Laura K. Wiley

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Education

2016 (Expected)	Ph.D.	Human Genetics, Vanderbilt University *(Expected)* Addressing Barriers to Clinical Adoption of Pharmacogenomics
2014	M.S.	Biomedical Informatics, Vanderbilt University Discovery & Replication of Pathway-Based Trans-eQTL
2009	B.S.Ch.	Chemistry, University of Denver University Honors
2009	B.S.	Molecular Biology, University of Denver Minors: Math, Chemistry, University Honors

Peer-Reviewed Publications

1. **Wiley LK***, Tarczy-Hornoch P*, Denny JC, Freimuth RR, Overby CL, Shah NH, Martin RD, Sarkar IN. Harnessing next-generation informatics for personalizing medicine: a report from AMIA's 2014 Health Policy Invitational Meeting.   Accepted: *JAMIA*.   *Co-first authors

2. **Wiley LK**, Moretz JD, Denny JC, Peterson JF, Bush WS. Phenotyping Adverse Drug Reactions: Statin-Related Myotoxicity. *AMIA Summits Transl Sci Proc.* 2015
   - Selected as Best CRI Student Paper

3. **Wiley LK**, Sivley RM, Bush WS. Rapid storage and retrieval of genomic intervals from a relational database system using nested containment lists. *Database* 2013

4. **Wiley LK**, Shah A, Xu H, Bush, WS. ICD-9 tobacco use codes are effective identifiers of smoking status. *JAMIA* 2013.

Submitted

Kuziemsky CE*, **Wiley LK***, Unertl KM, Haque S, Turner SD, Martin K, Schleyer TS, Rosenbloom ST. Preliminary Analysis of Four Years of Twitter Activity at the AMIA Annual Symposium. Submitted: *JAMIA*.   *Co-first authors

Book Chapters

1. Denny JC, **Wiley LK**, Peterson JF. Use of Clinical Decision Support to Tailor Drug Therapy Based on Genomics, in *Clinical Decision Support Systems: Theory and Practice* (3rd edition). Publisher: Springer, Editor: Eta Berner. [Submitted]

External Presentations

Podium Talks

Mar 2015   AMIA Joint Summits on Clinical Research Informatics, San Francisco
Phenotyping Adverse Drug Reactions: Statin-Related Myotoxicity
• Selected as Best CRI Student Paper

Mar 2015   AMIA Joint Summits on Translational Bioinformatics, San Francisco
Translation of Pathway-Based trans-eQTL to Human Phenotypes.

Apr 2014   AMIA Joint Summits on Translational Bioinformatics, San Francisco
Using a Biobank Linked to Electronic Medical Records to Identify Non-
Specific Clinically Associated Genetic Variants.

Oct 2012   62nd Annual Am. Society of Human Genetics Meeting, San Francisco
Discovery and replication of pathway-based trans-eQTL associations.

Oct 2012   2nd Annual Translational Bioinformatics Conf., Jeju South Korea
ICD-9 tobacco use codes are effective identifiers of smoking status.

Panels

Sep 2015   Navigate AMIA Webinar – Students and Young Professionals
Nov 2014   Annual Symposium of the Am. Med. Info. Assoc, Washington DC
Harnessing Next-Generation Informatics for Personalizing Medicine: Report
from the 2014 AMIA Health Policy Invitational Meeting..
• Substitute Panelist for Nigam Shah

Tutorials

Nov 2015   Annual Symposium of the Am. Med. Info. Assoc., San Francisco [Accepted]
Using R for Healthcare Data Science. Co-Taught by Vojtech Huser

Honors, Awards, & Special Events

2015   Best Student Paper, AMIA Joint Summits: Clin. Research Informatics
2015   Invited Attendee, AMIA 9th Annual Invitational Health Policy Meeting
2012-2015   Invited Attendee, AMIA Hill Day (unable to attend in 2013)
2014   Invited Attendee, AMIA 8th Annual Invitational Health Policy Meeting
2013   Invited Attendee, AMIA 7th Annual Invitational Health Policy Meeting

