25, 2011.

25. Hypothyroidism/TSH: eMERGE Network-wide Projects eMERGE Steering Committee Meeting, Bethesda, MD, July 26, 2011.

26. Resistant Hypertension Update: eMERGE Network-wide Project. eMERGE Steering Committee Meeting, Bethesda, MD, July 26, 2011.

27. Genomics Workgroup eMERGE II Goals. eMERGE Steering Committee Meeting and External Scientific Panel, Rockville, MD, October 18, 2011.

28. Genetic risk scores and eMERGE. eMERGE Steering Committee Meeting, Bethesda, MD, February 9, 2012.

29. EAGLE Update. PAGE Steering Committee Meeting, Chapel Hill, NC, March 5, 2012.

30. PAGE-wide lipids analysis. PAGE Steering Committee Meeting, Chapel Hill, NC, March 6, 2012.

31. Genomics Workgroup Update. eMERGE Steering Committee Meeting, Minneapolis, MN, June 5, 2012.

32. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, June 19, 2012.

33. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Bethesda, MD, June 20, 2012.

34. PAGE Reproduction Project Group Update. PAGE Steering Committee Meeting, Bethesda, MD, June 20, 2012.

35. EAGLE Update. PAGE Steering Committee Meeting, Bethesda, MD, October 18, 2012.

36. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Bethesda, MD, October 19, 2012.

37. PAGE Lipids Project Group Update. PAGE Steering Committee Meeting, Seattle, WA, March 14, 2013.

38. EAGLE Summary. PAGE Steering Committee Meeting, Seattle, WA, March 15, 2013.

39. Resistant Hypertension Update. eMERGE Steering Committee Meeting, Philadelphia, PA, June 3, 2013.

40. Null Variants. eMERGE Steering Committee Meeting, Bethesda, MD, October 7, 2013.

INVITED PRESENTATIONS (NATIONAL AND INTERNATIONAL)

1. Human diversity: Impact on genetic testing and screening. Information Conference on the Human Genome Project: Challenges and Impact of Human Genome Research for the Minority Communities, Atlanta, GA, July 20-21, 2001.

2. Examining the factors involved in fragile X CGG repeat instability—multifaceted approach. Department of Genome Sciences (Dr. Deborah Nickerson), University of Washington, Seattle, WA, September 7, 2001.

3. Examining the factors involved in fragile X CGG repeat instability—multifaceted approach. Department of Pediatrics, Arkansas Center for Birth Defects Research and Prevention (Director: Dr. Charlotte Hobbs), University of Arkansas for Medical Sciences, Little Rock, AR, January 24, 2002.

4. Examining the factors involved in fragile X CGG repeat instability—multifaceted approach. Program in Human Genetics (Director: Dr. Jonathan Haines), Vanderbilt University, Nashville, TN, January 31, 2002.

5. Examining the factors involved in fragile X CGG repeat instability—multifaceted approach. Center for Statistical Genetics (Director: Dr. Michael Boehnke), Department of Biostatistics, University of Michigan, Ann Arbor, MI, February 20, 2002.

6. Applying from the PGA Resource - Haplotypes. BayGenomics Program for Genomic Applications, San Francisco, CA, April 27, 2004.

7. SeattleSNPs and Applications in Pharmacogenetics. Rosetta, Seattle, WA, July 22, 2005.

8. Assessing the impact of candidate gene variation on quantitative phenotypes. Division of Statistical Genomics (Head: Michael Province), Washington University, St. Louis, MO, December 15, 2005.

9. Assessing the impact of candidate gene variation on quantitative phenotypes. Center for Human Genetics Research (Director: Jonathan Haines), Vanderbilt University, Nashville, TN, February 9, 2006.

10. Assessing the impact of candidate gene variation on quantitative phenotypes. Center for the Study of Weight Regulation and Associated Disorders (Director: Roger Cone), Oregon Health and Science University, Portland, OR, February 22, 2006.

11. Assessing the impact of candidate gene variation on quantitative phenotypes. The McDermott Center for Human Growth and Development (Director: Helen Hobbs), Center for Human Genetics, UT Southwestern, Dallas, TX, March 13, 2006

12. Assessing the impact of candidate gene variation on quantitative phenotypes. Division of Endocrinology, Diabetes and Nutrition (Head: Alan Shuldiner), University of Maryland, Baltimore, MD, April 4, 2006.

13. Genetic association study designs for influenza vaccine clinical trials. Keynote speaker for the Clinical Immunization Safety Assessment (CISA) annual meeting. Centers for Disease Control and Prevention, Atlanta, GA, April 23-24, 2007.

14. Genomics and Vaccine Safety. Understanding the Genomic Basis of Vaccine Safety. Centers for Disease Control and Prevention, Atlanta, GA, January 30-31, 2008.

15. Designing Association Analyses. From SNPs to Haplotypes, the Importance of Leveraging Linkage Disequilibrium. American Society for Clinical Pharmacology and Therapeutics, Orlando, FL, April 5, 2008.

16. Genetic determinants of lipids among nonfasting children. Department of Medical Genetics (Chair: Dr. Philip Giampietro), Marshfield, WI, August 13, 2008.

17. Of Biobanks and Cohorts: Using Large DNA Collections for Discovery and Characterization in the Era of Genome-Wide Association Studies. HudsonAlpha, Huntsville, AL, March 11, 2009.

