

Fuente: www.fitoterapia.net**PL07 Marine actinomycetes: new, genetically novel resources for drug discovery***William Fenical, Paul R. Jensen, Tracy Mincer, Gregory Buchanan and Robert H. Felig*

Center for Marine Biotechnology and Biomedicine, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, CA 92093-0204. USA.

Catalyzed by the discovery and widespread utility of Penicillin in the 1940's, the pharmaceutical industry began explorations of the metabolites produced by a wide variety of soil-derived microorganisms. In the same period, Selman Waxman discovered a new antibiotic, which he called Actinomycin, from a poorly known group of fungi-like bacteria called actinomycetes. These discoveries spurred enormous interest in the actinomycetes as an abundant and readily exploited source for new drug candidates. Over the past 50 years, this successful activity resulted in the discovery of over 120 antibiotics and drugs for many other applications from the actinomycetes, and it supported the development of the commercial fermentation industry as the preferred method for drug manufacture. However, within the past 10 years the continual discovery of "old compounds" has discouraged many from continuing in this pursuit. The diversity of readily cultured actinomycetes in the soil has apparently been reached, thus many pharmaceutical industries are looking to synthetic approaches for chemical diversity. After significant investment in new approaches, it has become clear that synthetic compounds will not reach the levels of inherent bioactivity found in natural products. What is difficult to understand is why the pharmaceutical industries never considered the oceans as a source of novel actinomycetes. In our recent work, we have observed actinomycetes in almost every sample retrieved. Actinomycetes are common in marine sediments, even in the deepest parts of the oceans. Recently, we described a new genus of marine actinomycetes, the *Salinospora*. Members of this newly discovered group are chemically rich and produce secondary metabolites of unique structures and bioactivities. From other deep ocean sediments, we have isolated bacteria from another new genus, the *Marinomyces*, a group related to the abundant soil organism *Streptomyces*. Overall, our investigations show that the oceans can provide a diversity of new actinomycetes likely to be of significant utility in the discovery of new drugs.

**Prof. Dr. William Fenical**

William Fenical received his college education in California, all in the field of organic chemistry. After his Ph.D. at UC-Riverside, Dr. Fenical was employed for one year at the Shell Development Company in Emeryville, CA. After this industrial experience, his interests turned to the development of an academic program in the field of marine natural products chemistry and ecology, a new direction accommodating his long term interest in the ocean. In 1973, he joined the Scripps Institution of Oceanography (SIO), University of California, San Diego, where he has resided ever since. Dr. Fenical is currently Professor of Oceanography, and Director of SIO's Center for Marine Biotechnology and Biomedicine, and is very involved in his personal research program in marine natural products chemistry. Dr. Fenical's past interests have involved the chemistry of marine plants and tropical soft-corals, a topic in which he gained a strong appreciation of the roles secondary metabolites play in the chemical defenses of soft-bodied marine plants and animals. More recently, his interests have focused on the field of marine microbiology and the utilization of marine microorganisms as a source for new drug discovery. As in the past, the ecological roles of marine microorganisms as symbionts and in interspecies interactions continues to be a topic of strong interest. Dr. Fenical has co-authored more than 300 papers in these fields and is the recipient of the Paul Scheuer Award in Marine Natural Products Chemistry, (1996) and the International Society of Chemical Ecology's Silver Medal Award (1997).