April Horton (formerly Hill)
Curriculum Vitae
Department of Biology, Bates College
Lewiston, ME 04240
804-318-6997
ahill5@bates.edu

Education
University of North Texas **(**Denton, TX), B.S., 1990, Biochemistry
University of Houston (Houston, TX), Ph.D., 1995, Biology (Human Genetics)

Academic Appointments
Bates College, Professor, Wagener Family Professor of Equity and Inclusion in STEM 2018-present
University of Richmond, Chair of Biology 2016-2018
University of Richmond, Professor, 2013-2018, Biology
University of Richmond, Clarence E. Denoon, Jr. Professor of Science 2009-2015
University of Richmond, Associate Professor, Coston Family Fellow in Molecular Biology, 2004-2009
Yale University, Associate Scientist, 2001-2003, Molecular, Cellular, & Developmental Biology
Fairfield University, Assistant/Associate Professor, 1997-2004, Biology
Harvard Medical School**,** Postdoctoral Fellow, 1995-97, Molecular & Developmental Biology

Current Research Area
Evolution of Animals, Animal Body Plans, and Animal Specific Gene Regulatory Networks
Evolution of Animal Symbioses and Genetic Regulation of Symbiosis
Study system: Marine and freshwater sponges; Porifera, microalgae

Current Leadership Role
Director of the STEM Inclusion initiative and STEM Scholars Program at Bates College. Providing leadership across STEM and consulting across campus in equity and inclusion education. Other areas of work include faculty/staff and student development, curricular innovation, policy/practice setting and evaluation, budget management, assessment, institutional research.

Publications
Peer-reviewed Articles **(***undergraduate**;** ◊ post-doc; post-bac**)**
A. Corral-Lou, A. Ramón-Laca, R. Gallego, L. Alcaraz, M. Conejero, C. Díez-Vives, A. Mathias, A.L. Horton, S. Mariani, S. Taboada, A. Riesgo. (2026) Comparative assessment of freshwater biodiversity in the Los Morales reservoir (Madrid) using eDNA collected from sponges and water filtration. Environmental DNA. 8:e70293. https://doi.org/10.1002/edn3.70293

A.L. Horton, H. Neighmond*, A. Neighmond*, R. Anderson*, M. Lessard, V. Price, S.P. Leys, A. Riesgo. (2026) Molecular and spatial integration of algal endosymbionts of the freshwater sponge, *Ephydatia muelleri*, throughout development in light and dark conditions. BMC Genomics. 27, 763. https://doi.org/10.1186/s12864-026-12618-w

R. Cassidy, L. de la Cruz, K. Mitsi, C. Galià-Camps, A. Benítez-López, C. Gracia-Sancha, J. Lorente-Sorolla, A. Álvarez, R. Mozo, S. Kolomyjec, S. Nichols, R. Manconi, R. Pereira, K. Evans, V. Itskovitch, A.L. Horton, S.P. Leys, S. Taboada, A. Riesgo. (2026) Genomic Connectivity and Adaptation Signals of the Freshwater Sponge *Ephydatia muelleri* across its distribution. *Journal of Biogeography*. 53:e70142.

C. Cevallos*, A.L. Leigh White*, B. Fazio*, L. Wendt, J. Feng, D. Posfai, A.L. Horton, J. Warrick, O.A. Quintero-Carmona. (2025) Transcriptomic Analysis of CAD Cell Differentiation. *microPublication Biology*. 10.17912.

S.P. Leys, L Grombacher, D. Field, V. Ho, G.R.D. Elliot, A.S. Kahn, P. Reid, A. Riesgo, E. Lanna, Y. Bobkov, J.F. Ryan, A.L. Horton. (2025) A Morphological Cell Atlas of the Freshwater Sponge, *Ephydatia muelleri*, with Key Insights from Targeted Single-Cell Transcriptomes. *EvoDevo* 16:1. https://doi.org/10.1186/s13227-025-00237-7

H. Neighmond*, A. Quinn*, B. Schmandt*, K. Ettinger*, A.L. Hill, L. Williams. (2023) Developmental Bisphenol S Toxicity in Two Freshwater Animal Models. *Environmental Toxicology and Pharmacology* 104:104311. https://doi.org/10.1016/j.etap.2023.104311.

M.S. Hill, B. Lawson, J.W. Cain, N. Rahman*, S. Toolsidass*, T. Wang*, S. Geraghty*, E. Raymundo*, A.L. Hill, (2023) Sustained Beneficial Infections: Priority Effects, Competition, and Specialization Drive Patterns of Association in Phototroph:Heterotroph Mutualisms. *Frontiers in Ecology and Evolution* 11. https://doi.org/10.3389/fevo.2023.1221012

K. Hustus◊, K. Mitsi, J. Nutakki*, V. Kering*, I. Nguyen*, M. Gomes Spencer*, S.P. Leys, M.S. Hill, A. Riesgo, A.L. Hill (2023) Algal Symbionts of the Freshwater Sponge *Ephydatia muelleri*. *Symbiosis.* https://doi.org/10.1007/s13199-023-00934-8.

S. Jones, A. Blake, L. Corado-Santiago, J Crenshaw◊, E. Goldman, F. Gomez◊, C. Hall◊, H. Hoke, S. Holmes◊, B. Kornegay◊, P. Kwarteng◊, B. Lawson, M. Leber◊, G. Leconte◊, E. Modeste◊, K. Nolin, M. Norris, J. Santinni Roma◊, A. Swackhammer◊, M. Torres◊, J. Wares, D. Williams◊, A. Hill, K. Hoke, C. Parish, BD Pierce. (2023) A SMART Decade: Outcomes of an Integrated, Inclusive, First-Year College-Level STEM Curricular Innovation. *Frontiers in Education* 8:1152339. doi: 10.3389/feduc.2023.1152339

S. Geraghty*, V. Koutsouveli◊, C. Hall◊, L. Chang*, O. Sacristan-Soriano◊, M.S. Hill, A. Riesgo, A.L. Hill (2021) Establishment of host:algal endosymbioses: Genetic response to symbiont versus prey in a sponge host. *Genome Biology and Evolution*. 13: evab252. https://doi.org/10.1093/gbe/evab252.

C. Hall◊, S. Camilli*, H. Dwaah*, B. Kornegay*, C.A. Lacy, M.S. Hill, A.L. Hill (2021) Freshwater sponge hosts and their green algal symbionts: a tractable model to understand intracellular symbiosis. *PeerJ* 9:e10654. https://doi.org/10.7717/peerj.10654.

N.J. Kenny, W.R. Francis, R.E. Rivera-Vicéns, K. Jurval, A. de Mendoza, C. Díez-Vives, R. Lister, L. Bezares-Calderon, L. Grombacher, M. Roller, L.D. Barlow, S. Camilli*, J.F. Ryan, G. Wöheide, A.L. Hill, A. Riesgo, S.P. Leys (2020) Tracing animal genomic evolution with the chromosomal-level assembly of the freshwater sponge *Ephydatia muelleri*. *Nature Communications*. 11: 3676. https://doi.org/10.1038/s41467-020-17397-w.

C. Hall◊, M. Rodriguez*, J. Garcia*, D. Posfai*, R. Dumez*, E. Wictor*, O. Quintero, M. Hill, A. Rivera, A. Hill (2019) Secreted frizzled related protein is a target of PaxB and plays a role in aquiferous system development in the freshwater sponge, *Ephydatia muelleri*. *PLOS ONE*. 14(2):e0212005. https://doi.org/10.1371/journal.pone.0212005

O. Sacristán-Soriano◊, M. Winkler, P. Erwin, J. Weisz, O. Harriott, G. Heussler, E. Bauer, B. West Marsden*, A. Hill, M. Hill (2019) Ontogeny of symbiont community structure in two carotenoid-rich, viviparous marine sponges: comparison of microbiomes and analysis of culturable pigmented heterotrophic bacteria. *Environmental Microbiology Reports*. https://doi.org/10.1111/1758-2229.12739

P. Windsor-Reid, E. Matveev, A. McClymont, D. Posfai*, A. Hill, S.P. Leys (2018) Wnt signaling and polarity in freshwater sponges. *BMC Evolutionary Biology*. 18:12.

J. Cramer, D. Pohlmann*, F. Gomez◊, L. Mark*, B. Kornegay*, C. Hall◊, N. Walavalkar, S. Bilinovich, J. Prokop, A. Hill, D. Williams (2017) Methylation specific targeting of a chromatin remodeling complex from sponges to humans. *Scientific Reports*. 7:40674.

Q. Schenkelaars, O. Quintero, C. Hall◊, L. Fierro-Constain, E. Renard, C. Borchiellini, A. Hill (2016) ROCK inhibition abolishes the establishment of the aquiferous system in *Ephydatia muelleri* (Porifera, Demospongiae). *Developmental Biology*. 412: 298-310.

