

Hilary Gonzalez Morrison

Senior Scientist

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Education and Postdoctoral Training

B. A. *magna cum laude*, Biology, Harvard University, 1981
Ph.D., Yale University, New Haven, CT, Department of Epidemiology and Public Health, 1987
advisor Dennis L. Knudson. NSF predoctoral fellowship award.
Field of Study: Infectious Disease Epidemiology (Virology).
Dissertation: The Genetic Relatedness of Orbiviruses.
Postdoctoral Fellow, Centers for Disease Control, Special Pathogens Branch, Atlanta GA, 1987-1989
Advisor David D. Auperin. NRC postdoctoral research award. Research Activities: Development of recombinant vaccinia virus vaccine for Lassa fever virus.
Postdoctoral Fellow, Harvard University Medical School, Boston MA, 1989-1992
Advisor Ronald C. Desrosiers. Research activities: Genetic determinants of simian immunodeficiency virus infectivity.
Postdoctoral Fellow, Woods Hole Oceanographic Institution, Woods Hole MA, 1993-1995
Advisor, John J. Stegeman. NRSA postdoctoral fellowship award.
Research Activities: Characterization of teleost P454 genes.

Professional Positions (chronological order)

Research Associate, Marine Biological Laboratory, Woods Hole MA, 1995-1996
Research Activities: Molecular evolution of P450, actins, and ribosomal RNAs
Visiting Scientist, Marine Biological Laboratory, Woods Hole MA, 1996-1998
Assistant Research Scientist, Marine Biological Laboratory, Woods Hole MA, 1998-2005
Research Activities: Molecular and genomic evolution in eukaryotes (*Giardia lamblia*, *Nosema locustae* genome projects, protist cDNA survey)
Associate Research Scientist, Marine Biological Laboratory, Woods Hole MA, 2005-2011
Senior Research Scientist, Marine Biological Laboratory, Woods Hole MA, 2011-2015
Senior Scientist, Marine Biological Laboratory, Woods Hole MA, 2015-present

Honors and Awards

Elizabeth Cary Agassiz Scholar, Radcliffe College, 1981
Phi Beta Kappa, Iota of Massachusetts, Radcliffe College, 1981

Service on MBL committees

Safety Committee, Recycle, Reduce and Reuse Committee, Research Services Committee,
Director's Council
CASO Search Committee
Hibbitt Fellowship Search Committee

Editorial Boards

Peer J

Teaching

MBL Advances in Genomics and Bioinformatics special topics course, 2002-2005
MBL STAMPS special topics course, 2011-2017
MBL Microbiomes of Marine Organisms, 2019-

Funding:

a. Current and Past 10 Years (reverse chronological order)

NIH 1UG3OD023275-01 Environmental influences on Child Health Outcomes (ECHO) Program
CoPI (Karagas) A Prospective Study Of Critical Environmental Exposures In Formative Early Life
09/21/16 – 08/31/22 That Impact Lifelong Health In Rural Us Children: The New Hampshire Birth Cohort Study

Completed:

NIH Renewal Microbial Community Profiles Identify New Indicators of Waterborne
CoPI (McLellan) Pathogens
07/01/16 - 06/30/18

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NSF DEB-1442106
(Morrison)
11/01/14-10/31/17

Collaborative Research: Dimensions: The Macroalgal Microbiome in Space and Time--PI
Maintaining Primary Producers in the Atlantic Rocky Intertidal Zone

Publications: (reverse chronological order)

