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Marine Biological Laboratory
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Education

B.A. 1989 Biology, *summa cum laude*, Earlham College, Richmond IN
Ph.D. 1999 Biochemistry, Harvard University, Cambridge MA. Thesis: "*Evidence for the evolution of bdelloid rotifers without sexual reproduction or genetic exchange.*"

Academic appointments

2001–2003 Research Associate, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution, Marine Biological Laboratory
2003–2006 Assistant Research Scientist, Josephine Bay Paul Center
2005–2010 Assistant Professor (MBL), Department of Ecology and Evolutionary Biology, Brown University
2006–2010 Assistant Scientist, Josephine Bay Paul Center
2010–2013 Assistant Professor (MBL), Department of Molecular Biology, Cell Biology, and Biochemistry (MCB), Brown University
2010–2015 Associate Scientist, Josephine Bay Paul Center
2013–2018 Associate Professor (MBL), MCB, Brown University
2015–present Senior Scientist, Josephine Bay Paul Center

Professional appointments

2013–present Director, Josephine Bay Paul Center
2014–2018 Associate, Center for Computational Molecular Biology, Brown University
2016–2019 Associate Director, The Microbiome Center of the University of Chicago-MBL-Argonne National Laboratory
2017–2021 Interim Director of the Division of Research, Marine Biological Laboratory
2019–present Co-Director, The Microbiome Center of the University of Chicago-MBL-Argonne National Laboratory
2022—present Director, Semester in Biological Discovery

Academic honors

1989 College Honors, Departmental Honors (Biology), Earlham College
1989–1992 National Science Foundation Graduate Research Fellowship Grant
1993, 2001 Derek Bok Certificate of Distinction in Teaching, Harvard University
2005 Neal Cornell Research Fellow, Marine Biological Laboratory
2007 Neal Cornell Career Development Award, Marine Biological Laboratory

Publications

refereed journal articles

Welch, D., C-H. Lee and S.H. Larsen, 1990. Detection of plasmid DNA from all *Chlamydia trachomatis* serovars with a two-step polymerase chain reaction. *Appl. Environ. Microbiol.* 56: 2494–2498.
Mark Welch, D.B., and M. Meselson, 1998. Measurements of the genome size of the monogonont rotifer *Brachionus plicatilis* and of the bdelloid rotifers *Philodina roseola* and *Habrotricha constricta*. *Hydrobiologia* 387/388: 395–402.

