

Mark Russell Liles

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EDUCATION

- **Doctor of Philosophy in Microbiology**, Northwestern University, Chicago, IL, 1998
 - DISSERTATION: “Identification and characterization of Type II secretion pathways and mechanisms of iron acquisition in the intracellular parasite *Legionella pneumophila*”
- **Bachelor of Science in Biology**, Tulane University, New Orleans, LA, 1991

PROFESSIONAL EXPERIENCE

2010 – present	Associate Professor Department of Biological Sciences Auburn University, Auburn, AL
2011 – present	Adjunct Professor Department of Entomology and Plant Pathology Auburn University, Auburn, AL
2010 – present	Adjunct Professor Department of Fisheries and Allied Aquacultures Auburn University, Auburn, AL
2005 – 2010	Assistant Professor Department of Biological Sciences Auburn University, Auburn, AL
1998 – 2005	Postdoctoral Fellow/Research Associate Department of Plant Pathology University of Wisconsin, Madison, WI <i>Mentors: Dr. Jo Handelsman and Dr. Robert Goodman</i>
1992 – 1998	Graduate Fellow Department of Microbiology & Immunology Northwestern University, Chicago, IL <i>Mentor: Dr. Nicholas Cianciotto</i>
1989 – 1992	Laboratory technician Sensory and Electrophysiology Research Unit Touro Infirmary, New Orleans, LA
1987 – 1991	Undergraduate researcher Department of Biology Tulane University, New Orleans, LA

PEER-REVIEWED PUBLICATIONS

63. Zhou, J., Sun, D., Childers, A., McDermott, T.R., Wang, Y., and **Liles, M.R.** (2014) Three novel virophage genomes discovered from Yellowstone Lake metagenomes. *Journal of Virology* doi: 10.1128/JVI.03039-14
62. Hossain, M.J., Beaz-Hidalgo, R., Figueras, M.J., and **Liles, M.R.** (2014) Draft Genome Sequences of Two Novel *Aeromonas* Species Recovered in Association with Cyanobacterial Blooms. *Genome Announcements* vol. 2 no. 6 e01181-14, doi: 10.1128/genomeA.01181-14
61. Figueras, M.J., Beaz-Hidalgo, R., Hossain, M.J., **Liles, M.R.** (2014) The taxonomic affiliation of new genomes should be verified using the average nucleotide identity and multilocus phylogenetic analysis. *Genome Announcements* vol. 2 no. 6. e00927-14, doi: 10.1128/genomeA.00927-14.
60. Hanson, L., **Liles, M.R.**, Hossain, M.J., Griffin, M. and Hemstreet, W. (2014) Motile *Aeromonas* Septicemia In: *Fish Health Section Blue Book 2014 Edition*, section 1.2.9. American Fisheries Society-Fish Health Section, Bethesda, Maryland.
59. Wang, L., Nasrin, S., **Liles, M.R.**, and Yu, Z. (2014) Use of bacterial artificial chromosomes in metagenomic studies, pp. 1-12. In: *The Encyclopedia of Metagenomics*, Edited by Nelson, K., Highlander, S., Rodriguez-Valera, F., White BA. Berlin Heidelberg: Springer-Verlag.
58. Chander, Y., Koelbl, J., Puckett, J., Moser, M.J., **Liles, M.R.**, Carrias, A., Mead, D.A., and Schoenfeld, T.W. (2014) OmniAmp DNA polymerase, a novel thermostable viral enzyme for LAMP. *Frontiers in Microbiology* 5:1-11, doi: 10.3389/fmicb.2014.00395.
57. Hossain, M.J., Sun, D., McGarey, D.J., Wrenn, S., Alexander, L.M., Martino, M.E., Xing, Y., Terhune, J.S., and **Liles, M.R.** (2014) An Asian origin of virulent *Aeromonas hydrophila* responsible for disease epidemics in United States-farmed catfish. *mBio* 5(3):e00848-14. doi:10.1128/mBio.00848-14.
56. Zhou, Z., Yao, B., Romero, J., Waines, P., Ringø, E., Emery, M., Liles, M. R. and Merrifield, D. L. (2014) Methodological Approaches Used to Assess Fish Gastrointestinal Communities, in Aquaculture Nutrition: Gut Health, Probiotics and Prebiotics (eds D. Merrifield and E. Ringø), John Wiley & Sons, Ltd, Chichester, UK. doi: 10.1002/9781118897263.ch5
55. Hossain, M.J., Waldbieser, G.C., Sun, D., Capps, N.K., Hemstreet, W.B., Griffin, M.J., Khoo, L., Goodwin, A.E., Sonstegard, T., Schroeder, S., Hayden, K., Newton, J.C., Terhune, J.S., and **Liles, M.R.** (2013) Implication of lateral genetic transfer in the emergence of *Aeromonas hydrophila* isolates of epidemic outbreaks in channel catfish. *PLOS ONE* 8(11): e80943. doi:10.1371/journal.pone.0080943
54. Looper, J.K., Cotto, A., Kim, B.-Y., Lee, M.-K., **Liles, M.R.**, Chadhain, S.M., and Son, A. (2013) Microbial community analysis of Deepwater Horizon oil-spill impacted sites along the Gulf coast using functional and phylogenetic markers. *Environmental Science: Processes and Impacts*, 15(11):2068-79.
53. Davis, R., Hossain, M.J., **Liles, M.R.**, and Panizzi, P. (2013) Complete Genome Sequence of *Staphylococcus aureus* Tager 104, a ST49 ancestor. *Genome Announcements*, vol. 1 no. 5 e00706-13.
52. Tekedar, H., Waldbieser, G., Karsi, A., **Liles, M.**, Griffin, M., Vamenta, S., Sonstegard, T., Hossain, M., Schroeder, S., Khoo, L., and Lawrence, M. (2013) Complete genome sequence of channel catfish epidemic isolate *Aeromonas hydrophila* ML09-119. *Genome Announcements*, vol. 1 no. 5 e00755-13.