Original Research in Peer-Reviewed Journals, including submitted articles

1. Capistrant-Fossa KA, **HG Morrison**, AH Engelen, CTC Quigley, A Morozov, EA Serrão, J Brodie, CMM Gachon, Y Badis Y, LE Johnson, G Hoarau, MH Abreu, PA Tester, LA Stearns, and SH Brawley. *The microbiome of the habitat-forming brown alga Fucus vesiculosus (Phaeophyceae) has similar cross-atlantic structure that reflects past and present drivers*. J Phycol. 2021 Jun 27. doi: [10.1111/jpy.13194](https://doi.org/10.1111/jpy.13194). Online ahead of print. PMID: 34176151
2. Nguyen QP, MR Karagas, JC Madan, E Dade, TJ Palys, **HG Morrison**, WW Pathmasiri, S McRitche, SJ Sumner, HR Frost, and AG Hoen. *Associations between the gut microbiome and metabolome in early life*. BMC Microbiol. 2021 Aug 28;21(1):238. doi: [10.1186/s12866-021-02282-3](https://doi.org/10.1186/s12866-021-02282-3). PMID: 34454437; PMCID: PMC8400760.
3. Dibner RR, AM Weaver, MT Brock, GF Custer, **HG Morrison**, L Maignien, and C Weinig. *Time outweighs the effect of host developmental stage on microbial community composition*. FEMS Microbiol Ecol. 2021 Aug 18;97(9):fiab102. doi: [10.1093/femsec/fiab102](https://doi.org/10.1093/femsec/fiab102). PMID: 34259857.
4. Lebeaux RM, MO Coker, EF Dade, TJ Palys, **HG Morrison**, BD Ross, ER Baker, MR Karagas, JC Madan, and AG Hoen. *The infant gut resistome is associated with E. coli and early-life exposures*. BMC Microbiol. 2021 Jul 2;21(1):201. doi: [10.1186/s12866-021-02129-x](https://doi.org/10.1186/s12866-021-02129-x). PMID: 34215179 PMCID: PMC8252198
5. Coker MO, HE Laue, AG Hoen, M Hilliard, E Dade, Z Li, T Palys, **HG Morrison**, E Baker, MR Karagas, and JC Madan. *Infant Feeding Alters the Longitudinal Impact of Birth Mode on the Development of the Gut Microbiota in the First Year of Life*. Front. Microbiol. 07 April 2021; 12:642197. doi: [10.3389/fmicb.2021.642197](https://doi.org/10.3389/fmicb.2021.642197). PMID: 33897650; PMCID: PMC8059768
6. Klasek SA, MT Brock, **HG Morrison**, C Weinig, and L Maignien. *Soil Microsite Outweighs Cultivar Genotype Contribution to Brassica Rhizobacterial Community Structure*. Front. Microbiol. 07 April 2021; 12:645784. doi: [10.3389/fmicb.2021.645784](https://doi.org/10.3389/fmicb.2021.645784). PMID: 33897658; PMCID: PMC8058099
7. Shaiber A, AD Willis, TO Delmont, S Roux, LX Chen, AC Schmid, M Yousef, AR Watson, K Lolans, ÖC Esen, STM Lee, N Downey, **HG Morrison**, FE Dewhurst, JL Mark Welch, and AM Eren. *Functional and genetic markers of niche partitioning among enigmatic members of the human oral microbiome*. Genome Biol. 2020 Dec 16;21(1):292. doi: [10.1186/s13059-020-02195-w](https://doi.org/10.1186/s13059-020-02195-w). PMID: 33323122; PMCID: PMC7739484.
8. Lemonnier, C, M Perennou, D Eveillard, A Fernandez-Guerra, A Laynaert, L Marie, **HG Morrison**, L Memery, C Paillard, and L Maignien. *Linking Spatial and Temporal Dynamic of Bacterioplankton Communities With Ecological Strategies Across a Coastal Frontal Area*. Front. Marine Sci. 2020 Jun 09;7:13pp. doi:10.3389/fmars.2020.00376
9. Quigley, CTC, KA Capistrant-Fossa, **HG Morrison**, LE Johnson, A Morozov, VS Hertzberg, and SH Brawley. *Bacterial Communities Show Algal Host (Fucus spp.)/Zone Differentiation Across the Stress Gradient of the Intertidal Zone*. Front Microbiol. 2020;11:563118. doi: [10.3389/fmicb.2020.563118](https://doi.org/10.3389/fmicb.2020.563118). eCollection 2020. PubMed PMID: 33072025; PubMed Central PMCID: PMC7541829.
10. Antosca K, AG Hoen, T Palys, M Hilliard, **HG Morrison**, M Coker, J Madan, and MR Karagas MR. *Reliability of stool microbiome methods for DNA yields and sequencing among infants and young children*. Microbiologyopen. 2020 May;9(5):e1018. doi: [10.1002/mbo3.1018](https://doi.org/10.1002/mbo3.1018). Epub 2020 Mar 12. PubMed PMID: 32166902; PubMed Central PMCID: PMC7221451.
11. Coker MO, AG Hoen, E Dade, S Lundgren, Z Li, AD Wong, MS Zens, TJ Palys, **HG Morrison**, ML Sogin, ER Baker, MR Karagas, and JC Madan. *Specific class of intrapartum antibiotics relates to maturation of the infant gut microbiota: a prospective cohort study*. BJOG. 2020 Jan;127(2):217-227. doi: [10.1111/1471-0528.15799](https://doi.org/10.1111/1471-0528.15799). Epub 2019 Jun 5. PubMed PMID: 31006170; PubMed Central PMCID: PMC6803026.
12. Ecklu-Mensah, G, ST Sackey, HG Morrison, ML Sogin, LG Murphy, and WS Reznikoff. *Assessment of bacterial diversity in western Accra, Ghana, drinking water samples*. Journal Of Water Sanitation and Hygiene for Development, 2019 9(4), 644-661. doi:10.2166/washdev.2019.123
13. Lundgren SN, JC Madan, MR Karagas, **HG Morrison**, AG Hoen, and BC Christensen. *Microbial Communities in Human Milk Relate to Measures of Maternal Weight*. Front Microbiol. 2019;10:2886. doi: [10.3389/fmicb.2019.02886](https://doi.org/10.3389/fmicb.2019.02886). eCollection 2019. PubMed PMID: 31921063; PubMed Central PMCID: PMC6933483.
14. Antosca KM, DA Chernikova, CE Price, KL Ruoff, K Li, MF Guill, NR Sontag, **HG Morrison**, S Hao, ML Drumm, TA MacKenzie, DB Dorman, LM Feenan, MA Williams, J Dessaint, IH Yuan, BJ Aldrich, LA Moulton, L Ting, A Martinez-Del Campo, EJ Stewart, MR Karagas, GA O'Toole, and JC Madan. *Altered Stool Microbiota of Infants with Cystic Fibrosis Shows a Reduction in Genera Associated with Immune Programming from Birth*. J Bacteriol. 2019 Aug 15;201(16). doi: [10.1128/JB.00274-19](https://doi.org/10.1128/JB.00274-19). Print 2019 Aug 15. PubMed PMID: 31209076; PubMed Central PMCID: PMC6657602.