A. Hill and S. Friday* (2015) Gene Regulation. In *Molecular Life Sciences*. In *Molecular Life Sciences,* R. D. Wells, J. S. Bond, J. Klinman, B. S. Masters, E. Bell, ed. (New York: Springer), Pp. 1-14.

B. Lawson, M. Hill, A. Hill, T. Heist*, and C. Hughes*. (2015) An Agent-Based Simulation Model of Sponge: Algae Symbiotic Relationships. *Proceedings of the 2015 Winter Simulation Conference*. Pp. 1012-1013.

Q. Schenkelaars, L. Fierro-Constain, E. Renard, A. Hill, C. Borchiellini (2015) Insights in Frizzled evolution and new perspectives. *Evolution and Development*. 17: 160-169.

R. McMullen* and A. Hill. (2014) Cis-regulation of Eukaryotic Transcription. In *Molecular Life Sciences,* R. D. Wells, J. S. Bond, J. Klinman, B. S. Masters, E. Bell, ed. (New York: Springer), Pp. 1-6.

A. Riesgo, K. Peterson*, C. Richardson*, T. Heist*, B. Strehlow*, M. McCauley*, C. Cotman*, M. Hill, A. Hill (2014) Transcriptomic analysis of differential host gene expression upon uptake of symbionts: as case study with Symbiodinium and the major bioeroding sponge *Cliona varians*. *BMC Genomics*. 15: 376.

E. Poppell, J. Weisz, L. Spicer, A. Massaro*, A. Hill, M. Hill (2014) Ecological structure of bacterial symbiont communities in high- & low-microbial abundance sponges and their effect on sponge heterotrophic capacity. *Marine Ecology*. DOI: 10.1111/maec.12098.

B. Thacker, A. Hill, M. Hill, N. Redmond, A.G. Collins, C. Morrow, L. Spicer, C. Hall*, D. Pohlmann*, C. Carmack, M. Zappe, P. Bangalore (2013) Nearly complete 28S rRNA gene sequences confirm new hypotheses of sponge evolution. *Integrative and Comparative Biology*. 53: 373-387. (journal cover)

A. Rivera◊, I. Winters*, A. Rued*, S. Ding*, D. Posfai*, B. Cieniewicz*, K. Cameron, L. Gentile, A. Hill (2013) The evolution and function of the Pax/Six regulatory network in sponges. *Evolution and Development* 15: 198-208.

M. Hill, A. Hill, J. Lopez, K.J. Peterson, S. Pomponi, C. Diaz, R. Thacker, M. Adamska, N. Boury-Esnault, P. Cardenas, A. Chaves-Fonnegra, E. Danka*, B. DeLaine*, D. Formica, E. Hajdu, G. Lobo-Hajdu, S. Klontz, C. Morrow, J. Patel, B. Picton, D. Pisani, D. Pohlmann*, N. Redmond, J. Reed, S. Richey*, A. Riesgo, E. Rubin, Z. Russell*, K. Rutzler, E. Sperling, M. di Stefano*, J. Tarver, A. Collins (2013) Reconstruction of Family-level phylogenetic relationships within Demospongiae (Porifera) using nuclear encoded housekeeping genes. *PLoS ONE.* 8: e50437.

C. Richardson*, M. Hill, C. Marks, L. Runyen-Janecky, A. Hill (2012) Experimental manipulation of sponge:bacterial symbiont community composition with antibiotics: sponge cell aggregates as a unique tool to study animal:microbe symbiosis. *FEMS Microbiology Ecology*. 81: 407-418.

M. Hill and A. Hill (2012) The magnesium inhibition and arrested phagosome hypotheses: new perspectives on the evolution and ecology of Symbiodinium symbioses. *Biological Reviews*. 87: 804-821.

S. Leys and A. Hill (2012) The physiology and molecular biology of sponge tissues in *Advances in Marine Biology – Advances in Sponge Science: Physiology, Chemical and Microbial Diversity, Biotechnology,* M. Beccero et. al., editors – Vol. 62. Pp. 1-56.

L. Gentile, L. Caudill, M. Fetea, A. Hill, K. Hoke, B. Lawson, O. Lipan, M. Kerckhove, C. Parish, K. Stenger, D. Szajda (2012) Challenging disciplinary boundaries in the first-year: A new introductory integrated science course for STEM majors. *Journal of College Science Teaching*. 41: 44-50. (Pedagogical Publication)

A. Rivera◊, J. Hammel, K. Haen, E. Danka*, B. Cieniewicz*, I. Winters*, D. Posfai*, G. Wörheide, D. Lavrov, S. Knight, M. Hill, A. Hill, and M. Nickel (2011) RNA interference in marine and freshwater sponges: actin knockdown in *Tethya wilhelma* and *Ephydatia muelleri* by ingested dsRNA expressing bacteria. *BMC Biotechnology*, 11: 67. (Highly accessed)

M. Hill, A. Allenby*, B. Ramsby*, C. Schönberg and A. Hill (2011) Symbiodinium diversity among host clionaid sponges from Caribbean and Pacific Reefs: evidence of heteroplasmy and putative host-specific symbiont lineages. *Molecular Phylogenetics and Evolution*. 59: 81-88.

K. Holstien*, A. Rivera◊, S. Ding*, P. Windsor, S. Leys, M. Hill and A. Hill (2010) Expansion, Diversification, and Expression of T-box Family Genes in Porifera. *Development, Genes, and Evolution.* 220: 251-262.

L. Caudill, A. Hill, K. Hoke, and O. Lipan (2010) Impact of Interdisciplinary Undergraduate Research in Mathematics and Biology in the Development of a New Course Integrating Five STEM Disciplines. *CBE – Life Sciences Education.* 9: 212-216. (Pedagogical Publication)

A. Hill, W. Boll, C. Ries, L. Warner*, M. Osswalt*, M. Hill and M. Noll (2010) Origin of Pax and Six gene families in sponges: Single PaxB and Six1/2 orthologs in *Chalinula loosanoffi*, *Developmental Biology* 343: 106-123.

B. West*, J. Brandt*, K. Holstien*, A. Hill, and M. Hill (2009) Fern-associated arbuscular mycorrhizal fungi are represented by multiple Glomus spp.: do environmental factors influence partner identity? *Mycorrhiza* 19: 295-304.

M. Hill and A. Hill. (2009) Porifera (sponges). In: G. Likens (ed.) Encyclopedia of Inland Waters. Elsevier Press, Oxford, UK.

N. Lemoine*, N. Buell*, A. Hill, and M. Hill. (2007) Assessing the utility of sponge microbial symbiont communities as models to study global climate change: a case study with Halichondria bowerbanki. p. 419-425. In: Hajdu, E., and G. Muricy (eds*.). Porifera Research: Biodiversity, Innovation, and Sustainability*.

M. Hill, A. Hill, N. Lopez* and O. Harriott (2006) Sponge-specific bacterial symbionts in the Caribbean sponge, Chondrilla nucula. *Marine Biology*. 148: 1221-1230.

A. Hill, J. Tetrault*, and M. Hill (2004) Isolation and expression analysis of a poriferan *Antp*-class *BarX/Bsh*-like homeobox gene*. Development, Genes and Evolution*. 214 (10): 515-523.

A. Hill, A. Wagner*, and M. Hill (2003) *Hox* and *paraHox* genes from the anthozoan *Parazoanthus parasiticus*. *Molecular Phylogenetics and Evolution*. *28: 529-535*.

A. Hill, N. Brown, M. Hill, D. Wells (2002) "Identification of the *Xenopus laevis* cDNA for EXT1: A Phylogenetic Perspective. *DNA Sequence. 13: 85-92.*

M. Hill, and A. Hill (2002) “Morphological Plasticity in the tropical sponge *Anthosigmella varians:* responses to predators and wave energy” *Biological Bulletin. 202: 86-95.*

M. Hill, C. Stabile*, L.K. Steffen, and A. Hill (2002) “Toxic Effects of Endocrine Disrupters on Two Species of Freshwater Sponge: Common Developmental Abnormalities.” *Environmental Pollution. 117: 295-300.*

Dan E. Wells and April Hill (2001) “Gene Clusters” in Wiley Encyclopedia of Molecular Medicine, 5 Volume Set. edited by Thomas E. Creighton, John Wiley & Sons, Inc.

M.J. Hilton, L. Gutierrez, L. Zhang, P. Moreno, M. Reddy, N. Brown, Y. Tan, A. Hill, and D.E. Wells (2001) “An Integrated Physical Map of 8q22-24: Use in Positional Cloning and Deletion Analysis of Langer-Giedion Syndrome.” *Genomics* 71 (2): 192-199.