51. Zheng, H., Chatfield, C.H., **Liles, M.R.**, and Cianciotto, N.P. (2013) Secreted Pyomelanin of *Legionella pneumophila* Promotes Bacterial Iron Uptake and Growth Under Iron-Limiting Conditions. *Infection and Immunity*, 81(11):4182-91.
50. Griffin, M.J., Goodwin, A.E., Merry, G., Williams, M.A., **Liles, M.R.**, and Waldbieser, G. (2013) Rapid quantitative detection of *Aeromonas hydrophila* strains responsible for an epidemic in channel catfish. *Journal of Veterinary Diagnostic Investigation*, 25(4):473-481
49. Morrow, K.M., **Liles, M.R.**, Paul, V., Moss, A., and Chadwick, N.E. (2013) Bacterial shifts associated with coral-macroalgal competition in three Caribbean regions. *Marine Ecology Progress Series*, 488:103-117.
48. Ashby, D., Brady, S.F., Cowan, D.A., Doemer, J., Edwards, E.A., Fiebig, K., Martens, E.C., McCormac, D., Mead, D.A., Miyazaki, K., Moreno-Hagelsieb, G., O'Gara, F., Reid, A., Rose, D.R., Simonet, P., Sjöling, S., Smalla, K., Streit, W.R., Tedman-Jones, J., Valla, S., Wellington, E.M.H., Wu, C.C., **Liles, M.R.**, Neufeld, J.D., Sessitsch, A., and Charles, T.C. (2013) Meeting Report: 1st International Functional Metagenomics Workshop May 7–8, 2012, St. Jacobs, Ontario, Canada. *Standards in Genomic Sciences*, 8(1).
47. Wu, Y., Wang, K., Buschle-Diller, G., and **Liles, M.R.** (2013) Fiber formation by dehydration-induced aggregation of albumin. *Journal of Applied Polymer Science*, DOI: 10.1002/APP.38771.
46. Wang, X., **Liles, M.R.**, and Son, Ahjeong. (2013) Quantification of *E. coli* O157:H7 in soils using an inhibitor-resistant NanoGene assay. *Soil Biology and Biochemistry*, 58:9-15.
45. Morrow, K.M., Ritson-Williams, R., Ross, C., **Liles, M.R.**, and Paul, V. (2012) Allelochemicals produced by Caribbean macroalgae alter coral-bacterial communities and tissue stress responses *in situ*. *PLoS ONE* 7(9): e44859. doi:10.1371/journal.pone.0044859.
44. Ran, C., Carrias, A., Williams, M.A., Capps, N., Dan, B.C.T, Newton, J.C., Kloeppe, J.W., Ooi, E.L., Browdy, C.L., Terhune, J.S., and **Liles, M.R.** (2012) Identification of *Bacillus* strains for biological control of catfish pathogens. *PLoS ONE* 7(9): e45793. doi:10.1371/journal.pone.0045793.
43. Morrow, K.M., Moss, A., Chadwick, N.E., and **Liles, M.R.** (2012) Bacterial assemblages of two Caribbean coral species reveal species-specific distribution and geographic variability. *Applied and Environmental Microbiology*, 78(18):6438-6449.
42. Hossain, M.J., Rahman, K.S., Terhune, J.S., and **Liles, M.R.** (2012) An Outer Membrane Porin Protein Modulates Phage Susceptibility in *Edwardsiella ictaluri*. *Microbiology*, 158:488-497.
41. Carrias, A., Ran, C., Terhune, J., and **Liles, M.R.** (2012) Biological agents for control of disease in aquaculture, pp. 353-393. In: *Infectious Diseases in Aquaculture*, S. Austin (Ed.). London: Woodhead Publishing.
40. George, I.F., Hartmann, M., **Liles, M.R.**, and Agathos, S.N. (2011) Recovery of as-yet-uncultured soil *Acidobacteria* on dilute solid media. *Applied & Environmental Microbiology*, 77(22):8184-8188.
39. Zhou, P., Hussain, S.K., **Liles, M.R.**, Arias, C.R., Backert, S., Kieninger, J., and Oyarzabal, O.A. (2011) Simplified Enrichment Protocol for the Isolation of *Campylobacter* spp. from Retail Broiler Meat. *BMC Microbiology*, 11:175.
38. Parsley, L.C., Goode, A.M., Becklund, K., George, I., Linneman, J., Lopanik, N.B., Goodman, R.M., and **Liles, M.R.** (2011) Polyketide synthase pathways identified from a metagenomic library are derived from soil *Acidobacteria*. *FEMS Microbiology Ecology*, 78(1):176-187.
37. Parsley, L.C., Wu, C., Mead, D., Goodman, R.M., and **Liles, M.R.** (2011) Soil Microbial DNA Purification Strategies for Multiple Metagenomic Applications. In: *Handbook of Molecular Microbial Ecology*, F. J. de Bruijn (Ed.). Hoboken, N.J.: John Wiley and Sons, Inc.
36. Aakvik, T., Lale, R., **Liles, M.R.**, and Valla, S. (2011) Metagenomic libraries for functional screening. In: *Handbook of Molecular Microbial Ecology*, F. J. de Bruijn (Ed.). Hoboken, N.J.: John Wiley and Sons, Inc.

35. Wommack, K.E., Srinivasiah, S., **Liles, M.R.**, Bhavsar, J., Bench, S., and Polson, S. (2011) Phages across the biosphere: Contrasts of viruses in soil and aquatic environments. In: *Handbook of Molecular Microbial Ecology*, F. J. de Bruijn (Ed.). Hoboken, N.J.: John Wiley and Sons, Inc.
34. Sudini, H., Arias, C., **Liles, M. R.**, Bowen, K., and Huettel, R. (2011) Exploring soil bacterial communities in different peanut cropping sequences using multiple molecular approaches. *Phytopathology*, 101(7):819-827.
33. Carrias, A., Welch, T.J., Waldbieser, G.C., Mead, D.A., Terhune, J.S., and **Liles, M.R.** (2011) Comparative genomic analysis of bacteriophages specific to the channel catfish pathogen *Edwardsiella ictaluri*. *Virology Journal* 8:6, doi:10.1186/1743-422X-8-6.
32. Kakirde, K.S., Wild, J., Godiska, R., Mead, D., Wiggins, A., Szybalski, W., and **Liles, M.R.** (2011) Gram-negative shuttle BAC vector for heterologous expression of metagenomic libraries. *Gene*, 475(2):57-62.
31. Morrow, K.M., Paul, V.J., **Liles, M.R.**, and Chadwick, N.E (2011) Allelochemicals produced by Caribbean macroalgae and cyanobacteria have species-specific effects on reef coral microorganisms. *Coral Reefs*, 30(2):309-320.
30. Kakirde, K.S., Parsley, L.C., and **Liles, M.R.** (2010) Size Does Matter: Application-driven Approaches for Soil Metagenomics. *Soil Biology and Biochemistry*, 42(11):1911-1923.
29. Sudini, H., Arias, C., **Liles, M.R.**, Bowen, K., and Huettel, R. (2010) Comparison of soil fungal community structure in different peanut rotation sequences using RISA in relation to aflatoxin producing fungi. *Phytopathology*, 101(1):52-7.
28. Parsley, L.C., Consuegra, E.J., Kakirde, K.S., Land, A.M., Harper, W.F., and **Liles, M.R.** (2010) Identification of diverse antimicrobial resistance determinants encoded on bacterial, plasmid, and bacteriophage metagenomes from an activated sludge microbial community. *Applied and Environmental Microbiology*, 76:3753-3757.
27. Parsley, L.C., Consuegra, E.J., Thomas, S.J., Bhavsar, J., Land, A.M., Bhuiyan, N.N., Mazher, M.A., Waters, R.J., Wommack, K.E., Harper, W.F., and **Liles, M.R.** (2010) A census of the viral metagenome within an activated sludge microbial assemblage. *Applied and Environmental Microbiology*, 76(8):2673-2677.
26. Parsley, L.C., Newman, M. and **Liles, M.R.** (2010) Fluorescence *in situ* hybridization of bacterial cell suspensions. *Cold Spring Harbor Protocols*, doi: 10.1101/pdb.prot5493.
25. Newman, M.M., Feminella, J.W., and **Liles, M.R.** (2010) Purification of genomic DNA from environmental sources for use in a polymerase chain reaction. *Cold Spring Harbor Protocols*, doi:10.1101/pdb.prot5383.
24. **Liles, M.R.**, Turkmen, O., Manske, B.F., Zhang, M., Rouillard, J.M., George, I.F., Balsler, T., Billor, N., and Goodman, R.M. (2010) A phylogenetic microarray targeting 16S rRNA genes from the bacterial division *Acidobacteria* reveals a lineage-specific distribution in a soil clay fraction. *Soil Biology and Biochemistry*, 42(5):739-747.
23. Schoenfeld, T., **Liles, M.R.**, Wommack, K.E., Polson, S.W., Godiska, R., and Mead, D. (2009) Viral metagenomics and the next generation of molecular tools. *Trends in Microbiology*, 18(1):20-29.
22. George, I.F., **Liles, M.R.**, Hartmann, M., Ludwig, W., Goodman, R.M., and Agathos, S. N. (2009) Changes in soil *Acidobacteria* communities after 2,4,6-trinitrotoluene contamination. *FEMS Microbiology Letters*, 296:159-166.
21. **Liles, M. R.**, Williamson, L. L., Rodbumrer, J., Parsley, L., Torsvik, V., Goodman, R. M., and Handelsman, J. (2009) Isolation and cloning of high molecular weight metagenomic DNA from soil microorganisms. *Cold Spring Harbor Protocols*, doi:10.1101/pdb.prot5271.
20. **Walakira, J.**, Carrias, A., Hossain, M.J., Jones, E., Terhune, J.S., and **Liles, M.R.** (2008) Identification and characterization of bacteriophages specific to the catfish pathogen *Edwardsiella ictaluri*. *Journal of Applied Microbiology*, 105(6):2133-2142.

