

STEPHEN B. TREASTER, Ph.D.

Stephen_Treaster@hms.harvard.edu || 321-345-6565
Department of Orthopedics, Boston Children's Hospital
Department of Genetics, Harvard Medical School



Computational biologist with a focus on aging and age-related diseases, leveraging natural examples of exceptional longevity to decipher mechanisms of senescence resistance. Animals that resist the rigors of time well past a human lifespan, that maintain health and function for centuries, will inform therapies to prevent aging and age-related diseases in people.

EDUCATION & EXPERIENCE

Postdoctoral Research Fellow at Harvard Medical School 10/17-Present

Genomics of longevity in Rockfish, with lifespans from 11 to over 200 years, Bivalves up to 507 years, Gobies down to forty-five days, across mammals, and within human populations.

Designed and performed targeted capture, sequencing, and assembly of conserved elements across 40 species.

Conceived, developed, and authored novel convergence analyses to reveal specific pathways underlying Rockfish, Human, and pan-mammalian longevity.

Generated a reference genome for *Arctica islandica* and identified specific amino-acid changes underlying their exceptional proteostasis.

Currently investigating the pathways identified in these projects to extend lifespan in conventional models and accelerated aging zebrafish mutants.

Owner and Developer of BlotSpotter.com 03/15-01/17

Conceived and developed a webtool for the automatic quantification and analysis of western blots, reducing a twenty-minute task to two minutes, and minimizing user bias. Designed and built the algorithm, user interface, and server from scratch.

Consulting Scientist at the University of Alabama at Birmingham 07/14-12/14

Knowledge transfer and research in comparative gerontology and proteostasis. Designed and performed experiments to study enzyme kinetics, protein unfolding and aggregation. Analyzed, interpreted, authored, and presented the results.

University of Texas Health Science Center at San Antonio, TX 09/09-05/14

Ph.D. in Molecular Medicine: Barshop Institute for Longevity

Independent research into bivalve longevity. Designed, performed, presented, and authored novel proteostasis assays to reveal a positive association with longevity, with the longest-lived species demonstrating unprecedented stability.

As a teaching assistant, led discussion and review groups for Modern Methods in Molecular Medicine and Advanced Molecular and Cellular Biology. Provided laboratory training, research guidance, and writing/presentation critiques.

University of Connecticut, Storrs, CT 09/05-05/09

B.S. in Molecular and Cell Biology, *magna cum laude*, Honors Program

Three minors, in Bioinformatics, Chemistry, and Philosophy

Honors Project: Independent experimental research and thesis on the differentiation and characterization of nuclear transfer derived embryonic stem cells.

AWARDS AND HONORS

National Academy of Medicine Healthy Longevity Accelerator: <u>\$187,500</u>	10/21
National Academy of Medicine Healthy Longevity Catalyst: <u>\$50,000</u>	10/20
Dovetail Tree of Life Genome Competition: <u>\$15,000</u>	10/20
Harvard Medical School Genetics Climate Change Fellowship: <u>\$100,000</u>	11/19
Boston Children's Hospital Postdoc Association Travel Award (AGE): <u>\$1000</u>	06/19
Glenn/AFAR Postdoctoral Fellowship in Aging Research: <u>\$60,000</u>	07/18
NIH/NIA T32 AG21890 "Training Grant on the Biology of Aging": <u>\$50,000</u>	01/13-05/14
UTHSCSA Molecular Medicine First Year Award: <u>\$5000</u>	09/09
UConn New England Scholar	09/05-05/09
UConn Honors Undergraduate Program	09/05-05/09
UConn Leadership & Academic Achievement Scholarship	09/05-05/09
UConn SURF and Treibick Scholar Awards: <u>\$4000</u>	05/07-09/08

