

CURRICULUM VITAE

Dr. Mitchell Loyd Sogin

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Education:

- 1963-1967 University of Illinois, Urbana, Illinois B.S. in Chemistry and Microbiology
1967-1969 University of Illinois, Urbana, Illinois under Z. John Ordal, M.S. in Industrial
Microbiology
Research Activities: Bacterial endospore germination
1969-1972 University of Illinois, Urbana, Illinois under Carl R. Woese, Ph.D. in
Microbiology and Molecular Biology
NIH Predoctoral fellowship
Sigma Xi Research Award
Research Activities: Ribosomal RNA processing, Molecular evolution
1972-1976 National Jewish Center, Denver, Colorado with Norman R. Pace, NIH
Postdoctoral Fellowship
Research Activities: *in vitro* rRNA processing

Professional Appointments:

- 1976-1989 National Jewish Center, Denver, Colorado, Senior Staff Scientist in the
Department of Molecular and Cellular Biology.
1980-1986 Assistant Professor, University of Colorado Health Sciences Center, Department of
Biochemistry and Biophysics
1986-1999 Associate Fellow of the Canadian Institute for Advanced Research
1987-1989 Associate Professor, University of Colorado Health Sciences Center,
Department of Microbiology
1989-present Senior Scientist, Marine Biological Laboratory at Woods Hole
1997-1998 Visiting Miller Research Professor, University of California at Berkeley
1997-2013 Founding Director, Josephine Bay Paul Center for Comparative Molecular
Biology and Evolution, Marine Biological Laboratory at Woods Hole
2004-present Professor (MBL), Department of Molecular Biology, Cell Biology and
Biochemistry, Brown University, Providence, RI

Academic Honors:

- 1992 Division Lecturer - American Society for Microbiology
1993 Stoll Stunkard Award - American Society of Parasitologists
1995 Elected Chairman - Division R, American Society of Microbiologists
1996 Elected - Fellow of the American Academy of Microbiology
1998 Elected - Fellow of the American Academy of Arts and Sciences
1998 Elected - Fellow of the American Association for the Advancement of Science
2007 American Society for Microbiology – Roger Porter Award

Publications: (h-index 88, i10-index 236, Citations 41,276)

Refereed Journal Articles

1. Sogin, M.L., B. Pace, N.R. Pace and C.R. Woese. The Primary Structural Relationship of p16 to m16 Ribosomal RNA. *Nature New Biology* **232**:48-49 (1971).
2. Schaup, H., M.L. Sogin, C.R. Woese and C.G. Kurland. Characterization of an RNA "Binding Site" for a Specific Ribosomal Protein of *Escherichia coli*. *Molec. Gen. Genetics* **114**:1-8 (1971).
3. Sogin, S.J., M.L. Sogin and C.R. Woese. Phylogenetic Measurement in Procaryotes by Primary Structural Characterization. *J. Molec. Evoution* **1**:173-184 (1972).
4. Sogin, M.L., K.J. Pechman, L. Zablen, B.J. Lewis and C.R. Woese. Observations on the Post-Transcriptionally Modified Nucleotides in the 16S Ribosomal Ribonucleic Acid. *J. Bacteriol.* **112**:13-16 (1972).
5. Schaup, H.W., M.L. Sogin, C.G. Kurland and C.R. Woese. Localization of a Binding Site for Ribosomal Protein S8 Within the 16S Ribosomal Ribonucleic Acid of *Escherichia coli*. *J. Bacteriol.* **115**:82 (1973).
6. Sogin, M.L., C.R. Woese, B. Pace and N.R. Pace. The Relationship between Precursor and Mature Forms of the 23S Ribosomal RNA. *J. Mol. Evol.* **2**:167-174 (1973).
7. Dobson, P.R., W.F. Doolittle and M.L. Sogin. Precursor of 5S Ribosomal Ribonucleic Acid in the Blue-Green Alga *Anacystis nidulans*. *J. Bacteriol.* **117**:660-666 (1974).
8. Woese, C.R., M.L. Sogin and L. Sutton. Procaryote Phylogeny I: Concerning the Relatedness of *Aerobacter aerogenes* to *Escherichia coli*. *J. Mol. Evol.* **3**:293-299 (1974).
9. Pribula, C.D., G.E. Fox, C.R. Woese, M.L. Sogin and N.R. Pace. Nucleotide Sequence of *Bacillus megaterium* 5S RNA. *FEBS Letters* **44**:322-323 (1974).
10. Sogin, M.L. and N.R. Pace. *In vitro* maturation of precursors of 5S ribosomal RNA from *Bacillus subtilis*. *Nature* **252**:598-600 (1974).
11. Doolittle, W.F., C.R. Woese, M.L. Sogin, L. Bonen and D. Stahl. Sequence studies on 16S Ribosomal RNA from a Blue-Green Alga. *J. Mol. Evol.* **4**:307-315 (1975).
12. Woese, C.R., M.L. Sogin, D. Stahl, B.J. Lewis and L. Bonen. A comparison of the 16S ribosomal RNA from mesophilic and thermophilic Bacilli: some modifications in the Sanger Method for RNA sequencing. *J. Mol. Evol.* **7**:97 (1976).
13. Marotta, C., S.M. Weissman, M.L. Sogin and N.R. Pace. The primary structure of *Bacillus stearothermophilus* and *Bacillus subtilis* 5S RNAs. *J. Biol. Chem.* **251**:3122 (1976).
14. Sogin, M.L., N.R. Pace, M. Rosenberg and S.M. Weissman. Nucleotide sequence of a 5S ribosomal RNA precursor from *Bacillus subtilis*. *J. Biol. Chemistry* **251**:3480 (1976).
15. Sogin, M.L., B. Pace and N.R. Pace. Partial purification and properties of a ribosomal RNA maturation nuclease from *Bacillus subtilis*. *J. Biol. Chemistry* **252**:1350 (1977).
16. Schroeder, E., J. McKibbin, M.L. Sogin and N.R. Pace. The mode of degradation of precursor-specific RNA fragments by *Bacillus subtilis*. *J. Bacteriol.* **130**:1000 (1977).