19. Srinivasiah, S., Bhavsar, J., Thapar, K., Liles, M. R., Shoenfeld, T., and Wommack, K.E. (2008) Phages across the biosphere: Contrasts of viruses in soil and aquatic environments. *Research in Microbiology*, 159:349-357.
18. Liles, M. R., Williamson, L. L., Rodbumrer, J., Torsvik, V., Goodman, R. M., and Handelsman, J. (2008) Recovery, purification, and cloning of high molecular weight genomic DNA from soil microorganisms. *Applied and Environmental Microbiology*, 74:3302-3305.
17. Shi, J., Aono, S., Lu, W., Ouellette, A.J., Hu, X., Ji, Y., Wang, L., Lenz, S., Van Ginkel, F., Liles, M.R., Dykstra, C., Morrison, E.E., and Elson, C.O. (2007) A novel role for defensins in intestinal homeostasis: regulation of IL-1 secretion, *Journal of Immunology*, 179(2):1245-1253.
16. Sabree, Z.L., Bergendahl, V., Liles, M.R., Goodman, R.M., Handelsman, J., and Burgess, D. (2006) Identification and characterization of the *Acidobacterium capsulatum* major sigma factor. *Gene*, 376:144-151.
15. Liles, M.R., Williamson, L.L., Goodman, R.M., and Handelsman, J. (2004) Isolation of high molecular weight genomic DNA from soil bacteria for genomic library construction. In: **Molecular Methods in Environmental Microbiology**, Kowalchuk, G.A.; de Bruijn, F.J.; Head, I.M.; Akkermans, A.D.; van Elsas, J.D. (Eds.), pp. 839-852.
14. Liles, M.R., Manske, B.F., Bintrim, S.B., Handelsman, J., and Goodman, R.M. (2003). A census of rRNA genes and linked genomic sequences within a soil metagenomic library. **Applied and Environmental Microbiology**, 69 (5):2684-2691.
13. Handelsman, J., Liles, M.R., Mann, D., Riesenfeld, C., and Goodman, R.M. (2002) Cloning the metagenome: Culture-independent access to the diversity and functions of the uncultivated microbial world. **Methods in Microbiology**, 33:241-255.
12. Gillespie, D.E., Brady, S.F., Bettermann, A.D., Cianciotto, N.P., Liles, M.R., Rondon, M.R., Clardy, J., Goodman, R.M., Handelsman, J. (2002). Isolation of antibiotics turbomycin A and B from a metagenomic library of soil microbial DNA. **Applied and Environmental Microbiology**, 68:4301-4306.
11. Nelson, B.P.*, Liles, M.R.*, Frederick, K.B., Corn, R.M., and Goodman, R.M. (2002) Label-free detection of 16S ribosomal RNA hybridization onto reusable DNA arrays using surface plasmon resonance imaging. **Environmental Microbiology**, 4(11):735-743.
*co-first-authors
10. Nelson, B. C., Grimsrud, T. E., Liles, M. R., Goodman, R. M., and Corn, R. M. (2001) Surface plasmon resonance imaging measurements of DNA and RNA Hybridization-Adsorption onto DNA microarrays. **Analytical Chemistry**, 73 (1):1-7.
9. Rondon, M.R., August, P.R., Bettermann, A.D., Brady, S.F., Grossman, T.H., Liles, M.R., Loiacono, K.A., Lynch, B.A., MacNeil, I.A., Minor, C., Tiong, C.L., Gilman, M., Osbourne, M.S., Clardy, J., Handelsman, J., and Goodman, R.M. (2000) Cloning the soil metagenome: A strategy for accessing the genetic and functional diversity of uncultured microorganisms. **Applied and Environmental Microbiology**, 66 (6): 2541-2547.
8. Liles, M. R., Scheel, T. A., and Cianciotto, N. P. (2000). Discovery of a non-classical siderophore, legiobactin, produced by strains of *Legionella pneumophila*. **Journal of Bacteriology**, 182 (3): 749-757.
7. Liles, M. R., Edelstein, P. H., and Cianciotto, N. P. (1999). The prepilin peptidase is required for protein secretion by and the virulence of the intracellular pathogen *Legionella pneumophila*. **Molecular Microbiology**, 31(3):959-970.
6. Liles, M. R., Viswanathan, V. K., and Cianciotto, N. P. (1998) Identification and temperature regulation of *Legionella pneumophila* genes involved in type IV pilus biogenesis and type II secretion. **Infection and Immunity**, 66:1776-1782.

5. Liles, M.R., and Cianciotto, N.P. (1996). Absence of siderophore-like activity in *Legionella pneumophila* supernatants. **Infection and Immunity**, 64: 1873-1875.
4. Miceli, M. V., Liles, M. R., and Newsome, D. A. (1994) Evaluation of oxidative processes in human retinal pigment epithelial cells associated with retinal outer segment phagocytosis. **Experimental Cell Research**, 214:242-249.
3. Newsome, D. A., Miceli, M. V., Liles, M. R., Tate, D. J., and Oliver, P. D. (1994) Antioxidants in the retinal pigment epithelium. **Progress in Retinal and Eye Research**, 13:101-123.
2. Liles, M. R., Oliver, P. D., and Newsome, D. A. (1991) Antioxidant enzymes in the aging human retinal pigment epithelium. **Archives of Ophthalmology**, 109:1285-1288.
1. Newsome, D. A., Dobard, E. P., Liles, M. R., and Oliver, P. D. (1990) Human retinal pigment epithelium contains two distinct species of superoxide dismutase. **Investigative Ophthalmology and Visual Science**, 31:2508-2513.

PATENTS

11. **Liles, M.R.** and Li, X.C. "Use of *Bacillus amyloliquefaciens* AP183 as an antibacterial agent". Auburn University technology disclosure, 11/14/14. AU Provisional Patent Application No. 62/079,896.
10. **Liles, M.R.** and Kloepper, J. "Application of Pectin or Pectin-Derived Sugars to Enhance the Efficacy of Plant Growth Promotion and/or biological Control Due to Plant Growth-Promoting Rhizobacteria (PGPR)". Auburn University technology disclosure, 9/30/14. AU Provisional Patent Application No. 62/057,667.
9. **Liles, M.R.**, Terhune, J.S., Newton, J.C., Hossain, M.J., Sun, D., and Thurlow, C. "Live, attenuated vaccines for control of epidemic *A. hydrophila* generated by markerless gene deletion". Auburn University technology disclosure, 5/28/14. AU Provisional Patent Application No. 62/003,953.
8. **Liles, M.R.**, Terhune, J.S., and Kloepper, J. "Use of Probiotic *Bacillus subtilis* Strains to Reduce the Negative Effects of Algae in Aquatic Environments". Auburn University technology disclosure, 11/1/13. AU Provisional Patent Application No. 6161/898,917
7. **Liles, M.R.**, Capps, N.K., Hossain, M.J., and Terhune, J.S. Inositol growth-based diagnostic detection of epidemic *Aeromonas hydrophila*. Auburn University technology disclosure, 7/18/12.
6. **Liles, M.R.** Large-insert soil metagenomic library in a shuttle BAC vector. Auburn University technology disclosure, 3/21/12. Invention No. 2012-052. Commercialization agreement signed with the Lucigen Corporation on 11/6/14.
5. **Liles, M.R.**, Walakira, J., Carrias, A., and Terhune, J. Biological control of channel catfish disease in aquaculture systems. Provisional patent filing at Auburn University in May, 2008. Conversion to U.S. patent submission, May, 2009.
4. **Liles, M.R.**, Terhune, J.S. and Kloepper, J. AU Technology Disclosure No.10-068 & US and PCT Patent Application No. 61/334,413 (PCT/US2012/035841) entitled "*Bacillus* bacteria for use in treating and preventing infection in aquatic animals", May 13, 2010