18. Genome-wide association study identified novel genomic regions associated with drug-induced long QT-syndrome. Pharmacogenetic Research Network (PGRN) Statistical Analysis Workshop V, Rochester, MN, April 15, 2009.

19. Using NHANES to Determine the Epidemiologic Architecture for Genes Linked to Environment. National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, MD, October 7, 2009.

20. Using NHANES to determine the Epidemiologic Architecture for Genes Linked to Environment (EAGLE). HudsonAlpha Spring Symposium, Huntsville, AL, March 30, 2010.

21. Using Biobanks Linked to Electronic Health Records to Move from Base Pairs to Bedside. Illumina Discovery Symposium, Montreal, Canada, October 11, 2011.

22. On the Generalization of GWAS-identified Variants in Diverse Populations from the Population Architecture using Genomics and Epidemiology (PAGE) Study. Human Genetics and Genomics Seminar Series, University of Miami, Miami, FL, November 15, 2011.

23. Using biobanks linked to electronic health records to move from base pairs to bedside. Inaugural Symposium, Penn State Hershey Institute for Personalized Medicine, Penn State Hershey University Conference Center, Hershey, PA, June 8, 2012.

24. Trans-ethnic comparisons for the role of genetics in diabetes: the PAGE Study. American Diabetes Association, Philadelphia, PA, June 9, 2012.

25. Genetic Association Studies in Diverse Populations. Departments of Epidemiology and Biostatistics (Chair: Jonathan Haines) and Genetics and Genomics Sciences (Chair: Anthony Wynshaw-Boris), Case Western Reserve University, Cleveland, OH, September 20, 2013.

26. Big Genetic Epidemiology. American College of Epidemiology. Louisville, KY, September 24, 2013.

27. Genetic Association Studies in Diverse Populations. Division of Human Genetics (Director: Ray Hershberger), The Ohio State University, Columbus, OH, October 28, 2013.

28. Genetic Association Studies in Diverse Populations. School of Biology (Director of the Center for Integrative Genomics: Greg Gibson), Georgia Tech University, Atlanta, GA, December 5, 2013.

29. Approaches to Gene-Nutrient Studies Based on Experiences from the Epidemiologic Architecture for Genes Linked to Environment (EAGLE) Study. 3rd International Vitamin Conference, Washington, DC, May 12-15, 2014.

30. Leveraging Epidemiologic and Clinical Collections for Genomic Studies of Complex Traits. Integrated Systems Biology Analytical Methods for Epidemiological Studies of Complex Traits, 2014 Mid-Atlantic Genetic Epidemiology and Statistics (MAGES) Conference, Philadelphia, PA, May 30, 2014.

31. Genome-wide Association Studies. Big Data Analysis and Translation in Disease Biology (Big Data and Disease), Jawaharlal Nehru University, New Delhi, India, January 19, 2015.

32. All In! Cleveland and Precision Medicine. Center for Systems Genomics, The Pennsylvania State University, August 26, 2015.

33. All In! Cleveland and Precision Medicine. Program in Personalized and Genomic Medicine, University of Maryland, November 18, 2015

34. Phenome-wide Association Studies. Understanding the Function of Human Genome Variation, Keystone Symposia, Uppsala, Sweden, June 1, 2016.

35. All In! Cleveland and Precision Medicine. Single Nucleotide Polymorphisms and Human Disease, Gordon Research Conference, Mount Holyoke, South Hampton, MA, June 16, 2016.

36. All In! Cleveland and Precision Medicine. Computational Challenges for Precision medicine, MidAtlantic Bioinformatics Conference, Philadelphia, PA, October 26, 2016.

TRAINEES/MENTEES

Past Medical Fellows

Daniel Johnson, MD (2010-2014) Fellow mentoring committee
Sara Van Driest, MD, PhD (2010-2014) Fellow mentoring committee
Quinn Wells, MD, PharmD, MSCI, MS (2014) Masters advisor in genetic epidemiology

Past Graduate Students

Dapo Akingbade (2007) Rotation student
Chelsea Cupp (2009) Rotation student
Kirsten Diggins (2012) Rotation student
Haley Eidem (2013) Rotation student
Rachel Hoffman (2013) Rotation student
Lindsay Gordon (2010) Rotation student
Gunnar Kwakye (2006) Rotation student
Carrie Shaffer (2007) Rotation student
Corinne Simonti (2013) Rotation student
Clare Spielman (2013) Rotation student
Krystal Tsosie (2012) Rotation student
Olivia Veatch (2009) Rotation student
Amy Wotawa (2008) Rotation student
Victoria Youngblood (2011) Rotation student

Carrie Buchanan (2011-2013) Masters committee member
Anna (Davis) Cummings, PhD, MS (2006-2012) Rotation student; Chair of thesis committee
Laura D'Aoust (2010-2014) Rotation student; Chair of thesis committee
Todd Edwards, PhD, MS (2006-2008) Thesis committee
Jake Hall (2010-2014) Rotation student; Masters committee member
Emily Holzinger (2008-2013) Rotation student; Masters committee member
Nuri Kodaman (2009-2014) Masters committee member
Mary Ellen Koran (2012-2014) Thesis committee
Jude McElroy, PhD (2010-2012) Chair of thesis committee
Sabrina Mitchell, PhD (2007-2010) Thesis committee
Kelli Ryckman, PhD, MS (2007-2008) Thesis committee
Rafal Sabota (2012-2015) Masters committee member; Chair of thesis committee
Stephen Turner, PhD, MS (2007-2011) Chair of thesis committee; Masters committee member
Marquitta White (2009-2014) Rotation student; Thesis committee
Laura Wiley (2013-2014) Chair of thesis committee
Rebecca Zuvich, PhD, MS (2007-2009) Thesis committee