- Mark Welch, D.B., 2000. Evidence from a protein-coding gene that acanthocephalans are rotifers. *Invert. Biol.* 119: 17–26.
- Mark Welch, D.B., and M. Meselson, 2000. Evidence for the evolution of bdelloid rotifers without sexual reproduction or genetic exchange. *Science* 288: 1211–121.
- Mark Welch, D.B., 2001. Early contributions of molecular phylogenetics to understanding the evolution of Rotifera. *Hydrobiologia* 446/447: 315–322.
- Mark Welch, D.B., and M. Meselson, 2001. A survey of introns in three genes of rotifers. *Hydrobiologia* 446/447: 333–336.
- Mark Welch, D.B., and M. Meselson, 2001. Rates of nucleotide substitution in sexual and anciently asexual rotifers. *Proc. Natl. Acad. Sci.* 98: 6720–6724.
- Mark Welch, D.B., and M. Meselson, 2003. Oocyte nuclear DNA content and GC proportion in rotifers of the anciently asexual Class Bdelloidea. *Biol. J. Linn. Soc.* 79: 85–91.
- Mark Welch, D.B., M.P. Cummings, D. M. Hillis, and M. Meselson, 2004. Divergent gene copies in the asexual class Bdelloidea (Rotifera) separated before the bdelloid radiation or within bdelloid families. *Proc. Natl. Acad. Sci.* 101: 1622–1625.
- Mark Welch, J.L., D.B. Mark Welch, and M. Meselson, 2004. Cytogenetic evidence for asexual evolution of bdelloid rotifers. *Proc. Natl. Acad. Sci.* 101: 1618–1621.
- Mark Welch, D.B., 2005. Bayesian and maximum likelihood analysis of rotifer-acanthocephalan relationships. *Hydrobiologia* 546: 47–54.
- Mark Welch, D.B., and J.L. Mark Welch. 2005. The potential of genomic approaches to rotifer ecology. *Hydrobiologia* 546: 101–108.
- Sogin, M.L., H.G. Morrison, J.A. Huber, D.B. Mark Welch, S.M. Huse, P.R. Neal, J.M. Arrieta, and G.J. Herndl. 2006. Microbial diversity in the deep sea and the underexplored "rare biosphere." *Proc. Natl Acad. Sci.* 103: 12115–12120.
- Ekanayake, D.K., D.B. Mark Welch, R. Kieft, S. Hajduk and W.P.J. Dittus. 2007. Transmission dynamics of *Cryptosporidium* infection in a natural population of non-human primates at Polonnaruwa, Sri Lanka. *Am. J. Trop. Med. Hyg.* 77: 818–822.
- Suga, K., D.B. Mark Welch, Y. Tanaka, Y. Sakakura, and A. Hagiwara. 2007. Analysis of expressed sequence tags of the cyclically parthenogenetic rotifer *Brachionus plicatilis*. *PLoS ONE* 2: e671.
- Huse, S.M., J.A. Huber, H.G. Morrison, M.L. Sogin, and D.B. Mark Welch. 2007. Accuracy and quality of massively parallel pyrosequencing. *Genome Biology* 8: R143.
- Huber, J.A., D.B. Mark Welch, H.G. Morrison, S.M. Huse, P.R. Neal, D.A. Butterfield, and M.L. Sogin. 2007. Microbial population structures in the deep marine biosphere. *Science* 318: 97–100.
- Mark Welch, D.B., J.L. Mark Welch, and M. Meselson. 2008. Evidence for degenerate tetraploidy in bdelloid rotifers. *Proc. Natl. Acad. Sci (USA)* 105: 5145–5149.
- Suga, K., D.B. Mark Welch, Y. Tanaka, Y. Sakakura, and A. Hagiwara. 2008. Two circular chromosomes of unequal copy number make up the mitochondrial genome of the rotifer *Brachionus plicatilis*. *Mol. Biol. Evol.* 25: 1129–1137.
- Lasek-Nesselquist, E., A.L. Bogomolni, R. Gast, M. Moore, D.B. Mark Welch, J. Elis, and M.L. Sogin. 2008. Molecular characterization of *Giardia intestinalis* haplotypes in marine animals: variation and zoonotic potential. *Dis. Aquat. Organ.* 81: 39–51.
- Huse, S.M., L. Dethlesfsen, J.A. Huber, D.B. Mark Welch, D.A. Relman, and M.L. Sogin. 2008. Exploring microbial diversity and taxonomy using SSU rRNA hypervariable tag sequencing. *PLoS Genetics* 4: e1000255.
- Huber, J.A., H.G. Morrison, S.M. Huse, P.R. Neal, M.L. Sogin, and D.B. Mark Welch. 2009. Effect of PCR amplicon size on assessments of clone library microbial diversity and community structure. *Molecular Ecology* 11:1292–1302.
- Snell, T.W., Shearer T.L., Smith H.A., Kubanek J., Gribble, K.E., and D.B. Mark Welch.