PUBLICATIONS

- Treaster S.**, Deelen J., Daane J., Murabito J., Karasik K., Harris MP. (2023) *Convergent genomics of longevity in rockfishes highlights the genetics of human life span variation*. Science Advances
- Treaster S.**, Daane J., Harris MP. (2021) *Refining Convergent Rate Analysis with Topology in Mammalian Longevity and Marine Transitions*. Molecular Biology and Evolution
- Treaster S.**, Karasik, D., and Harris, MP. (2021) *Footprints in the Sand: Deep Taxonomic Comparisons in Vertebrate Genomics to Unveil the Genetic Programs of Human Longevity*. Frontiers in Genetics
- Peskin B., Henke K., Cumplido N., **Treaster S.**, Harris M., Bagnat M., Arratia G. (2020) *Notochordal Signals Establish Phylogenetic Identity of the Teleost Spine*. Current Biology
- Li C, Barton C, Henke K, Daane J, **Treaster S.**, Caetano-Lopes J, Tanguay RL, Harris MP. (2020) *celsr1a is essential for tissue homeostasis and onset of aging phenotypes in the zebrafish*. eLife
- Treaster, S.B.**, Chaudhuri, A.R., Austad, S.N. (2015) *Longevity and GAPDH Stability in Bivalves and Mammals: A Convenient Marker for Comparative Gerontology and Proteostasis*. PLoS ONE
- Treaster, S.B.**, Ridgway, I.D., Richardson, C.A., Gaspar, M.B., Chaudhuri, A.R., and Austad, S.N. (2014) *Superior proteome stability in the longest-lived animal*. AGE (now GeroScience)
- Zhang, Y., Bokov, A., Gelfond, J., Soto, V., Ikeno, Y., Hubbard, G., Diaz, V., Sloane, L., Maslin, K., **Treaster, S.**, et al. (2014). *Rapamycin extends life and health in C57BL/6 mice*. J. Gerontol. A. Biol. Sci. Med. Sci.
- Sung, L.-Y., Chang, C.-C., Amano, T., Lin, C.-J., Amano, M., **Treaster, S.B.**, Xu, J., Chang, W.-F., Nagy, Z.P., Yang, X., et al. (2010). *Efficient derivation of embryonic stem cells from nuclear transfer and parthenogenetic embryos derived from cryopreserved oocytes*. Cell. Reprogramming

PRESENTATIONS

Future Speaker: AGE 2024. Comparative Biology of Aging

Lecture/Speaker: Marine Biological Laboratory Biology of Aging Course 2023

Speaker: Harvard Genetics 2023

Speaker: Genomes of Animals and Plants 2022. *Genomics of exceptional longevity and its variation in *Arctica islandica*.*

Speaker: Aquatic Models of Human Disease (AQMHD) 2022. *Genomics of exceptional longevity and its variation in *Arctica islandica*.*

Speaker: Harvard Genetics 2022. *Leaving no stone unturned: Exceptional longevity in rockfish refines the genetics of human lifespan variation.*

Speaker: National Academy of Medicine Healthy Longevity Conference Sept. 2021. *Exceptional longevity in Rockfishes as a decoder for lifespan variation in humans.*

Speaker: Methuselah Health: Why We Age 2020. *Proteostasis is a signature of longevity.*

Speaker: AGE 2019. *Comparative genomics of exceptional longevity in rockfish.*

Speaker: Harvard Genetics 2019. *Comparative genomics of exceptional longevity.*

Speaker: Aquatic Models of Human Disease Conference (AQMHD) 2014. *Superior proteostasis in the world's longest-lived animal.*

Posters: Countless, with numerous best-poster awards.

OTHER

Reviewer for eLife; BMC Genomics; Cellular and Molecular Life Sciences; Evolution, Development and Ecology of Anemonefishes; Model Organisms for Marine Science

Featured In: Popular Science, The Scientist, NPR Germany, NPR Austria, Phys.org, HMS News, Drug Discovery News, AskByGeeks, Knowledia

Networking and Outreach Committee at Boston Children's Hospital Postdoctoral Association. Organized events and solicited funding to establish a postdoc community beyond the lab, alleviating academic and cultural isolation with friendly, inclusive opportunities for socializing, networking, and scientific exchange.

Additional Teaching: Helped to organize and teach a two-week intensive Biology of Aging course and lab at Woods Hole Marine Biological Laboratory. Developed course projects and materials, lectured, and trained students in computational and genetic experiments in aging.

Webdev: Created and maintain the website for the Harris Laboratory (fishbonelab.org).

REFERENCES

Postdoctoral Mentor

Dr. Matthew Harris
Associate Professor
Department of Genetics
Harvard Medical School
harris@genetics.med.harvard.edu

Collaborator

Dr. David Karasik
Associate Scientist
Hinda & Arthur Marcus Institute for Aging Research
Bar-Ilan University, Israel
david.karasik@biu.ac.il

Graduate Advisor

Dr. Steven Austad
Distinguished Professor and Department Chair
Protective Life Endowed Chair in Healthy Aging
Department of Biology
University of Alabama at Birmingham
austad@uab.edu