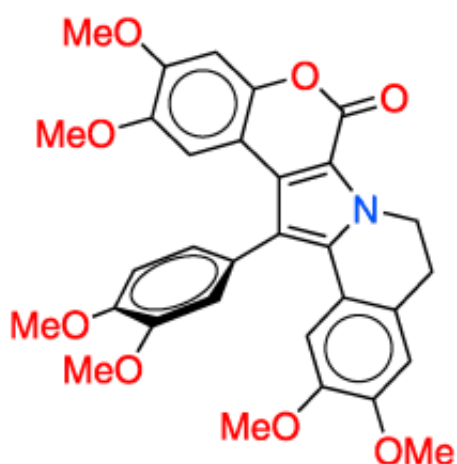


# Pacific Ocean natural products isolated from marine mollusks, sponges can reverse multidrug resistance in cancer cells

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(Phys.org) -- Many marine natural products show anticancer activity, but some can reverse multidrug resistance in cancer cells. A new investigation by Robert J. Capon of the University of Queensland correlates the products' structures with their activity.

The oceans are a [treasure trove](#) of naturally produced [chemical compounds](#) with impressive and varied [biological activity](#). One class of these compounds, the lamellarins, has some members that are cytotoxic, while others are able to reverse multidrug resistance in certain cancer cells. These lamellarins act by inhibiting the so-called P-glycoprotein,

which enhances transport of anticancer agents out of cancer cells, thus rendering the cells multidrug resistant.

Capon's team set out to determine the structures of a variety of lamellarins and correlate them to the activity of the compounds. As they report in *Chemistry—An Asian Journal*, the activity is not determined by the core structure of the compounds but rather depends on the exact nature of pendant groups adorning the periphery of the molecule. Those compounds in which many hydroxy (OH) groups had been replaced with methoxy (OCH<sub>3</sub>) were able to reverse multidrug resistance in human colon [cancer cells](#), while those featuring a large number of hydroxy groups showed higher cytotoxic activity.

Natural products such as the lamellarins are often valued for their cytotoxic properties for use as anticancer drugs. Capon, however, comments, "Our investigation reaffirms the view that non-cytotoxic natural products can exhibit valuable biological properties that allude to both an ecological advantage and a pharmacological potential.

**More information:** Robert J. Capon, Lamellarins as Inhibitors of P-Glycoprotein-Mediated Multidrug Resistance in a Human Colon Cancer Cell Line, *Chemistry - An Asian Journal*, [dx.doi.org/10.1002/asia.201101049](https://doi.org/10.1002/asia.201101049)

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