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15. Dobay A, C Haas, FG Fucile, N Downey, **HG Morrison**, A Kratzer, and N Arora. *Microbiome-based body fluid identification of samples exposed to indoor conditions*. *Forensic Sci Int Genet*. 2019 May;40:105-113. doi: 10.1016/j.fsigen.2019.02.010. Epub 2019 Feb 11. PubMed PMID: 30785061.
16. Trigodet F, N Larché, **Morrison HG**, M Jebbar, D Thierry, and L Maignien. *Electroactive Bacteria Associated With Stainless Steel Ennoblement in Seawater*. *Front Microbiol*. 2019;10:170. doi: 10.3389/fmicb.2019.00170. eCollection 2019. PubMed PMID: 30792705; PubMed Central PMCID: PMC6374330.
17. Crognale S, S Venturi, F Tassi, S Rossetti, H Rashed, J Cabassi, F Capecchiacci, B Nisi, O Vaselli, **HG Morrison**, ML Sogin, and S Fazi. *Microbiome profiling in extremely acidic soils affected by hydrothermal fluids: the case of the Solfatara Crater (Campi Flegrei, southern Italy)*. *FEMS Microbiol Ecol*. 2018 Dec 1;94(12). doi: 10.1093/femsec/fiy190. PubMed PMID: 30247697.
18. Quigley, CTC, **HG Morrison**, IR Mendonça, and SH Brawley. *A common garden experiment with Porphyra umbilicalis (Rhodophyta) evaluates methods to study spatial differences in the macroalgal microbiome*. *J Phycol* 2018, Oct;54(5):653-664. doi: 10.1111/jpy.12763. Epub 2018 Aug. PMID: 30135504
19. Hoen AG, Madan JC, Li Z, Coker M, Lundgren SN, Morrison HG, Palys T, Jackson BP, Sogin ML, Cottingham KL, Karagas MR. Sex-specific associations of infants' gut microbiome with arsenic exposure in a US population. *Sci Rep*. 2018 Aug 22;8(1):12627. doi: 10.1038/s41598-018-30581-9. PubMed PMID: 30135504; PubMed Central PMCID: PMC6105615.
20. Grahl N, Dolben EL, Filkins LM, Crocker AW, Willger SD, Morrison HG, Sogin ML, Ashare A, Gifford AH, Jacobs NJ, Schwartzman JD, Hogan DA. Profiling of Bacterial and Fungal Microbial Communities in Cystic Fibrosis Sputum Using RNA. *mSphere*. 2018 Aug 8;3(4). doi: 10.1128/mSphere.00292-18. PubMed PMID: 30089648; PubMed Central PMCID: PMC6083091.
21. Lundgren SN, Madan JC, Emond JA, Morrison HG, Christensen BC, Karagas MR, Hoen AG. Maternal diet during pregnancy is related with the infant stool microbiome in a delivery mode-dependent manner. *Microbiome*. 2018 Jul 5;6(1):109. doi: 10.1186/s40168-018-0490-8. PubMed PMID: 29973274; PubMed Central PMCID: PMC6033232.
22. Courtine D, K Alain, M Georges, N Bienvenu, HG Morrison, AM Eren, and L Maignien. *Complete Genome Sequence of Hyperthermophilic Archaeon Thermococcus sp. EXT12c, Isolated from the East Pacific Rise 9°N*. *Genome Announc*. 2017, Dec 14;5(50). pii:e01385-17. doi: 10.1128/genomeA.01385-17. PMID: 29242226; PMCID: PMC5730676.
23. Chernikova DA, JC Madan, ML Housman, M Zain-Ul-Abideen, SN Lundgren, HG Morrison, ML Sogin, SM Williams, JH Moore, MR Karagas, and AG Hoen. *The premature infant gut microbiome during the first 6 weeks of life differs based on gestational maturity at birth*. *Pediatr Res*. 2018 May 23. doi: 10.1038/s41390-018-0022-z. [Epub ahead of print] PMID: 29795209.