Logan Dumitrescu, PhD, MS (2006-2011) PhD thesis and Masters advisor, IDENTIFICATION AND CHARACTERIZATION OF GENETIC VARIANTS ASSOCIATED WITH LIPID AND LIPOPROTEIN LEVELS

Janina M. Jeff, PhD, MS (2007-2012) PhD thesis and Masters advisor, THE GENETICS OF QUANTITATIVE TRAITS ASSOCIATED WITH CARDIOVASCULAR DISEASE IN AFRICAN AMERICANS

Matt Oetjens, PhD, MS (2009-2014) PhD thesis and Masters advisor, PHARMACOGENETIC DISCOVERY IN AN EMR-BIOREPOSITORY

Jennifer Malinowski, PhD, MS (2010-2014) PhD thesis and Masters advisor, WOMEN'S HEALTH: GENETIC VARIATION IN COMPLEX TRAITS

Nicole Restrepo, PhD (2010-2015), MS (2016) PhD thesis and Masters advisor, INVESTIGATION OF THE GENETIC EPIDEMIOLOGY OF AGE-RELATED MACULAR DEGENERATION, PRIMARY OPEN-ANGLE GLAUCOMA, AND DIABETIC RETINOPATHY IN DIVERSE POPULATIONS

Past Postdoctoral Students

Sarah Pendergrass, PhD, MS (2009-2011)
Assistant Professor, Geisinger Biomedical and Translational Informatics Program (2015-present)
Research Associate, Penn State University (2011-2015)
Named one of Genome Technology's PIs of Tomorrow 2014

Janina Jeff, PhD, MS (2012-2013)
Global Bioinformatics Specialist, Illumina (2015-present)
Post-doctoral fellow, Mount Sinai (2013-2015)

Logan Dumitrescu, PhD, MS (2011-2013)
Neuroimaging Analyst, Vanderbilt Memory & Alzheimer's Center, Vanderbilt University Medical Center (2016-present)
Regulatory writing expert, Synchrogenix (2013-2016)

Sabrina Mitchell, PhD (2010-2015)
Post-doctoral fellow, Vanderbilt University Medical School (2015-present)

Past Other Students/Mentees

Roberto Reyes, University of Arizona undergraduate (2011) Minority Summer Research Program, Vanderbilt University Summer Science Academy
Genetic Architecture of triglyceride levels in children over the course of treatment for acute lymphoblastic leukemia (Oral presentation and FASEB MARC Program travel award). Molecular and Computational Biology session, Annual Biomedical Research Conference for Minority Students (ABRCMS), St. Louis, MO, November 9-12, 2011.

Sarah Laper, Eastern Virginia medical school student (2015) Summer volunteer research. (Poster presentation and travel scholarship). 9th Annual National Conference on Health Disparities and 2016 National Environmental Justice Conference and Training Program, Washington, DC, March 9, 2016.

Current Graduate Students

Brittany Hollister, PhD candidate, Vanderbilt University Program in Human Genetics, PhD thesis co-advisor (2012-present)

Shuo Mike Fang, Case Western Reserve University Epidemiology and Biostatistics mentoring committee member (2016-present)

Andrea Waksmunski, Case Western Reserve University Genetics and Genomic Sciences thesis committee chair (2017-present)

Current Postdoctoral Students

Current Other Students/Mentees

Jessica Cooke Bailey, PhD; Case Western Reserve University Instructor and KL2 scholar (2016-present)

Julia Cuva, senior, Mentor High School, Mentor, OH (2016-present)

TEACHING ACTIVITIES

Previous Classes and Lectures

Spring 1997	Human and Molecular Genetics (MEDI 545/IBS 505). Small-group seminar facilitator teaching assistant. (Teaching requirement for Ph.D. program)
Spring 1999	Human and Molecular Genetics (MEDI 545/IBS505). Small-group seminar facilitator substitute teaching assistant.
October 25, 2006	American Society of Human Genetics Outreach to Teach. Honors Biology…Only the Beginning. Vanderbilt University, Nashville, TN. Lecturer.
September 19, 2007	Epidemiology 1: Research Design. Genome-wide association studies--why all the excitement? Vanderbilt University, Nashville, TN. Lecturer.
February 27, 2008	Capstone Course. Genome-wide association studies. Rheumatoid arthritis. Vanderbilt University, Nashville, TN. Lecturer.
April 14, 2008	GWAS: The Future. Center for Human Genetics Research workshop series Making Sense of the Human Genome (Genome-wide Association Studies), Vanderbilt University, Nashville, TN. Lecturer.
Spring 2008-2009	Tutorials in Statistical and Population Genetics. Vanderbilt University

graduate course MPB/HGEN 371. One-hour journal-club style presentations from current literature. Co-course director with Dr. Chun Li.

November 16, 2009 Bioregulation I. Vanderbilt University Integrated Graduate Program graduate course. The Hunt for Human Genes, Part I. Vanderbilt University, Nashville, TN. Lecturer.

November 12, 2010 Master of Science in Clinical Investigation (MSCI) Program. More of the Molecular Toolbox - Types of Genetic Markers, Methods of Genotyping and Microarrays. Vanderbilt University, Nashville, TN. Lecturer.