17. Sogin, M.L. and G.J. Olsen. Identification and mapping of a 60 bp EcoRI fragment in the *Dictyostelium discoideum* ribosomal DNA. *Gene* **8**:231 (1980).
18. Peffley, D.M. and M.L. Sogin. A Putative tRNA^{Trp} Gene Cloned from *Dictyostelium discoideum*: Its Nucleotide Sequence and Association with Repetitive Deoxyribonucleic Acid. *Biochemistry* **20**:4015-4021 (1981).
19. Olsen, G.J. and M.L. Sogin. Nucleotide Sequence of *Dictyostelium discoideum* 5.8S Ribosomal Ribonucleic Acid: Evolutionary and Secondary Structural Implications. *Biochemistry* **21**:2335-2343 (1982).
20. McCarroll, R., G.J. Olsen, Y.D. Stahl, C.R. Woese and M.L. Sogin. Nucleotide Sequence of the *Dictyostelium discoideum* Small-Subunit Ribosomal Ribonucleic Acid Inferred from the Gene Sequence: Evolutionary Implications. *Biochemistry* **22**:5858-5868 (1983).
21. Olsen, G.J., R. McCarroll and M.L. Sogin. Secondary Structure of the *Dictyostelium discoideum* small subunit ribosomal RNA. *Nucleic Acids Res.* **11**:8037-8049 (1983).
22. Elwood, H.J., G.J. Olsen and M.L. Sogin. The Small-Subunit Ribosomal RNA Gene Sequences from the Hypotrichous Ciliates *Oxytricha nova* and *Stylonychia pustulata*. *Mol. Biol. and Evol.* **2**:399-410 (1985).
23. Lane, D.J., B. Pace, G.J. Olsen, D.A. Stahl, M.L. Sogin and N.R. Pace. Rapid determination of 16S ribosomal RNA sequences for phylogenetic analyses. *Proc. Natl. Acad. Sci. USA* **82**:6955-6959 (1985).
24. Sogin, M.L., H.J. Elwood and J.H. Gunderson. Evolutionary diversity of eukaryotic small subunit rRNA genes. *Proc. Natl. Acad. Sci. USA* **83**:1383-1387 (1986).
25. Sogin, M.L., M.T. Swanton, J.H. Gunderson and H.J. Elwood. Sequence of the Small Subunit Ribosomal RNA Gene from the Hypotrichous Ciliate *Euplotes aediculatus*. *J. Protozool.* **33**:26-29 (1986).
26. Sogin, M.L. and H.J. Elwood. Primary Structure of the *Paramecium tetraurelia* Small-Subunit rRNA Coding Region: Phylogenetic Relationships Within the Ciliophora. *J. Mol. Evol.* **23**:53-60 (1986).
27. Dingerman, T., W. Bertling, T. Brechner, K. Nerke, D.M. Peffley and M.L. Sogin. Structure of two tRNA genes from *Dictyostelium discoideum*. *Nucl. Acids Res.* **14**:1127 (1986).
28. Gunderson, J.H. and M.L. Sogin. Length variation in eukaryotic rRNAs: small subunit rRNAs from the protists *Acanthamoeba castellanii* and *Euglena gracilis*. *Gene* **44**:63-70 (1986).
29. Gunderson, J.H., T.F. McCutchan and M.L. Sogin. Sequence of the Small Subunit Ribosomal RNA Gene Expressed in the Bloodstream Stages of *Plasmodium berghei*: Evolutionary Implications. *J. Protozool.* **33**:525-529 (1986).
30. Sogin, M.L., A. Ingold, M. Karlok, H. Nielsen and J. Engberg. Phylogenetic evidence for the acquisition of ribosomal RNA introns subsequent to the divergence of some of the major *Tetrahymena* groups. *EMBO J.* **5**:3625-3630 (1986).
31. Sogin, M.L., K. Miotto and L. Miller. Primary structure of the *Neurospora crassa* small subunit ribosomal RNA coding region. *Nucleic Acids Res.* **14**:9540 (1986).

