

Sea sponge tool could be key to unlocking new cancer drugs

February 2 2017, by Caleb Radford

A tool for identifying sea sponges is helping to strengthen marine conservation efforts while potentially uncovering new compounds for pharmaceutical drugs.

The Sponge Identification Protocol (SIP) was developed by researchers from Flinders University in South Australia and accurately identifies new or ambiguous sponge species.

SIP uses the sequence information of three conventional molecular methods and focuses them on three different genes.

Sponges are the oldest multi-cellular animals in the world and play an important role in marine ecosystems.

With more than 8700 known species worldwide, sea sponges (phylum Porifera) are extremely difficult to identify.

Their potent bioactive compounds are also used in the production of various drugs.

Lead researcher from Flinders Centre for Marine Bioproducts Development Qi Yang said the technique was a highly effective and reliable molecular approach that would help create a more comprehensive understanding of different sponges.

She said sponges were used to develop cancer drugs as well as anti-

inflammatory and anti-bacterial drugs, which made the potential discovery of new compounds more valuable.

"Currently the gene database is quite limited but the SIP will help to give us more information," she said.

"There are special compounds from the bacteria specific to the sponge bodies that are used in biomedical studies.

"The correct identification of potential novel compound resources from the sponges' associated bacteria is the most significant part of the research."

Yang said sea sponges had been found to produce up to 30 per cent of all active marine metabolites, which provide commercial opportunities for the pharmaceutical and biomaterial industries.

She said they also supported and produced more than 60 per cent of all new marine [compounds](#) discovered.

Marine sponges carry out complex biotic interactions with diverse marine life forms and ocean environments, making their identification and protection important in future conservation efforts.

More information: Qi Yang et al. Development of a multilocus-based approach for sponge (phylum Porifera) identification: refinement and limitations, *Scientific Reports* (2017). [DOI: 10.1038/srep41422](https://doi.org/10.1038/srep41422)

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