Professional Service

American Medical Informatics Association

2015-Present   Member, Mini Task Force on Women in Informatics
2014-Present   Chair/Chair-Elect, Student Working Group
2012-Present   Member, Public Policy Committee
2012   Scribe, AMIA 6th Annual Invitational Health Policy Meeting

American Society for Human Genetics
    2012-Present   DNA Day Essay Contest Judge (x4)

Ad Hoc Reviewer:
    Journal of Biomedical Informatics
    Database
    Journal of Cardiovascular Pharmacology

Institutional Service

2013	Organizer, DBMI Career Panel, Vanderbilt
2012	Secretary, Human Genetics Graduate Student Assoc - Vanderbilt
2012	Secretary, Biomed. Informatics Graduate Student Assoc -Vanderbilt
2005-2009	Member, Conduct Review Board – University of Denver
2008	Student Rep, Writing in the Majors Committee: Chemistry, Un. of Denver

Funding

2015-Present	U01 HG007253 (Denny)	Role: Trainee
	Integrated, Individualized, Intelligent Prescribing (I3P)	
2014-2015	T15 LM007450 (Gadd)	Role: Trainee
	Vanderbilt Biomedical Informatics Training Program	
2011-2013	T32 GM080178 (Haines)	Role: Trainee
	Training Program on Genetic Variation and Human Phenotypes	
2011-2015	Travel Grant (x5) - Vanderbilt Graduate School	
2012	Travel Award – Translational Bioinformatics Conference	
2009	Preisendanz-Schmid Thesis Scholarship	
2007	Fellowship, University of Colorado Cancer Center	

Research Experience

2014-Present	Graduate Student Researcher, Vanderbilt University
	PI: Joshua Denny
2010-2014	Graduate Student Researcher, Vanderbilt University
	PI: William Bush
2008-2009	Research Assistant, Mycologics & University of Colorado Denver
	PI: Claude Selitrennikoff
2007-2008	Research Fellow, Colorado Kids Sun Care & U of Colorado Cancer Center
	PI: Lori Crane
2004	Research Assistant, Pathology Lab, Penrose Hospital
	PIs: Joel Ernster and Cosimo Sciotto

Teaching Experience

2007-Present Faculty, Kaplan Test Prep & Admissions; Denver, Nashville, Online

Guest Lecturer

Apr 2015 Performing Manual Review in the Synthetic Derivative
BioVU Study Design

Jan 2015 Medication Data in the Synthetic Derivative
BioVU Study Design

Nov 2014 HL7 Immunization Messages Programming Lab
Introduction to Biomedical Informatics

Invited Tutorials

Aug 2015 Overview of ggplot2 and the "Grammar of Graphics"
Nashville Data Science Group

May 2015 Knitr and R Markdown for Reproducible Workflow
Nashville UseR Group

Mar 2015 Introduction to R and ggplot for Genetics
Vanderbilt Genetics Student Association

Aug 2014 Making ggplot2 Sing
Nashville UseR Group

Technical Skills

Programming & Statistical Computing: R, Perl, MySQL, NzSQL
Data Visualization: ggplot2, GIMP, Inkscape
Genetic Tools: PLINK, Eigenstrat, ADMIXTURE, GCTA
Other: LaTeX, Markdown, Linux

Conference Posters & Abstracts

Posters

Nov 2013 Annual Symposium of the Am. Med. Info. Assoc, Washington DC
Establishing the need for personalized medicine: Simvastatin exposure
among a SLCO1B1 variant population.

Oct 2013 63rd Annual Meeting of the Am. Society for Human Genetics, Boston
Association of Metabochip variants to systolic blood pressure in African
Americans from a biorepository linked to deidentified EMRs.

Oct 20111 61st Annual Meeting of the Am. Society for Human Genetics. Montreal
High-throughput annotation of genomic variants using a relational database
system

Abstracts
1. Teixeira P, Davis M, **Wiley LK**, Bastarache L, Smith JC, Carroll RJ, Fabbri D, Roden DM, Denny JC Improving Phenotypic Granularity with NLP-PheWAS in Multiple Sclerosis. AMIA Joint Summits on Translational Bioinformatics, San Francisco, CA, 2015.
2. Bastarache L, Bochenek J, Edwards T, Xu Y, Pulley J, Bowton E, Mo H, Wei W, **Wiley L**, Roden D, Denny J. Investigation of Synthetic Association in GWAS using PheWAS and Exome Sequencing. 64th Annual Meeting of the American Society for Human Genetics, San Diego, CA, 2014.