32. Sogin, M.L., and J.H. Gunderson. Structural diversity of Eukaryotic Small Subunit Ribosomal RNAs: Evolutionary Implications. *Ann. N.Y. Acad. Sci.* **503**:125-139 (1987).
33. Lau, P.P., B. Degrunner-Vossbrinck, B. Dunn, K. Miotto, M.T. MacDonell, D.M. Rollins, C.J. Pillidge, R.B. Hespell, R.R. Colwell, M.L. Sogin, and G.E. Fox. Phylogenetic Diversity and Position of the Genus *Campylobacter*. *System Appl. Microbiol.* **9**:231-238 (1987).
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35. Gunderson, J.H., M.L. Sogin, G. Wollett, M. Hollingdale, V.F. De La Cruz, A.P. Waters, and T.F. McCutchan. Structurally Distinct, Stage Specific Ribosomes Occur in *Plasmodium*. *Science* **238**:933-937 (1987).
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37. Lynn, D.H. and M.L. Sogin. Assessment of phylogenetic relationships among ciliated protists using partial ribosomal RNA sequences derived from reverse transcripts. *BioSystems* **21**:249-254 (1988).
38. Edman, J.C., J.A. Kovacs, H. Masur, D.V. Santi, H.J. Elwood, and M.L. Sogin. Ribosomal RNA sequence shows *Pneumocystis carinii* to be a member of the Fungi. *Nature* **334**:519-522 (1988).
39. Looker, D., L.A. Miller, H.J. Elwood, S. Stickel and M.L. Sogin. Primary structure of the *Leishmania donovani* small subunit ribosomal RNA coding region. *Nucleic Acids Res.* **16**:7198 (1988).
40. Medlin, L., H.J. Elwood, S. Stickel and M.L. Sogin. The characterization of enzymatically amplified eukaryotic 16S-like rRNA coding regions. *Gene* **71**:491-499 (1988).
41. Sogin, M.L., J.H. Gunderson, H.J. Elwood, R.A. Alonso and D.A. Peattie. Phylogenetic Meaning of the Kingdom Concept: An Unusual Ribosomal RNA from *Giardia lamblia*. *Science* **243**:75-77 (1989).
42. Cummings, D.J., J. Domenico, J. Nelson and M.L. Sogin. DNA Sequence, Structure and Phylogenetic Relationship of the Small Subunit rRNA coding Region of Mitochondrial DNA from *Podospora anserina*. *J. Mol. Evol.* **28**:232-241 (1989).
43. Edman, J.C., J.A. Kovacs, H. Masur, D.V. Santi, H.J. Elwood and M.L. Sogin. Ribosomal RNA Genes of *Pneumocystis carinii*. *J. Protozool.* **36**:18S-20S (1989).
44. Huss, V.A.R. and M.L. Sogin. Primary structure of the *Chlorella vulgaris* small subunit ribosomal RNA coding region. *Nucleic Acids Res.* **17**:1255 (1989).
45. Sogin, M.L. Evolution of Eukaryotic Microorganisms and their Small Subunit Ribosomal RNAs. *Amer. Zool.* **29**:487-499 (1989).

46. Sogin, M.L. and J.C. Edman. A self-splicing intron in the small subunit rRNA gene of *Pneumocystis carinii*. *Nucleic Acids Res.* **17**:5349-5359 (1989). Bhattacharya, D., H.J. Elwood, L.J., Goff and M.L. Sogin. The Phylogeny of *Gracilaria lemaneiformis* (Rhodophyta) Based on Sequence Analysis of its Small Subunit Ribosomal RNA Coding Region. *J. Phycol.* **26**:181-186 (1990).
47. Bhattacharya, D., H.J. Elwood, L.J., Goff and M.L. Sogin. The Phylogeny of *Gracilaria lemaneiformis* (Rhodophyta) Based on Sequence Analysis of its Small Subunit Ribosomal RNA Coding Region. *J. Phycol.* **26**:181-186 (1990).
48. Forster, H., H.J. Elwood, M.D. Coffey and M.L. Sogin. Sequence Analysis of the Small Subunit Ribosomal RNAs of Three Zoosporic Fungi And Implications For Fungal Evolution. *Mycologia* **82**:306-312 (1990).
49. Huss, V.A.R., and M.L. Sogin. Phylogenetic Position of Some *Chlorella* Species within the Chlorococcales based upon Complete Small-Subunit Ribosomal RNA Sequences. *J. Mol. Evol.* **31**:432-442 (1990).
50. Wit, D.D., L. Steyn, S. Shoemaker and M.L. Sogin. Direct Detection of *Mycobacterium tuberculosis* in Clinical Specimens. *J. Clin. Microbiol.* **28**:2437-2441 (1990).
51. Schlegel, M., H.J. Elwood and M.L. Sogin. Molecular Evolution in Hypotrichous Ciliates: Sequence of the Small Subunit Ribosomal RNA Genes from *Onychodromus quadricornutus* and *Oxytricha granulifera*. *J. Mol. Evol.* **32**:64-69 (1991).
52. Greenwood, S.J., M. Schlegel, M.L. Sogin and D.H. Lynn. Phylogenetic Relationships of *Blepharisma americanum* and *Colpoda inflata* Within the Phylum Ciliophora Inferred from Complete Small Subunit rRNA Gene Sequences. *J. Protoozool.* **38**:1-6 (1991).
53. Barns, S.M., D.J. Lane, M.L. Sogin, C. Bibeau and W.G. Weisburg. Evolutionary Relationships among Pathogenic *Candida* Species and Relatives. *J. Bact.* **173**:2250-2255 (1991).
54. Gajadhar, A.A., W.C. Marquardt, R. Hall, J. Gunderson, E.V.A. Carmona and M.L. Sogin. Ribosomal RNA sequences of *Sarcocystis muris*, *Theileria annulata*, and *Cryptosporidium parvum* reveal evolutionary relationships among apicomplexans, dinoflagellates, and ciliates. *Molecular and Biochemical Parasitology* **45**:147-154 (1991).
55. Illingworth, C.A., J.H. Andrews, C. Bibeau and M.L. Sogin. Phylogenetic Placement of *Athelia bombacina*, *Aureobasidium pullulans* and *Colletotrichum gloeosporioides* Inferred from Sequence Comparisons of Small Subunit Ribosomal RNAs. *Experimental Mycology* **15**:65-75 (1991).
56. Ariztia, E.V., R.A. Andersen and M.L. Sogin. A New Phylogeny for Chromophyte Algae Using 16S-like rRNA Sequences from *Mallomonas papillosa* (Synurophyceae) and *Tribonema aequale* (Xanthophyceae). *J. Phycol.* **27**:428-436 (1991).
57. Greenwood, S.J., M.L. Sogin and D.H. Lynn. Phylogenetic Relationships within the Class Oligohymenophorea, Phylum Ciliophora Inferred from the Complete Small Subunit rRNA Gene Sequences of *Colpidium campylum*, *Glaucocystis* *Chattoni* and *Opisthoxena henneyi*. *J. Mol. Evol.* **33**:163-174 (1991).
58. Davila-Aponte, J.A., V.A.R. Huss, M.L. Sogin and T.R. Cech. A self-splicing group I intron in the nuclear pre-rRNA of the green alga, *Ankistrodesmus stipitatus*. *Nucl. Acids. Res.* **19**:4429-4436 (1991).

