

## **The changing face of microbial natural products chemistry: Discovering new sources and applying molecular tools**

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Over the past 10 years, dramatic changes in the science of microbial drug discovery have been observed. Given the dwindling interest of industry in maintaining microorganism-based drug discovery programs, the need to revitalize this activity to become competitive with synthesis programs has been realized. In addition, it has become clear that new approaches are needed to access new, rare and under-studied microbial taxa to facilitate the discovery of entirely new classes of drug candidates. The recent recognition that genetically-novel taxa of microorganisms, including obligate marine actinomycetes, can be recovered from marine habitats has raised optimism that marine bacteria can be an entirely new source for drug discovery. These new developments, which are now being coupled with studies in genomics and gene-based biosynthetic modifications, are providing a new paradigm in which metabolite discovery is no longer based upon serendipitous screening and isolation. A combination of new genetic tools, new approaches to cultivation, and the exploration of new microbial habitats, is providing opportunities to improve microbial drug discovery. This talk will provide examples of the above and focus on the developing role of the oceans in providing genetically-novel and chemically-rich microbial taxa.