2009. Genetic determinants of mate recognition in *Brachionus manjavacas* (Rotifera). *BMC Biology* 7: 60.
- Witek, A., H. Herlyn, I. Ebersberger, D.B. Mark Welch, and T. Hankeln. 2009. Support for the monophyletic origin of Gnathifera from phylogenomics. *Mol. Phylogenet Evol* 53: 1037–1041.
- Lasek-Nesselquist, E., D.B. Mark Welch, R.C.A. Thompson, R.F. Steuart and M.L. Sogin. 2009. Genetic exchange within and between assemblages of *Giardia duodenalis*. *J Euk Microbiol.* 56: 504–518.
- Olins, A. L., G. Rhodes, D. B. Mark Welch, M. Zwerger and D. E. Olins. 2010. Lamin B receptor: Multi-tasking at the nuclear envelope. *Nucleus* 1: 53–70.
- Huse, S.M., D.B. Mark Welch, H.G. Morrison, and M.L. Sogin. 2010. Ironing out the wrinkles in the rare biosphere through improved OTU clustering. *Environ. Microbiol.* 12: 1889–1898.
- Lasek-Nesselquist, E., D.B. Mark Welch, and M.S. Sogin. 2010. The identification of a new *Giardia duodenalis* assemblage in marine vertebrates and preliminary analysis of *G. duodenalis* population biology in marine systems. *Int. J. Parasitol.* 40: 1063–1074.
- Huber, J.A., H.V. Cantin, S.M. Huse, D.B. Mark Welch, M.L. Sogin and D.A. Butterfield. 2010. Isolated communities of *Epsilonproteobacteria* in hydrothermal vent fluids of the Mariana Arc seamounts. *FEMS Microbiology Ecology* 73: 538–549.
- Gribble, K.E., T.W. Snell and D.B. Mark Welch. 2011. Gene and protein structure of the mate recognition protein gene family in *Brachionus manjavacas* (Rotifera). *Hydrobiologia* 662: 35–42.
- Smith, H.A., D.B. Mark Welch, and T.W. Snell. 2011. Molecular evolution of the membrane associated progesterone receptor within the *Brachionus plicatilis* (Rotifera) cryptic species complex. *Hydrobiologia* 662: 99–106.
- Oleksiak, M., S. Karchner, M. Jenny, D. Franks, D. Mark Welch, and M. Hahn, 2011. Transcriptomic assessment of resistance to effects of an aryl hydrocarbon receptor (AHR) agonist in embryos of Atlantic killifish (*Fundulus heteroclitus*) from a marine Superfund site. *BMC Genomics* 12: 263.
- Post, A.F., S. Penno, K. Zandbank, A. Paytan, S. Huse, and D. Mark Welch, 2011. Long term seasonal dynamics of Synechococcus population structure in the Gulf of Aqaba, Northern Red Sea. *Frontiers in Microbiology* 2: 131.
- Zinger, L., L.A. Amaral-Zettler, J.A. Fuhrman, M.C. Horner-Devine, S.M. Huse, D.B. Mark Welch, J.B.H. Martiny, M. Sogin, A. Boetius, and A. Ramette, 2011. Global patterns of bacterial beta-diversity in seafloor and seawater ecosystems. *PLoS One* 6: e24570.
- Tedom J, Penlap V, Kieft R, McArthur A, Mbacham W, Mark Welch, D.B., Hajduk, S., Titanji, V. 2012. Molecular typing of Mycobacterium tuberculosis isolates from Yaoundé reveals RIF resistance markers, clonal relatedness and mutation patterns. *Asian Pacific Journal of Tropical Disease* 2: 342–347.
- Freitas, S., S. Hatosy, J.A. Furhman, S.M. Huse, D.B. Mark Welch, M.L. Sogin, and A.C. Martiny. 2012. Global distribution and diversity of marine Verrucomicrobia. *ISME J.* 6: 1499–1505.
- Gribble, K.E. and D.B. Mark Welch. 2012. The mate recognition protein gene mediates reproductive isolation and speciation in the *Brachionus plicatilis* cryptic species complex. *BMC Evolutionary Biology* 12: 134.
- Amend A.S., T.A. Oliver, L.A. Amaral-Zettler, A. Boetius, J.A. Fuhrman, M.C. Horner-Devine, S.M. Huse, D.B. Mark Welch, A.C. Martiny, A. Ramette, L. Zinger, M.L. Sogin and J.H. Martiny. 2012. Macroecological patterns of marine bacteria on a global scale. *Journal of Biogeography* 40: 800–811.