59. Medlin, L.K., H.J. Elwood, S. Stickel and M.L. Sogin. Morphological and Genetic Variation within the Diatom *Skeletonema costatum* (Bacillariophyta): Evidence for a New Species, *Skeletonema pseudocostatum*. *J. Phycol.* **27**: 514-524 (1991).
60. Bhattacharya, D., S.K. Stickel and M.L. Sogin. Molecular Phylogenetic Analysis of Actin Genic Regions from *Achlya bisexualis* (Oomycota) and *Costaria costata* (Chromophyta). *J. Mol. Evol.* **33**: 4275-4286 (1991).
61. Bhattacharya, D., Medlin, L., Wainright, P.O., Ariztia, E.V., Bibeau C., Stickel, S.K. and Sogin, M.L. Algae Containing Chlorophyll *a+c* are Paraphyletic: Molecular Evolutionary Analysis of the Chromophyta. *Evolution* **46**:1801-1817 (1992).
62. Bruns, T.D., Vilgalys, R., Barns, S.M., Gonzalez, D., Hibbett, D.S., Lane, D.J., Simon, L., Stickel, S., Szaro, T.M., Weisburg, W.G. and Sogin, M.L. Evolutionary relationships within the Fungi: analyses of nuclear small subunit rRNA sequences. *Molecular Phylogenetics and Evolution* **1**:231-241 (1992).
63. Wainright, P.O., Hinkle, G., Sogin, M.L. and Stickel, S.K. The Monophyletic Origins of the Metazoa; An unexpected evolutionary link with Fungi. *Science* **260**:340-243 (1993).
64. Bhattacharya, D., Stickel, S. and Sogin M.L. Isolation and Molecular Phylogenetic Analysis of Actin Coding Regions from *Emiliania huxleyi*, a Prymnesiophyte Alga, using Reverse Transcriptase and PCR Methods. *Mol. Biol. Evol.* **10**:689-703 (1993).
65. Leipe, D.D., Gunderson, J.H., Nerad, T.A., and Sogin, M.L. Small subunit Ribosomal RNA of *Hexamita inflata* and the quest for the first branch in the eukaryotic tree. *Molecular and Biochemical Parasitology* **59**:41-48 (1993).
66. Sogin, M.L., Hinkle, G. and Leipe, D.D. Universal Tree of Life. *Nature* **362**:795 (1993).
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68. Hinkle, G. and M.L. Sogin. The Evolution of the Vahlkampfiidae as Deduced from 16S-like Ribosomal RNA Analysis. *J. Eukaryotic Micro.* **40**:599-603 (1993).
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73. Leipe, D.D., Wainright, P.O., Gunderson, J.H., Porter, D., Patterson, D.J., Valois, F., Himmerich, S. and Sogin, M.L. The stramenopiles from a molecular perspective: 16S-like rRNA sequences from *Labyrinthuloides minuta* and *Cafeteria roenbergensis*. *Phycologia*. **33**:369-377. (1994).