24. Lee, STM, SA Kahn, TO Delmont, A Shaiber, ÖC Esen, NA Hubert, **HG Morrison**, DA Antonopoulos, DT Rubin, and AM Eren. *Tracking microbial colonization in fecal microbiota transplantation experiments via genome-resolved metagenomics*. *Microbiome*. 2017 May 4;5(1):50. doi: 10.1186/s40168-017-0270-x. **5418705**.
25. Vineis, JH, DL Ringus, **HG Morrison**, TO Delmont, S Dalal, LH Raffals, DA Antonopoulos, DT Rubin, AM Eren, EB Chang, and ML Sogin. *Patient-Specific Bacteroides Genome Variants in Pouchitis*. *Mbio* 2016, Nov 15;7(6). pii: e01713-16. doi: 10.1128/mBio.01713-16. **5111406**.
26. Topcuoğlu, BD, LC Stewart, **HG Morrison**, DA Butterfield, JA Huber, and JF Holden. *Hydrogen Limitation and Syntrophic Growth Among Natural Assemblages of Thermophilic Methanogens at Deep-sea Hydrothermal Vents*. *Front Microbiol* 2016. Aug 5;7:1240. doi: 10.3389/fmicb.2016.01240. eCollection 2016. **4974244**.
27. Hogan, DA, SD Willger, EL Dolben, TH Hampton, BA Stanton, **HG Morrison**, ML Sogin, J Czum, and A Ashare. *Analysis of Lung Microbiota in Bronchoalveolar Lavage, Protected Brush and Sputum Samples from Subjects with Mild-To-Moderate Cystic Fibrosis Lung Disease*. *PloS One* 2016 Mar 4;11(3): e0149998. doi: 10.1371/journal.pone.0149998. **4778801**.
28. Madan, JC, AG Hoen, SN Lundgren, SF Farzan, KL Cottingham, **HG Morrison**, ML Sogin, H Li, JH Moore and MR Karagas. *Association of Cesarean delivery and formula supplementation on the intestinal microbiome of six-week old infants*. *JAMA Pediatr*. 2016 Mar 1; 170(3): 212–219. doi: 10.1001/jamapediatrics.2015.3732. **4783194**.
29. Fisher JC, AM Eren, HC Green, OC Shanks, **HG Morrison**, JH Vineis, ML Sogin and SL McLellan (2015). *Comparison of sewage and animal fecal microbiomes by using oligotyping reveals Potential human fecal indicators in multiple taxonomic groups*. *Appl Environ Microbiol*. 81(20):7023-33. doi: 10.1128/AEM.01524-15. Epub 2015 Jul 31. **4579428**
30. Eren AM, ÖC Esen, C Quince, JH Vineis, **HG Morrison**, ML Sogin and TO Delmont. (2015). *Anvi'o: an advanced analysis and visualization platform for omics data*. *PeerJ*. Oct 8;3:e1319. doi: 10.7717/peerj.1319. eCollection 2015. **4614810**.
31. Bowen JL, D Weisman, M Yasuda, A Jayakumar, **HG Morrison** and BB Ward (2015). *Marine oxygen deficient zones harbor depauperate denitrifying communities compared to novel genetic diversity in coastal sediments*. *Microb Ecol*. 70(2):311-21. PMID: 25721726. PMCID: n/a
32. Hoen AG, J Li, LA Moulton, GA O'Toole, ML Housman, DC Koestler, MF Guill, JH Moore, PL Hibberd, **HG Morrison**, ML Sogin, MR Karagas and JC Madan (2015). *Associations between gut microbial colonization in early life and respiratory outcomes in cystic fibrosis*. *The Journal of Pediatrics*. **4674690**.
33. Newton RJ, SL McLellan, DK Dila, JH Vineis, **HG Morrison**, AM Eren and ML Sogin (2015). *Sewage reflects the microbiomes of human populations*. *mBio* 6(2):e02574. **4358014**.

