

## A SEARCH FOR ANTINEOPLASTIC COMPOUNDS FROM MARINE ORGANISMS

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Marine organisms produce a great variety of metabolites with unique natures in both chemical structure and biological activity, because the ocean provides a diversity of fauna and flora. During an expedition to Papua New Guinea in November of 1990, eight species of soft coral (Coelenterata, Octocorallia, Alcyonacea) were collected from the coast of Motupore and Lolata islands near Port Moresby. Extracts of the species have been examined for ichthyotoxic activity and were found to be all toxic against the test fish (*Oryzias latipes*: the Japanese Killy Fish, Medaka) (UCHIO, 1991).

In continuing to search for novel compounds (UCHIO et al., 1992) having biological activity, we have collected Sponges (Prorifera) and Gorgonians (Octocorallia, Gorgonacea) and have been directed toward compounds possessing antineoplastic (antitumor) activity in the second expedition. We report here the preliminary antineoplastic examination of the sponge and gorgonian extracts against murine lymphoma L1210 and human epidermoid carcinoma KB cells in vitro.

Samples of four gorgonians and five sponges were collected in the coast of Madang and Wewak in November 1991, frozen immediately after collection, and then subjected to freeze-drying. The freeze-dried animals were then crushed in a mortar and extracted with a solvent mixture of dichloromethane and methanol (v/v, 1 : 1) to give lipid soluble extracts. The extracts have been examined subsequently for antineoplastic (antitumor) activity as shown in Table 1. Among the extracts of the nine samples in Table 1, the two extracts from sponges #915 and #916 showed no inhibition against the tumor cells for antineoplastic screening. The rest of the samples were, however, shown to be active against both the test cells. Three extracts from sponges, #917, #918 and #919 are particularly noteworthy in their higher inhibition of the growth of the tumor cells at the lower values of  $IC_{50}$ . Since each of the above extracts was a complex mixture of organic molecules, the bioassay-guided purification of the crude extract is in progress to determine the chemical structure of the active metabolites.

### References

- UCHIO, Y. 1991. Kagoshima Univ. Res. Cen. South Pac. Occas. Paps., 21 : 43-44.  
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Table 1 Bioactivities<sup>a</sup> of extracts of sponges and gorgonians from Papua New Guinea against L1210 and KB cells.

Sample <sup>b</sup>	L 1210		KB		
	IR (%) <sup>c</sup>	IC <sub>50</sub> <sup>d</sup> ( $\mu\text{g}/\text{mL}$ )	IR (%) <sup>c</sup>	IC <sub>50</sub> <sup>d</sup> ( $\mu\text{g}/\text{mL}$ )	
Gorgonian #	911	92.6	26	82.7	46
	912	92.0	24	77.9	52
	913	91.6	21	79.7	48
	914	90.9	7.4	89.8	30
Sponge #	915	45.2		-7.1	
	916	47.9		-1.9	
	917	93.3	17	93.0	18
	918	93.4	2.4	93.7	11
	919	92.0	0.7	90.5	2.0

<sup>a</sup>Bioassays were kindly done by Dr. Motohiro TANAKA in the Cancer Research Institute, Kanazawa University.

<sup>b</sup>Species unknown : taxonomic identification is now in progress.

<sup>c</sup>Inhibition ratio : percent ratio which inhibits cell growth at 100  $\mu\text{g}/\text{mL}$ .

<sup>d</sup>Inhibition coefficient : concentration in  $\mu\text{g}/\text{mL}$  required for 50 percent inhibition of cell growth.