December 2, 2010 Personalize This! Direct-to-Consumer Genetic Products. Biological Sciences 105, Vanderbilt University, Nashville, TN. Lecturer.

Spring 2007-2010 Human Genetics II. Vanderbilt University graduate course MPB/HGEN 341. Three to five 1 1/2 hour lectures covering various topics in human genetics including epidemiology in genetics, determining the genetic component of a trait, polymorphisms in the Human Genome, and applications of methods using cardiovascular disease as an example.

November 29, 2011 Personalize This! Direct-to-Consumer Genetic Products. Biological Sciences 105, Vanderbilt University, Nashville, TN. Lecturer.

November 27, 2012 Personalize This! Direct-to-Consumer Genetic Products. Biological Sciences 105, Vanderbilt University, Nashville, TN. Lecturer.

November 19, 2013 Personalize This! Direct-to-Consumer Genetic Products. Biological Sciences 105, Vanderbilt University, Nashville, TN. Lecturer.

Spring 2010-2014 Genetic epidemiology, course director. Vanderbilt University graduate course MPB/HGEN 390. One and a half hour upper-level class covering various topics in human genetic epidemiology. Co-course director with Drs. Scott Williams (2010-2012) and Will Bush (2014).

Spring 2012-2014 Human Genetics II, course director. Vanderbilt University graduate course. MPB/HGEN 341. One and a half hour upper-level class covering various fundamental topics in human genetics and genetic epidemiology. The course is required of all PhD students in the Program in Human Genetics.

2011-2014 Center for Human Genetic Research Journal club, co-director. Vanderbilt University. Non-credit, informal gathering of students, faculty, and staff to discuss current articles relevant to human genetics and ocular genomics. Journal club meets twice a month during the academic year and once a

month during the summer. Topics include scientific articles in the literature as well as articles in the literature and lay media related to ethics, responsible conduct in research, effective scientific communication, diversity in the sciences, equal pay, work/life balance, etc.

October 22, 2015 Genetics and Population Health. Introduction to Population Health EPBI 440, Case Western Reserve University, Cleveland, OH. Lecturer.

November 16, 2015 Personalize This! Direct-to-Consumer Genetic Testing. EPBI 501, Case Western Reserve University, Cleveland OH. Lecturer.

Current Classes and Lectures

Spring 2015-present Communicating in Population Health Science Research, course director. Case Western Reserve University graduate course. EPBI444. A two-hour graduate-level class covering various forms of scientific communication including writing and oral presentations. This course is required of all Masters and PhD students in Epidemiology and Biostatistics.

Spring 2015, 2017 On Being A Professional Scientist, faculty participant. Case Western Reserve University graduate course. IBMS 500. A mandatory zero credit hour weekly ethics course for first year graduate students. This course offers a 30-40-minute lecture on a specific ethics topic followed by a 45-minute faculty-led small group discussion. Topics covered include defining scientific integrity, mentorship, live animal subjects, data management, research misconduct and policies, commercialization and intellectual property, safe laboratory practices, responsible authorship (publication and peer review), conflicts of interests (personal, professional, and financial), human subjects (IRBs, tissue and databank research), collaborative research, self-promotion in science and social media, and the scientist as a responsible member of society.

Fall 2015-present Health Care Analytics (formerly known as Secondary Analysis of Large Health Care Data Bases), course director of electronic health records one credit hour. Case Western Reserve University graduate course. EPBI515. A three-hour graduate-level class covering common large-scale secondary data bases generated for research, health care, administration/billing, or other purposes. This course is required for the Health Behavior and Prevention PhD Program Concentration in the Department of Epidemiology and Biostatistics and is an elective for other Masters and PhD students.

2015-present Case Western Reserve University School of Medicine MD Thesis Reviewer. All CWRU medical school students are required to complete a thesis based on research performed in the Research Block (four months). The thesis is submitted in the fourth year of medical school and reviewed

by faculty. Typically, faculty review one to three theses per year.

Workshops

July 23-24, 2003	From Genome to Disease. Identifying Haplotypes for Genotype-Phenotype Analysis. NHLBI/NIH, Bethesda, MD. Lecturer.
Sept 8-10, 2003	Variation Discovery Workshop. Applying Data from the PGA-Haplotypes. University of Washington, Seattle, WA. Lecturer.
July 12-14, 2004	Variation Discovery Workshop. Applying Data from the PGA - Haplotypes. University of Washington, Seattle, WA. Lecturer.
April 25-26, 2005	SeattleSNPs Variation Workshop. SNP Selection. Washington University, St. Louis, MO. Lecturer.
May 2, 2005	Genomic Applications in Heart, Lung, Blood, and Sleep Disorders Research. SNP Discovery and Analysis: Application to Association Studies. Morehouse School of Medicine, Atlanta, GA. Lecturer
July19-20, 2005	From Genome to Disease II. SNP Discovery and Analysis: Application to Association Studies. NHLBI/NIH, Bethesda, MD Lecturer.
Sept 12-13, 2005	Variation Discovery Workshop. Picking SNPs: Application to Association Studies. University of Washington, Seattle, WA. Lecturer.
January 30-31, 2006	SNP Workshop: Bioinformatics and genotyping. Picking SNPs: Application to Association Studies. NIEHS, Research Triangle Park, NC. Lecturer.
March 20-21, 2006	Variation Discovery Workshop. SNP Selection. University of Washington, Seattle, WA. Lecturer.
May 15-16, 2006	Program for Genomic Applications Traveling Tutorials. Tools for Association Studies: Candidate genes and quantitative phenotypes. Washington University, St. Louis, MO. Lecturer.
October 2-3, 2006	Program from Genomic Applications Traveling Tutorials. Tools for Association Studies: Candidate genes and quantitative phenotypes. University of Alabama at Birmingham, Birmingham, AL. Lecturer.
January 10-11, 2008	NIEHS SNPs Workshop. SNP Selection. Association Analysis. University of Louisville, Louisville, KY. Lecturer.

