A trial to characterize the origin of seragamides in the sponge Suberites japonicus

PS-30 A trial to characterize the origin of seragamides in the sponge *Suberites japonicus*

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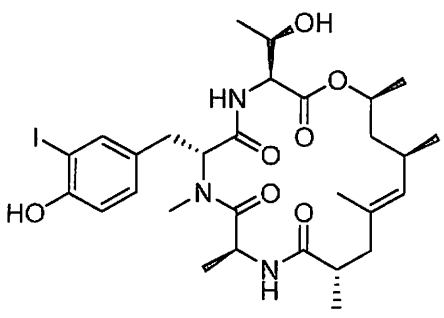
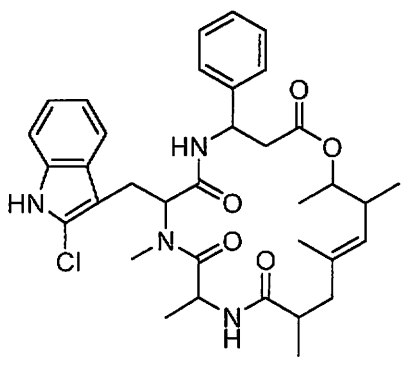
From the sponge *Suberites japonicus*, we previously reported the structures and biological activity of a class of new depsipeptides named seragamides, which exhibit close structural similarity to chondramides produced by the myxobacterium *Chondromyces crocatus* Cm c5. Since we are intrigued with the fact that similar molecules are produced by genetically distant organisms, we examined whether there is a myxobacterium/bacterium in the sponge and whether there is an analogous biosynthesis gene for mixed polyketide-nonribosomal peptide either in the sponge or in associated bacteria.

We used a frozen sponge for this study by immersing a live specimen in liquid nitrogen. After spreading small pieces of the sponge on LB plates, we picked up two gliding myxobacteria and twenty eubacteria. They were cultured in small scales and their extracts were submitted for mass spectrometry to see the presence of seragamides. As two of the bacteria, presumably belonging to the genus *Bacillus* after 16S rDNA, inhibited growth of other bacteria, we cultured them in a larger quantity to characterize the metabolite. Genomic DNA samples were prepared from the frozen sponge with several methods and also from the bacteria and myxobacteria, and DNAs were used for PCR amplification using specific primer sets for chondramides: halogenase (HAL) and tyrosine aminomutase (TAM).

The bacterial extracts did not give a pseudomolecular ion for seragamide A in ESI-MS. The antimicrobial metabolite has been characterized as a macrolactin class macrolide after NMR and MS analyses. On the PCR experiments, neither sponge nor bacterial DNA did not give any prominent band.



Seragamide A



Chondramide D