74. Gunderson, J.H., Goss, S.J. and Sogin, M.L. The Sequence of the *Hartmanella vermiformis* Small Subunit rRNA Coding Region. *J. Euk. Microbiol.* **41**:481-482. (1994).
75. Hinkle, G., Wetterer, J.K., Schultz, T. and Sogin, M.L. Phylogeny of the Attine Ant Fungi Based on Analysis of Small Subunit Ribosomal RNA Gene Sequences. *Science* **266**:1695-1697 (1994).
76. Scholin, C.A., M. Herzog, M.L. Sogin and D.M. Anderson. Identification of group and strain-specific genetic markers for globally distributed *Alexandrium* (Dinophyceae). II. Sequence analysis of a fragment of the LSU rRNA gene. *J. Phycolgy* **30**:999-1011. (1994).
77. Morrison, H.G., Oleksiak, M.F., Sogin, M.L. and Stegeman, J.J. Identification of Cytochrome P450 1A Genes from two Teleost fish, Toadfish (*Opsanus tau*) and Scup (*Stenotomus chrysops*), and Phylogenetic Analysis of CYP1A Genes. *Biochem. J.* **308**:97-104 (1995).
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79. Kerk, D., Gee, A., Wainright, P.O., Drum, A.S., Elston, R.A. and Sogin, M.L. The Rosette Agent of Chinook Salmon (*Oncorhynchus tshawytscha*) is Closely Related to Choanoflagellates, as Determined by the Phylogenetic Analyses of its Small Ribosomal Subunit RNA. *Marine Biology* **122**:187-192 (1995).
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81. Sogin, M.L., H.G. Morrison, G. Hinkle and J.D. Silberman. Ancestral Relationships of the Major Eukaryotic Lineages. *Microbiologia SEM* **12**:17-28 (1996).
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83. Silberman, J.D., M.L. Sogin, D.D. Leipe, C.G. Clark. *Blastocystis hominis*: a human parasite finds a taxonomic home. *Nature* **380**:398 (1996).
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85. Santamaria-Fries, M., Fajardo, L.F., Sogin, M.L., Olson, P.D. and Relman, D.A. Lethal infection by a previously-unrecognised metazoan parasite. *Lancet* **347**: 1797-1801 (1996).
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87. Relman, D.A., T.M. Schmidt, A. Gajadhar, M.L. Sogin, J. Cross, K. Yoder, O. Sethabutr and P. Echeverria. Molecular phylogenetic analysis of *Cyclospora*, the human intestinal pathogen, suggests that it is closely related to *Eimeria* species. *Journal of Infectious Diseases* **173**:440-445 (1996).
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91. Amaral Zettler, L., M.L. Sogin and D.A. Caron. Phylogenetic relationships between the Acantharea and the Polycystinea: A molecular perspective on Haeckel's Radiolaria. *Proc. Natl. Acad. Sci. USA* **94**:11411-11416 (1997).
92. Sogin, M.L. History assignment: when was the mitochondrion founded? *Current Opinions in Genetics & Development* **7**:792-799 (1997).
93. Zhou, Q., G. Hinkle, M. L. Sogin, and V. E. Dionne. Phylogenetic Analysis of Olfactory Receptor Genes from Mudpuppy (*Necturus maculosus*). *Biol. Bull.* **193**:248-250 (1997).
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Books/Monographs

1. Sogin, M.L. Relationships Among Precursor and Mature Ribosomal RNAs. Ph.D. Thesis, University of Illinois (1972).

Chapters in Books

1. Sogin, M.L., W.A. McCall and Z.J. Ordal. Effect of heat activation conditions on the germinal response of *Bacillus cereus*-T spores. In: "Spores V", p 363, American Society for Microbiologists (1972).
2. Pace, N.R., B. Meyhack, B. Pace and M.L. Sogin. The Interaction of RNase M5 with a 5S rRNA Precursor. In: "tRNA: Biological Aspects", eds. Abelson, J., P. Schimmel and D. Soll. (Cold Spring Harbor Laboratory, Cold Spring Harbor, New York) (1980).
3. Pace, N.R., K. Gardiner, B. Meyhack, B. Pace, M.L. Sogin and D.A. Stahl. RNA Processing in *Bacillus subtilis*. In: "Microbiology, 1982", ed. Schlessinger, D., p. 32 (1983).
4. Sogin, M.L., U. Edman and H.J. Elwood. A single kingdom of eukaryotes in: "The Hierarchy of Life". Molecules and Morphology in Phylogenetic Analysis, p. 133, Eds. B. Fernholm, K. Bremer, H. Jornvall. Elsevier Press. (1989).
5. Sogin, M.L. Evolution of Eukaryotic Ribosomal RNA Genes in: "McGraw-Hill Yearbook of Science and Technology", p. 260-262, Ed. Sybil Parker, McGraw-Hill, New York (1989).
6. Sogin, M.L. Amplification of Ribosomal RNA Genes for Molecular Evolution Studies in: "PCR-Protocols: A Guide to Methods and Applications", p. 307. Academic Press, Inc. (1990).
7. Sogin, M.L. The Phylogenetic Significance of Sequence Diversity and Length Variations in Eukaryotic Small Subunit Ribosomal RNA Coding Regions in: "New Perspectives on Evolution", Plenum Press, p. 175-188, Wiley-Liss, Inc. (1991).
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9. Sogin, M.L. Molecular Biology and Protoctist Phylogeny. in "Illustrated Glossary of Protoctista". Ed. L. Margulis, H. McKhann and L. Olendzenski, p. xlv-xlvii, Jones and Bartlett Publishers, Boston (1993).
10. Edman, J.C., and Sogin, M.L. Molecular Phylogeny of *Pneumocystis carinii* in: "Pneumocystis carinii". Ed. P.D. Walzer. Marcel Dekker. (1993).
11. Sogin, M.L. The Origin of Eukaryotes and Evolution into Major Kingdoms in: "Early Life on Earth. Nobel Symposium No. 84". Ed. S. Bengtson, p.181-192, Columbia U.P., New York (1994).
12. Wainright, P.O., Patterson, D.J., and Sogin, M.L. Monophyletic Origin of Animals: A Shared Ancestry with the Fungi. in "Molecular Evolution of Physiological Processes". 47th Symposium Society of General Physiologists. ed. D.M. Fambrough. The Rockefeller University Press. 39-54. (1994).
13. Clark, C.G., J.D. Silberman, L.S. Diamond, M.L. Sogin. Molecular systematics of the intestinal amoebae in "Evolutionary Relationships Among Protozoa", eds. G. H. Coombs, K. Vickerman, M. A. Sleigh and A. Warren, Systematics Association Special Volume **56**:169-180 (1998).
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Research Grants:

a. Current Grants

Title of Project: Strategies and Techniques for Analyzing Microbial Population Structures

Agency: NIH (R25 GM106988-01) Principal Investigator: **W. Reznikoff (Sogin and MarkWelch are the key personel and authors)**