May 4-8, 2008	Genetic Analysis of Complex Human Diseases. Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
February 18-19, 2009	Variation Discovery Workshop. SNP Selection and Association Analysis. Centers for Disease Control and Prevention, Atlanta, GA. Lecturer.
April 20-24, 2009	Genetic Analysis of Complex Human Diseases. Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
May 15-19, 2010	Genetic Analysis of Complex Human Diseases. Genome and Variation Databases; Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
March 25, 2011	Direct-to-Consumer Testing: The Promotions and the Products. Center for Human Genetics Research workshop series Making Sense of the Human Genome (DNA Testing and You), Vanderbilt University, Nashville, TN. Lecturer.
April 29, 2011	Personalized Medicine. Vanderbilt Medical School II (VMS II), Vanderbilt University School of Medicine, Nashville, TN. Lecturer.
May 22-26, 2011	Genetic Analysis of Complex Human Diseases. Genome and Variation Databases; Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
April 26, 2012	Personalized Medicine. Vanderbilt Medical School II (VMS II), Vanderbilt University School of Medicine, Nashville, TN. Lecturer.
May 21-24, 2012	Genetic Analysis of Complex Human Diseases. Genome and Variation Databases; Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
May 20-23, 2013	Genetic Analysis of Complex Human Diseases. Genome and Variation Databases; Gene-Gene and Gene-Environment Interactions. Miami Institute for Human Genomics, University of Miami, FL. Lecturer.
October 29-31, 2015	Genomic Discovery, Collaboration, and Translation Using Electronic Health Records. Speakers: Drs. Dana Crawford (CWRU), Sarah Pendergrass (Geisinger), and Janina Jeff (Mount Sinai). Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Gaylord National Resort and Convention Center, Washington, DC. Scientific Symposia Organizer and Speaker.
October 13-15, 2016	The ABCs of Diversity in Genomic Research: Ascertainment,

Bioinformatics, and Computation. Speakers: Drs. Farren Briggs (CWRU), Janina Jeff (Illumina), William Bush (CWRU), and Sarah Pendergrass (Geisinger). Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Long Beach Convention Center, Long Beach, CA. Scientific Symposia Organizer.

RESEARCH SUPPORT

ACTIVE

5UL1 TR000439-09 (Konstan) 09/17/2007-05/31/2017
NIH/NCATS
Clinical and Translational Science Collaborative of Cleveland
The Clinical and Translational Science Collaborative (CTSC) of Cleveland is a collaborative venture among five Cleveland health institutions - Case Western Reserve University, the Cleveland Clinic, University Hospitals, MetroHealth Medical Center, and the Veterans Administration Medical Center, as well as community partners. The CTSC Core Resources, including the CTSC Office of Comparative Effectiveness Research (CER) Core, are organized into twelve groups by area of expertise. Collectively these Cores help in the development of clinical and translational research studies and tools, facilitate clinical-investigator interfaces and community outreach, provide education, and administer and track CTSC activities.
Role: Co-investigator

Nord Grant (Crawford) 07/01/2016-06/30/2017
CWRU/UCITE
The Lacks Family on Consent and Community Engagement in the Era of Precision Medicine
The Nord Grants, offered through CWRU's University Center for Innovation in Teaching and Education (UCITE), fund projects that directly benefit student learning or indirectly benefit students through faculty development. This grant will support, in part, the invitation of the Lacks Family to speak at CWRU about their family's collective experience in biomedical research projected onto today's environment of precision medicine research. The Lacks Family will speak at CWRU's Institute for Computational Biology (ICB) annual symposium or the equivalent organized by ICB and Dr. Crawford.
Role: PI

1R13 HG009481-01 (Crawford) 09/20/2016-07/31/2018
NIH/NHGRI
North Coast Conference on Precision Medicine
This proposal supports travel scholarships for trainees and early investigators to attend the annual North Coast Conference on Precision Medicine held in Cleveland, OH every fall.
Role: PI

I01 BX003364A1 (Konicki/Peachey) 10/01/2016-09/31/2017
VA
Genetic Risk for AMD in Diverse Veteran Populations

The goals of this project are to determine whether AMD risk alleles are shared across different ethnic populations, whether the identified genes will be replicated in an independent population, and to determine whether a relationship exists between AMD genes and biomarkers related to blood lipid chemistry.
Role: Co-investigator

PENDING

Response to NHLBI-HR-17-05-CS (Preuss and Crawford) 06/01/2017-05/31/2023
NIH/NHLBI
NHLBI Genomics Portal (GenPort)
The proposed GenPort will integrate and harmonize NHBLI 'omic datasets to enable cloud-based analyses.
Role: CWRU PI