3. **LILES, M.R.**, AND GOODMAN, R.M, (WO/2001/081630) TEMPLATE-SPECIFIC TERMINATION IN A POLYMERASE CHAIN REACTION, U.S. PATENT # 6248567.
2. NELSON, B.P., FREDERICK, K., **LILES, M.R.**, GOODMAN, R.M., AND CORN, R., (WO/2003/048723) LABEL-FREE DETECTION OF NUCLEIC ACIDS VIA SURFACE PLASMON RESONANCE, U.S. PATENT # 6849397.
1. **LILES, M.R.**, WILLIAMSON, L.L., HANDELSMAN, J., AND GOODMAN, R.M. (WO/2004/104179) METHOD FOR ISOLATING AND CLONING HIGH MOLECULAR WEIGHT POLYNUCLEOTIDE MOLECULES FROM THE ENVIRONMENT, P03297US.

HONORS AND AWARDS

Member, Advisory Board for Functional Metagenomics for The Foundation for Scientific and Industrial Research (SINTEF; Trondheim, Norway, 2014 – present)
 Member, Board of Directors, International Student Volunteers (2002 – present)
 COSAM Dean's Award for Faculty Research (2013)
 NIH and NSF review panelist (2008, 2012)
 Auburn University Outstanding Graduate Mentor Award (2008-2009)
 NIH Postdoctoral Fellowship in Bacterial Functional Genomics (2000)
 NIH Fellowship in Molecular Toxicology (1993)
 Tulane Dean's Honor Scholarship (1987 – 1991)
 National Merit Finalist and Scholarship (1987)

GRANT SUPPORT (2000 – PRESENT)

COMPLETED GRANT SUPPORT:

1. **Liles, M.** (PI) (6/1/00-5/31/03), "Functional genomics of uncultivated soil bacteria", NIH NRSA Postdoctoral Fellowship, \$106,768.
2. Goodman, R. (PI), **M. Liles**, and T. Balsler (09/02-9/04) "The Soil Microhabitats, Functional Diversity, and Ecological Roles of Uncultured Bacteria Within the Novel Division Acidobacterium", National Science Foundation, Division of Environmental Biology, \$199,969.
3. German, T. (PI), **M. Liles** (5/1/04-11/1/07), "Discovery of Anti-Bioweapon Agents in BAC Libraries", NIH Small business technology transfer (STTR) grant with industrial partner eMetagen, LLC, Madison, WI
4. Goodman, R. (PI), **M. Liles** (7/1/04-6/30/05), "Construction of Novel BAC Shuttle Vectors and Metagenomic Libraries for Natural Product Discovery", UW-Madison Graduate School Industrial and Economic Development Research (with industrial partner Lucigen Corp., Middleton, WI), \$31,300.
5. **Liles, M.** (PI), J. Terhune and J. Newton (10/07-9/11) "Characterization and application of bacteriophages for biological control of channel catfish disease", Alabama Agricultural Experiment Station, \$120,000.
6. **Liles, M.** (PI) and J. Murphy et al. (5/08) "Equipment grant for a superspeed centrifuge". AAES equipment grant, \$25,700.
7. Oyarzabal, O. (PI), and **M. Liles** (10/1/08-9/30/10) "Transfer of antimicrobial resistance from bacterial contaminants to *Campylobacter* spp.", Alabama Agricultural Experiment Station, \$50,000
8. **Liles, M.** (PI), P. Cobine, and N. Lopanik (5/09-4/11) "Evaluation of Novel Antibiotics and a Novel Shuttle Vector". NIH R21, \$423,588.
9. **Liles, M.** (PI), and Terhune, with Lucigen (T. Schoenfeld PI) (3/09-9/09) "Molecular Diagnostics and Biological Control of Disease in Channel Catfish", NSF Phase I SBIR, \$33,000 at Auburn.

10. **Liles, M.** (PI), P. Cobine, P. Panizzi, J. Kloepper, with Lucigen (C. Wu PI) (3/10-9/10) “Random shear shuttle BAC libraries for antimicrobial discovery from soil metagenomes”, NIH Phase I SBIR, \$49,500 at Auburn.
11. **Liles, M.** (PI), P. Cobine, J. Kloepper, J. Newton, J. Terhune (10/10-9/12) “*Bacillus* biological control of aquaculture pathogens”, Alabama Agricultural Experiment Station, \$100,000.
12. Moss, A. (PI), **M. Liles** (10/10-9/12) “Microbial associations with gelatinous invertebrates in Mobile Bay”, Alabama Agricultural Experiment Station, \$50,000.
13. Moss, A. (PI), K. Halanych, **M. Liles**, A. Wilson (1/11-12/11) “MRI RAPID: Acquisition of a FlowCAM for concurrent analysis of Marine and Estuarine Hydrocarbon Particles, Microbe and Microinvertebrate Assemblages”, NSF RAPID, \$100,002.
14. **Liles, M.** (PI), J. Kloepper, J. Terhune (2/11-5/12) “Evaluation of probiotic *Bacillus* strains for use in aquaculture”, Novus International, \$29,500.
15. Halanych, K. (PI), E. Peatman, **M. Liles**, Z. Liu, C. Arias, J. Kloepper, S. Santos, and R. Locy (1/11-12/11) “Enhancing Auburn's genomic resources with next generation sequencing technology”, Auburn OVPR IGP Level IV, \$150,000.
16. **Liles, M.** (PI), K. Bowen, L. De La Fuente, J. Kloepper, K. Lawrence (10/11-9/12) “Water purification system”, AAES equipment grant, \$5,715.
17. **Liles, M.** (8/13-5/14) Sequence- and function-based screening of oil reservoir metagenomes for thermostable biocatalysts. Norwegian Research Council. \$97,000.
18. **Liles, M.** (PI), and Terhune, with Lucigen (T. Schoenfeld PI) (2/11-2/14) “Molecular Diagnostics and Biological Control of Disease in Channel Catfish”, NSF Phase II SBIR, \$250,000 at Auburn.
19. **Liles, M.** (PI), K. Macklin, M. Singh, J. Kloepper, and J. Terhune (3/11-2/14) “Biological control of *Salmonella* and ammonia reduction in a poultry production system”, Auburn OVPR IGP Level III, \$150,000.
20. **Liles, M.** (PI), J. Terhune, J. Newton (10/12-9/14) “Detection and prophylaxis of the catfish pathogen *Aeromonas hydrophila*”, Alabama Agricultural Experiment Station, \$90,000.
21. Kloepper, J. (PI) and **M. Liles** (6/11-5/14) “Microbial studies of corn and soybean agricultural systems”, Ag Spectrum, \$382,695.
22. De La Fuente, L. (PI), J. Kloepper, **M. Liles**, K. Lawrence (10/12-9/13) “Gel documentation system”, AAES equipment grant, \$11,990.
23. Zhang, L. (PI), A. Appel, **M. Liles**, E. Peatman, N. Liu, J. Bond, Y. Feng, F. Dane, S. McElroy (5/13-4/14) “AAES equipment grant to enable next-generation sequencing at Auburn”, AAES equipment grant, \$40,000.
24. T. Hanson (PI), J. Chappell, D. Cline, **M. Liles**, J. Terhune (10/13-9/14) “Aquaculture Critical Control Points”, United Soybean Board (\$100,000)
25. M. Liles (PI), T. Hanson, J. Jensen, J. Kloepper, K. Macklin, J. Newton, J. Terhune (5/14-4/15) “Microbial Fermentor”, AAES equipment proposal (\$12,632)

