# **BASEL M. AL-BARGHOUTHI**

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### Charlottesville, VA 22903

Ph.D. student in Biomedical Sciences at the University of Virginia.

Currently exploring the systems genetics of complex skeletal phenotypes as a member of the Farber Lab.

**EDUCATION**

Doctor of Philosophy, Biochemistry & Molecular Genetics,

*University of Virginia,* Charlottesville, VA 2015-ongoing

Master of Science, Biological and Physical Sciences,

*University of Virginia,* Charlottesville, VA 2017

Master of Science, Bioinformatics, *University of Michigan,* Ann Arbor, MI 2015

Bachelor of Science, Biology (Neurobiology), *The University of Texas,* Austin, TX 2013

* **Received the Elements of Computing Certificate.**
  + This involved completing 18 credit hours (6 courses) of computer science coursework, which included topics covering object-oriented programming, image processing, web development, and database management.

RESEARCH EXPERIENCE

**Graduate Researcher,** Department of Public Health Sciences, *University of Virginia,* VA 2016-Present

Advisor: Charles R. Farber, Ph.D.

Minor Mentor: Stefan Bekiranov, Ph.D.

* Informing biology by integration of publically available multi-omic data with human

Genome Wide Association (GWA) loci, in the context of bone mineral density (BMD).

* Exploring the systems genetics underlying bone strength in Diversity Outbred (DO) mice.

**Graduate Researcher,** Department of Biophysics, *University of Michigan,* MI 2014-2015

Advisor: Kevin Wood, Ph.D.

* Investigated the combinatorial effects of multiple antibiotic drugs on *E. faecalis* growth rates.
* Investigated computational methods for predicting the effects of pairwise and higher-order drug combinations on bacterial growth rates.

TEACHING EXPERIENCE

**Graduate Student Instructor,** *University of Michigan*, MI Spring 2015

Course: BIOINF 545 – High-throughput Molecular Genomic and Epigenomic Data Analysis

* This advanced bioinformatics/biostatistics course covered diverse topics, including experimental design, statistical inference, multiple comparison adjustments, quality control, and functional enrichment testing.

**CONFERENCES AND COURSES ATTENDED**

Complex Traits Consortium/Rat Genomics 17th Annual Meeting

(San Diego, CA) June 2019

American Society of Human Genetics Annual Meeting (San Diego, CA) Oct. 2018

21st Century Mouse Genetics (The Jackson Laboratory, Bar Harbor, ME) Oct. 2017

American Society for Bone and Mineral Research Annual Meeting (Denver, CO) Sept. 2017

Annual Meeting of the Complex Trait Community (Memphis, TN) June 2017

Big Data to Knowledge (BD2K) All Hands Meeting (Bethesda, MD) Nov. 2016

American Society for Bone and Mineral Research Annual Meeting (Atlanta, GA) Sept. 2016

**PUBLICATIONS**

Mesner, L., Calabrese, G., **Al-Barghouhti, B.,** Gatti, D., Sundberg, J., Churchill, G.,

Ackert-Bicknell, C., and Farber, C. ”Mouse genome-wide association and systems

genetics identifies *Lhfp* as a regulator of bone mass”. *PLoS Genetics*.

2019 May 1;15(5):e1008123. doi: 10.1371/journal.pgen.1008123. 2019

Huckaby, A, Granum C., Carey, M., Szlachta, K., **Al-Barghouthi, B.**, Wang, YH.,

and Guler, J. “Complex DNA structures trigger copy number variation across the

Plasmodium falciparum genome”. *Nucleic Acids Research*.

2019 Feb 28;47(4):1615-1627. doi: 10.1093/nar/gky1268. 2019

**Al-Barghouthi, BM** and Farber, CR “Dissecting the Genetics of Osteoporosis

using Systems Approaches”. *Trends in Genetics*. 2019 Jan;35(1):55-67.

doi: 10.1016/j.tig.2018.10.004. 2019

**PRESENTATIONS**

**Al-Barghouthi, B.,** Calabrese, G., Mesner, L., Nguyen, K., Bouxsein, M., Brooks, D.,

Horowitz, M., Rosen, C., Tommasini, S., Simecek, P., Churchill, G., Ackert-Bicknell, C.,

Pomp, D., and Farber, C. “Systems Genetics Analysis of Bone Strength in the

Diversity Outbred”. **Oral presentation** at the Complex Traits Consortium/Rat

Genomics 17th Annual Meeting in San Diego, CA. (June 10 2019). 2019

**Al-Barghouthi, B.,** Calabrese, G., Mesner, L., Nguyen, K., Bouxsein, M., Brooks, D.,

Horowitz, M., Rosen, C., Tommasini, S., Simecek, P., Churchill, G., Ackert-Bicknell, C.,

Pomp, D., and Farber, C. ”*Qsox1* is a novel genetic determinant of bone size in mice”.

**Oral presentation** at the American Society of Human Genetic Annual Meeting in

San Diego, CA 2018

**Poster presentation** at the American Society for Bone and

Mineral Research Annual Meeting in Montreal, Quebec. 2018

**Al-Barghouthi, B.**, Calabrese, G., Mesner, L., Tommasini, S., Bouxsein, M.,

Horowitz, M., Rosen, C., and Farber. C. “Systems Genetics of Bone Strength”.

**Oral presentation** at the Annual Meeting of the Complex Trait Community, Memphis, TN. 2017

**Al-Barghouthi, B.** & Farber, C. (Sept. and Nov. 2016). “Prediction of putative causal

variants and genes at BMD GWAS loci”.

**Poster presentation** at the American Society

for Bone and Mineral Research Annual Meeting in Atlanta, Georgia. 2016

**Poster presentation** at the BD2K All Hands Meeting in Bethesda, MD. 2016

**FUNDING**

NIH T32 Biomedical Data Science Training Grant (5T32LM012416-02) 2016-2018

AFFILIATIONS & PROFESSIONAL MEMBERSHIP

**Member,** The American Society of Human Genetics 2018-current

**Member,** American Society for Bone and Mineral Research 2016-current

SERVICE

**Student Representative,** *School of Medicine BIMS Curriculum Committee****,*** VA2017-current

* Development of the academic schedule, identification of the core course leadership, and working with course directors to establish class times within the BIMS master course schedule.