1UG3DK114908-01 (Poggio)
NIH/NIDDK
Cleveland KPMP Recruitment Network Site 07/01/2017-06/30/2022
The Cleveland KPMP Recruitment Network Site proposes to recruit patients with chronic kidney disease for the larger Kidney Precision Medicine Project (KPMP). ***Score: 18***
Role: Co-investigator

OGMB171194 (Brothers)
NIH/NCATS 05/15/2017-05/14/2020
The Rivers Run Through Them (RRTT) Partnership
In response to OTP-PM-17-002, the RRTT Partnership aims to disseminate information about All of Us (formerly the Precision Medicine Initiative Cohort Program) to residents of urban and rural areas of Kentucky and Northeast Ohio.
Role: Co-investigator

1R01 GM126249-01 (Bush) 09/01/2017-08/31/2022
NIH/NIGMS
An Atlas of Clinical Associations Mapping to Variants within Protein Structures
This proposal aims to develop and refine methodology for grouping variants within protein structural space for functional association studies and to construct a mapping between three-dimensional protein regions and clinical outcomes using a two-stage Phenome-Wide Association Study in whole-exome sequencing data linked to electronic health records.
Role: Co-investigator

2R01 (Kallianpur/Hulgan) 09/01/2017-08/31/2022
NIH
Iron and Mitochondrial Genomics, Epigenetics, and Neuroinflammation in HAND
The goals of this project are 1) to replicate genetic findings in a combined and harmonized dataset created from 4 large HIV cohorts; 2) to augment the existing neuroinflammation-genetic dataset within CHARTER with genome-wide DNA-methylation and iron-mitochondrial RNA expression data in order to exam the role of gDNA and mtDNA genes in mediation of age

acceleration effects in HIV infection; and 3) to integrate all of these data types (genomic, biomarker, targeted RNA, and epigenetic age data) into a composite risk calculator or score for HAND in this intensively phenotyped subgroup of individuals using machine learning approaches.
Role: Co-investigator

1U01DK116096-01 (Crawford, Schold. and Poggio) 12/01/2017-11/30/2022
NIH/NIDDK
APOL1 Long Term Kidney Transplantation Outcomes (APOLLO) Scientific Data Research Center (SDRC)
Role: Contact PI

COMPLETED

Institute for Computational Biology Pilot Grant (Crawford) 03/01/2016-02/28/2017
CWRU/ICB
MetroHealth-Institute for Computational Biology Pilot study (MIPs)
This pilot study funds the collection of biospecimens from consented MetroHealth patients for precision medicine research. Participants are also surveyed on their attitudes towards biobanking as envisioned by the larger Precision Medicine Initiative Cohort Program and return of research results.
Role: PI

T32 GM80178-07 (Haines) 07/01/2012-11/12/2013
(Crawford) 11/13/2013-6/30/2014
(Samuels) 07/01/2014-06/30/2017
NIH/NIGMS
Training Program on Genetic Variation and Human Phenotypes
This training grant provides five slots for graduate-level training towards a PhD in human genetics.
Role: PI

5U01 HG006385-03S1 (Haines) 08/15/2011-01/06/2014
(Harris and Crawford) 01/07/2014-05/18/2014
(Harris) 05/19/2014-07/31/2015
NIH/NHGRI
eMERGE Coordinating Center
The goal of this proposal is to coordinate the efforts and activities of the individual sites within the eMERGE network.
Role: Multiple-PI

5U01 HL065962-13 (Roden) 04/01/2000-06/30/2015
NIH/NHLBI
Pharmacogenomics of Arrhythmia Therapy
The goal of this study is to identify genetic variation important for arrhythmias such as drug-induced Long QT syndrome, atrial fibrillation and complications on warfarin therapy. As co-

investigator, I lead candidate gene and genome-wide association studies to identify genetic variants that impact risk for drug-induced Long QT syndrome. I also lead BioVU and NHANES genetic analyses as part of the larger International Warfarin Pharmacogenomics Consortium (IWPC). I am also a member of P-STAR, a group within PGRN that has the goal of providing statistical resources and guidance for projects related to pharmacogenomics as part of the Pharmacogenetics Research Network (PGRN).
Role: Co-investigator

5U01 HG006378-03 (Roden) 08/15/2011-07/31/2015
NIH/NHGRI
Vanderbilt Genome-Electronic Records Project
The primary goal of this project is to assess the usefulness of biobanks in performing genome-wide association studies. This grant will fund the study design of a genome-wide association study. This grant will also support work towards developing tools to mine the electronic medical records and tools to de-identify these data for use in human genetics. As co-investigator, I lead the BioVU genomic analyses as part of the larger electronic Medical Records & Genomics (eMERGE) Network. I will also design studies to assess the contribution genetic variants, alone or in combination, contribute risk to clinically-relevant outcomes to identify "actionable variants" for the network.
Role: Co-investigator

5R01 LM010685-03 (Denny) 09/1/2011-08/31/2014
NIH/NLM
From GWAS to PheWAS: Scanning the EMR phenome for gene-disease associations The overall goal of this proposal is to systematically identify pleiotropic associations using DNA samples linked to electronic health records.
Role: Co-investigator

5R01CA092447-12 (Blot) 09/26/2011-06/30/2016
National Cancer Institute
Southern Community Cohort Study
The Southern Community Cohort Study is a large, prospective epidemiology cohort study designed to investigate the environmental and genetic causes for racial disparities in cancer and other health outcomes.
Role: Co-investigator