CURRENT GRANT SUPPORT:

26. **Liles, M.** (PI), P. Cobine, P. Panizzi, J. Kloepper, with Lucigen (C. Wu PI) (3/12-8/15) “Random shear shuttle BAC libraries for antimicrobial discovery from soil metagenomes”, NIH Phase II SBIR, \$2.5M with \$600,000 at Auburn.
27. Kloepper, J. (PI), **M. Liles**, K. Lawrence (1/12-12/15) “Cooperative R&D on Votivo”, Bayer Crop Sciences, \$360,000.
28. Lawrence, M. (PI), **M. Liles**, M. Griffin, J. Terhune, A. Karsi, and J. Newton (9/13-8/16) “Genomics, Virulence, And Detection Of Emerging Pathogenic *Aeromonas hydrophila* in Channel Catfish”, USDA AFRI, \$227,351 at Auburn.

29. **M. Liles** (Auburn PI), S. Santos (co-PI) and D. Mead (Lucigen PI), (7/14-8/15) “BAC Sudoku Sequencing Paradigm to Accelerate Metagenomic Natural Product Chemistry Discovery”, NIH Phase I SBIR with the Lucigen Corporation (\$213,792, with \$82,500 at Auburn)
30. **M. Liles** (Auburn PI) and D. Mead (Lucigen PI), (7/14-8/15) “Antifungal Compound Discovery from Metagenomes”, NIH Phase I SBIR with the Lucigen Corporation (\$298,997, with \$62,339 at Auburn)
31. **M. Liles** (PI), C. Arias, J. Newton, J. Terhune (5/14-4/16) “Studies to improve the control of virulent *Aeromonas hydrophila* and evaluate the impact of environmental factors on its abundance in catfish aquaculture ponds”, Southern Regional Aquaculture Center (\$197,307)
32. **M. Liles** (United States PI), E. Cytryn (Israel PI) (7/14-6/15) “Mining multidrug-resistant desert soil bacteria for biocontrol activity and biologically-active compounds for treatment of plant and animal disease”, Binational Agricultural Research and Development Fund (\$95,00 in year 1 with opportunity for renewal)
33. J. Newton (PI), **M. Liles**, J. Terhune (10/13-9/15) “Studies into the pathogenesis of epidemic *Aeromonas hydrophila* infections in channel catfish”, Animal Health and Disease Research grant, AU College of Veterinary Medicine (\$49,370)
34. V. Davis (PI), M. Liles, E. Davis (10/14-9/16) “Synergistic properties of nanotubes and antibiotic films”, Auburn University OVPR Level III IGP (\$60,000)
35. J. Kloepper (PI), M. Liles (7/14-6/17) “Microbial Characterization of Ag Spectrum Cropping Systems”, Ag Spectrum (\$413,524).

PENDING PROPOSALS:

1. M. Liles (US PI), Shahzad Ali (Pakistan PI), S. Santos, J. Terhune, J. Newton, D. Sun, M. Hossain (submitted 1/5/15) “Characterization of *Aeromonas hydrophila* isolates from Pakistani farmed carp and production of a vaccine for aquaculture application”. Pakistan-US Science & Technology Cooperation Program, \$298,775 at Auburn.

NON-FUNDED GRANTS (LAST 2 YEARS):

1. B. Pfeifer (PI), M. Liles, D. Mead, G. Church (submitted 5/14) “A Microscale Platform for Diverse Natural Product Biosynthesis and Discovery”. NIH U01, \$182,935 at Auburn.
2. B. Pfeifer (PI), M. Liles, D. Mead, D. Sherman, S. Santos. (submitted 9/17/13) “Directed Metagenomic Natural Product Discovery and Synthetic Biology-Driven Diversification”. DARPA Molecular Foundries. \$272,276 at Auburn.
3. B. Pfeifer (PI), M. Liles, N. Chadwick, D. Mead, G. Church (submitted 7/17/13). Directed Metagenomic Access to the Parvome for Complex Natural Product Discovery. NIH U01, \$1,702,043 at Auburn.
4. K. Macklin (PI), M. Singh, M. Liles (Submitted 7/11/13) An alternative litter amendment to control ammonia and pathogens in poultry litter. US Poultry and Egg. \$51,337

TEACHING EXPERIENCE

Auburn University, Auburn, AL**Assistant/Associate Professor (2005 – Present)**

- **BIOL 5700/6700 Applied and Environmental Microbiology (Primary lecturer, Spring semester)**
A split level undergrad/grad course concerning the history, methodologies, and applications in Applied and Environmental Microbiology. The class is integrated with laboratory exercises that are taught in group format, with each group led by a grad student and focused on a specific environment. Each student obtains a bacterial culture and investigates their “pet microbe” using molecular, biochemical, microscopic, and metabolic data.
- **BIOL 5250/6250 Microbial Evolution and Diversity (Primary lecturer, Fall semester)**
Students learn the concepts of evolution from a prokaryotic perspective, and gain an appreciation and knowledge of the diversity of prokaryotic phylogeny, metabolism, and diverse ecologies. Also integrated with laboratory exercises, for cultivation of diverse prokaryotes and experimental evidence of evolutionary adaptation.
- **BIOL 3200 General Microbiology (Summer semester, 2007 and 2008)**
Introduction to the science of microbiology, emphasizing cellular structure, systematics, growth, genetics, and the role of microbiology in human affairs. A course for Microbiology majors and non-majors.

International Student Volunteers (<http://www.isvolunteers.org/>) (non-profit)**Member, Board of Directors (2002 – Present)****Academic Staff (2002 – 2005)****UW-Madison ISV Club faculty/staff advisor (2004 – 2005)**

- ISV’s mission is to combine conservation work, education and recreation for college students
- Developed a program to allow less-privileged college students to participate:
 - College students in ISV club work with existing local conservation/social welfare groups
 - Students raise travel funds from local sources (per hour community service done abroad)
 - Students work with conservation groups in host country for 2 weeks
 - Academic staff mentor student research efforts/conservation work for academic credit

University of Wisconsin, Madison, WI**Teaching Assistant and Lecturer (1999 – 2005)**

- Lecturer in Med Micro740 Microbial Pathogenesis for 5 years
- Teaching assistant for Plant Pathology123, an intro-Biology class for non-majors (1 semester)
- Guest lecturer in Bio151, intro-Biology class for biology majors (3 lectures)
- Completed a summer course in Teaching Biology 875, which stressed innovative teaching styles

Northwestern University, Chicago, IL**Teaching Assistant and Lecturer (1994 – 1997)**

- Teaching assistant in Medical Microbiology for medical students (2 semesters)
- Guest lecturer in Dental Microbiology (1 week per semester)

Chicago Academy of Sciences, Chicago, IL**Mentor (1993 – 1996)**

- Freshmen from Chicago public high schools were introduced to volunteers from Northwestern
- Mentors taught the basics of biology, led students on field trips, and helped in college preparation

PROFESSIONAL SERVICE

- Academic Editor, PLoS ONE
- Since 2006 have served as a reviewer 102 times, regularly review manuscripts for journals such as Applied and Environmental Microbiology, FEMS Microbiology, Nature, and other journals
- Serve as NIH grant review panelist
- Serve as NSF grant review panelist

Society memberships:

Founding member, International Society for Functional Metagenomics
 American Society for Microbiology
 American Society for Microbiology, Southeastern Branch
 World Aquaculture Society

Scientific Presentations (*Invited talks)