M. Hill, O. Harriott, and A. Hill (2000) “Exploring symbiotic microbial diversity in marine sponges: Using the polymerase chain reaction to amplify 16S rDNA from culturable and unculturable bacteria.” *American Society for Microbiology MicrobeLibrary Curriculum Resources*. (Pedagogical Publication).

A.Hill, S. Phelan, and M.R. Loeken (1998) “Reduced expression of Pax-3 is associated with overexpression of cdc46 in the mouse embryo.” *Development, Genes and Evolution* 208: 128-134.

J. Cai, S. Phelan, A. Hill, and M.R. Loeken (1998) “Identification of Dep-1, a New Gene Regulated by the Transcription Factor Pax-3, as a Marker for Altered Embryonic Gene Expression During Diabetic Pregnancy.” *Diabetes* 47:1803-1805.

A. Hill, Y. Harada, E. Takahashi, J. Hou, M.J. Wagner, and D. E. Wells (1997) FRA8E localizes close to the EXT1 gene and to 2 overlapping LGS deletion endpoints at 8q24.11. *Cytogenetics and Cell Genetics* 78:56-57.

D.E. Wells, A. Hill, X. Lin, J. Ahn, N. Brown, and M.J. Wagner (1997) Identification of Novel Mutations in the Human EXT1 Tumour Suppressor Gene*. Human Genetics* 99:612-615.

H.-J. Ludecke, J. Ahn, X. Lin, A. Hill, M.J. Wagner, L. Schomburg, B. Horsthemke, and D.E. Wells (1997) Genomic Organization and Promoter Structure of the Human EXT1 Gene. *Genomics* 40:351-354.

J. Hou, J. Parrish, H.-J. Ludecke, M. Sapru, Y. Wang, W. Chen, A. Hill, J. Siegel-Bartelt, H. Northrup, F.F.B. Elder, C. Chinault, B. Horsthemke, M.J. Wagner, and D.E. Wells (1995) A 4-Megabase YAC Contig that Spans the Langer-Giedion Syndrome Region on Human Chromosome 8q24.1: Use in Refining the Location of the Trichorhinophalangeal Syndrome and Multiple Exostoses Genes (EXT1 and TRPSI). *Genomics* 29:87-97.

W.Wuyts, S. Ramlakhan, W.V. Hul, J.T. Hecht, A.M.W. van den Ouweland, W Raskind, F.C. Hofstede, E. Reyniers, D.E. Wells, B. de Vries, E.U. Conrad, A. Hill, D. Zalatayev, J. Weissenbach, M.J. Wagner, E. Bakker, D.J.J. Halley, and P.J. Willems (1995) Refinement of the Multiple *Exostoses* (EXT) Locus on Chromosome 11 to a 3 cM Interval. *American Journal of Human Genetics* 57: 382-387.

A. Hill; previously A. Cook
E. Shore, A. Cook, G. Hahn, F. Kaplan, J. Wozney, M.J. Wagner, and D.E. Wells (1995) BMP1 Sublocalization on Human Chromosome 8: Molecular Anatomy and Orthopaedic Implications. *Clinical Orthopaedics and Related Research*. 311: 199-209.

A. Cook, W. Raskind, S. Blanton, R. Pauli, R. Gregg, C. Francomano, E. Puffenberger, E. Conrad, G. Schmale, G. Schellenberg, E. Wijsman, J. Hecht, D.E. Wells and M.J. Wagner (1993) Genetic Heterogeneity in Families with Hereditary Multiple Exostosis. *American Journal of Human Genetics* 53:71-79.

D. Brown, A. Cook, M. Wagner and D.E. Wells (1992) Closely Linked H2B Genes in the Marine Copepod, *Tigriopus californicus*, Indicate a Recent Gene Duplication or Gene Conversion Event. *DNA Sequence* 2: 387-396.

Other publications

V. Ho◊, S.P. Leys, A.L. Hill (2024) Fluorescent in situ hybridization in sponge (Ephydatia muelleri) tissues with tyramide signal amplification. Protocols.io.

S. Sogabe◊, T. Cornish*, A. Hill, A. Riesgo, S.P. Leys (2022) Inducing gemmulation in the freshwater sponge Ephydatia muelleri in culture using theophylline. Protocols.io

S. Sogabe◊, T. Cornish*, A. Hill, A. Riesgo, S.P. Leys (2022) Methods for culturing the freshwater sponge Ephydatia muelleri: Growing sponges on agarose and priming gemmules. Protocols.io

S. Camilli*, V. Koutsouveli◊, C. Hall◊, L. Chang*, O. Sacristan-Soriano◊, M. Hill, A. Riesgo, A. Hill (2021) Insights into early stages of the establishment of host:algal endosymbiosis: Genetic responses to live versus heat-killed algae and bacterial prey in a sponge host. bioRxiv: https://doi.org/10.1101/2021.06.16.448416.

C. Hall◊, S. Camilli*, H. Dwaah*, B. Kornegay*, C.A. Lacy, M.S. Hill, A.L. Hill (2020) Freshwater sponge hosts and their green algal symbionts: a tractable model to understand intracellular symbiosis. bioRxiv: https://doi.org/10.1101/2020.08.12.247908.

A. Hill, I. Nguyen, M. Hill (2020). Isolation of green algal symbionts from freshwater sponges and subsequent reinfection of sponge tissues. protocols.io.

S. Leys, L. Grombacher, A. Hill (2019). Hatching and freezing gemmules from the freshwater sponge *Ephydatia muelleri* . protocols.io

Grants, Awards, Fellowships and Recognitions

Agencia Estatal de Investigación, Ministerio de Ciencia, Innovación y Universidades **2024-2027** "Biological and environmental drivers shaping the composition and function of symbiotic associations in freshwater sponges (SYMBIOFRESH)." (International research team member; PI A. Riesgo)

National Science Foundation – University of Maine EPSCoR **2021-2023** "Molecules to Ecosystems: A Course-Based Undergraduate Research Experience." (PI)

Gordon and Betty Moore Foundation Symbiosis Model Systems **2020-2024** "A Freshwater Sponge Holobiont: A broadly accessible emerging model system to understand evolutionary and ecological consequences of host:alga and host:microbe symbiont specialization." (PI, Co-PIs A. Riesgo and S.P. Leys)

The Wellcome Sanger Institute Tree of Life Programme and Gordon and Betty Moore Foundation **2020-present** Aquatic Symbiosis Genomics research hub on sponges (Collaborator).

Endowed Chair, Wagener Family Professor of Equity and Inclusion in STEM – **2018**.

Virginia Foundation for Independent Colleges (VFIC), Award for Excellence in Undergraduate Teaching. **2017**

National Science Foundation IOS **2016-2021** "Collaborative Research: RUI: Evaluating the molecular genetic pathways responsible for stable host:symbiont interactions in sponge:algal associations." (Co-PI with M. Hill and J. Weisz)

State Council of Higher Education for Virginia Outstanding Faculty Award. **2016.**

Elected, *Society of Integrated and Comparative Biology* Executive Committee. **2016-2020**.

Featured in: Monya Baker (**2015**) Inner Scientists Unleashed. *Nature*. 523: 276-278.

National Science Foundation IOS Preliminary Proposal **2015** "Collaborative Research: RUI: Characterizing Pathways of Intracellular Persistence in Phototroph:Sponge Symbioses." (Co-PI with M. Hill and J. Weisz), Selected for full proposal.

University of Richmond, Advisor Excellence Award - **2014**.

University of Richmond, Outstanding Mentor Award - **2014**.

National Science Foundation EF **2014-2016** "Pilot of Southeast Regional PULSE (SERP) Institute for Inspiring and Supporting Department-wide Reform of Undergraduate Life Sciences Education." (Co-PI with Ellen Goldey and Judy Awong-Taylor).

Howard Hughes Medical Institute **2014** "Southeast Regional PULSE (SERP) Institute."

National Science Foundation, DBI **2013** "Southeast Regional PULSE Conference Planning Meeting." (Senior Personnel).

National Science Foundation, Emerging Frontiers, Transforming Undergraduate Biology Education **2013-2014** "EAGER: Raising Awareness of PULSE Through a Targeted Public Awareness Campaign to Engage Life Science Departments in Implementing Vision and Change." (Co-PI with William Davis, PI, Judy Awong-Taylor and Richard Cardullo).

EDEN: Evo-Devo-Eco Network of National Science Foundation **2013** "The Rho/Rock pathway: a metazoan conserved molecular toolkit for epithelial morphogenesis." (PI for Quentin Schenkelaars, PhD student IMBE, Marseille, France).