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34. Eren AM, ML Sogin, **HG Morrison**, JH Vineis, JC Fisher, RJ Newton and SL McLellan (2015). A single genus in the gut microbiome reflects host preference and specificity. *ISME J* 9(1): 90-100. **4274434**.
35. Celaj S, MW Gleeson, J Deng, GA O'Toole, TH Hampton, MF Toft, **HG Morrison**, ML Sogin, J Putra, AA Suriawinata and JD Gorham (2014). *The microbiota regulates susceptibility to FAS-mediated acute hepatic injury*. *Lab Invest* 94(9): 938-949. **4152405**.
36. Chernikova DA, DC Koestler, AG Hoen, ML Housman, PL Hibberd, JH Moore, **HG Morrison**, ML Sogin, M Zain-Ul-Abideen and JC Madan (2014). *Fetal exposures and perinatal influences on the stool microbiota of premature infants*. *J Matern Fetal Neonatal Med*: 1-7. **4476945**.
37. Eren AM, **HG Morrison**, PJ Lescault, J Reveillaud, JH Vineis and ML Sogin (2014a). *Minimum entropy decomposition: Unsupervised oligotyping for sensitive partitioning of high-throughput marker gene sequences*. *ISME J*. **4817710**.
38. Eren AM, **HG Morrison**, SM Huse and ML Sogin (2014b). *DRISEE overestimates errors in metagenomic sequencing data*. *Brief Bioinform* 15(5): 783-787. **4171678**.
39. Hampton TH, DM Green, GR Cutting, **HG Morrison**, ML Sogin, AH Gifford, BA Stanton and GA O'Toole (2014). *The microbiome in pediatric cystic fibrosis patients: The role of shared environment suggests a window of intervention*. *Microbiome* 2: 14. **4113139**.
40. Huse SM, VB Young, **HG Morrison**, DA Antonopoulos, J Kwon, S Dalal, R Arrieta, NA Hubert, L Shen, JH Vineis, JC Koval, ML Sogin, EB Chang and LE Raffals (2014a). *Comparison of brush and biopsy sampling methods of the ileal pouch for assessment of mucosa-associated microbiota of human subjects*. *Microbiome* 2(1): 5. **3931571**.
41. Huse SM, DB Mark Welch, A Voorhis, A Shipunova, **HG Morrison**, AM Eren and ML Sogin (2014b). *VAMPS: A website for visualization and analysis of microbial population structures*. *BMC Bioinformatics* 15: 41. **3922339**.
42. Maltz MA, L Bomar, P Lapiere, **HG Morrison**, EA McClure, ML Sogin and J Graf (2014). *Metagenomic analysis of the medicinal leech gut microbiota*. *Front Microbiol* 5: 151. **4029005**.
43. Nelson MC, **HG Morrison**, J Benjamino, SL Grim and J Graf (2014). *Analysis, optimization and verification of Illumina-generated 16s rRNA gene amplicon surveys*. *PLoS ONE* 9(4): e94249. 3983156.
44. Swan BK, MD Chaffin, M Martinez-Garcia, **HG Morrison**, EK Field, NJ Poulton, ED Masland, CC Harris, A Sczyrba, PS Chain, S Koren, T Woyke and R Stepanauskas (2014). *Genomic and metabolic diversity of marine group I Thaumarchaeota in the mesopelagic of two subtropical gyres*. *PLoS ONE* 9(4): e95380. **3990693**.
45. Willger SD, SL Grim, EL Dolben, A Shipunova, TH Hampton, **HG Morrison**, LM Filkins, GA O'Toole, LA Moulton, A Ashare, ML Sogin and DA Hogan (2014). *Characterization and quantification of the fungal microbiome in serial samples from individuals with cystic fibrosis*. *Microbiome* 2: 40. **4236224**.
46. Eren AM, L Maignien, WJ Sul, LG Murphy, SL Grim, **HG Morrison** and ML Sogin (2013a). *Oligotyping: Differentiating between closely related microbial taxa using 16s rRNA gene data*. *Methods Ecol Evol* 4(12). **3864673**.
47. Eren AM, JH Vineis, **HG Morrison** and ML Sogin (2013b). *A filtering method to generate high quality short reads using Illumina paired-end technology*. *PLoS ONE* 8(6): e66643. **3684618**.
48. Marteinsson VT, A Runarsson, A Stefansson, T Thorsteinsson, T Johannesson, SH Magnusson, E Reynisson, B Einarsson, N Wade, **HG Morrison** and E Gaidos (2013). *Microbial communities in the subglacial waters of the Vatnajökull ice cap, Iceland*. *ISME J* 7(2): 427-437. **3554413**.
49. Newton RJ, SM Huse, **HG Morrison**, CS Peake, ML Sogin and SL McLellan (2013a). *Shifts in the microbial community composition of Gulf Coast beaches following beach oiling*. *PLoS ONE* 8(9): e74265. **3769389**.
50. Newton RJ, MJ Bootsma, **HG Morrison**, ML Sogin and SL McLellan (2013b). *A microbial signature approach to identify fecal pollution in the waters off an urbanized coast of Lake Michigan*. *Microb Ecol* 65(4): 1011-1023. **4084971**.
51. Price KE, TH Hampton, AH Gifford, EL Dolben, DA Hogan, **HG Morrison**, ML Sogin and GA O'Toole (2013). *Unique microbial communities persist in individual cystic fibrosis patients throughout a clinical exacerbation*. *Microbiome* 1(1): 27. **3971630**.
52. Vital M, CR Penton, Q Wang, VB Young, DA Antonopoulos, ML Sogin, **HG Morrison**, L Raffals, EB Chang, GB Huffnagle, TM Schmidt, JR Cole and JM Tiedje (2013). *A gene-targeted approach to investigate the intestinal butyrate-producing bacterial community*. *Microbiome* 1(1): 8. **4126176**.
53. Young VB, LH Raffals, SM Huse, M Vital, D Dai, PD Schloss, JM Brulc, DA Antonopoulos, RL Arrieta, JH Kwon, KG Reddy, NA Hubert, SL Grim, JH Vineis, S Dalal, **HG Morrison**, AM Eren, F Meyer, TM Schmidt, JM Tiedje, EB Chang and ML Sogin (2013). *Multiphasic analysis of the temporal development of the distal gut microbiota in patients following ileal pouch anal anastomosis*. *Microbiome* 1(1): 9. **3971607**.
54. Bowen JL, **HG Morrison**, JE Hobbie and ML Sogin (2012). *Salt marsh sediment diversity: A test of the variability of the rare biosphere among environmental replicates*. *ISME J* 6(11): 2014-2023. **3475368**.
55. Filkins LM, TH Hampton, AH Gifford, MJ Gross, DA Hogan, ML Sogin, **HG Morrison**, BJ Paster and GA O'Toole (2012). *Prevalence of streptococci and increased polymicrobial diversity associated with cystic fibrosis patient stability*. *J Bacteriol* 194(17): 4709-4717. **3415522**.
56. Madan JC, DC Koestler, BA Stanton, L Davidson, LA Moulton, ML Housman, JH Moore, MF Guill, **HG Morrison**, ML Sogin, TH Hampton, MR Karagas, PE Palumbo, JA Foster, PL Hibberd and GA O'Toole (2012). *Serial analysis of the gut and respiratory microbiome in cystic fibrosis in infancy: Interaction between intestinal and respiratory tracts and impact of nutritional exposures*. *MBio* 3(4). **3428694**.