W81XWH-12-1-0547 (Aldrich) 09/15/2012-09/14/2014
DoD
Prognosis of Lung Cancer: Heredity or Environment?
The goal of this project is to identify genetic risk factors in lung cancer, and to determine the potential role of environmental factors and how they interact with the genetic risk factors.
Role: Co-investigator

VUMC42613 5R01DK078616-05S1 (Kabagambe) 12/01/2013-11/31/2014
NIH/NIDDK
Meta-analysis of Type 2 Diabetes in African Americans - the MEDIA Consortium The primary

goal of this proposal is to identify genetic variants associated with risk of type 2 diabetes in African Americans. This supplement will support the addition of data from the Southern Community Cohort Study and/or BioVU, the Vanderbilt biorepository linked to de-identified electronic medical records to the parent grant, *Common Genetic Variation and Quantitative Diabetes Traits*.
Role: Co-investigator

(Villegas) 04/01/2014–01/31/2015
Vanderbilt Diabetes Research and Training Center
Insulin resistance genes and type 2 diabetes in African Americans
In this pilot study, we aim to identify common and rare variants as associated with type 2 diabetes in African Americans. The scope of inquiry will be limited to genes known to be involved in insulin resistance. We will also characterize the potential modifying effects of body mass index on these genetic associations.
Role: Co-investigator

VR4427 (Crawford) 2012-2013
Vanderbilt Institute for Clinical and Translational Research (VICTR)
APOC3 R19X and very low triglyceride levels in European Americans
This VICTR voucher provided the funds to genotype 184 individuals in BioVU (Vanderbilt's biorepository linked to de-identified electronic medical records) with very low triglyceride levels on the Illumina ExomeChip.
Role: PI

VR3288 (Dumitrescu) 2012-2013
Vanderbilt Institute for Clinical and Translational Research (VICTR)
Replication of MI Associations in African American BioVU Samples
This VICTR voucher provided the funds to genotype individuals in BioVU (Vanderbilt's biorepository linked to de-identified electronic medical records) with and without myocardial infarction (MI) to replicate an association identified in NHANES III between MI and *LPA* variants.
Role: Co-investigator

3U01 HG004798-04S2 (Crawford) 07/01/2008-12/31/2013
NIH /NHGRI
Epidemiologic Architecture for Genes Linked to Environment (EAGLE)
The primary goal of this project is to describe the epidemiologic architecture of genetic variations identified through genome-wide association studies (GWAS) using a population-based, diverse cross-sectional survey known as the National Health and Nutrition Examination Survey (NHANES). We will also replicate previously published GWAS and identified potential mitochondrial and/or environmental modifiers.
Role: PI

5RC2GM092618-02 (Denny/Roden) 09/30/2009-01/31/2012
NIH/NIGMS
VESPA: Vanderbilt Electronic Systems for Pharmacogenomic Assessment

The overall goal of this project is to use the Vanderbilt DNA Databank (BioVU) to identify cases of adverse reactions to medication and controls for pharmacogenomic studies using the ADME developed by Illumina. As co-investigator, I lead the genomic study design and analysis of outcomes and traits related to pharamcogenomics. I also lead the quality control efforts for these large datasets in BioVU.
Role: Co-investigator

3U01 HG004798-02S2 (Crawford) 05/21/2010-04/30/2011
NIH/NHGRI
Epidemiologic Architecture for Genes Linked to Environment
The goal of this supplement is to identify and genotype cases and controls for eight major cancers in BioVU, the Vanderbilt DNA Databank, for eventual meta-analysis in the Population Architecture using Genomics and Epidemiology (PAGE) Study.
Role: PI

3U01 HG004798-01S1 (Crawford) 10/01/09-09/30/2010
NIH/NHGRI
Epidemiologic Architecture for Genes Linked to Environment
This ARRA supplement provided funds for genotyping ancestry informative markers in NHANES III and NHANES 1999-2002.
Role: PI

CRC1599 (Edwards) 2009-2010
Vanderbilt Institute for Clinical and Translational Research (VICTR)
INF 15.06 Pilot Study of the Genotypic Analysis of Patients Infected with Influenza Virus Compared with Matched Uninfected Controls (DMID 06-0092)
This VICTR voucher provided the funds to collect and extract DNA from blood and mouthwash samples from children exposed to the influenza vaccine for an eventual genome-wide association study of adverse reactions (wheezing) following vaccination.
Role: Co-investigator

200-2002-00732 (Edwards) 10/01/2002-09/30/2008
CDC
Vaccine Safety Surveillance and Assessment
The overall goal of this multi-center study is to examine clinical immunization safety assessment of children.
Role: Co-investigator

VICTR PN_1829 (Crawford) 2008-2009
Vanderbilt Institute for Clinical and Translational Research (VICTR)
Genetic determinants of lipids among nonfasting children
This VICTR voucher provided the funds for targeted genotyping NHANES III participants (n=7,159) to replicate a genome-wide association study performed in non-fasting children ascertained by St. Jude Children's Hospital.
Role: PI

VICTR PN_1860 (Ritchie) 2008-2009
Vanderbilt Institute for Clinical and Translational Research (VICTR)
Ancestry informative markers in the Vanderbilt DNA databank
This VICTR voucher provided the funds for genotyping the Illumina DNA Test Panel (360 SNPs) in BioVU, the biorepository linked to electronic medical records, for ancestry informative markers and other quality control metrics. The pilot phase genotyped almost 2,000 samples and the full project included the first 9,000 DNA samples in BioVU.
Role: Co-investigator