- Gribble, K.E. and D.B. Mark Welch. 2013. Lifespan extension by caloric restriction is determined by type and level of food reduction and by reproductive mode in *Brachionus manjavacas* (Rotifera). *J Gerontol A Biol Sci Med Sci*. 68: 349–358.
- Hanson, S.J., Schurko, A.M., B. Hecox-Lea, D.B. Mark Welch, C-P. Stelzer, and J.M. Logsdon. 2013. Inventory and phylogenetic analysis of meiotic genes in monogonont rotifers. *J. Heredity*. 104: 357–370.
- Hanson, S.J., C-P. Stelzer, D.B. Mark Welch, and J.M. Logsdon. 2013. Comparative transcriptome analysis of obligately asexual and cyclically sexual rotifers reveals genes with putative functions in sexual reproduction, dormancy, and asexual egg production. *BMC Genomics* 14: 412.
- Flot, J.-F., B. Hespels, X. Li, B. Noel, I. Arkhipova, E. G. J. Danchin, A. Hejnol, B. Henrissat, R. Koszul, J.-F. Aury, V. Barbe, R. Barthelemy, J. Bast, G. A. Bazykin, O. Chabrol, A. Couloux, M. Da Rocha, C. Da Silva, E. Gladyshev, P. Gouret, O. Hallatchek, B. Hecox-Lea, K. Labadie, B. Lejeune, O. Piskurek, J. Poulain, F. Rodriguez, J. F. Ryan, O. A. Vakhrusheva, B. Wirth, I. Yushenova, M. Kellis, A. S. Kondrashov, D. B. Mark Welch, P. Pontarotti, J. Weissenbach, P. Wincker, O. Jaillon, and K. Van Doninck. 2013. Genomic evidence for ameiotic evolution in the bdelloid rotifer *Adineta vaga*. *Nature* 500: 453–457.
- Gribble, K.E., O. Kaido, G. Jarvis, O. Kaido, and D.B. Mark Welch. 2014. Patterns of intraspecific variability in the response to caloric restriction. *Exp. Gerontology* 51: 28–37.
- Wey-Fabrizius, A.R., H. Herlyn, B. Rieger, A. Witek, D. Rosenkranz, A. Witek, D.B. Mark Welch, I. Ebersberger, and T. Hankein. 2014. Transcriptome data reveal syndermatan relationships and suggest the evolution of endoparasitism in Acanthocephala via an epizotic stage. *PLoS ONE* 9: e88618.
- Huse, S.M., D.B. Mark Welch, A. Voorhis, A. Shipunova, H.G. Morrison, A.M. Eren, and M.L. Sogin. 2014. VAMPS: a website for visualization and analysis of microbial population structures. *BMC Bioinformatics* 15: 41.
- Gribble, K.E., G. Jarvis, M. Bock, and D.B. Mark Welch. 2014. Maternal caloric restriction partially rescues the deleterious effects of advanced maternal age on offspring. *Aging Cell* 13: 623–630.
- Mark Welch, J.L., D.R. Utter, B.J. Rossetti, D.B. Mark Welch, A.M. Eren, and G.G. Borisy. 2014. Dynamics of tongue microbial communities with single-nucleotide resolution using oligotyping. *Frontiers in Microbiology* 5: 568.
- Snell, T.W., R.K. Johnston, K.E. Gribble, and D.B. Mark Welch. 2015. Rotifers as experimental tools for investigating aging. *Invert Rep Dev* 59 (sup1): 5–10.
- Sielaff, M., H. Schmidt, T.H. Struck, D. Rosenkranz, D.B. Mark Welch, T. Hankeln, and H. Herlyn. 2015. Phylogeny of Syndermata (syn. Rotifera): Mitochondrial gene order verifies epizotic Seisonidea as sister to endoparasitic Acanthocephala (thorny-headed worms) within monophyletic Hemirotifera. *Mol. Phylogenet. Evol.* 96: 79–92.
- Mills, S., J.A. Alcántara-Rodríguez, J. Ciroso-Pérez, A. Gómez, A. Hagiwara, K. Hinson Galindo, C.D. Jersabek, R. Malekzadeh-Viayeh, F. Leasi, J-S. Lee, D.B. Mark Welch, S. Papakostas, S. Riss, H. Segers, M. Serra, R. Shiel, R. Smolak, T.W. Snell, C-P. Stelzer, C.Q. Tang, R.L. Wallace, D. Fontaneto, and E.J. Walsh. 2016. Fifteen species in one: deciphering the *Brachionus plicatilis* species complex (Rotifera, Monogononta) through DNA taxonomy. *Hydrobiologia* doi:10.1007/s10750-016-2725-7.
- Kaneko G., T. Yoshinaga, K.E. Gribble, D.B. Mark Welch, H. Ushio. 2016. Measurement of survival time in *Brachionus* rotifers: synchronization of maternal conditions. *J. Vis. Exp.* (113), e54126, doi:10.3791/54126.

