

## Mining marine microbes for novel natural products.

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The marine environment represents a rich source of novel bioactives, with marine organisms accounting for approximately half of the earth's biodiversity. Although the marine microbiome has been little explored for compound discovery, there is evidence that searches will be fruitful. Over the centuries, microbial secondary metabolites have played a significant role in the treatment of human diseases and have revolutionized the pharmaceutical industry. With the increasing number of sequenced microbial genomes revealing a plethora of novel biosynthetic genes, natural product drug discovery is entering an exciting second golden age. Excitingly genome scanning reveals that most actinomycetes have 20-30 biosynthetic clusters encoding natural products, however only a small fraction of the molecules that microbes can produce have so far been isolated, and the clear majority remain to be revealed. Using a biosynthetic gene cluster targeted approach, the focus may be placed on producing and isolating only previously undiscovered bioactive natural products. The isolation of the natural metabolites involves fermentation of the microbial strains. The fermented broth will be extracted in XAD resins and the extract purified using different chromatographic techniques. Bioassay guided fractionation will allow the isolation of the biologically active natural products.



Figure 1: Gene Cloning for natural products isolation

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