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57. Vandewalle JL, GW Goetz, SM Huse, **HG Morrison**, ML Sogin, RG Hoffmann, K Yan and SL McLellan (2012). *Acinetobacter, Aeromonas and Trichococcus populations dominate the microbial community within urban sewer infrastructure*. Environ Microbiol 14(9): 2538-2552. **3427404**.
58. Bowen JL, BB Ward, **HG Morrison**, JE Hobbie, I Valiela, LA Deegan and ML Sogin (2011). *Microbial community composition in sediments resists perturbation by nutrient enrichment*. ISME J 5(9): 1540-1548. 3160680.
59. Perry DA, **HG Morrison** and RD Adam (2011). *Optical map of the genotype A1 WBC6 Giardia lamblia genome isolate*. Mol Biochem Parasitol 180(2): 112-114. **5386616**.
60. Adam RD, A Nigam, V Seshadri, CA Martens, GA Farneth, **HG Morrison**, TE Nash, SF Porcella and R Patel (2010). *The Giardia lamblia vsp gene repertoire: Characteristics, genomic organization, and evolution*. BMC Genomics 11: 424. **2996952**.
61. Adey A, **HG Morrison**, Asan, X Xun, JO Kitzman, EH Turner, B Stackhouse, AP MacKenzie, NC Caruccio, X Zhang and J Shendure (2010). *Rapid, low-input, low-bias construction of shotgun fragment libraries by high-density in vitro transposition*. Genome Biol 11(12): R119. **3046479**.
62. Huse SM, DM Welch, **HG Morrison** and ML Sogin (2010). *Ironing out the wrinkles in the rare biosphere through improved OTU clustering*. Environ Microbiol 12(7): 1889-1898. **2909393**.
63. Keeling PJ, N Corradi, **HG Morrison**, KL Haag, D Ebert, LM Weiss, DE Akiyoshi and S Tzipori (2010). *The reduced genome of the parasitic microsporidian Enterocytozoon bienersi lacks genes for core carbon metabolism*. Genome Biol Evol 2: 304-309. **2942035**.
64. Morf L, C Spycher, H Rehrauer, CA Fournier, **HG Morrison** and AB Hehl (2010). *The transcriptional response to encystation stimuli in Giardia lamblia is restricted to a small set of genes*. Eukaryot Cell 9(10): 1566-1576. **2950437**.
65. Parfrey LW, J Grant, YI Tekle, E Lasek-Nesselquist, **HG Morrison**, ML Sogin, DJ Patterson and LA Katz (2010). *Broadly sampled multigene analyses yield a well-resolved eukaryotic tree of life*. Syst Biol 59(5): 518-533.
66. Akiyoshi DE, **HG Morrison**, S Lei, X Feng, Q Zhang, N Corradi, H Mayanja, JK Tumwine, PJ Keeling, LM Weiss and S Tzipori (2009). *Genomic survey of the non-cultivable opportunistic human pathogen, Enterocytozoon bienersi*. PLoS Pathog 5(1): e1000261.
67. Antonopoulos DA, SM Huse, **HG Morrison**, TM Schmidt, ML Sogin and VB Young (2009). *Reproducible community dynamics of the gastrointestinal microbiota following antibiotic perturbation*. Infect Immun.
68. Aurrecochea C, J Brestelli, BP Brunk, JM Carlton, J Dommer, S Fischer, B Gajria, X Gao, A Gingle, G Grant, OS Harb, M Heiges, F Innamorato, J Iodice, JC Kissinger, E Kraemer, W Li, JA Miller, **HG Morrison**, V Nayak, C Pennington, DF Pinney, DS Roos, C Ross, CJ Stoeckert, Jr., S Sullivan, C Treatman and H Wang (2009). *GiardiaDB and TrichDB: Integrated genomic resources for the eukaryotic protist pathogens Giardia lamblia and Trichomonas vaginalis*. Nucleic Acids Res 37(Database issue): D526-530.
69. Huber JA, **HG Morrison**, SM Huse, PR Neal, ML Sogin and DB Mark Welch (2009). *Effect of PCR amplicon size on assessments of clone library microbial diversity and community structure*. Environ Microbiol 11(5): 1292 - 1302.
70. Turanov AA, AV Lobanov, DE Fomenko, **HG Morrison**, ML Sogin, LA Klobutcher, DL Hatfield and VN Gladyshev (2009). *Genetic code supports targeted insertion of two amino acids by one codon*. Science 323(5911): 259-261.
71. Corradi N, DE Akiyoshi, **HG Morrison**, X Feng, LM Weiss, S Tzipori and PJ Keeling (2007). *Patterns of genome evolution among the microsporidian parasites Encephalitozoon cuniculi, Antonospora locustae and Enterocytozoon bienersi*. PLoS ONE 2(12): e1277.
72. Huber JA, DB Mark Welch, **HG Morrison**, SM Huse, PR Neal, DA Butterfield and ML Sogin (2007). *Microbial population structures in the deep marine biosphere*. Science 318(5847): 97-100.
73. Huse SM, JA Huber, **HG Morrison**, ML Sogin and DM Welch (2007). *Accuracy and quality of massively parallel DNA pyrosequencing*. Genome Biol 8(7): R143.
74. **Morrison HG**, AG McArthur, FD Gillin, SB Aley, RD Adam, GJ Olsen, AA Best, WZ Cande, F Chen, MJ Cipriano, BJ Davids, SC Dawson, HG Elmendorf, AB Hehl, ME Holder, SM Huse, UU Kim, E Lasek-Nesselquist, G Manning, A Nigam, JE Nixon, D Palm, NE Passamaneck, A Prabhu, CI Reich, DS Reiner, J Samuelson, SG Svärd and ML Sogin (2007). *Genomic minimalism in the early diverging intestinal parasite Giardia lamblia*. Science 317(5846): 1921-1926.
75. Prabhu A, **HG Morrison**, CR Martinez, 3rd and RD Adam (2007). *Characterisation of the subtelomeric regions of Giardia lamblia genome isolate WBC6*. Int J Parasitol 37(5): 503-513.
76. Cantarel BL, **HG Morrison** and W Pearson (2006). *Exploring the relationship between sequence similarity and accurate phylogenetic trees*. Mol Biol Evol 23(11): 2090-2100.
77. Sogin ML, **HG Morrison**, JA Huber, D Mark Welch, SM Huse, PR Neal, JM Arrieta and GJ Herndl (2006). *Microbial diversity in the deep sea and the underexplored "rare biosphere"*. Proc Natl Acad Sci U S A 103(32): 12115-12120.
78. Gould RM, **HG Morrison**, E Gilland and RK Campbell (2005). *Myelin tetraspan family proteins but no non-tetraspan family proteins are present in the ascidian (Ciona intestinalis) genome*. Biol Bull 209(1): 49-66.
79. Weiland ME, AG McArthur, **HG Morrison**, ML Sogin and SG Svärd (2005). *Annexin-like alpha giardins: A new cytoskeletal gene family in Giardia lamblia*. Int J Parasitol 35(6): 617-626.
80. Best AA, **HG Morrison**, AG McArthur, ML Sogin and GJ Olsen (2004). *Evolution of eukaryotic transcription: Insights from the genome of Giardia lamblia*. Genome Res 14(8): 1537-1547.