- Mark Welch, D.B., A. Jauch, J. Langowski, A.L. Olins and D.E. Olins. 2017. Transcriptomes reflect the phenotypes of undifferentiated, granulocyte and macrophage forms of HL-60/S4 cells. *Nucleus* 8(2): 222–237 doi:10.1080/19491034.2017.1285989.
- Teif, V.B., J-P Mallm, T. Sharma, D.B. Mark Welch, K. Rippe, R. Eils, J. Langowski, A.L. Olins, and D.E. Olins. 2017. Nucleosome repositioning during differentiation of a human myeloid leukemia cell line. *Nucleus* 8(2):188–204. doi: 10.1080/19491034.2017.1295201
- Gribble, K.E. and D.B. Mark Welch. 2017. Genome-wide transcriptomics of aging in the rotifer *Brachionus manjavacas*, an emerging model system. *BMC Genomics* 18:217.
- Hecox-Lea, B.J. and D.B. Mark Welch. 2018. Evolutionary diversity and novelty of DNA repair genes in asexual bdelloid rotifers. *BMC Genomics* 18:177. doi:10.1186/s12862-018-1288-9 PMID: PMC6264785
- Gribble, K.E., B.M. Moran, S. Jones, E.L. Corey, and D.B. Mark Welch. 2018. Congeneric variability in lifespan extension and onset of senescence suggest active regulation of aging in response to low temperature." *Experimental Gerontology* 114: 99–106. doi:10.1016/J.EXGER.2018.10.023.
- Blommaert, J., S. Riss, B. Hecox-Lea, D.B. Mark Welch, and C.P. Stelzer. 2019. Small, but surprisingly repetitive genomes: transposon expansion and not polyploidy has driven a doubling in genome size in a metazoan species complex. *BMC Genomics* 20: 466. doi:10.1186/s12864-019-5859-y PMID: PMC6555955
- Cavicchioli, R., W.J. Ripple, K.N. Timmis, F. Azam, L.R. Bakken, *et al.* 2019. "Scientists' warning to humanity: microorganisms and climate change." *Nat. Rev. Microbiol.* doi:10.1038/s41579-019-0222-5. PMID: 31213707
- Mika, K., A.S. Okamoto, N.H. Shubin, and D.B. Mark Welch. 2021. Bacterial community dynamics during embryonic development of the little skate (*Leucoraja erinacea*). *Anim. Microbiome.* 3:72. PMID: PMC8513177
- Stelzer C.-P., J. Blommaert, A.M. Waldvogel, M. Pichler, and D.B. Mark Welch. 2021. Comparative analysis reveals within-population genome size variation in a rotifer is driven by large genomic elements with highly abundant satellite DNA repeat elements. *BMC Biol.* 19:206. PMID: PMC8447722
- Yu E., T. Yoshinaga, F. L. Jalufka, H. Ehsan, D. B. Mark Welch, and G. Kaneko. 2021. The complex evolution of the metazoan HSP70 gene family. *Sci. Rep.* 11:17794. PMID: PMC8423806
- Feng H., G. Bavister, K.E. Gribble, D.B. Mark Welch. 2023. Highly efficient CRISPR-mediated gene editing in a rotifer. *PLOS Biology* 21(7): e3001888. PMID: PMC10395877

non-refereed journal articles

- Meselson, M and D.B. Mark Welch. 2007. Stable heterozygosity? *Science* 318: 202–203.
- Sogin, M.L., Morrison, H., McLellan, S., Mark Welch, D.B., and S.M. Huse. 2010. The rare biosphere: sorting out fact from fiction. *Genome Biology* 11 (Suppl 1): 119.
- GIGA Community of Scientists. 2014. The Global Invertebrate Genomics Alliance (GIGA): Developing community resources to study diverse invertebrate genomes. *J Hered* 105: 1–18.
- Martiny J.B.H., K.L. Whiteson, B.J.H. Bohannan, L.A. David, N.A. Hynson, *et al.* 2020. The emergence of microbiome centres. *Nat. Microbiol.* 5(1):2–3

chapters in books

- Mark Welch, D.B., 2002. Rotifera, pp 304–306. In: McGraw-Hill Yearbook of Science and Technology, McGraw-Hill, New York.
- Mark Welch, D.B. 2007. Rotifera, In: McGraw-Hill Encyclopedia of Science and

- Technology, 10th Edition.
- Mark Welch, D.B. 2007. Bdelloidea, In: McGraw-Hill Encyclopedia of Science and Technology, 10th Edition.
- Mark Welch, D.B., C. Ricci, and M. Meselson. 2009. Bdelloid rotifers: understanding the success of an evolutionary scandal. Pp 259–279 In: *Lost Sex: The Evolutionary Biology of Parthenogenesis*, K. Martens and I. Shoen, eds. Springer-Verlag, Heidelberg.
- Mark Welch, D.B. 2010. Monogononta, In: McGraw-Hill Encyclopedia of Science and Technology, 11th Edition.
- Huse, S.M. and D.B. Mark Welch. 2011. Accuracy and quality of massively parallel DNA pyrosequencing. pp 149–156 In, *Handbook of Molecular Microbial Ecology I: Metagenomics and Complementary Approaches*, de Bruijn, F.J., ed. Wiley and Sons.
- Mark Welch, D.B. and S.M. Huse. 2011. Microbial diversity in the deep sea and the underexplored “rare biosphere.” Pp 245–252 In, *Handbook of Molecular Microbial Ecology II: Metagenomics in Different Habitats*. de Bruijn, F.J., ed. Wiley and Sons.
- Mark Welch, D.B. 2012. Seisonidea, In: McGraw-Hill Encyclopedia of Science and Technology, 11th Edition. McGraw-Hill, New York.
- Huse, S.M., D.B. Mark Welch, and M.L. Sogin. 2013. Sequencing errors, diversity estimates and the rare biosphere. Pp 188–207 In, *The Science and Applications of Microbial Genomics: Workshop Summary*, Institute of Medicine. Washington, DC: The National Academies Press.
- Mark Welch, D.B. 2018. The potential of comparative biology to reveal mechanisms of aging in rotifers. Pp 497–505 In, *Handbook of Models of Human Aging*, 2nd edition. Conn, M and J Ram, J. editors. Elsevier Academic Press, London.