PULSE Fellow **2013-2019**

NSF, HHMI, NIH-NIGMS PULSE Vision & Change Founding Leadership Fellow **2012-2013** - Partnership for Undergraduate Life Sciences Education (PULSE). PULSE is a joint effort by National Science Foundation (NSF), National Institutes of Health/NIGMS (NIH/NIGMS) and Howard Hughes Medical Institute (HHMI) to stimulate systemic changes within biology departments at all types of post-secondary educational institutions, based upon the findings from the 2011 report *Vision and Change in Undergraduate Biology Education: A Call to Action* and other similar calls for transformation of undergraduate life sciences education.

Deutsches Elektronen-Synchrotron (German Electron Synchrotron; DESY) for use of new high brilliance 3rd Generation Synchrotron Radiation Source -Petra III. **2012-2013** "Integrative functional genetic study of developmental genes in early evolved multicellular animals." (Co-PI with Dr. Jörg U. Hammel, Germany).

Endowed Chair. Clarence E. Denoon Jr., Professorship of Science. **2009-2015**

University of Richmond, Distinguished Educator Award, August **2008**

National Science Foundation, DEB Assembling the Tree of Life **2008-2014** "Collaborative Research: AToL: PorToL – The Porifera Tree of Life." (Co-PI with M. Hill and International and National Consortium).

Thomas F. and Kate Miller Jeffress Memorial Trust, **2007, 2008-11**. "Development of a 'Model Sponge System' to Study the Evolution of Early Animal Body Plans and Sensory Systems." (renewals and no-cost extension)

National Science Foundation, OCE, **2007-2011** "RUI: Stability and structure of temperate and tropical marine sponge symbiont communities in response to climate change.," (Co-PI with Malcolm Hill, Jonathan Dattelbaum and Olivia Harriott).

University of Richmond, Summer Research Fellowship Research Grant, "Using a basal animal to understand the role of nervous system regulatory genes before the nervous system evolved." **2005**

Coston Family Fellow in Molecular Biology, University of Richmond, **2004-2009**.

National Science Foundation: Science Education for New Civic Engagements and Responsibilities (SENCER) Summer Institutes in **2002, 2003**.

National Science Foundation, IOS: **2001-2003** "ROA: *Insights into Early Animal Evolution: Developmental Genes in Sponges*" April Hill with Frank Ruddle, PI (Yale University; award 9905403).

Center for Theology and the Natural Sciences Course Grant, **2001**: "Science and Religion: Contemporary Issues and Prospects for Public Dialogue" April Hill and David Schmidt.

Sigma Xi Grants-in-Aid, **2001** "Isolation of Hox-like Family Members in Sponges: Sponges as a Model System to Study Evolution of Developmental Regulatory Mechanisms."

Fairfield University Teacher of the Year - **1999**

Laboratory Teaching Initiative Grant from the American Biology Laboratory Education Scholarship Committee: "*Freshwater sponges as bioindicators: An undergraduate investigative lab involving morphological and molecular bioassays*." **1999**

Juvenile Diabetes Foundation International Postdoctoral Fellowship, **1996** "The Involvement of Cell Cycle Control Genes and Apoptosis in Neural Tube Defects Induced by Diabetic Pregnancy."

Institutional Grant Activity

Howard Hughes Medical Institute, Inclusive Excellence Program, **2018-2025**, Project Director and Leadership team member, Bates College.

Howard Hughes Medical Institute, Undergraduate Science Education Program, **2012-2016**, Director and Contributor, University of Richmond

Beckman Scholars Program Award, **2006-2009, 2009-2012**, **2012-2016, 2016-2019**, Contributor & Faculty Mentor

Howard Hughes Medical Institute, Undergraduate Science Education Program, **2008-2012**, Contributor

Merck-AAAS Summer Undergraduate Science Research Program, **2007-2010**, Contributor

William and Flora Hewlett Foundation: **2001-03** "Renewing the Core Curriculum: Natural Science and Technology Enhancement Project." Co-director

Merck-AAAS Summer Undergraduate Science Research Program, **2000-2003**, Contributor

Genome/Transcriptome Sequencing Projects
Cliona varians genome and holobiome. Collaborator in Aquatic Symbiosis Genomics Project Phase 1, Sponges as symbiont communities Hub (led by Ute Hentschel) where approximately 50 species will be sequenced. Funded by Wellcome Sanger Institute and Gordon and Betty Moore Foundation.

Ephydatia muelleri genome and Sponge Sister Species genome projects. Co-PI genome sequencing, assembly, and annotation in progress. My laboratory provided sequencing data from 100 base Paired End Illumina sequencing performed at the Genomic and RNA Profiling Core Facility, Baylor College of Medicine. Our lab is contributing to the annotation of the genome.

Selected Professional Activities (*Undergraduate or Postbac)
Wellesley College. Mar 2026 (Wellesley, MA). Microalgae within animal cells: Unveiling the molecular mechanisms and implications of photosymbiosis. Invited Seminar.

Wellesley College. Mar 2026 (Wellesley, MA). CUREs, re-designed gateways, and pedagogical change in the Biology curriculum. Invited Seminar.

Colby College. Mar 2026 (Waterville, ME). Microalgae within animal cells: Unveiling the molecular mechanisms and implications of photosymbiosis. Invited Seminar.

The Illuminators Gathering. Nov 2025 (Windsor, CT) Invited speaker.

Bigelow Laboratory for Ocean Science. Oct 2025 (Boothbay Harbor, ME). Molecular and spatial integration of algal endosymbionts of the freshwater sponge, *Ephydatia muelleri*, throughout development in light and dark conditions. Invited Seminar.

World Sponge Meeting. Sept 2025 (Porto, Portugal). The Flexible Life of Freshwater Sponge-Algal Relationships: Molecular Pathways and Environmental Cues Driving Endosymbiont Integration. **Key Note Speaker.**

World Sponge Meeting. Sept 2025 (Porto, Portugal). Sponge eyes: Evidence for a photoreceptor in the calcareous sponge amphiblastula larva. S. Leys et al.

World Sponge Meeting. Sept 2025 (Porto, Portugal). Genomic connectivity and adaptation signals of the freshwater sponge Ephydatia muelleri across its distribution. L. de la Cruz Castillejo et al.

World Sponge Meeting. Sept 2025 (Porto, Portugal). Freshwater sponges acquired anaerobic cofactor biosynthesis genes from microbes. S. Paraskevopoulou et al.

World Sponge Meeting. Sept 2025 (Porto, Portugal). Comparative assessment of freshwater biodiversity in the Los Morales reservoir (Madrid) using eDNA collected from sponges and water filtration. A. Corral-Lou et al.

Iberian Ecological Society (SIBECOL). June 2025 (Galicia, Spain). Genomic connectivity and adaptation signals of the freshwater sponge Ephydatia muelleri across its distribution. R. Cassidy, L. de la Cruz, K. Mitsi, C. Galiá-Campos, A. Benítez-López, C. Gracia-Sancha, J. Lorente-Sorolla, A. Álvarez, R. Mozo, S.H. Kolomyjec, S.A. Nichols, R. Manconi, R. Pereira, K. Evans, V. Itskovich, A.L. Horton, S.P. Leys, S. Taboada, A. Riesgo.

Teaching and Learning Symposium on Social Justice in Higher Education February 2025 (HCCC Webinar). Reform across STEM Disciplines with Equity and Justice as the Guiding Principle: A Case Study at Bates College. A. Hill, K. Ott.

The American Society for Cell Biology. December 2024 (San Diego, CA). Teachstravaganza: a collaborative curricular development community bases in open science. V. Segarra, C.C. Goller, A.G. Solis, S. Guerrier, A.D. Dubash, A.L. Horton, G.L. Hunter, M.M. Riel-Mehan, C.L. Vizcarra, K. Casimo, D.A. Applewhite, K.L. Cerveny, O.A. Quintero-Carmona.

Accelerating Systemic Change in STEM Higher Education. May 2024 (ASCN Webinar). In the STEM Leadership Series: Excellence, Catalysts for Change, and Inclusive Impact. Course and Curricular Reform across STEM Disciplines with Equity and Justice as the Guiding Principle: A Case Study at Bates College. A. Horton, K. Ott.

AAC&U Transforming STEM Higher Education Conference. November 2023 (Arlington, VA) Reform across STEM Disciplines with Equity and Justice as the Guiding Principle: A Case Study at Bates College. A. Hill, K. Ott, A. Diamond-Stanic.

Gordon Undergraduate Biology Education Research. June 2023 (Lewiston, ME) Course and Curricular Reform across STEM Disciplines with Equity and Justice as the Guiding Principle: A Case Study at Bates College. A. Hill.

Northeast Society of Toxicology Meeting. October 2022 (Boston, MA) Exposure to BPS Leads to Developmental Abnormalities in the Freshwater Sponge *Ephydatia muelleri.* H. Neighmond, A. Quinn, A. Hill.