Hilary Gonzalez Morrison

81. Powell WH, **HG Morrison**, EJ Weil, SI Karchner, ML Sogin, JJ Stegeman and ME Hahn (2004). *Cloning and analysis of the CYP 1A promoter from the Atlantic killifish (Fundulus heteroclitus)*. Mar Environ Res 58(2-5): 119-124.
82. Reiner DS, ML Hetsko, JG Meszaros, CH Sun, **HG Morrison**, LL Brunton and FD Gillin (2003). *Calcium signaling in excystation of the early diverging eukaryote, Giardia lamblia*. J Biol Chem 278(4): 2533-2540.
83. **Morrison HG**, G Zamora, RK Campbell and ML Sogin (2002). *Inferring protein function from genomic sequence: Giardia lamblia expresses a phosphatidylinositol kinase-related kinase similar to yeast and mammalian TOR*. Comp Biochem Physiol B Biochem Mol Biol 133(4): 477-491.
84. Nixon JE, A Wang, **HG Morrison**, AG McArthur, ML Sogin, BJ Loftus and J Samuelson (2002a). *A spliceosomal intron in Giardia lamblia*. Proc Natl Acad Sci U S A 99(6): 3701-3705.
85. Nixon JE, A Wang, J Field, **HG Morrison**, AG McArthur, ML Sogin, BJ Loftus and J Samuelson (2002b). *Evidence for lateral transfer of genes encoding ferredoxins, nitroreductases, NADH oxidase, and alcohol dehydrogenase 3 from anaerobic prokaryotes to Giardia lamblia and Entamoeba histolytica*. Eukaryot Cell 1(2): 181-190.
86. Pahl N, S Homsí, **HG Morrison** and RM Gould (2002). *mRNAs located in Squalus acanthias (spiny dogfish) oligodendrocyte processes*. Biol Bull 203(2): 217-218.
87. Arkhipova IR and **HG Morrison** (2001). *Three retrotransposon families in the genome of Giardia lamblia: Two telomeric, one dead*. Proc Natl Acad Sci U S A 98(25): 14497-14502.
88. **Morrison HG**, AJ Roger, TG Nystul, FD Gillin and ML Sogin (2001). *Giardia lamblia expresses a proteobacterial-like DNAK homolog*. Mol Biol Evol 18(4): 530-541.
89. Smith R, E Kavanagh, **HG Morrison** and RM Gould (2001). *Messenger RNAs located in spiny dogfish oligodendrocyte processes*. Biol Bull 201(2): 255-256.
90. Gould RM, CM Freund, J Engler and **HG Morrison** (2000). *Optimization of homogenization conditions used to isolate mRNAs in processes of myelinating oligodendrocytes*. Biol Bull 199(2): 215-217.
91. McArthur AG, **HG Morrison**, JE Nixon, NQ Passamaneck, U Kim, G Hinkle, MK Crocker, ME Holder, R Farr, CI Reich, GE Olsen, SB Aley, RD Adam, FD Gillin and ML Sogin (2000). *The Giardia genome project database*. FEMS Microbiol Lett 189(2): 271-273.
92. Gould R, C Freund, F Palmer, PE Knapp, J Huang, H Morrison and DL Feinstein (1999). *Messenger RNAs for kinesins and dynein are located in neural processes*. Biol Bull 197(2): 259-260.
93. Jacob J, G Raab, VJ Soballa, A Luch, G Grimmer, H Greim, J Doehmer, **HG Morrison**, JJ Stegeman and A Seidel (1999). *Species-dependent metabolism of benzoc[phenanthrene and dibenzo[a,l]pyrene by various CYP450 isoforms*. Polycyclic Aromatic Compounds 16(1-4): 191-203. Not in PubMed.
94. Roger AJ, **HG Morrison** and ML Sogin (1999). *Primary structure and phylogenetic relationships of a malate dehydrogenase gene from Giardia lamblia*. J Mol Evol 48(6): 750-755.
95. Sanchez LB, **HG Morrison**, ML Sogin and M Muller (1999). *Cloning and sequencing of an acetyl-CoA synthetase (ADP-forming) gene from the amitochondriate protist, Giardia lamblia*. Gene 233(1-2): 225-231.
96. Henze K, **HG Morrison**, ML Sogin and M Muller (1998). *Sequence and phylogenetic position of a class II aldolase gene in the amitochondriate protist, Giardia lamblia*. Gene 222(2): 163-168.
97. **Morrison HG**, EJ Weil, SI Karchner, ML Sogin and JJ Stegeman (1998). *Molecular cloning of CYP1A from the estuarine fish Fundulus heteroclitus and phylogenetic analysis of CYP1 genes: Update with new sequences*. Comp Biochem Physiol C Pharmacol Toxicol Endocrinol 121(1-3): 231-240.
98. Stegeman JJ, V Soballa, **HG Morrison**, J Jacob and J Doehmer (1998). *Catalytic properties of scup cytochrome P450 1A expressed in Chinese hamster V79 cells*. Marine Environmental Research 46(1): 395. Not in PubMed.
99. Hinkle G, **HG Morrison** and ML Sogin (1997). *Genes coding for reverse transcriptase, DNA-directed RNA polymerase, and chitin synthase from the microsporidian Spraguea lophii*. Biol Bull 193(2): 250-251.
100. Sogin ML, **HG Morrison**, G Hinkle and JD Silberman (1996). *Ancestral relationships of the major eukaryotic lineages*. Microbiologia 12(1): 17-28.
101. Gunderson J, G Hinkle, D Leipe, **HG Morrison**, SK Stickel, DA Odelson, JA Breznak, TA Nerad, M Muller and ML Sogin (1995). *Phylogeny of trichomonads inferred from small-subunit rRNA sequences*. J Eukaryot Microbiol 42(4): 411-415.
102. Kirchhoff F, **HG Morrison** and RC Desrosiers (1995). *Identification of v3 mutations that can compensate for inactivating mutations in c4 of simian immunodeficiency virus*. Virology 213(1): 179-189.
103. **Morrison HG**, MF Oleksiak, NW Cornell, ML Sogin and JJ Stegeman (1995a). *Identification of cytochrome P450 1A (CYP1A) genes from two teleost fish, toadfish (Opsanus tau) and scup (Stenotomus chrysops), and phylogenetic analysis of CYP1A genes*. Biochem J 308 (Pt 1): 97-104.
104. **Morrison HG**, F Kirchhoff and RC Desrosiers (1995b). *Effects of mutations in constant regions 3 and 4 of envelope of simian immunodeficiency virus*. Virology 210(2): 448-455.
105. Kirchhoff F, **HG Morrison**, MG Murray, P Rennert and RC Desrosiers (1994). *SIVmac expressing hybrid envelope proteins containing HIV-1 v3 and/or c4 sequences is not competent for replication*. AIDS Res Hum Retroviruses 10(3): 309-313.
106. **Morrison HG**, F Kirchhoff and RC Desrosiers (1993a). *Evidence for the cooperation of gp120 amino acids 322 and 448 in SIVmac entry*. Virology 195(1): 167-174.
107. **Morrison HG** and RC Desrosiers (1993b). *A PCR-based strategy for extensive mutagenesis of a target DNA sequence*. Biotechniques 14(3): 454-457.
108. Brown SE, **HG Morrison**, N Karabatsos and DL Knudson (1991). *Genetic relatedness of two new Orbivirus serogroups: Orungo and Lebombo*. J Gen Virol 72 (Pt 5): 1065-1072.