Internal Presentations

Seminars

Apr 2015	Genetics Interest Group, Vanderbilt University The Importance of Intuition, Data Quality Checks, and Exploratory Data Visualization.
Apr 2014	Research Colloquium – Dept. of Biomedical Informatics, Vanderbilt Pharmacogenomics of Statin-Induced Myotoxicity.
Mar 2014	Genetics Interest Group, Vanderbilt University Investigating the frequency and genetics of statin-induced myotoxicity using electronic medical records.
Sep 2013	Bioinformatics Research Group, Vanderbilt University Discovery and replication of pathway-based trans-eQTL associations.
Mar 2013	Research Colloquium – Dept. of Biomedical Informatics, Vanderbilt Discovery and replication of pathway-based trans-eQTL associations.
Oct 2012	Research Colloquium – Dept. of Biomedical Informatics, Vanderbilt Where there's smoke there's fire: Extracting smoking status from electronic medical records.
Oct 2012	Genetics Interest Group, Vanderbilt University Where there's smoke there's fire: Extracting smoking status from electronic medical records.

Journal Club

Oct 2012	Department of Biomedical Informatics, Vanderbilt University Overby et al. Deriving rules and assertions from pharmacogenomics knowledge resources in support of patient drug metabolism efficacy predictions.
Sep 2012	Genetics Interest Group, Vanderbilt University Overby et al. Deriving rules and assertions from pharmacogenomics knowledge resources in support of patient drug metabolism efficacy predictions.

Apr 2012   Department of Biomedical Informatics, Vanderbilt University
Greenbaum et al. Genomics and Privacy: Implications of the new reality of closed data for the field.

<u>Posters</u>

Oct 2013   15th Annual Vanderbilt Human Genetics Symposium
Establishing the need for personalized medicine: Simvastatin exposure among a SLCO1B1 variant population.

Sep 2013   Department of Biomedical Informatics Annual Retreat, Vanderbilt
Establishing the need for personalized medicine: Simvastatin exposure among a SLCO1B1 variant population.

Oct 2012   14th Annual Vanderbilt Human Genetics Symposium
Where there's smoke there's fire: Extracting smoking status from electronic medical records.

Sep 2012   Department of Biomedical Informatics Annual Retreat, Vanderbilt
Where there's smoke there's fire: Extracting smoking status from electronic medical records.

Oct 2011   13th Annual Vanderbilt Human Genetics Symposium
High-throughput annotation of genomic variants using a relational database system.

Sep 2011   Department of Biomedical Informatics Annual Retreat, Vanderbilt
High-throughput annotation of genomic variants using a relational database system.

Advanced Coursework

<u>Master R Developer Workshop</u> by Hadley Wickham, Washington, DC, 2015
Covered the three main paradigms of R programming: functional programming, object oriented programming and metaprogramming, and how to make R packages.

<u>Genetic Analysis of Complex Human Diseases</u>, University of Miami, 2012
Covered approaches for mapping and characterization of human inherited disorders, emphasizing the mapping of genes involved in common & genetically complex diseases.

<u>Regression Modeling Strategies Short Course</u> by Frank Harrell, Vanderbilt, 2012
Provided an overview of all the steps involved in the proper conduct of regression modeling, using modern methods and procedures.

<u>Summer Institute in Statistical Genetics: Gene Expression Profiling</u>, University of Washington, 2011
Covered the statistical analysis of gene expression profiling including the principles of quality control, normalization, analysis of variance and hypothesis testing, time series, surrogate variable analysis, & optimal discovery procedures.

Summer Institute in Statistical Genetics: Population Genetic Data Analysis, University of Washington, 2011

Covered estimates and sample variances of allele frequencies, Hardy-Weinberg and linkage disequilibrium, characterization of population structure with F-statistics. Relationship estimation. Statistical genetic aspects of forensic science & assoc. mapping.