

BASEL M. AL-BARGHOUTHI

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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 publicly 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

Teaching Assistant, *University of Virginia School of Medicine*, VA Spring 2020

Course: PHS 5705 – Recent Advances in Public Health Genomics

- This course covered the fundamentals of human genetics and genomics. As a teaching assistant, I wrote most of the homework problems, graded the homeworks, and provided basic computational instruction.

Instructor, *University of Virginia School of Medicine*, VA Fall 2019

Course: BIMS 6000 – Core Course in Integrative Biosciences

- I taught the computational section of this course, which consisted of introductory programming in R and Tidyverse, as well as plotting with ggplot2.

Teaching Assistant, *University of Virginia School of Medicine*, VA 2016-2018

Course: BIMS 6000 – Core Course in Integrative Biosciences

- I assisted in teaching the computational section of this course, which consisted of introductory programming in R and Tidyverse, as well as plotting with ggplot2.

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

American Society of Human Genetics Annual Meeting (Houston, TX)	Oct. 2019
The European Calcified Tissue Society Ph.D. Training Course (Bologna, Italy)	Sept. 2019
Complex Traits Consortium/Rat Genomics 17 th Annual Meeting (San Diego, CA)	June 2019
American Society of Human Genetics Annual Meeting (San Diego, CA)	Oct. 2018
21 st 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 <i>Lhfp</i> as a regulator of bone mass". <i>PLoS Genetics</i> . 2019 May 1;15(5):e1008123. doi: 10.1371/journal.pgen.1008123.	2019
Huckaby, A, Granum C., Carey, M., Szlachta, K., Al-Barghouhti, B. , Wang, YH., and Guler, J. "Complex DNA structures trigger copy number variation across the Plasmodium falciparum genome". <i>Nucleic Acids Research</i> . 2019 Feb 28;47(4):1615-1627. doi: 10.1093/nar/gky1268.	2019
Al-Barghouhti, BM and Farber, CR "Dissecting the Genetics of Osteoporosis using Systems Approaches". <i>Trends in Genetics</i> . 2019 Jan;35(1):55-67. doi: 10.1016/j.tig.2018.10.004.	2019

CONFERENCE PRESENTATIONS

B.M. Al-Barghouhti , G. Calabrese, L. Mesner, C.J. Rosen, M.C. Horowitz, M.L. Bouxsein, D. Brooks, S.M. Tommasini, C.R. Farber. "Network Analysis Identifies Key Genetic Drivers of Bone Mass". Oral presentation at the American Society of Human Genetics Annual Meeting in Houston, TX.	2019
Al-Barghouhti, 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 17 th Annual Meeting in San Diego, CA. (June 10 2019).	2019
Al-Barghouhti, 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 Genetics 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-Barghouhti, 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-Barghouhti, 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
<u>AWARDS</u>	
ASBMR Young Investigator Award for the ECTS Ph.D. Training Course	2019
NIH T32 Biomedical Data Science Training Grant (5T32LM012416-02)	2016-2018
<u>AFFILIATIONS & PROFESSIONAL MEMBERSHIP</u>	
Member , Genetics Society of America	2019-current
Member , The American Society of Human Genetics	2018-current
Member , American Society for Bone and Mineral Research	2016-current
<u>SERVICE</u>	
Student Representative , <i>School of Medicine BIMS Curriculum Committee, VA</i>	2017-2019
<ul style="list-style-type: none"> • 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. 	