



## **Teja Yarra - Early Stage Researcher No.5**

### **Transcriptional profiling of shell calcification.**

With the advent of molecular biology and sequencing technologies, thousands of genes and proteins from the shell and mantle (tissue responsible for shell growth) of shellfish have been identified. However, there are very large knowledge gaps in identifying the genes and related networks of shell formation. Thus, this project will vie to identify some of these genes and proteins.

The experimental set up is as follows: Shells of live shellfish will be damaged by drilling holes on the shell edge. Mantle tissue sampling will take place over a three month period as the holes are re-grown. RNA will be extracted from the mantle tissue and sequenced for both control and drilled specimens. Analysis of the assembled transcriptomes from the shellfish mantles could then identify putative genes involved in forming shells.

Although shells are a common feature in the thousands of species of known molluscs, there is considerable variety in how different species create and maintain their shells. Therefore, it is important to study shell formation in multiple species and not just on model species. This project works with four commercially (and culinarily) important species: King scallops (*Pecten maximus*), Blue mussels (*Mytilus edulis*), Pacific oysters (*Crassostrea gigas*) and Soft shelled clams (*Mya arenaria*).

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