
Woods Hole Oceanographic Institution
Biology Department Seminar



Thursday, June 30, 2016
Redfield Auditorium – 12:00 Noon

**Microbial signaling in a vast ocean:
the varied roles of small molecules**

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Marine niches in particular are promising in the search for new chemical modalities since forces such as competition and predation in the ocean have selected for the evolution of novel chemical agents that mediate microbial interactions. With microbes harboring a majority of evolutionary and metabolic diversity of cellular life on our planet, far more microbially-derived natural products are available than are being harvested. This microbial chemistry has the power to shape not only the ecosystem, but can also be used to develop new therapeutics to existing clinical targets. My talk will review clinically important multidrug resistance mechanisms in bacteria, and describe the process of identifying and developing small molecule efflux pump inhibitors from marine natural product extracts. I will also describe how we can leverage metabolomic tools to get a global measurement of small molecule metabolites in complex chemical extracts to guide our selection of natural products to target for isolation. Finally, I will detail how these bacterial excreted compounds or “infochemical” signals elicited by marine bacteria are mediating inter-domain interactions, ultimately influencing shifts in phytoplankton population dynamics.