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Chemistry and Chemical Biology of Lipophilic Algal Toxins

Results in Brief

Improved testing for algal toxins in shellfish

Algal toxins can make their way into humans through the consumption of shellfish, resulting in severe diarrhoea and even paralysis. New techniques can replace the use of animals to test for these harmful compounds



HEALTH



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The EU-funded 'Chemistry and chemical biology of lipophilic algal toxins' (Algetox) project has improved ways of identifying and isolating toxins such as azaspiracids, okadaic acid, and pectenotoxin and yessotoxin groups, from algae. A researcher based at the National Veterinary Institute, Oslo, has investigated how shellfish metabolise and excrete these

algal toxins.

The way the toxins operate at the cellular and molecular levels has also been studied to provide greater insights into their effects. A chemical analysis technique has been developed for detecting a range of algal toxins in shellfish.

Project partners have isolated a new fast-acting toxin found in Australian shellfish using nuclear magnetic resonance spectroscopic and mass spectroscopic analysis. Chemical compounds with similar properties are known as analogues; one known and five new chemical pinnatoxin analogues have been successfully identified.

Analogues have also been produced and labelled with radioactive material for use in biochemical experiments to reveal the toxin's mode of action. This has been achieved by determining the metabolism and excretion of these compounds in mammals.

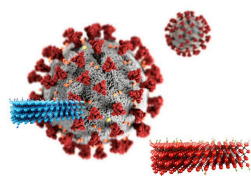
Results from the Algetox project will be used to develop or validate analytical techniques for identifying toxins. The information obtained will help to improve regulatory levels for algal toxins in shellfish. Furthermore, the methodologies developed can replace or reduce the use of animals for the testing of toxins in shellfish.

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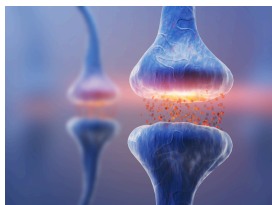
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Project Information

ALGETOX

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