Hilary Gonzalez Morrison

109. **Morrison HG**, CS Goldsmith, HL Regnery and DD Auperin (1991). *Simultaneous expression of the Lassa virus N and GPC genes from a single recombinant vaccinia virus*. *Virus Res* 18(2-3): 231-241.
110. Brown SE, **HG Morrison** and DL Knudson (1989a). *Genetic relatedness of the Kemerovo serogroup viruses: III. RNA-RNA blot hybridization and gene reassortment in vitro of the Chenuda serocomplex*. *Acta Virol* 33(3): 221-234.
111. Brown SE, **HG Morrison** and DL Knudson (1989b). *Genetic relatedness of the Kemerovo serogroup viruses: II. RNA-RNA blot hybridization and gene reassortment in vitro of the Great Island serocomplex*. *Acta Virol* 33(3): 206-220.
112. **Morrison HG**, SP Bauer, JV Lange, JJ Esposito, JB McCormick and DD Auperin (1989). *Protection of guinea pigs from Lassa fever by vaccinia virus recombinants expressing the nucleoprotein or the envelope glycoproteins of Lassa virus*. *Virology* 171(1): 179-188.
113. Brown SE, **HG Morrison**, SM Buckley, RE Shope and DL Knudson (1988a). *Genetic relatedness of the Kemerovo serogroup viruses: I. RNA-RNA blot hybridization and gene reassortment in vitro of the Kemerovo serocomplex*. *Acta Virol* 32(5): 369-378.
114. Brown SE, **HA Gonzalez**, DK Bodkin, RB Tesh and DL Knudson (1988b). *Intra- and inter-serogroup genetic relatedness of Orbiviruses. II. Blot hybridization and reassortment in vitro of epizootic haemorrhagic disease serogroup, bluetongue type 10 and Pata viruses*. *J Gen Virol* 69 (Pt 1): 135-147.
115. **Gonzalez HA** and DL Knudson (1988). *Intra- and inter-serogroup genetic relatedness of Orbiviruses. I. Blot hybridization of viruses of Australian serogroups*. *J Gen Virol* 69 (Pt 1): 125-134.
116. **Gonzalez HA** and DL Knudson (1987a). *Orbivirus species and speciation: Genetic reassortment between Corriparta serogroup viruses*. *Intervirology* 28(3): 126-133.
117. **Gonzalez HA** and DL Knudson (1987b). *Genetic relatedness of Corriparta serogroup viruses*. *J Gen Virol* 68 (Pt 3): 661-672.

Reviews, Books, Book Chapters

1. Sogin ML, **HG Morrison**, SL McLellan, D Mark Welch and SM Huse (2010). *The rare biosphere: Sorting out fact from fiction*. *Genome Biology* 11(Suppl. 1): 119. Not in PubMed.
2. **Morrison, HG** and SG Svard, *Genomics of Giardia lamblia*, in *Giardia: A Model Organism*. **H. Lujan** and S. Svärd, Editors. 1st Edition, 2011. 400 p., ISBN: 978-3-7091-0197-1
3. Sasseville, VG, RC Desrosiers, and **HG Morrison**, *Simian immunodeficiency viruses (Retroviridae)*, in *Encyclopedia of Virology*, R. Webster and A. Granoff, Editors. 1999. p. 1640-1647.
4. Sogin, M, J Silberman, G Hinkle, and **H Morrison**, *Problems with molecular diversity in the Eucarya*, in *Evolution of Microbial Life*. 1996, Society for General Microbiology. p. 167-184.
5. **Morrison, HG** and RC Desrosiers, *Simian immunodeficiency viruses*, in *Encyclopedia of Virology*, R. Webster and A. Granoff, Editors. 1994. p. 614-621.
6. Burns, D, T Kodama, K Mori, H Kestler, **H Morrison**, J Gibbs, D Ringler, M Daniel, and R Desrosiers, *Use of cloned SIVmac of defined sequence for the study of AIDS pathogenesis*, in *Retroviruses of Human AIDS and Related Animal Diseases*, M. Girard and L. Valette, Editors. 1991. p. 47-52.