

Cancer therapies from the ocean?

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Scientists from Aberdeen, Luxembourg and the South Pacific have studied the properties of natural products derived from animals found in Fijian waters, and shown that not only may certain compounds have potential use in anti-cancer therapies, but others may also be useful for improving drug delivery, currently one of the most significant problems faced by medical researchers.

Professor Marcel Jaspars from the University of Aberdeen will present insights into these new compounds on Monday 7th July at the Society for Experimental Biology's Annual Meeting in Marseille.

The team has focussed on finding compounds which interfere with a protein termed NF-kB. This particular protein is known to have a critical role in many types of cancer, as well as a number of other diseases including inflammatory bowel disease, arthritis and asthma, so there is a major drive to find molecules which can inhibit its activity.

"We have tested a large number of marine species to see which can prevent NF-kB from working," explains Professor Jaspars. "A few animals, including sponges, soft corals and sea lilies, were examined further, and from these we have been able to isolate and characterise the compounds responsible. We have shown that one of these molecules is able to allow normal cell death (which NK-kB switches off in some cancerous cells) to start up again, a property which we will be going onto study in much more detail."

There is another possible application of molecules isolated from marine

creatures that has the potential to have just as great an impact on the development of new medicines: "It is an unfortunate reality that currently, many new excellent drugs are discovered that cannot be delivered effectively to the places where they are required," Professor Jaspars reveals.

"However, we have isolated one compound from a Mediterranean sponge that may help to end this trend. This molecule can reversibly create pores in cell membranes, a property for we envisage vast possibilities in the transportation of medicinal drugs. As we can now make this compound in the lab in large quantities, we are now able to investigate possible applications of the molecule, including drug delivery into tumours, gene delivery for cystic fibrosis and delivery of drugs into the eye."

Source: Society for Experimental Biology

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