Project Period: 07/01/2013-06/30/2018

Total Award Amount: \$673,979

Title of Project: Dynamics of Bacterial-Fungal Interactions in Chronic Lung Infection

Agency NIH:1R01GM108492-01: Subcontract: Dartmouth (Hogan) Role: Co-PI

Project Period: 02/10/14-12/31/17

Title of Project: Deep Life Community- The Deep Carbon Observatory

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. Sogin**

Project Period: 01/01/2016-12/31/2017

Total Award Amount: \$1,250,000

b. Completed Grants

Title of Project: Role of Repetitive DNA sequences in Gene Expression

Agency: NIH Principal Investigator: **M. L. Sogin**

Grant Number: 1 R01 GM23464-01-06

Project Period: 2/1/77-1/31/1982

Total Award Amount \$186,000

Title of Project: Molecular Evolution of Eukaryotes

Agency: NIH Principal Investigator: **M. L. Sogin**

Grant Number: 1 R01 GM32964-01-18

Project Period: 7/1/84-6/30/2000

Total Award Amount: \$3,432,514

Title of Project: **Workshops in Molecular Evolution**
Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**
Project Period: 6/1/88-11/30/1990 – Three serial awards over three years.
Total Award Amount: \$240,000

Title of Project: **Workshops in Molecular Evolution**
Agency: NSF Principal Investigator: **M. L. Sogin**
Grant Number: BSR-DEB-9615098
Project Period: 6/1/91-5/31/1999
Total Award Amount: \$720,000

Title of Project: **Accretion of Cells with Nuclear Genomes: Calibrating Eukaryote
Ultrastructure Innovation through Studies of Molecular Evolution**
Agency: NASA (NAG5-4895) Principal Investigator: **M. L. Sogin**
Project Period: 6/1/97-5/31/2000
Total Award Amount: \$405,548

Title of Project: **Workshops in Molecular Evolution**
Agency: NASA (NAG5-6662) Principal Investigator: **M. L. Sogin**
Project Period: 8/1/97-5/31/1999
Total Award Amount: \$89,282

Title of Project: **Core Funding for Center for Comparative Molecular Biology and
Evolution**
Agency: Josephine Bay Paul Foundation Principal Investigator: **M. L. Sogin**
Project Period: 12/1/97-12/31/2002
Total Award Amount: \$2,000,000

Title of Project: **Environmental Genomes and the Evolution of Complex Systems in
Simple Organisms**
Agency: NASA (NCC2-1054) Principal Investigator: **M. L. Sogin**
Project Period: 7/1/98-10/31/03
Total Award Amount: \$5,894,636 (D. Caron, B. Gast, A. Teske, G. Edgcomb, M. Cummings,
M. Riley Co-Investigators and subcontracts to WHOI)

Title of Project: **W.M. Keck Ecological and Evolutionary Genetics Facility**
Agency: W.M. Keck Foundation Principal Investigator: **M. L. Sogin**
Project Period: 1/1/2001-12/31/2003
Total Award Amount \$1,000,000

Title of Project: **Laboratory Equipment for Post-Genomic Studies in Environmental
Biology**
Agency: NSF (DBI-0100193) Principal Investigator: **M. L. Sogin**
Project Period: 6/15/01 – 5/31/03
Total Award Amount: \$194,598 (W/ J. Hobbie, A. Teske, R. Gast, K. Halanych)

- Title of Project:** **Support for Education and Research**
Agency: The Irving Weinstein Foundation Principal Investigator: **M. L. Sogin**
Project Period: 8/1/2002-12/31/2003
Total Award Amount: \$50,000 +
- Title of Project:** **Advances in Genome Technology and Bioinformatics -**
Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**
Project Period: 9/1/2002-8/30/2002 – Supported four week course
Total Award Amount: \$45,000
- Title of Project:** **Unveiling the Ocean’s hidden majority: a roadmap -**
Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**
Project Period: 8/30/2003-3/30/2004 –Supported Nov 2003 strategic planning workshop
Total Award Amount: \$40,000
- Title of Project:** **Unveiling the Ocean’s hidden majority: a roadmap -**
Agency: G. and B. Moore Foundation Principal Investigator: **M. L. Sogin**
Project Period: 9/30/2003-3/30/2004 –Supported Nov 2003 strategic planning workshop
Total Award Amount: \$40,000
- Title of Project:** ***Giardia*: A Model for Ancient Eukaryote Genome Functions**
Agency: NIH (5 U01 AI43273-05) Principal Investigator: **M. L. Sogin**
Project Period: 2/15/98-4/31/04
Total Award Amount: \$3,374,444 (w/ Subcontracts to University of Arizona, University of Texas and University of Illinois)
- Title of Project:** **Adaptation of Unicellular Eukaryotes to Extremely Acidic Eukaryotes**
Agency: NSF (DEB-0085486) Principal Investigator: **M. L. Sogin**
Project Period: 2/1/01-1/31/05
Total Award Amount: \$474,995 (w/P. Smith, Co-Investigator)
- Title of Project:** **Microsporidia and the Next Generation of Genome Scientists**
Agency: NSF (MCB-0135272) Principal Investigator: **M. L. Sogin**
Project Period: 2/1/01-10/31/05
Total Award Amount: \$1,078,380 (w/H. Morrison, Co-Investigator)
- Title of Project:** **The Program in molecular pathogenesis and global infectious disease at the Marine Biological Laboratory**
Agency: Ellison Biomedical Foundation Principal Investigator: **W.T. Speck**
Project Period: 11/1/01-10/31/06
Total Award Amount: \$5,000,000 (Co-I M. L. Sogin, w/ Steve Hajduk, Jennifer Wernegreen)
- Title of Project:** **From Early Biospheric Metabolisms to the Evolution of Complex Systems**

