

Alex H. Wagner, PhD

Contact Information

314-747-9284
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Research Interests

Bioinformatics, Cancer Genomics, Machine Learning

Education

University of Iowa, Iowa City, IA

PhD, [Computational Genetics](#), December 2014

- Thesis Topic: *Computational Methods for Identification of Disease-Associated Variations in Exome Sequencing*
- Advisors: [Terry A. Braun, PhD](#) and [Edwin M. Stone, MD, PhD](#)
- [GPA: 3.90](#)

Graduate Certificate, [Bioinformatics](#), May 2013

- Advisor: [Terry A. Braun, PhD](#)
- [GPA: 3.96](#)

Iowa State University, Ames, IA

BS, [Biology](#), May 2008

- Minor in [Mathematics](#)
- *Cum Laude*
- [GPA: 3.51](#)

Extracurricular Education

[High Performance Computing](#), Gregory Howes, Iowa, Summer 2012

[Machine Learning](#), Andrew Ng, Stanford (Online), Fall 2011

[Intro to Databases](#), Jennifer Widom, Stanford (Online), Fall 2011

Research Experience

Postdoctoral Research Associate

January 2015 to Present

McDonnell Genome Institute,
Washington University School of Medicine
Saint Louis, MO
Advisor: [Obi L. Griffith, PhD](#)

Graduate Research Assistant

August 2010 to December 2014

Coordinated Laboratory for Computational Genomics,
University of Iowa College of Engineering
Iowa City, IA
Advisor: [Terry A. Braun, PhD](#)

Clinical Laboratory Technologist

July 2008 to July 2010

Department of Laboratory Medicine and Pathology,
Mayo Clinic, Rochester, MN
Supervisors: Dianna Bowden and [Thomas P. Moyer, PhD](#)

Biological Laboratory Aide

Jan 2007 to Sep 2007

USDA Agricultural Research Service,
Iowa State University, Ames, IA
Supervisor: [David Grant, PhD](#)

Refereed Journal
Publications

1. SS Whitmore, **AH Wagner**, AP DeLuca, AV Drack, EM Stone, BA Tucker, S Zeng, TA Braun, RF Mullins, TE Scheetz (2014) "Transcriptomic analysis across nasal, temporal, and macular regions of human neural retina and RPE/choroid by RNA-Seq". *Experimental Eye Research*. doi:10.1016/j.exer.2014.11.001
2. TP Sharma, CM McDowell, Y Liu, **AH Wagner**, D Thole, BP Faga, RJ Workinger, TA Braun, AF Clark (2014) "Optic nerve crush induces spatial and temporal gene expression patterns in retina and optic nerve of BALB/cJ mice". *Molecular Neurodegeneration*. doi: 10.1186/1750-1326-9-14
3. TA Braun, RF Mullins, **AH Wagner**, J Andorf, R Johnston, B Bakall, AP DeLuca, G Fisherman, R Weleber, A Cideciyan, S Jacobson, V Sheffield, B Tucker, EM Stone (2013) "Non-exonic and synonymous variants in ABCA4 are an important cause of Stargardt disease". *Human Molecular Genetics*. doi: 10.1093/hmg/ddt367
4. **AH Wagner**, KR Taylor, AP DeLuca, TL Casavant, RF Mullins, EM Stone, TE Scheetz, TA Braun (2013), "Prioritization of Retinal Disease Genes: An Integrative Approach." *Human Mutation*. doi: 10.1002/humu.22317
5. **AH Wagner**, VN Anand, W Wang, JE Chatterton, D Sun, AR Shepard, N Jacobson, L Pang, AP DeLuca, TL Casavant, TE Scheetz, RF Mullins, TA Braun, AF Clark (2013) "Exon-level expression profiling of ocular tissues". *Experimental Eye Research*. doi: 10.1016/j.exer.2013.03.004
6. AP DeLuca, **AH Wagner**, KR Taylor, B Faga, D Thole, VC Sheffield, EM Stone, TL Casavant, TE Scheetz, TA Braun (December 2011) "Sequencing and disease variation detection tools and techniques". *9th IEEE/ACS International Conference on Computer Systems and Applications (AICCSA)*. doi: 10.1109/AICCSA.2011.6126607

Papers in
Preparation

1. **AH Wagner**, M Hector, W Goar, AP DeLuca, EM Stone, TA Braun "TRIPOD: An Online Educational Resource for the Characterization of Heritable Retinal Dystrophies".
2. **AH Wagner**, K Krysiak, Z Skidmore, R Govindan, M Griffith, OL Griffith "The Genomic Landscape of Relapsed Small Cell Lung Cancer".
3. **AH Wagner**, AC Coffman, M Griffith, OL Griffith "An update to the Drug-Gene Interaction Database".