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- 2014** *co-Chair for session on **Environmental and Applied Metagenomics**, “Identification of polyketide synthase pathways from a large-insert soil metagenomic library”. International Union of Microbiological Societies meeting, Montreal, Canada.
- 2014** “The origin and control of a catfish killer: An epidemic due to *Aeromonas hydrophila*”. Kennesaw State University, November 7, Kennesaw, GA.
- 2014** “Drugs from Dirt: Cloning and expressing natural product synthesis pathways from soil metagenomes”, November 7, Kennesaw State University, Kennesaw, GA.
- 2014** *”Identification of an Asian origin and toxic extracellular products of virulent *Aeromonas hydrophila* responsible for disease epidemics in United States-farmed catfish”. 11th International Symposium on *Aeromonas* and *Plesiomonas*. Montpellier, France.
- 2014** ***Chair and organizer for session on Functional Metagenomics**, “Identification of polyketide synthase pathways from a large-insert soil metagenomic library”, Society for Industrial Microbiology and Biotechnology meeting, St. Louis, MO.
- 2014** “Phylogeny, virulence factors and control of a virulent *Aeromonas hydrophila* strain causing a disease epidemic in United States-farmed catfish”. Universitat Rovira i Virgili, Reus, Spain.
- 2014** “The emergence and control of bacterial pathogens”. COSAM Dean’s research award seminar, Auburn University, Auburn, AL.
- 2014** “SBIR/STTR workshop”, hosted by Auburn University’s Office of the Vice President for Research and Economic Development, Office of Technology Transfer, the Office of Sponsored Programs, and the Alabama Launchpad. Auburn Hotel and Conference Center, Auburn, AL.
- 2014** “The emergence and control of virulent bacterial pathogens”. Department of Biology, Jacksonville State University, Jacksonville, AL.
- 2013** *”Mining large-insert soil metagenomic libraries for antimicrobial activity and biosynthetic pathways”. Soil Metagenomics 2013 conference, Braunschweig, Germany.
- 2013** * “Evidence for the introduction of highly virulent *Aeromonas hydrophila* into US catfish aquaculture farms from Asian carp”. Southeastern Branch Meeting of the American Society for Microbiology, November, 2013, Auburn, AL.
- 2013** *”An epidemic of *Aeromonas hydrophila* in catfish: Has an emerging bacterial pathogen been introduced via invasive carp?” Colorado State University Foothills Infectious Diseases Seminar, May 2013, Fort Collins, CO.

- 2013 *"Functional metagenomics for antimicrobial discovery from large-insert soil libraries". Society for Industrial Microbiology and Biotechnology, August 2013, San Diego, CA.
- 2013 ***Co-chair of international workshop on functional metagenomics** "Functional metagenomic analysis of large-insert soil metagenomic libraries for antimicrobial discovery". International workshop on functional metagenomics, June 1-5, University of Pretoria, Pretoria, South Africa.
- 2012 ***Chair of session** "Advances in Microbiological and Disease Ecology Methods" Southeastern Branch meeting of the American Society for Microbiology, November 2012, Athens, GA.
- 2012 ***Co-chair of international workshop on functional metagenomics** "Academic-industry partnerships for functional metagenomics". International workshop on functional metagenomics, May 6-8, 2012, University of Waterloo, Canada.
- 2012 *"Understanding an emerging pathogen in catfish: Comparative genomics of epidemic *Aeromonas hydrophila*". International workshop on healthy aquaculture. May 10, Qingdao, China.
- 2011 *"Comparative biochemistry and genomics of *Aeromonas hydrophila* isolates from an epidemic in channel catfish", Southeastern Branch meeting of the American Society for Microbiology, University of Florida, Oct 20-22, Gainesville, FL
- 2011 "Comparative genomics of *Aeromonas hydrophila* isolates from an epidemic in channel catfish", World Aquaculture Society meeting, June 6-10, Natal, Brazil.
- 2011 *"Natural product discovery using a metagenomic approach". Walter Reed Army Institute of Research, Silver Spring, MD, July 19.
- 2011 *"Natural Product Discovery using a Metagenomic Approach". Keynote address, at the BE-Basic Symposium, Amersfoort, the Netherlands, April 13-14.
- 2011 *"Functional metagenomics for natural product discovery", at the Flemish Institute for Technology Research (VITO), Mol, Belgium.
- 2010 *"Function- and sequence-based screening of large-insert soil metagenomic libraries for natural products", Soil Metagenomics 2010 Conference, December, Braunschweig, Germany.
- 2010 *"Natural Product Discovery from Microbial Communities". Invited speaker, Norwegian University of Science and Technology, Trondheim, Norway, laboratory of Dr. Svein Valla.
- 2010 *"Opportunities and challenges in metagenomic applications". Invited speaker, the Catholic University in Louvain-La-Neuve, Belgium, laboratory of Dr. Isabelle George.
- 2009 *"Scratching the Surface: Constructing and Screening Large-insert Soil Metagenomic Libraries" Invited speaker, BIOPROSP Conference, Tromsø, Norway.
- 2009 *"Diagnostics and biological control of disease in channel catfish". Invited speaker, Auburn University Department of Fisheries and Allied Aquacultures.
- 2009 *"Two approaches for natural product discovery: Metagenomics and biological control of disease" Invited speaker (by Vice President for Research at Ole Miss, Dr. Alice Clark), Oxford, MS.
- 2009 *"Alternatives to antibiotic treatment: Biological control of disease" Invited speaker, Biotechnology Training Program, UW-Madison, Madison, WI.
- 2008 *"Biological control of channel catfish disease due to *Edwardsiella ictaluri*", International Workshop on Healthy aquaculture 2008 at Ocean University of China, May 23-27, Qingdao, China.
- 2008 "Discovery and characterization of bacteriophages specific for the catfish pathogen *Edwardsiella ictaluri*", World Aquaculture Society meeting, May 20-24, Busan, Korea
- 2006 *"Community genomic approaches to assessing functional diversity in soils" (November 2006) Southeastern Regional-American Society for Microbiology conference, Kennesaw State Univ.
- 2002 *"Phylogeny and function in a soil metagenome" Frontiers in Genomics conference at the Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID.
- 2001 "Linking phylogeny and function in soil metagenomic libraries" (August 2001). International Symposium on Microbial Ecology, Amsterdam, Netherlands.

- 2000 “Accessing the genetic and functional diversity of uncultivated soil microbes” Biotechnology 2000 meeting, Berlin, Germany.
- 2000 * “Cloning the soil metagenome: A strategy for accessing the genetic and functional diversity of uncultured microorganisms” Society for Industrial Microbiology meeting, San Diego, CA.
- 1999 * “Accessing the functional and phylogenetic diversity of the soil metagenome” Midwest Molecular Microbial Ecology meeting, University of Illinois, Bloomington, IL.
- 1999 * “Soil biodiversity: A neglected resource” Keynote address, for Robert Goodman, International Workshop for Tropical Soil Biology and Fertility, Nairobi, Kenya.
- 1992 “An *in vitro* model of lipofuscinogenesis in human retinal pigment epithelium” (May 1992). International Society for Free Radical Research meeting, Turin, Italy.