11th International Sponge Symposium. October 2022 (Leiden, Netherlands) Development of *Ephydatia muelleri* as a model for studying animal:algal endosymbiosis. A. Hill, M. Hill, K. Hustus, L. Chang, I. Nguyen, A. Mohanty, C. Hall, S. Geraghty, V. Koutsouveli, O. Sacristán-Soriano, A. Riesgo, S. Leys.

11th International Sponge Symposium. October 2022 (Leiden, Netherlands) The relationship between the genotype and the microbial communities in the freshwater sponge Ephydatia muelleri. K. Mitsi, C. Díez-Vives, S. Taboada, A. Verdes, M. Conejero, D. Cuesta, S. Kolomyjec, S. Nichols, R. Manconi, C. Fiore, K. Evans, J. Lucey, J. Morales, S. Leys, A. Hill, A. Riesgo.

14th International Coral Reef Symposium. July 2022 (Bremen, Germany) What is the resilience of bioeroding sponges facing climate change? An experimental approach on *Cliona varians* performance. O. Sacristán-Soriano, C. Eareckson*, M. Lippert*, L. Arick, E. Hall, X. Turon Barrera, A. Hill, M. Hill.

Canadian Society of Zoologists 60th Annual Meeting. May 2021 (virtual) Developing transfection methods in the emerging freshwater sponge model *Ephydatia muelleri*. S. Sogabe, A. Hill, A. Riesgo, S. Leys.

Society for Integrative and Comparative Biology. January 2021 (virtual) The freshwater sponge, *Ephydatia muelleri*, and its chlorophyte symbiont: a model to understand intracellular symbiosis. A. Hill, C. Hall, S. Camilli, H. Dwaah, B. Kornegay, C. Lacy, M. Hill.

Biodiversity Genomics. October 2020 (virtual) The freshwater sponge *Ephydatia muelleri*: a new early branching metazoan model for understanding genomic evolution. With *E. muelleri* genome team.

Malate Dehydrogenase CUREs Community IUSE Annual Meeting. August 2020 (virtual) Creating Inclusive Classrooms through CUREs? Keynote Speaker.

Society for Integrative and Comparative Biology. January 2019 (Tampa, FL) Sponge:algal symbioses and the molecular genetic pathways involved in host:symbiont associations. A. Hill, M. Hill, C. Hall*, O. Sacristán-Soriano, O. Riesgo, S. Camilli*, M. Delbeau*, H. Dwaah*

The Triangle Cytoskeleton Meeting. September 2018 (Saxapahaw, NC) Transcriptomic Analysis of CAD Cell Differentiation. A.L. White, C. Cevallos*, D. Posfai, J. Feng*, A. Hill, J. Warrick, O. Quintero.

Society for Integrative and Comparative Biology. January 2018 (San Francisco, CA) Patterning the freshwater sponge aquiferous system: Wnt signaling and Pax networks. A. Hill, C. Hall*, M. Rodriguez*, J. Garcia*, D. Posfai*, E. Wictor*, A. Wei*, A. Rivera.

Society for Integrative and Comparative Biology. January 2018 (San Francisco, CA) Development of a Model System to Study Sponge:Algal Symbiosis. G. Gentile*, H. Dwaah*, S. Camilli*, C. Hall*, M. Delbeau*, S. Elmaleh*, A. Riesgo, O. Soriono, M. Hill, A. Hill.

American Society for Biochemistry and Molecular Biology Symposium: Transforming Undergraduate Education in Molecular Life Sciences. July 2017 (Tampa, FL) Moving from Surviving to Thriving: Transforming the First-Year Science Experience. Keynote Speaker.

10th World Sponge Meeting. June 2017 (Galway, Ireland) A novel secreted frizzled related protein is a downstream target of paxb and a regulator of aquiferous system development in the freshwater sponge, *Ephydatia muelleri*. A. Hill, C. Hall*, D. Posfai*, E. Wictor, M. Rodriguez*, R. Dumez*, J. Garcia*, A. Gazi*, A. Rivera.

The Association for the Sciences of Limnology and Oceanography (ASLO). Feb 2017 (Honolulu, HI) Sponge bleaching, *Symbiodinium* symbioses, and forces that shape coevolutionary specialization. M. Hill, G. Fundakowski*, T. Heist*, C. Hughes*, A. Hill, B. Lawson, J.W. Cain, P. Kvam.

SENCER Center for Innovation-Southwest Regional Symposium. February 2017 (Denton, TX) Expanding Civic Capacity: Connecting learning to real-world issues through teacher preparation and faculty development. Opening plenary speaker.

Society for Integrative and Comparative Biology. January 2017 (New Orleans, LA) “Methylation and chromatin remodeling complex from sponges to humans.” B. Kornegay, J. Cramer, D. Pohlmann, F. Gomez, L. Mark, C. Hall, E. Iraliev-Perez, N.M. Walavalkar, M.J. Sperlazza, J.W. Prokop, D.C. Williams, A. Hill.

Society for Integrative and Comparative Biology. January 2017 (New Orleans, LA) “Secreted frizzled related protein is a putative downstream target of PaxB in the freshwater sponge, Ephydatia muelleri.” C. Hall, M. Rodriguez, A. Wei, E. Wictor, A, Gazi, J. Garcia, G. Gentile, A. Rivera, A. Hill.

Florida Atlantic University. October 2016 (Jupiter, FL) “Moving from surviving to thriving: Transforming the first year STEM curriculum.”

SENCER Summer Institute. Plenary Speaker. July/Aug 2016 (Chicago, IL) “SENCER: Transforming STEM for majors, and it’s about time, too.”

30th Annual Symposium of the Protein Society. Invited Speaker. July 2016 (Baltimore, MD) “Moving from surviving to thriving: Transforming the first year STEM curriculum.”

Southeast Regional PULSE Institute, Plenary Speaker. June 2016 (Greenville, SC) “Moving from surviving to thriving: Transforming the first year STEM curriculum.”

Southeast Regional PULSE Institute, Workshop Leader. June 2016 (Greenville, SC) “Integrated, Interdisciplinary, and Inclusive 1st Year Science Courses.” with K. Hoke, C. Hoke, and W. Case.

University of California, Los Angeles, Invited Workshop. May 2016 (Los Angeles, CA) “Development, Implementation and Outcomes of an Integrated Science Curriculum for First-Year STEM Students.”

University of California, Los Angeles, Invited Seminar. May 2016 (Los Angeles, CA) “Evolutionary origins and function of animal specific gene regulatory networks: insights from the sponges.”

45th Annual Benthic Ecology Meeting. March 2016 (Portland, ME) "Exploring factors favoring coevolutionary specialization: Agent based and deterministic modeling with tests involving sponge:*Symbiodinium* symbioses” M. Hill, G. Fundakowski*, T. Heist*, C. Hughes*, N. Rahman*, S. Toolsidass*, T. Wang*, A. Hill, B. Lawson, J.W. Cain.

Society for Integrative and Comparative Biology. January 2016 (Portland, OR) “Role of the Rho-Rock Pathway in Sponge Morphogenesis.” A. Hill, Q. Schenkelaars, C. Hall*, O. Quintero, L. Fierro-Constain, E. Renard, C. Borchiellini.

Winter Simulation Conference. November 2015 (San Diego, CA) “An Agent-Based Simulation Model of Sponge: Algae Symbiotic Relationships.” B. Lawson, M. Hill, A. Hill, T. Heist*, and C. Hughes*.

AAC&U Crossing Boundaries: Transforming STEM Education. November 2015 (Seattle, WA) “Moving Mountains: Lessons from Twenty Institutions Engaged in Department-Wide Undergraduate STEM Education Reform.” E. Goldey, C. Finelli, S. Musante, J.Awong-Taylor, M. Brown, A. Hill.

AAC&U Crossing Boundaries: Transforming STEM Education. November 2015 (Seattle, WA) “URISE: University of Richmond Integrated Science Experience.” A. Hill, C. Parish, K. Hoke, L. Runyen-Janecky.

Wofford College, Invited Workshop. October 2015 (Spartanburg, SC) “We all rise in URISE: An integrated model for student success in STEM.

Wofford College, Invited Seminar. October 2015 (Spartanburg, SC) “How did Sponge Bob get his eyes? Tales of gene networks that set the stage for animal evolution.”

Beckman Scholars Program. August 2015 (Irvine, CA) “Investigating Intracellular Symbiont Dynamics in Sponge:Symbiodinium Relationships.” T. Heist*, C. Hughes*, A. Hill, B. Lawson, M. Hill.