Service

a. to the University/MBL

2004–present	MBL Corporation/Society member
2008–2013	Chair, MBL Radiation Safety Committee
2008/2009	Graduate Admissions Committee, Department of Ecology and Evolutionary Biology, Brown University
2009–2012	MBL Committee on Awards and Scholarships
2010–2014	Chair, MBL Institutional Biosafety Committee
2010–2014	MBL Science Council
2011–2013	Chair, MBL-WHOI Library Users Committee
2011–2012	Graduate Admissions Committee, Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University
2013	Associate Director, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution
2013–present	Director, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution
2015	co-Convener, MBL Vision Team, “Ecological and Evolutionary Trajectories in a Changing World”
2016–2019	Associate Director, The Microbiome Center, University of Chicago-MBL-Argonne National Laboratory
2017–2021	Interim Director of the Division of Research, Marine Biological Laboratory
2019–present	co-Director, The Microbiome Center
2022–present	Chair, MBL Diversity and Inclusion Committee
2022–present	Chair, MBL Institutional Biosafety Committee

b. to the profession

ad hoc Referee for the NSF, NIH, European Science Foundation, Natural Environment Research Council (UK), and the New Zealand Academy of Sciences.

Guest editor for *Proc Nat Acad Sci.*; referee of manuscripts for numerous journals including *Biol J Linn Soc*, *BMC Ecology*, *BMC Evo Biol*, *Current Biol*, *Evolution*, *Genetics*, *J Evol Biol*, *J Mol Evol*, *Mol Biol Evol*, *Mol Ecology*, *Mol Genom Evol*, *Mol Phylogenet Evol*, *Nature Letters*, *Nature Reviews Genetics*, *PLoS Biology*, *PLoS ONE*, *Proc Nat Acad Sci*, *Proc R Soc*, and *Science*.

2010 Organizer and Chair, *Alpha Diversity Working Group for the International Census of Marine Microbes*, Bremen, Germany.

2011 Co-organizer, *2nd Beta Diversity Working Group for the International Census of Marine Microbes*, Los Angeles CA

2011 Co-founder, MBL Advanced Research Training Course *Strategies and techniques in Analysis of Microbial Population Structures*

2015–2016 Scientific Committee, XIV International Rotifer Symposium

2017–2018 Scientific Committee, 9th Aquatic Animal Models of Human Disease

2020–2023 Scientific Committee, XVI International Rotifer Symposium

Secondary School Teaching

2019– *Exploring Microbiomes of Marine Organisms*, MBL High School Science Discovery Program

Undergraduate Teaching

2015 *Experimental Biology by the Sea* (BIOS17101). University of Chicago off-campus semester “The Whale: Biology, Culture, and Evolution on Nantucket Sound.”

2017– Microbiomes Across Environments (BIOS 27720). University of Chicago September MBL course.

Graduate Teaching

2010–2015 *Foundations for Advanced Study in Experimental Biology* (BIOL2030) Team-taught seminar course for first year graduate students in the Department of Molecular Biology, Cell Biology, and Biochemistry at Brown University

2012–2016 *Computational Integration of Genomes, Organism and Environments* (BIOL2430) IGERT core course in reverse ecology, Brown-MBL Graduate Program

Post Graduate Teaching

2011–2017 MBL, *Strategies and Techniques for Analysis of Microbial Population Structures*: co-founder and Co-Director of MBL Summer Special Topics Course for 60-65 students (graduate students, postdocs, PIs) covering bioinformatics of next-gen sequencing based molecular microbial ecology.

2017 *Getting Involved in Microbiome Research for Clinicians: From Sequencing to Grant Writing*. Training course for physicians sponsored by The Microbiome Center.