Agency: NASA (NNA04CC04A) Principal Investigator: **M. L. Sogin**
Project Period: 11/1/03-10/31/08
Total Award Amount: \$4,757,963 (Includes subcontract to Brown University)

Title of Project: Molecular Evolution of Eukaryotes: a protistan emphasis
Agency: NIH (1 R01 AI058054-01) Principal Investigator: **M. L. Sogin**
Project Period: 1/1/04-12/31/08
Total Award Amount: \$2,686,577 (Includes subcontract to UVA)

Title of Project: Woods Hole Center for Oceans and Human Health
Agency: NIH/NIEHS (1 P50 ES012742-01) Principal Investigator: **J. Stegeman**
Project Period: 2/16/04-12/31/08
Total Award Amount: \$468,158 (subcontract to MBL from WHOI)

Title of Project: Woods Hole Center for Oceans and Human Health
Agency: NSF (OCE- 0430724) Principal Investigator: **J. Stegeman**
Project Period: 5/1/04-4/30/09
Total Award Amount: \$575,548 (subcontract to MBL from WHOI)

Title of Project: Bioinformatics Resource Centers for Biodefense and Emerging/Re-emerging Infectious Disease
Agency: NIH (NIAID-DMID-04-34) Principal Investigator: **R. Shuerman**
Project Period: 2/2/04-2/1/09
Total Award Amount: \$176,188 (Subcontract amount to MBL)

Title of Project: International Census of Marine Microbes
Agency: Alfred P. Sloan Foundation Principal Investigator: **M.L. Sogin**
Project Period: 2/1/07 – 1/31/10
Total Award Amount: \$1,200,000

Title of Project: Microbial Population Structure of the World's Oceans
Agency: Keck Foundation (DT063006) Principal Investigator: **M.L. Sogin**
Project Period: 7/1/06-6/30/08
Total Award Amount: \$1,500,000

Title of Project: Anthropogenic impacts and profiling fecal microbial populations at a salt marsh
Agency: NIH (1 P50 ES012742-01)– Pilot project from Woods Hole Center for Oceans and Human Health Principal Investigator: **M.L. Sogin**
Project Period: 01/01/2007 – 12/31/2007
Total Award Amount: \$34,980

Title of Project: Visualization & Analysis of Microbial Population Structures
Agency: Alfred P. Sloan Foundation Principal Investigator: **M.L. Sogin**
Project Period: 06/01/2007 – 05/31/2009
Total Award Amount: \$300,000

Title of Project: New Paradigms for Remote Sensing and Monitoring of Microbial Ecosystems

Agency: NASA (NNA04CC04A) Principal Investigator: **M.L. Sogin**
Project Period: 06/01/2007 – 05/31/2008
Total Award Amount: \$60,248: NAI Director's Discretionary Fund 2007

Title of Project: Biogeochemical forensics of Fe-based microbial systems: defining mission targets and tactics for life detection on Mars

Agency: NASA (NNA04CC04A) Principal Investigator: **M.L. Sogin**
Project Period: 06/01/2007 – 05/31/2008
Total Award Amount: \$31,901: NAI Director's Discretionary Fund 2007

Title of Project: The Rare Biosphere and the Human Habitat

Agency: Alfred P. Sloan Foundation Principal Investigator: **M.L. Sogin**
Project Period: 07/01/08-5/31/12
Award Amount: \$1,215,100

Title of Project: Microbial community profiling of sewage contamination in the Great Lakes” Produce & analyze a pyrotag data set corresponding to hypervariable regions in ribosomal RNA.

Agency: NIH (1R21A1076970 01A1) Principal Investigator: **S. McLellan**
Project Period: 06/15/08-05/31/10
Award Amount: \$82,293 (Subcontract, University Wisconsin-Milwaukee-Water Inst.)

Title of Project: The Woods Hole Center for Oceans and Human Health

Agency: NSF/NIH (OCE-0911031) Principal Investigator: **J. Stegeman**
Project Period: 06/01/09-05/31/12
Total Award Amount: \$181,046 (subcontract to MBL from WHOI)

Title of Project: Development of a TILLING Resource for the Xenopus Research Community

Agency: NIH (1R21HD065713) Principal Investigator: **R. Grainger**
Project Period: 08/20/10-07/31/12
Total Award Amount: \$334,388 (Subcontract to MBL from University of Virginia)

Title of Project: Genomics of Terrestrial Microbial Communities Associated with the Production and Consumption of Greenhouse Gases”.