Gordon Research Conference: Undergraduate Biology Education Research. July 2015 (Bates College, ME) “Moving Mountains: The Impact of the Southeastern Regional PULSE Initiative on Twenty Diverse Institutions Engaged in Department-Wide Undergraduate Biology Reform.” E. Goldey, K. Aguirre, J. Awong-Taylor, H. Belmont, J. Choi, C. Finelli, C. Harmon, A. Hill, N. Jacob, M. Lee-Brown, S. Musante, S. Romano, M. Smith.

HHMI Constellation Studio for Science Education: Adapting Promising Practices and Promoting Institutuional Change. June 2015 (Chevy Chase, MD) “University of Richmond Integrated Science Experience (URISE): A Comprehensive Model for Inclusion and Persistence.” A. Hill, K. Hoke, C. Parish, L. Runyen-Janecky.

3rd Annual INSPIRE Scientific Teaching Seminar Keynote Speaker. May 2015 (Rutgers University, NJ) “What is your vision for change?: Harnessing the capacity and creativity of life science departments to transform student learning experiences. A. Hill

Association for Southeastern Biologists Annual Meeting. April 2015 (Chattanooga, TN) “Crafting and implementing a shared vision for department-wide improvement of Undergraduate Life Sciences Education.” A. Hill with Southeastern PULSE Fellows.

American Society for Biochemistry and Molecular Biology-Virginia UAN Research Conference. October 2014 (Richmond, VA) “Over-expression system for the freshwater sponge, Ephydatia muelleri.” J. Walsh*, C. Cevallos*, A. Hill.

2nd International Symposium on Sponge Microbiology. October 2014 (Baltimore, MD) “Modeling establishment of intracellular symbiont populations: a case study informed by sponge:*symbiodinium* relationships.” T. Heist*, C. Hughes*, A. Hill, B. Lawson, M. Hill

XVII Iberian Symposium on Marine Biology. September 2014 (Gijón, Asturias) “Effects of ROCK Inhibitor on the Rho-Rock Pathway in E. muelleri.” Q. Schenkelaars, L. Fierro-Constain, E. Renard, C. Borchiellini, A. Hill

Dartmouth College, Invited Seminar. August 2014 (Hanover, NH) “The Evolution and Function of Animal Specific Gene Regulatory Networks in Sponges.”

Southeast Regional PULSE Institute. June 2014 (Richmond, VA) “Integrated and Interdisciplinary 1st year Course Models: Partnering with other STEM Disciplines to Transform your Life Science Department’s Curriculum.” Workshop with L. Runyen-Janecky, W. Case, K. Hoke, A.Hill and Richmond students.

Evolution Conference. June 2014 (Raleigh, NC) “Identification of downstream targets of the *Pax* gene in the sponge *Ephydatia muelleri.”* A. Rivera, N. Haberkern*, A. Arul Nambi Rajan*, D. Posfai*, A. Hill.

Association for Southeastern Biologists Annual Meeting. April 2014 (Spartanburg, SC) “Facilitating Department Level Curricular Change in the Life Sciences. Workshop with SE PULSE Fellows.

American Society for Cell Biology. December 2013 (New Orleans, LA) “Retaining Diverse Undergraduate Students in the Biological Sciences.” Invited Panel Member.

Annual Biomedical Research Conference for Minority Students. November 2013 (Nashville, TN) “Evolutionary and ecological significance of sponge-*Symbiodinium* symbioses: genetic regulation of uptake and maintenance in sponges.” M. Hill, A. Hill, C. Cotman*, S. Friday*, T. Heist*, M. McCauley*, K. Peterson*, C. Richardson*, A. Riesgo, B. Strehlow.*

9th World Sponge Conference. November 2013 (Fremantle, Western Australia) “Assembling the Poriferan Tree of Life: Integrative taxonomy and systematics confirm new hypotheses of sponge evolution.” B. Thacker, A. Hill, M. Hill, N. Redmond, A. Collins, C. Morrow, L. Spicer, C. Carmack, M. Zappe, D. Pohlmann*, C. Hall*, C. Diaz, P. Bangalore.

9th World Sponge Conference. November 2013 (Fremantle, Western Australia) “Sequencing of the Ephydatia muelleri genome: Preliminary results. M. Roller, M. Imescek, M. Harcet, G. Worheide, A. Hill, H. Cetkovic, S. Leys, K. Vlahovicek.

Transforming STEM Education: Inquiry, Innovation, Inclusion, and Evidence; AAC&U/PKAL. Oct/Nov 2013. (San Diego, CA) “Using Big Problems to Reveal the Big Picture.” Workshop with E. Goldey and A. Hill

Transforming STEM Education: Inquiry, Innovation, Inclusion, and Evidence; AAC&U/PKAL. Oct/Nov 2013. (San Diego, CA) “PULSE-ating with Vision and Change: Promoting the Role of Faculty as Change Agents.” Co-Facilitator.

AAAS Vision and Change Meeting. August 2013 (Washington, DC) “The University of Richmond’s STEM initiatives in interdisciplinary, student-centered science.” April Hill.

Vermont Genetics Network, Annual Retreat: Keynote Speaker. August 2013 (Burlington, VT) “Implementing ‘Vision & Change’ –Innovations to the Undergraduate Life Science Curriculum.” April Hill.

PULSE Vision and Change Leadership Fellows Meeting. June 2013 (Chevy Chase, MD).

Third Annual Yosemite Symbiosis Institute. May 2013. (Yosemite National Park) “Evolutionary and ecological significance of sponge-*Symbiodinium* symbioses: genetic regulation of uptake and maintenance in sponges.” M. Hill and A. Hill.

Association for Southeastern Biologists. April 2013 (Charleston, WV) “Vision and Change Leadership Fellows: Transforming Undergraduate Life Sciences.” Workshop with J. Awong-Taylor, K. Aguirre, C. Peterson, E. Goldey, M. Lee-Brown, N. Jacob, J. Powell-Coffman, A. Hill.

Northwest Regional Society for Developmental Biology. March 2013 (San Juan Island, Washington) “Sponge Wnt causes twinning in Xenopus: demonstration of functional Wnt signaling in the earliest metazoan phylum, Porifera.” P. Winsor, W. Gillis, D. Posfai*, A. Hill, G. Thomsen, S. Leys.

University of Alberta, Invited Seminar. March 2013 (Alberta, Canada) “The evolution and function of the PSED gene regulatory network in sponges.” A. Hill.

Society for Integrative and Comparative Biology. January 2013 (San Francisco, CA) “Key Topics in Scientific Thinking and the misconceptions that accompany them.” Workshop with B. Lutton, B. Podolsky, S. Singer, L. Gross, B. Podolsky, A. Hill.

Society for Integrative and Comparative Biology. January 2013 (San Francisco, CA) “The freshwater sponge, *Ephydatia muelleri*, as a model to study the evolution of developmental regulatory programs.” A. Hill, A. Rivera, I. Winters*, A. Rued*, S. Ding*, D. Posfai*, L. Gentile, E. Webb*, W. Trok*.

Society for Integrative and Comparative Biology. January 2013 (San Francisco, CA) “Evolutionary and ecological significance of sponge-*Symbiodinium* symbioses: genetic regulation of uptake and maintenance in sponges.” M. Hill, A. Hill, C. Cotman*, S. Friday*, T. Heist*, M. McCauley*, K. Peterson*, C. Richardson*, A. Riesgo, B. Strehlow*.

PULSE Vision and Change Leadership Fellows Meeting. October 2012 (Chevy Chase, MD).

Terms of Racial Justice Seminar Series. September 2012. (Richmond, VA) “Biological Race: A Scientific Myth.”

Beckman Scholars Conference. August, 2012 (Irvine, CA) “Knockdown of PaxB and Six1/2 by RNAi leads to defects of the aquiferous system in the freshwater sponge, *Ephydatia muelleri*” I. Winters* and A. Hill.

12th International Coral Reef Symposium. July 2012 (Cairns, Australia) “Genetic regulation of zooxanthella uptake and maintenance in sponges.” M. Hill, B. Strehlow*, C. Richardson*, K. Peterson*, C. Cotman*, M. McCauley*, S. Friday*, T. Heist*, A. Riesgo, and A. Hill.

Society for the Study of Evolution, Evolution Meeting. July 2012 (Ottawa, Canada) “Reconstruction of family-level phylogenetic relationships within Demospongiae (Porifera) using nuclear encoded housekeeping genes.” M. Hill, A. Hill, J. Lopez, and 30 others of PorToL consortium including five UR undergraduates (presented by J. Lopez).

American Society for Biochemistry and Molecular Biology Regional Education Workshop. June 2012 (Richmond, VA) “Moving beyond inclusivity: How can we retain more underrepresented students in STEM Disciplines?”

