



The University of Hong Kong
School of Biological Sciences

Qualifying
Seminar

Molecular responses and mechanisms of acclimation of fish to ocean acidification

Date: 17 Dec 2020 (Thursday)

Time: 10:00 AM

Venue: KBSB 3N-01 & Zoom



About the speaker:

Sneha Suresh is a PhD student in Dr. Celia Schunter's lab. She is fascinated by how organisms regulate their genome in response to changes in the environment. During her master's she studied the effects of acute copper toxicity on alternative splicing in *Daphnia pulex*. Sneha's current research focuses on the effects of ocean acidification on the transcriptome and epigenome in fish and the molecular mechanisms that enable fish to acclimate to the high CO₂ environment of the future.



Abstract:

Human activity has had a significant impact on the global climate and there is growing concern about the impacts of climate change on marine organisms. Past studies have shown that exposure to elevated CO₂ levels can affect the survival, growth, development and behavior of marine organisms, however, there is also significant variation both within and across species in sensitivity to elevated CO₂. This could facilitate selection of genotypes that are more tolerant to elevated CO₂ conditions of the future. Additionally, species and populations might have the potential to acclimate to elevated CO₂ levels across generations. During the course of my PhD, I will be studying the molecular mechanisms underlying long-term and intergenerational acclimation of fish to ocean acidification. We have in fact found a significant influence of parental exposure to elevated CO₂ on the gene expression patterns of the offspring in the spiny damselfish. Previous parental exposure to elevated CO₂ resulted in an overall decrease in the expression of stress response genes and increase in the expression of genes involved in ion-transport and homeostasis in the gills. Furthermore, prenatal and postnatal parental investment in terms of nutritional provisioning of embryos and parental care can also have a significant influence on offspring survival, development, and behavior. While parental care behavior itself has been extensively studied in fish, little is known about the impact of climate change on care behavior. I will be using a combination of RNA-Seq and CHIP-Seq to study the molecular pathways associated with parental care behavior and how it is affected by ocean acidification in the yellowtail clownfish.