Agency: NSF/USDA Principal Investigator: **T. Schmidt**
Project Period: 11/01/07-10/31/12
Total Award Amount: \$355,035 (subcontract to MBL from Michigan State University)

Title of Project: Microbial Observatory Examining Microbial Abundance, Diversity, Association and Activity at Seafloor Brine Seeps

Agency: NSF EF-0801740 Principal Investigator: **S. Joye**
Project Period: 09/01/09-08/31/13

Award Amount: \$25,417 (Subcontract to MBL from University of Georgia – Yr 3 only)

Title of Project: MRI Acquisition of an Illumina GAIx for Genomics and Microbial Ecology

Agency: NSF-DBI-1039946 Principal Investigator: **M. L. Sogin**

Project Period: 8/15/10-7/31/13

Total Award Amount: \$548,090

Title of Project: Exploring Diversity and Distribution of Deep Life

Agency: Alfred P. Sloan Foundation Principal Investigator: **R. Colwell**

Project Period: 04/06/11-10/31/13 (*NCE*)

Total Award Amount: \$483,485 (Subcontract to MBL from Oregon State University)

Title of Project: Scientific Steering Committee of the Deep Life Directorate

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**

Project Period: 03/01/11-6/30/15 (*NCE*)

Total Award Amount: \$100,000 (Subcontract to MBL from Carnegie Institute Washington)

Title of Project: The Role of the Gut Microbiota in Ulcerative Colitis

Agency: NIH 4UH3DK083993-04 Principal Investigator: **V. Young**

Project Period: 08/01/12-07/31/14

Award Amount: \$586,573 (Subcontract to MBL from University of Michigan – Yr 4)

Title of Project: IGERT: Reverse Ecology: Computational Integration of Genomes, Organisms and Environments

Agency: NSF 0966060 Principal Investigator: **D. Rand**

Project Period: 08/01/10 - 07/31/15

Total Award Amount: \$0 (Brown University)

Title of Project: VAMPS (MBL) data analysis and visualization module for MoBe DAC: A data analysis core for the Indoor Environment Microbiology Program

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**

Project Period: 10/01/2012-03/31/14

Total Award Amount: \$135,000 (Subcontract to MBL from the University of Chicago)

Title of Project: MoBe DAC: A data analysis core for the Indoor Environment Microbiology Program.

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. L. Sogin**

Project Period: 01/01/2011-12/31/14

Total Award Amount: \$459,918

Title of Project: Deep Life Community- The Deep Carbon Observatory

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. Sogin**

Project Period: 01/01/2014-12/31/2015

Total Award Amount: \$1,250,000

Title of Project: An integrated data platform for democratized sequencing

Agency: Alfred P. Sloan Foundation# 2014-3-04 Co-PI with Rob Knight – UCSD
Project Period: 01/03/15-03/31/16

Title of Project: Diversity and functional capacity of dynamic microbiomes in human health

Agency: Bay and Paul Foundation Principal Investigator: **M. Sogin**
Project Period: 01/01/2014-12/31/2016
Total Award Amount: \$500,000

Title of Project: Molecular Microbial Inventories of space vehicles bound for Mars and their assembly facilities.

Agency: NASA NNX10AT90G Principal Investigator: **M. L. Sogin**
Project Period: 11/01/10-10/31/15
Total Award Amount: \$785,193

Title of Project: Microbial community profiles identify new indicators of waterborne pathogens

Agency: NIH 10734207 Principal Investigator: **S. McLellan**
Project Period: 05/01/11-04/30/16
Total Award Amount: \$624,514 (Subcontract to MBL from University Wisconsin-Milwaukee-Water Inst.)

Title of Project: Microbial Community Structure of Hydrocarbon Reservoirs and Associated Seep

Agency: ExxonMobil Principal Investigator: **M. Sogin**
Project Period: 08/15/2013-02/01/2017
Total Award Amount: \$420,000

c. Proposals Submitted- PENDING

Title of Project: Deep Life Community- The Deep Carbon Observatory

Agency: Alfred P. Sloan Foundation Principal Investigator: **M. Sogin**
Project Period: 01/01/2018-12/31/2019
Total Award Amount: \$1,250,000

d. Other foundation funding

Title of Project: Molecular Evolution

Agency: Unger G. Vetlesen Foundation Principal Investigator: **M. Sogin**
Project Period: 11/1/1989-10/31/2015
Total Award Amount: \$ 6,500,000 + \$1,000,000 to support young faculty (Murat Eren, Sheri Simons)

Service

(i) Institutional

- 1994-2000 Science Advisory Council: Marine Biological Laboratory at Woods Hole.
1997-Present Director, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution

(ii) Professional

Society Memberships
American Society of Microbiology
Society of Protozoologists
International Society of Evolutionary Protozoologists
Society for Molecular Biology and Evolution
American Association for the Advancement of Science
American Society for Cell Biology

(iii) Community

- 1989-1990 National Science Foundation Minority Post Doctoral Fellowship Program
1994-1996 National Science Foundation/Sloan Foundation Molecular Evolution Post-Doctoral Program
1999-2004 National Research Council- Space Studies Board.
2001-2015 Sloan Research Fellowship in Marine Biology Selection Committee
2016- current American Academy of Microbiology Fellows Selection Committee
Current Editorial Board: Journal of Eukaryotic Microbiology: (Journal of Protozoology)
Current Editorial Board: Molecular Phylogenetics and Evolution
Current Editorial Board: Protist (Formerly Archiv fur Protistenkunde)
Current Editorial Board: Applied and Environmental Microbiology
Current Editorial Board: Astrobiology
Current Editorial Board: Environmental Microbiology

Teaching:

- 1985-1986 Nucleic Acids module in Biochemistry graduate course at University of Colorado Health Sciences Center, Department of Biochemistry and Biophysics
1988-2000 Workshop in Molecular Evolution at the marine Biological Laboratory
1997-1998 Lectures in Microbial Diversity and Evolution at University of California, Berkeley
2002-2003 Advances in Genome Technology and Bioinformatics

References for Mitchell L. Sogin:

(Drs. Pace and Doolittle have previously written letters of recommendation.)

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