Second Sponge Sister Species International Genome Workshop, May 2012 (Split, Croatia) for PI lab groups to work on genome annotation and present findings related to the project. With I. Winters* and D. Pohlmann*.

Society for Integrative and Comparative Biology. January 2012 (Charleston, SC) “Examination of genetic regulation of *Symbiodinium* uptake and the morphological development of the zooxanthella-dense pinadocerm in the sponge *Cliona varians*.” B. Strehlow*, M. McCauley*, C. Richardson*, K. Peterson*, C. Cotman*, A. Hill, and M. Hill.

Society for Integrative and Comparative Biology. January 2012 (Charleston, SC) “Knockdown of PaxB and Six1/2 by RNAi leads to developmental defects of the aquiferous system in the freshwater sponge Ephydatia muelleri.” I. Winters*, A. Rued*, S. Ding*, D. Posfai*, A. Rivera, L. Gentile, and A. Hill.

Society for Integrative and Comparative Biology. January 2012 (Charleston, SC) “Nuclear 28S ribosomal subunit gene sequences support new relationships among families and orders of Porifera.” C. Carmack, N. Redmond, D. Pohlmann*, L. Spicer, R.W. Thacker, L. Colin, M. Hill, A. Hill, J. Lopez, M.C. Diaz, S. Pomponi, P. Bangalore.

Invited Investigator. *Ephydatia muelleri* Genome Project Meeting. September 2011 (Munich, Germany), Co-PI for genome sequencing in progress using Next-Generation Sequencing Platforms.

The Society for the Study of Evolution, Evolution Meeting. June 2011 (Norman, Oklahoma) Integrative approaches for reconstructing the Porifera Tree of Life (PorToL). R.W. Thacker, P. Bangalore, M.C. Diaz, A. Hill, M. Hill, D. Lavrov, J. Lopez, S. Pomponi, N. Redmond, and A.G. Collins.

Society for Integrative and Comparative Biology. Annual Meeting. January 2011 (Salt Lake City, Utah) “Origins of the Pax/Six gene regulatory network.” S. Ding*, D. Sassoon*, A. Rued*, E. Webb*, A. Hill, A. Rivera.

Invited Seminar. University of Alabama, Biology. October 2010. “Evolution of Gene Regulatory Networks: Early construction of the Pax/Six regulatory hierarchy in sponges.”

VII World Sponge Conference. Ancient Animals, New Challenges. September 2010 (Girona, Spain) “Clionids provide key insights into ecological and evolutionary forces shaping zooxanthella-symbioses in invertebrates.” M. Hill and A. Hill.

VII World Sponge Conference. Ancient Animals, New Challenges. September 2010 (Girona, Spain) "Phylogenetic analyses of Poriferan families using housekeeping gene sequences: a status report." A. Hill, M. Hill, R. Thacker, S. Pomponi, J. Reed, N. Redmond, E. Sperling, K. Peterson, P. Bangalore, M. Diaz, D. Lavrov, J. Hooper, K. Rutzler, G. Worheide, A. Collins, J. Lopez.

VII World Sponge Conference. Ancient Animals, New Challenges. September 2010 (Girona, Spain) "Evolution of Gene Regulatory Networks: Early construction of the Pax/Six regulatory hierarchy in sponges." A. Hill, A. Rivera, B. Cieniewicz*, E. Danka*, S. Ding* A. Rued*, I. Winters*, L. Gentile.

Society for Integrative and Comparative Biology. Annual Meeting January 2010 (Seattle, WA) "Integrative Approaches for Constructing the Porifera Tree of Life." B. Thacker, P. Bangalore, A. Collins, C. Diaz, A. Hill, M. Hill, J. Hooper, D. Lavrov, J. Lopez, K. Peterson, S. Pomponi, N. Redmond, J. Reed, K. Rützler, G. Wörheide

Society for Integrative and Comparative Biology. Annual Meeting January 2010 (Seattle, WA) "Evolution of Gene Regulatory Networks: *Pax/Six* in *Ephydatia muelleri*." A. Rivera, B. Cieniewicz*, E. Danka*, I. Winters*, A. Rued*, L. Warner*, M. Hill and A. Hill.

Microscopy Society of America. Annual Meeting 2009. "Microbial symbionts and sponge heterotrophy: Morphological aspects of sponge:symbiont integration via SEM analysis." E. Poppell, C. Marks, A. Hill and M. Hill.

European Molecular Biology Organization. Evo-Devo Meets Marine Ecology: New Frontiers in Ocean Science through Integrative Biology. October 2009 (Sant' Angelo d'Ischia, Napoli, Italy) "Consequences of climate change on evolutionary, ecological, and genetic aspects of sponge symbioses in tropical and temperate environments." M. Hill and A. Hill.

Annual Biomedical Research Conference for Minority Students. November 2009 (Phoenix, AZ) "Sponge-associated bacterial communities change in response to antibiotic selection in a sponge stem cell aggregate system: Implications for enriching minority bacterial species." C. Richardson*, M. Hill, L. Runyen-Janecky, A. Hill.

American Society for Microbiology. 109th General Meeting. May 2009 (Philadelphia, PA). "Sponge-associated bacterial communities change in response to antibiotic selection in a sponge stem cell aggregate system: Implications for enriching minority bacterial species." C. Richardson*, M. Hill, L. Runyen-Janecky, A. Hill.

Society for Developmental Biology Northwest Regional Meeting. March 2009 (Friday Harbor Labs, University of Washington) "Evolution of T-boxes and the origins of gastrulation in a sponge-like ancestor." P. Windsor, K. Holstien*, S.P. Leys, and A. Hill.

Benthic Ecology Annual Meeting. March 2009 (Corpus Christi, TX) "Analysis of cp23S Domain V to assess zooxanthellar diversity among clionaid sponges from Caribbean and Pacific reefs." A. McQuillin*, B. Ramsby*, G. Thomson*, C. Schoenberg, A. Hill, and M.Hill.

Poriferan Tree of Life (Portol) Annual Meeting. November 2008 (Washington D.C.) "Early research findings on sponge families and phylogenetic markers." April Hill and Malcolm Hill.

11th International Coral Reef Symposium. July, 2008 (Fort Lauderdale, FL, USA) "Cladal diversity in zooxanthellae harbored by sponges of the Clionaidae: A case study involving Cliona varians." Malcolm Hill, April Hill, Ashley McQuillin, Ericka Poppell, Giles Thomson, and Blake Ramsby.

Beckman Scholars Conference. July, 2008 (Irvine, CA) “Early Diversification of the T-box gene family in the Poriferan Lineage,” Kay Holstien and April Hill.

Society for Integrative and Comparative Biology Annual Meeting, January 2008 (San Antonio, TX). “Zooxanthellar symbionts of the Clionaidae: A case study involving the *Cliona varians* species complex.” Blake *Rambsy, Brittany West, Ericka Poppell,* April Hill and Malcolm Hill.

Society for Integrative and Comparative Biology Annual Meeting, January 2008 (San Antonio, TX). “Response of microbial symbiont communities and carotenoid profiles to environmental stressors in temperate sponges from the Chesapeake Bay.” Brittany West, Ashley McQuillin, Giles Thomson, Blake Rambsby, Ericka Poppell, April Hill, Olivia Harriott, Jonathan Dattlebaum, Tim Sherman, and Malcolm Hill.

Society for Integrative and Comparative Biology Annual Meeting, January 2008 (San Antonio, TX). “Early diversification of the T-box gene family in the poriferan lineage.” Kay Holstien, Malcolm Hill and April Hill.

American Society of Microbiology Virginia Branch Annual Meeting, November 2007 (Richmond, VA). “Development of a Sponge Stem Cell (Primmorph) System to Study Symbiosis.” Crystal Richardson, Malcolm Hill, and April Hill.

Southeast Regional Meeting of The Society for Developmental Biology, May 2007 (Chapel Hill, NC). “*Pax* and *Six* Family Orthologs in Marine Sponges: Animal Eye Development Genes in an Animal Without Eyes.” Lisa Warner*, Carolin Ries, Werner Boll, Markus Noll, Malcolm Hill, and April Hill.

36th Annual Benthic Ecology Meeting, March 2007 (Georgia Institute of Technology GA) "Use of ISSRs in population genetics and to isolate microsatellite markers in basal metazoans: a potentially inexpensive method." Colin Funaro*, Sarah Abboud*, Ashley LeClare*, April Hill and Malcolm Hill.

Annual Meeting of the American Society for Microbiology, May 2007 (Toronto, Canada) “Use of Phylogenetic Stains to Determine the Feeding Preferences of Microbivorous Soil Nematodes.” Michelle EH*, Austin E*, Hill A, Marks C, Zasada IA, Treonis A.

