Abstract

Issues such as coral bleaching and death being addressed through synthetic biology is important for broadening and improving methods to mitigate anthropogenic consequences on marine wildlife. This project focused on using synthetic biology to combat the negative effects of the common sunscreen ingredient, Oxybenzone, on corals without harming other organisms found in reef environments. Previous studies have used the Oxidase enzyme, Laccase, as a means of preventing the metabolic reaction which turns Oxybenzone phototoxic and therefore harmful towards corals (Luisa, n.d.). We propose using an alginate matrix with immobilized Laccase from the fungi species *Trametes Versicolor,* to release into environments affected by Oxybenzone. The Laccase enzyme will be produced by inserting Trametes Versicolor strain DNA into a T7 plasmid vector, which when expressed, will produce the enzyme. Once isolated, the enzyme will be immobilized and ready for use.