

Sea sponge potential source of new medicines

February 28 2012



The sea sponge has provided Flinders University researchers with inspiration for the discovery and development of new therapeutic agents in the treatment of infectious diseases and cancers.

As part of a new PhD project at Flinders, researcher Matthew Norris (pictured) is attempting to synthetically produce unusual and complex chemicals found in sea sponges so they can ultimately be tested as potential drugs for diseases such as cancer and [malaria](#).

Biological studies have shown that these naturally occurring, carbon-based molecules have the potential to kill malaria bugs and even stop [cancer cells](#) from spreading but because the compounds are so rare and

unique no one has been able to fully investigate their therapeutic values.

Mr. Norris said his job during the next four years was to build the molecules by synthetically reproducing their complex [chemical structure](#), allowing scientists to continue the path of [drug discovery](#).

“These particular molecules are present in nature in only minute quantities so they are very rare and that means they are not available for anyone to use in therapeutic testing,” Mr. Norris, from the School of Chemical and Physical Sciences, said.

“Preliminary tests have shown that they can kill tumour cells but we don’t know how effective this is,” he said.

“More research is needed and that can’t take place unless we have sufficient quantities of the compounds and that’s what I’m trying to do – make compounds of interest available by building them.”

As a first step in his research, Mr Norris has considered the complex way sea sponges can produce these particular chemicals – by making a “carbon string” which flips, folds and twists before eventually turning into a molecule of biological significance.

He has already been successful in replicating these processes using a technique called cascade reactions but now the next challenge is to keep building and joining the molecules “like Lego blocks”.

Mr. Norris said his research was a highly valuable pursuit for the discovery and development of new drugs, especially antibiotics.

“We don’t know exactly how useful these [sea sponge molecules](#) are because they are rare and chemically unique but this uniqueness makes them very appealing as drug candidates because they could have a

profound effect in the body or in parasites,” he said.

“There are some very effective drugs being used already but a growing number of diseases are becoming resistant to them, particularly antibiotics, and that’s why we need to keep upping the ante when it comes to drug discovery.”

Mr. Norris is one of two Flinders students to receive the 2012 Joyner Scholarships in Law, Medicine and Science – a three-year prize encouraging original or progressive postgraduate research that leads to advancements in any aspect of law, medicine or science.

Provided by Flinders University

Citation: Sea sponge potential source of new medicines (2012, February 28) retrieved 30 April 2024 from <https://phys.org/news/2012-02-sea-sponge-potential-source-medicines.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.