Abstracts presented at scientific meetings (2006-, ^GGrad/^UUndergrad/^PPostdoc under supervision)

- 2014 Brendan Keough, **Jinglie Zhou^G**, Megan Niebauer, Amanda Krerowicz, Scott Santos, Mark R. Liles, Xing-Cong Li, Blaine Pfeifer, Scott Monsma and David Mead. **BAC Sudoku Sequencing of a Soil Metagenomic Library for Secondary Metabolite Pathways.** Argonne National Laboratories soil metagenome meeting, Chicago, IL.
- 2014 **Mohammad J. Hossain^P**, **Dawei Sun^G**, **Shannon Wrenn^U**, **Laura Alexander^U**, Christian Heiss, Parastoo Azadi, Jeffrey S. Terhune, and **Mark R. Liles.** **Structural elucidation and virulence of a novel O-antigen of *Aeromonas hydrophila* isolates from a disease epidemic in catfish.** American Society for Microbiology meeting, Boston, MA.
- 2014 **Shamima Nasrin^G**, **Erin Schmale^U** and **Mark R. Liles.** **Isolation of soil *Actinobacteria* that express antibacterial activity against methicillin-resistant *Staphylococcus aureus*.** American Society for Microbiology meeting, Boston, MA.
- 2014 Yewande O. Fasina, Molli M. Newman, **Joshua M. Stough^G**, and **Mark R. Liles.** **Effect of *Clostridium perfringens* infection and Bacitracin Antibiotic Therapy on Bacterial Diversity In The Intestine of Broiler Chicks.** American Society for Microbiology meeting, Boston, MA.
- 2014 Suresh Ganji, Melissa R. Jacob, Mei Wang, R. Ranga Rao, **Shamima Nasrin^G**, **Mark R. Liles**, David A. Mead, Ameeta K. Agarwal, Ikhlas A. Khan, Alice M. Clark, and Xing-Cong Li. **Chemical modification of the antibiotic chloramphenicol by metagenomic clones.** American Society of Pharmacognosy meeting, Oxford, MS.
- 2014 R. Ranga Rao, Melissa R. Jacob, Xiaolong Chen, Mei Wang, **Shamima Nasrin^G**, **Mark R. Liles**, David A. Mead, Ameeta K. Agarwal, Ikhlas A. Khan, Alice M. Clark, and Xing-Cong Li. **A new macrocyclic polyene antibiotic from *Bacillus* sp. AP183.** American Society of Pharmacognosy meeting, Oxford, MS.
- 2014 **Mark R. Liles**, **Jinglie Zhou^G**, Rosa Ye, Svetlana Jasinovica, Megan Niebauer, Amanda Krerowicz, Ronald Godiska, Cheng-Cang Wu, Blaine A. Pfeifer, and David A. Mead. **Identification of polyketide synthase pathways from a large-insert soil metagenomic library.** International Union of Microbiological Societies. Montreal, Canada.
- 2014 Mark R. Liles, Mohammad J. Hossain^P, Dawei Sun^G, Donald J. McGarey, Laura M. Alexander^U, Shannon Wrenn^U, Maria Elena Martino, Ye Xing, and Jeffrey S. Terhune. **An Asian origin of virulent *Aeromonas hydrophila* responsible for disease epidemics in United States-farmed catfish.** 11th International Symposium on *Aeromonas* and *Plesiomonas*. Montpellier, France.
- 2014 Beaz-Hidalgo R., **Hossain M.J.^P**, **Liles M.R.**, and Figueras M.J. **A suspected surprise: *Aeromonas hydrophila* SSU belongs to the recently recognized important clinical species *Aeromonas dhakensis*.** 11th International Symposium on *Aeromonas* and *Plesiomonas*. Montpellier, France.

- 2014 **Laura Alexander^U, Mohammad J. Hossain^P, and Mark R. Liles. Identification of a novel O-antigen and its role in the virulence of *Aeromonas hydrophila* isolated from diseased catfish.** Center for Undergraduate Research Opportunities symposium, Athens, GA.
- 2013 **Mohammad J. Hossain^P and Mark R. Liles. An epidemic of *Aeromonas hydrophila* in catfish: Has an emerging bacterial pathogen been introduced via invasive carp?** Bacteriology 2013, November 2013, Baltimore, MD
- 2013 **Shamima Nasrin^G, Erin Schmale^U, and Mark R. Liles. Isolation and comparative genomics of soil bacteria with antibacterial activity against Methicillin-resistant *Staphylococcus aureus*.** Bacteriology 2013 meeting, Baltimore, MD.
- 2013 **Shamima Nasrin^G, Melissa Jacob, Kavita S. Kakirde^G, Rosa Ye, Svetlana Jasinovica, Megan Niebauer, Amanda Krerowicz, Ronald Godiska, Paul A. Cobine, Xing-Cong Li, David A. Mead, Cheng-Cang Wu and Mark R. Liles. Functional screening of a large-insert soil metagenomic library for the discovery of antibacterial compounds.** Southeastern Branch Meeting of the American Society for Microbiology, November, 2013.
- 2013 **Richard W Davis, Mohammad J. Hossain^P, Mark R. Liles, and Peter Panizzi. Whole-Genome Elucidation of Virulence Determinants in *Staphylococcus aureus* Tager 104.** Southeastern Branch Meeting of the American Society for Microbiology, November, 2013.
- 2013 **Mohammad J. Hossain^P, Dawei Sun^G, Shannon Wrenn^U, Laura Alexander^U, Christian Heiss, Parastoo Azadi, Jeffrey S. Terhune, and Mark R. Liles. *Aeromonas hydrophila* strains isolated from an disease epidemic in catfish have a novel O-antigen.** Southeastern Branch Meeting of the American Society for Microbiology, November, 2013.
- 2013 **Dawei Sun^G, Mohammad J. Hossain^P, Mark R. Liles, and Jeff Terhune. Differences in the susceptibility of channel, blue and hybrid catfish to epidemic strains of *Aeromonas hydrophila*.** Southeastern Branch Meeting of the American Society for Microbiology, November, 2013.
- 2013 **Jinglie Zhou^G, David A. Mead, Cheng-Cang Wu, Blaine Pfeifer and Mark R. Liles. Identification and expression of type I polyketide synthase (PKS) pathways derived from a large-insert soil metagenomic library.** Southeastern Branch Meeting of the American Society for Microbiology, November, 2013.
- 2013 **Suresh Ganji, Melissa R. Jacob, Mei Wang, Ranga R. Rao, Shamima Nasrin^G, Mark R. Liles, David A. Mead, Ameeta K. Agarwal, Ikhlas A. Khan, Alice M. Clark, and Xing-Cong Li. Chemical Modification of the Antibiotic Chloramphenicol by Metagenomic Clone P35B14.** National Center for Natural Products Research annual meeting, Oxford, MS
- 2013 **Ranga Rao Ravu, Melissa R. Jacob, Xiaolong Chen, Mei Wang, Shamima Nasrin^G, Mark R. Liles, David A. Mead, Ameeta K Agarwal, Ikhlas A Khan, Alice M. Clark, and Xing-Cong Li. Isolation and Characterization of a New Macrocyclic Polyene Antibiotic from *Bacillus* sp. AP183.** National Center for Natural Products Research annual meeting, Oxford, MS.
- 2013 **Davis, R., Hossain, M.J., Liles, M.R., and Panizzi, P. Hybrid assemblies: Crossing into the next generation of staphylococcal genomes.** 2013 meeting of the National Heart, Lung and Blood Institute, Bethesda, MD.
- 2013 **Liles, M.R., Hossain, M.J., Sun, D. Newton, J., and Terhune, J.S. A myo-inositol utilization pathway present on a genomic island contributes to *Aeromonas hydrophila* virulence and the emergence of an epidemic in catfish.** 2013 Conference on Bacterial Genetics and Ecology, Ljubljana, Slovenia.
- 2013 **Liles, M.R., Jacob, M., Kakirde, K.S.^G, Nasrin, S.^G, Zhou, J.^G, Ye, R., Jasinovica, S., Niebauer, M., Krerowicz, A., Godiska, R., Cobine, P.A., Li, X.C., Mead, D.A., and Wu, C.C. Mining a large-insert soil metagenomic library for antimicrobial discovery and phylogenetic diversity.** American Society for Microbiology meeting, Denver, CO.

