

# SEA CUCUMBERS

## ENHANCEMENT OF HIGH-VALUE SEA CUCUMBER PRODUCTION THROUGH NOVEL BIOTECHNOLOGIES

Funding granted: AUD 285,000

### CONTEXT

Sea cucumbers are important both ecologically and economically throughout much of the world, with a market value from AUD\$20-500 per dried kilogram. It is believed to provide nutrients that can help cure cancers, increase libido and delay aging processes. Unfortunately, as a result of this, wild ocean sea cucumbers have been severely overfished worldwide and are rapidly becoming endangered. Thus, there is now an urgent need to develop their aquaculture so that markets can keep up with demand and wild ocean populations can rebuild.

In Vietnam, approximately 150,000 hectares of brackish water ponds are available for shrimp farming, however, only 50% of this area is annually in use. Therefore, farmers have been searching for an alternative. The sea cucumber is ideal since they require low investment input, but have high-value and a low risk of disease, while still being of great benefit to the environment. Currently, traditional methods applied to aquaculture to reproductive dysfunction, whereby individuals fail to produce offspring.

### SOLUTION

Researchers at the Genecology Research Centre, University of the Sunshine Coast, recently discovered a sea cucumber hormone that can overcome reproductive dysfunction. Reproduction hormone therapy is a proven technology in many animals, including humans, but has never been undertaken in sea cucumbers. The discovery of the sea cucumber relaxin hormone, and its production through biotechnology methods, provides a key innovative breakthrough towards enhancing sea cucumber aquaculture.



### OUTLOOK

The use of reproductive hormones in sea cucumber aquaculture will establish a novel, cost-effective approach for expediting increased production of various highly valued species. Based on this innovation, the Vietnamese farmers will be able to advance high-value sea cucumber production through ensuring reproductive capacity, which is currently not available. It is expected that this new technology will deliver a significant increase to the Vietnamese sea cucumber market capacity, which would ultimately lead to the uptake of this biotechnology into global markets.

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