RSnG G78 (Crawford) 09/13/06-10/01/07
NIH/NHLBI
Defining the role of candidate gene variation in the quantitative phenotypes related to heart disease
This Re-sequencing and Genotyping (RSnG) award provided genotyping support for 384 SNPs on 7,159 samples from NHANES III. The SNPs will be genotyped on a set of 12 candidate genes whose intermediate phenotypes are associated with increased risk for coronary artery disease.
Role: PI

RSnG G62 (Lingappa) 09/13/2006-10/01/2007
NIH/NHLBI
Genetic factors in invasive pneumococcal disease
This Re-sequencing and Genotyping (RSnG) awards provided genotyping support for 384 SNPs on approximately 1,000 DNA samples of cases with pneumococcal disease and population-based controls.
Role: Co-investigator

5P30 ES007033-12 (Crawford) 10/01/2006-03/31/2007
Univ. of Washington NIH/NIEHS
Center for Ecogenetics and Environmental Health
The primary goal of this project is to identify associations between triglycerides measured in the National Health and Nutrition Examination Survey (n=7,159) and SNPs in the candidate gene *APOA4*. This grant supports the genotyping of *APOA4*.
Role: PI

1 F32 HL079864-01 (Crawford) (Awarded 12/22/2004; declined)
NRSA Post-Doctoral Fellowship NIH-NHLBI
Genetic determinants of baseline CRP from NHANES III
Role: PI

5 F31 HD08443-02 (Crawford) 07/01/1998 – 05/15/2000
National Research Service Award NIH-NICHHD
Minority Predoctoral Fellowship Program
Role: PI

BIBLIOGRAPHY

Underlined authors represent Crawford lab trainees.

PEER REVIEWED ARTICLES

1. Qu S, Perlaky SE, Organ EL, **Crawford D**, and Cavener DR. Mutations at the Ser50 residue of translation factor eIF-2α dominantly affect developmental rate, body weight, and viability of *Drosophila melanogaster*. *Gene Expression*, 6:349-360 (1997). PMID: 9495316
2. Savage A, Sun F, **Crawford D**, Ashley A, Yang Q, and Sherman SL. Sequential sibpair and association studies to detect genes in quantitative traits. *Genetic Epidemiology*, 14:885-890 (1997). PMID: 9433595
3. Gunter C, Paradee W, **Crawford DC**, Meadows KL, Newman J, Kunst CB, Nelson DL, Schwartz C, Murray A, Macpherson JN, Sherman SL, and Warren ST. Reexamination of factors associated with expansion of CGG repeats using a single nucleotide polymorphism in FMR1. *Human Molecular Genetics*, 7(12):1935-1946 (1998). PMID: 9811938
4. **Crawford DC**, Meadows KL, Newman JL, Taft LF, Pettay DL, Gold LB, Hersey SJ, Hinkle EF, Stanfield ML, Holmgreen P, Yeargin-Allsopp M, Boyle C, and Sherman SL. Prevalence and phenotype consequence of FRAXA and FRAXE alleles in a large, ethnically diverse special education needs population. *American Journal of Human Genetics*, 64(2):495-507 (1999). PMC1377758
5. **Crawford DC**, Schwartz CE, Meadows KL, Newman JL, Taft LF, Gunter C, Brown WT, Carpenter NJ, Howard-Peebles PN, Monaghan KG, Nolin SL, Reiss AL, Feldman GL, Rohlfs EM, Warren ST, and Sherman SL. Survey of the fragile X syndrome CGG repeat and STR- and SNP- haplotypes in an African-American population. *American Journal of Human Genetics*, 66(2):480-493 (2000). PMC1288101
6. **Crawford DC**, Zhang F, Wilson B, Warren ST, and Sherman SL. Fragile X CGG repeat structures among African-Americans: Identification of a novel factor responsible for repeat instability. *Human Molecular Genetics*, 9(12):1759-1769 (2000). PMID: 10915764
7. **Crawford DC**, Wilson B, and Sherman SL. Factors involved in the initial mutation of the fragile X CGG repeat as determined by sperm small pool PCR. *Human Molecular Genetics*, 9(19):2909-2918 (2000). PMID: 11092767
8. Sullivan AK, **Crawford DC**, Scott EH, Leslie MS, and Sherman SL. Paternally-transmitted FMR1 alleles are less stable than maternally-transmitted alleles in the common and intermediate size range. *American Journal of Human Genetics*, 70(6):1532-1544 (2002). PMC379140
9. **Crawford DC**, Meadows KL, Newman JL, Taft LF, Scott E, Leslie M, Shubeck L, Holmgreen P, Yeargin-Allsopp M, Boyle C, and Sherman SL. Prevalence of the fragile X syndrome in African Americans. *American Journal of Medical Genetics*, 110(3):226-233 (2002). PMID: 12116230
10. **Crawford DC**, Bailey DB, Skinner D, Sparkman K, Moore CA, and Olney RS. Delayed diagnosis of fragile X syndrome - United States, 1990-1999. *MMWR Morb Mortal Wkly Rep*, 51(33):740-742 (2002). PMID: 12201607
11. **Crawford DC**, Caggana M, Harris KB, Lorey F, Nash C, Pass K, Tempelis C, and Olney RS. Characterization of β-globin haplotypes using blood spots from a population-based

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