



Christopher D. Sinigalliano, PhD

Assistant Research Scientist,

***Southeast Environmental Research Center
(FIU)***

NSF NIEHS Oceans & Human Health Center Role: Co-PI HAB Core

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Education:

- BS (1986) - Biology - University of South Florida, Tampa, FL
- MS (1989) - Microbiology - University of South Florida, Tampa, FL
- PHD (1996) - Biology - Florida International University, Miami, FL.
 - Post doc (1996) - Environmental Microbiology - Florida International University, Miami, FL

Research Interests:

Dr. Sinigalliano's research interests involve the application of molecular genetics and flow cytometry analysis to microbial ecology and environmental health. His research utilizes applications such as real-time quantitative PCR (qPCR), fluorescent in situ hybridization (FISH), prokaryotic in-situ PCR (PI-PCR), single-cell metabolic assays, flow cytometry analysis, and high-speed flow cytometric cell-sorting to investigate the prokaryotic and eukaryotic microbial communities of oceanic and coastal marine ecosystems, estuaries, and freshwater wetlands of a variety of habitats throughout South Florida, the Everglades, Southwest Coastal Shelf, the Gulf of Mexico, and open ocean. Dr. Sinigalliano seeks to apply these approaches to the study of the interactions between environmental health, human health, and functional ecosystem dynamics. He has investigated nitrifying bacterial populations from a variety of habitats, and he is involved in adapting molecular methodologies such as fluorescent in situ hybridization (FISH), and

prokaryotic in situ PCR (piPCR) to study ecological processes such as nitrification, denitrification, nitrogen fixation, and carbon fixation at the level of individual microorganisms in marine microbial communities. He is also utilizing such approaches to investigate potential toxin biosynthesis genes in toxic dinoflagellate algae such as *Karenia* and *Prorocentrum* species. Dr. Sinigalliano is the director of the Environmental Molecular and Cytometric Imaging Facility (EMCIF) at SERC, and conducts flow cytometric cell sorting and single-cell sorting for culture isolation of a wide variety of toxic algae and other marine phytoplankton, as well as marine and freshwater cyanobacteria. He is a Co-PI of the Toxic Algae Culture Core and the Harmful Algal Bloom (HAB) project of the University of Miami's Center for Oceans and Human Health. He provides flow cytometric cell-sorting and culture isolation services for this OHH program, as well as for the Advanced Research Cooperation in Environmental Health Sciences (ARCH) program at FIU, and for the State of Florida Center of Excellence in Marine Biotechnology. The EMCIF lab under Dr. Sinigalliano provides pay-for-service flow cytometry and cell-sorting services both in-house and to the research community at large. For more information, see the EMCIF website at:

<http://serc.fiu.edu/sercindex/emcif/emcif.htm>

Representative Publications:

1. Stewart, G.J., and **C.D. Sinigalliano**. 1990. Detection of horizontal gene transfer by natural transformation in native and introduced species of bacteria in marine and synthetic sediments. *Appl. Environ. Microbiol.* 56:1818-1824.
2. Stewart, G.J., **C.D. Sinigalliano**, and K.A. Garko. 1991. Binding of exogenous DNA to marine sediments and the effect of DNA/sediment binding on natural transformation of *Pseudomonas stutzeri* strain ZoBell in sediment columns. *FEMS Microbiol. Ecol.* 85:1 -8.
3. Stewart, G.J., and **C.D. Sinigalliano**. 1991. Exchange of chromosomal markers by natural transformation between the soil isolate, *Pseudomonas stutzeri* JM300 and the marine isolate, *Pseudomonas stutzeri* strain ZoBell. *Antoni van Leeuwenhoek* 59: 19-25.
4. **Sinigalliano, C. D.**, Kuhn, D.N., and Jones, R.D. 1995. Amplification of the *amoA* gene from diverse species of ammonium-oxidizing bacteria and from an indigenous bacterial population from seawater. *Appl. Environ. Microbiol.* 61:2701-2706.
5. **Sinigalliano, C. D.**, Kuhn, D., Jones, R. D. and Guerrero, M. A. 2000. *In situ* reverse transcription to detect the *cbbL* gene and visualize RuBisCO in chemoautotrophic nitrifying bacteria. *Letters in Applied Microbiology*, 32: 1-6.
6. **Sinigalliano, C. D.**, Kuhn, D., Jones, R. D. and M. A. Guerrero. 2003. Visualization of the *cbbL* gene in healthy-and starved-chemoautotrophic nitrifying bacteria. *Current Microbiology* 47:77-83
7. Snyder, R.V., Guerrero, M.A., **Sinigalliano, C.D.**, Winshell, J., Perez, R., Lopez, J.V., and Rein, K.S. 2005. Localization of polyketide synthase encoding genes to the toxic dinoflagellate *Karenia brevis*. *Phytochemistry* (in press).

More Info:

<http://serc.fiu.edu/>

http://www.rsmas.miami.edu/groups/niehs/arch/personnel/christopher_sinigalliano_cv.htm