- 2013 Broady, J., Liles, M.R., Bratcher, C., Schwartz, E., and Wang, L. **Survival and growth of *Listeria monocytogenes* on deli roast beef during refrigeration storage.** American Meat Science Reciprocal Meat Conference, Auburn, AL.
- 2013 Wu, C.C., Liles, M.R., Kakirde, K.^G, Ye, R., Wagner, M., Krerowicz, A., Nasrin, S.^G, Jasinovica, S., Ladell, P., Mead, D.A., Schoenfeld, T. **Functional Soil Metagenomics From >100 Kb Insert BAC Libraries Reveals New Natural Products and Pathways.** FEMS Microbiology Congress 2013, Leipzig, Germany.
- 2013 Davis, R.W., Hossain, M.J.^G, Liles, M.R., Panizzi, P. **Hybrid Assemblies: Crossing Into the Next Generation of Staphylococcal Genomes.** 14th Network on Antimicrobial Resistance in *Staphylococcus aureus* (NARSA) convention.
- 2013 Newman, M.M.^G, Liles, M.R., and Feminella, J.W. **Do differences in leaf chemistry and breakdown rates influence bacterial assemblages colonizing leaf litter in small coastal plains streams?** Society for Freshwater Science (SFS) annual meeting, Jacksonville, FL.
- 2013 Liles, M.R., Mead, D.M., Li, X.C., Kakirde, K.^G, Ye, Y., Wagner, M., Krerowicz, A., Staley, M., Jasinovica, S., Jacob, M.R., Kagarwal, A., Ladell, P., Godiska, R., and Wu, C.C. **Next Generation Soil Metagenomics: Large-insert BAC Libraries for the Discovery of Natural Products and Drugs.** Society for Laboratory Automation and Screening (SLAS) convention, Orlando, FL.
- 2012 Hossain, M.J.^G, Sun, D., McGarey, D.J., Terhune, J.S., Xing, Y., and Liles, M.R. **The recent epidemic outbreak in channel catfish is caused by a novel subspecies of *Aeromonas hydrophila*.** Southeastern Regional Branch Meeting of the American Society for Microbiology (SEB-ASM), Athens, GA.
- 2012 Ran, C.^G, Carrias, A.^G, Williams, M.^G, Capps, N., Cobine, P.A., Kloepper, J.W., Terhune, J.S., and Liles, M.R. **Isolation and characterization of *Bacillus* strains for biological control of disease in channel catfish aquaculture.** Southeastern Regional Branch Meeting of the American Society for Microbiology (SEB-ASM), Athens, GA.
- 2012 Nasrin, S.^G, Schmale, E.^U, and Liles, M.R. **Cultivation of novel soil bacteria with anti-MRSA activity.** Southeastern Regional Branch Meeting of the American Society for Microbiology (SEB-ASM), Athens, GA.
- 2012 Stough, J.^G, Williams, Z., Macklin, K., and Liles, M.R. **Selection of *Bacillus* strains for *Salmonella* reduction within a poultry house environment.** Southeastern Regional Branch Meeting of the American Society for Microbiology (SEB-ASM), Athens, GA.
- 2012 George, I.F., Moreels, D., Liles, M.R., Bouillet, Loic, and Agathos, S.N. **Antibiotic resistance pattern and potential for production of polyketides in novel soil *Acidobacteria* isolates.** Microbial Genomics and Metagenomics workshop, Joint Genome Institute (JGI), Walnut Creek, CA.
- 2012 Mead, D.A., Liles, M.R., Kakirde, K.^G, Ye, R., Wagner, M., Krerowicz, A., Nasrin, S.^G, Jasinovica, S., Ladell, P., and Wu, C.C. **A new revolution in soil metagenomics: Large-insert BAC libraries for the discovery of natural products and drugs.** Society for Laboratory Automation and Screening annual meeting, Chicago, IL.
- 2012 M.J. Griffin, A.E. Goodwin, G. Merry, M.A. Williams*, M.R. Liles, and G. Waldbieser. **A rapid genetic test for identification and quantification of an *Aeromonas hydrophila* strain associated with disease outbreaks in Alabama, Arkansas and Mississippi.** American Fisheries Society meeting, Conway, AR.
- 2012 Z. Williams, J. Stough*, M.R. Liles and K. S. Macklin. **Reducing *Salmonella* and broiler litter ammonia emissions using *Bacillus subtilis*.** Poultry Science Association annual meeting, Athens, GA.

- 2012 S. Jones, A. Goodwin, **M. R. Liles**, and M. Griffin. **Tracking the Persistence of a New Strain of *Aeromonas hydrophila* in Catfish Tissues with Specific Quantitative Polymerase Chain Reaction.** American Fisheries Society meeting, Conway, AR.
- 2012 M. M. Newman, **M. R. Liles**, and J. W. Feminella. **Does sediment disturbance influence bacterial assemblages colonizing leaf litter in small coastal plains streams?** Society for Freshwater Science meeting, Louisville, KY.
- 2012 C. Ran^{*}, A. Carrias, M. Williams^{*}, N. Capps, P. A. Cobine, J. W. Kloepper, J. S. Terhune, and **M. R. Liles**. **Isolation and characterization of *Bacillus* strains for biological control of disease in channel catfish aquaculture.** American Society for Microbiology meeting, San Francisco, CA.
- 2012 M. J. Hossain, W. Hemstreet, G. C., Waldbieser, L. Khoo, M. J. Griffin, J. A. Bebak, J. C. Garcia, N. Capps, K. Hayden, J. S. Terhune, and **M.R. Liles**. **Identification of genomic islands and unique functions in *Aeromonas hydrophila* strains associated with an epidemic in channel catfish.** American Society for Microbiology meeting, San Francisco, CA.
- 2012 Z. Williams, M. Bailey, J. Stough^{*}, **M. R. Liles** and K. S. Macklin. **Identification of *Bacillus* strains for reduction of *Salmonella* and ammonia in broiler litter.** World's Poultry Science Association meeting, Brazil.
- 2012 M. Griffin, A. Goodwin, G. Merry, **M. R. Liles**, M. Williams and G. Waldbieser. **A newly developed genetic test provides more rapid identification and quantification of an *Aeromonas hydrophila* strain associated with disease outbreaks in Alabama, Arkansas and Mississippi.** Catfish Farmer's of America Annual Convention and Research Symposium, Savannah, GA.
- 2012 **M. R. Liles**, **K. S. Kakirde^G**, C.-C. Wu, **S. Nasrin^G**, **M. Staley^G**, S. Jasinovica, R. Godiska, P. A. Cobine, and D. A. Mead. **Functional metagenomics for discovery of anti-MRSA compounds.** Gordon Research Conference, April 15-20, 2012, Barga, Italy.
- 2012 K. M. Morrow, **M. R. Liles**, R. Ritson-Williams, N.E. Chadwick, and V. Paul. **Allelochemicals produced by Caribbean macroalgae can alter coral-microbial assemblages *in situ*.** International Coral Reef Symposium, July 9-13, Cairns, Australia.
- 2011 **M. J. Hossain^G**, J. S. Terhune, and **M. R. Liles**. **Highly efficient markerless deletion of chromosomal genes from *Edwardsiella ictaluri* by λ Red-mediated recombineering.** Southeastern Branch of the American Society for Microbiology, Oct 20-22, Gainesville, FL.
- 2011 **K. Kakirde^G**, R. Ye, N. Capps, **S. Nasrin^G**, **M. Stalley^G**, S. Jasinovica, M. Wagner, R. Godiska, D. Mead, C. C. Wu, and **M. R. Liles**. **Random shear metagenomic library for discovery of anti-MRSA compounds.** Society for Industrial Microbiology meeting, New Orleans, LA.
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