Software
Familiarity

Programming languages and environments:

- C, C++, Java, Matlab, MySQL, Perl, Python (PyCharm), R (RStudio), Ruby on Rails (RubyMine), SGE, UNIX

Common software (bioinformatics):

- Affymetrix Power Tools, Bedtools, Bowtie, BWA, Cufflinks, GATK, IGV, GMS RNA-SeQC, Samtools, Tophat, UCSC Genome Browser, VCFTools

	Common software (other):	
	<ul style="list-style-type: none"> • Git, \LaTeX 	
Merit	<p>Oral Presentation Awards</p> <ul style="list-style-type: none"> • Annual Bioinformatics Retreat, University of Iowa August 16, 2013 <ul style="list-style-type: none"> • <i>Best Student Talk</i> • Midwest Eye Research Symposium July 6, 2012 <ul style="list-style-type: none"> • <i>Outstanding Oral Presentation</i>, 2nd Place <p>Poster Presentation Awards</p> <ul style="list-style-type: none"> • Interdisciplinary Health Research Poster Session April 23, 2013 <ul style="list-style-type: none"> • <i>Best Poster Award</i>, Center on Aging <p>Research Awards</p> <ul style="list-style-type: none"> • <i>Outstanding Student Research Award</i> 2012–2013 <ul style="list-style-type: none"> • This annual award recognizes a single student in the College of Engineering for exemplary research in the fields of bioinformatics and computational biology. • <i>D.C. Priestestersbach Dissertation Prize</i> 2015 <ul style="list-style-type: none"> • Genetics Program Nomination, <i>award decision ongoing</i> • This biennial award recognizes excellence in doctoral research. Each of the twenty biological/life sciences programs at the University of Iowa nominates one dissertation submitted between July 1, 2013 and June 30, 2015 to compete for the award. 	
Funding	<p>External Awards</p> <ul style="list-style-type: none"> • <i>NSF Travel Grant, ISMB 2013</i> July 2013 <ul style="list-style-type: none"> • This grant is provided for exceptional work in the field of Bioinformatics for travel to the ISMB annual conference <p>University of Iowa Awards</p> <ul style="list-style-type: none"> • <i>NIH T32 Institutional Training Grant in Genetics</i> 2013-2014 <ul style="list-style-type: none"> • This fellowship is awarded to the most promising graduate students in the field of genetics for predoctoral training in this area. It provides tuition and stipend support. • <i>Graduate Student Senate Travel Grant, ARVO 2013</i> May 2013 • <i>NIH T32 Institutional Training Grant in Bioinformatics</i> 2011–2013 <ul style="list-style-type: none"> • This fellowship is awarded to the most promising graduate students in the field of bioinformatics for predoctoral training in this area. It provides tuition and stipend support and funding for conference travel. • Consecutive annual awards granted for 2011-2012 and 2012-2013. 	
Presentations	<p>External Presentations</p> <ul style="list-style-type: none"> • ISMB Annual Conference, Berlin, Germany July 2013 <i>Positive and Unlabeled Learning for Prioritization (PULP)</i> • ARVO Annual Conference, Seattle, WA May 2013 <i>Positive and Unlabeled Learning for Prioritizing Candidate Variants in Retinal Degenerative Diseases</i> 	

- BICB Industry Symposium, Minneapolis, MN May 2013
Positive and Unlabeled Learning for Prioritizing Candidate Variants in Retinal Degenerative Diseases
- ARVO Annual Conference, Ft. Lauderdale, FL May 2012
RNA Sequencing for Identification of Genetic Factors in Retinal Disease
- Joint Bioinformatics Retreat, Ames, IA Aug 2011
Using RNA Sequencing To Identify And Isolate Causative Genetic Factors In Retinal Disease

University of Iowa

- Genetics Retreat 2014 October 2014
Active Phenotype Acquisition for the Genetic Characterization of Heritable Retinal Diseases
- Engineering Research Open House 2014 April 2014
Positive and Unlabeled Learning for Prioritization (PULP)
- Genetics Retreat 2013 October 2013
Prioritizing Disease Genes in Exome Studies
- Joint Bioinformatics Retreat August 2013
Positive and Unlabeled Learning for Prioritization
- Interdisciplinary Health Research Poster Session April 2013
Positive and Unlabeled Learning for Prioritizing Candidate Variants in Retinal Degenerative Diseases
- Genetics Retreat 2012 November 2012
Machine Learning Based Prioritization of Retinal Disease Genes
- Joint Bioinformatics Retreat October 2012
Prioritization of Retinal Disease Genes: An Integrative Approach
- Midwest Eye Research Symposium July 2012
Machine Learning Based Prioritization of Eye Disease Genes
- Genetics Retreat 2011 February 2012
Exon-level Expression Profiling of Ocular Tissues

Teaching Experience

- Teaching Assistant** Fall 2014
051:123 - Bioinformatics Techniques
Instructor: Thomas L. Casavant
Department of Biomedical Engineering
University of Iowa
- Guest Lecturer** Spring 2014
051:080 - Bioimaging and Bioinformatics
Instructor: Todd E. Scheetz
Department of Biomedical Engineering
University of Iowa
- Teaching Assistant** Spring 2014
051:122 - Computational Genomics
Instructor: Thomas L. Casavant
Department of Biomedical Engineering
University of Iowa

	Teaching Assistant 051:123 - Bioinformatics Techniques Instructor: Terry A. Braun Department of Biomedical Engineering University of Iowa	Fall 2013
	Instructor Introduction to Bioinformatics Computing with Python Supplement to 051:123 - Bioinformatics Techniques Department of Biomedical Engineering University of Iowa	Fall 2013
	Teaching Assistant BIOL 313 - Principles of Genetics Instructor: Jack Girton Department of Biology Iowa State University	Fall 2006
Service	Executive Committee , Bioinformatics Training Grant Renewal <ul style="list-style-type: none"> Assisted in curriculum development for proposed Bioinformatics PhD program Researched student career development resources to be utilized by the program Collaborated with co-PIs and others in writing the grant proposal to fund the program 	S13-F14
	Planning Committee Chair , Ann. UI Bioinformatics Retreat <ul style="list-style-type: none"> Planned logistics of the 2013 and 2014 annual bioinformatics retreats Invited selected extramural faculty to participate in the retreats 	S13-F14