Biennial Meeting of the International Soil Ecology Society, April/May 2007 (Moab, UT). “Can phylogenetic staining be used to resolve the feeding preferences of soil nematodes?” Treonis AM, Michelle EH*, Austin E*, Hill A, Marks C & Zasada IA.

Integrating Evolution, Development, and Genomics, May-June 2006 (Berkeley, CA). “Metazoan Eye Development Genes in Sponges: Characterization of Pax and Six Orthologs. Carolin Ries, Werner Boll, Markus Noll, Marisa Osswalt*, Lisa Warner*, Malcolm Hill and April Hill.

7th International Sponge Symposium, May 2006 (Buzios, Brazil). "Stability and structure of microbial communities in marine sponges: Cases studies with temperate and tropical sponges." Malcolm Hill, Nathan Lemoine and April Hill.

Society for Integrative and Comparative Biology Annual Meeting, January 2006 (Orlando, FL). “Isolation and Characterization of *Pax* and *Six* Genes in Marine Sponges.” Carolin Ries, Werner Boll, Markus Noll, Marisa Osswalt, Lisa Warner*, Malcolm Hill and April Hill.

Society for Integrative and Comparative Biology Annual Meeting, January 2006 (Orlando, FL). “). “The Caribbean Sponge Chondrilla nucula harbors diverse and sponge-specific bacterial symbionts.” Malcolm Hill, April Hill, Nora Lopez and Olivia Harriott.

American Society for Microbiology Annual Meeting, Atlanta, June 2005. “The Caribbean sponge *Chondrilla nucula* harbors diverse and sponge-specific bacterial symbionts.” Nora Lopez*, Derek Bickhart*, April Hill, Malcolm Hill & Olivia Harriott (poster presentation: abstract 05-GM-A-2362-ASM)

Invited Seminar, Ocean Genome Legacy Foundation,New England Biolabs. April 2004. “Sponges as a model system to study animal evolution and development.”

New England Molecular Evolutionary Biologists Meeting. November 2003. Storrs, CT. “Molecular Evolution of *Hox* and non-*Hox* sequences in Porifera.” M. Hill, J. Tetrault*, M. Bartman,* A. Hill.

Society for Developmental Biology, Boston, MA, July 2003. “Antp-Class *Hox* and non-*Hox* sequences in a basal metazoan: the Porifera.” A. L. Hill, J. Tetrault*, M. Bartman*, and M. S. Hill *Development* 259: 457.

Northeastern Society for Developmental Biology, Woods Hole, April 19-21, 2002. “The basal cnidarian, *Parazoanthus parasiticus:* novel Hox and paraHox family members.” Aimee Wagner*, Malcolm Hill, and April Hill.

New England Molecular Evolutionary Biologists Meeting, Smith College, November 3rd, 2001. “Hox and ParaHox Genes from an Anthozoan: Additional Evidence for Ancient Origin of Hox Gene Cluster.” April Hill, Aimee Wagner*, and Malcolm Hill.

Annual Meeting of the Association of Biology Laboratory Education. University of Chicago. Chicago, IL, June 2001. “Sponges as Bioindicators” M. Hill and A. Hill.

The Society for Integrative and Comparative Biology Annual Meeting. Chicago, January 2001. “Insights into Early Animal Evolution: Developmental Genes in Sponges.” April Hill, Danielle Liuibicich*, and Malcolm Hill *American Zoologist* 40 (6): 1056-1057.

Benthic Ecology Meeting. University of North Carolina, Wilmington, March 9-11, 2000. “Morphological Divergence Without Molecular Divergence: When is Phenotypic Plasticity Important in Coral Reef Invertebrates?” M. Hill and A. Hill.

The 58th Annual Meeting of the Society for Developmental Biology, University of Virginia, June 1999. “Identification of a Pax 3/7 Like Gene in the Marine Sponge *Haliclona loosanoffi*.” A. Hill and J. Konopka* *Developmental Biology* 210: 151-180.

Diabetes Mellitus: From Patients to Genes and Back. A symposium on the 100th Anniversary of the Joslin Diabetes Center Oct. 21-24, 1998. Boston, MA. “Diabetic Embryopathy: Effects of Oxidative Stress and Hexosamines on Molecular Regulation of Embryonic Development” Gary Fortin, Tara Chang, Melissa Horal, April Hill and Mary Loeken

Invited Seminar: Fall 1997, Connecticut College, New London, CT: “A cell cycle control gene, *cdc46*, is associated with neural tube defects in embryos from diabetic mice.”

The Northeast Regional Meeting of the Society for Developmental Biology, Woods Hole, MA, April 1997. “A cell cycle control gene, *cdc46*, is associated with neural tube defects in embryos from diabetic mice.” A. Hill and M. Loeken.

The American Diabetes Association National Meeting, San Francisco CA, June 1996. “Identification of a Cell Cycle-Regulated Gene Whose Abnormal Expression in Embryos of Diabetic Mice is Associated with Neural Tube Defects.” A. Hill, S. Phelan, J. Cai, and M. Loeken.

Invited seminar: Spring 1995, National Institutes of Health, National Institute of Child Health and Human Development, Human Genetics Branch, Bethesda, MD: “Molecular Characterization of the Langer-Giedion Region of Human Chromosome 8.”

The American Society for Human Genetics Meeting, New Orleans LA, October 1993. "Testing for loss of heterozygosity in patients with trichorhinophalangeal syndrome I and Langer-Giedion syndrome."

The American Society for Human Genetics Meeting, San Francisco CA, November 1992. "Genetic Heterogeneity in Families with Hereditary Multiple Exostosis."

Undergraduate Courses
First-Year Seminar: STEM Scholars
Lab-Based Biological Inquiry: Symbiotic Microalgae
Biological Research Experience: Molecules to Ecosystems
Integrated Quantitative Science w/lab (IQS; HHMI supported interdisciplinary science course)
Science, Math, and Research Training w/lab (SMART; HHMI supported 1st year integrated science)
Sophomore Scholars in Residence: Out of the Sea
Introduction to Biological Thinking: The Animal Genetic Toolkit w/lab
Introductory Biology: Cellular, Molecular, and Developmental Biology w/lab
Cellular Basis of Life
Evolutionary Developmental Biology w/lab
Genetics w/lab
Developmental Biology w/lab
Marine Genomics
Epigenetics
Genomics
Recombinant DNA Technology
The DNA Revolution (non-Biology majors)
Ideas that Shaped the West (seminar, co-taught)
Issues in Science and Religion (seminar, co-taught)

Selected Service Activities
Committee on Personnel, Bates College
Race, Power, Privilege, and Colonialism Ad Hoc Curricular Committee, Bates College
Environmental Studies Search Committee, Bates College
Mellon Grant Curricular Transformation Committee, Bates College
Teaching and Learning Committee, Bates College
Faculty Governance Review Committee, Bates College
External Evaluator for HHMI grant programs at Radford University, Kenyon College
Consultant and Reviewer for several undergraduate institutions in STEM Inclusivity programs
Community College Undergraduate Research Initiative Workshop Leader
Tenure and Promotion Committee (chair), University of Richmond
Diversity Working Group, Enrollment Management
Undergraduate Admissions Committee (chair for two terms)
Oliver Hill Scholars Committee, Richmond Scholars Committee
Ad Hoc Curriculum Task Force and First Year Experience Committee
Co-director, Biochemistry and Molecular Biology Program
Dean of Admissions Search Committee
Howard Hughes Medical Institute Grant Committee
University Work/Life Committee
University Credit Committee
Member of committees for Biology, Chemistry, and Interdisciplinary Science faculty searches
Reviewer for National Science Foundation grants (ad hoc and panel review) and professional journals

Reviewer for AAC&U PKAL Transforming STEM Education conference

Undergraduate Student Mentorship

As an undergraduate faculty member, I have advised or co-advised more than 100 research students. Of the students who have graduated almost all have remained in science related fields (scientific/academic research, medical/public health, science education, biotechnology, pharmaceutical, laboratory technicians or managers). Eighteen of my mentees have received PhDs in biological fields and ten more are in pursuit of their PhD or MD/PhD. Twelve are MDs or in an MD program and sixteen more have pursued other advanced degrees thus far. Many of my students presented their work at regional or national meetings, won competitive awards (e.g., Fulbright, NSF-GSRP, Teach for America, Goldwater, Beckman) or were co-authors on peer-reviewed publications. I helped secure external or internal funding for all of these students and most worked in the laboratory for more than one year. Some of the Ph.D. programs my laboratory students have entered include Stanford University School of Medicine, Oxford University, Harvard University, Massachusetts Institute of Technology, Duke University, University of Virginia, Washington University, University of Chicago and Baylor College of Medicine. While at the University of Richmond and at Bates College, >50% of the students I mentored identified as BIPOC and the majority women (>70%).