Abstract

Stem cell culture lines are a crucial part of science that can lead to a better understanding of different diseases and aids in creating more effective treatments in medicine. Creating an immortalized stem cell line from a marine invertebrate, *Botryllus schlosseri* are abundant and can produce new genetically identical buds each week which allows for easy manipulation and replication of these cells. The aim of this research is allowing the cells to adhere to a culture dish to then create a constant state of cell proliferation before cell death occurs.

This experiment contained five different types of cell contents that were micro dissected from the colony- individual zooids, ampulla (vasculature system of this species), ampulla cell suspension as well as a whole zooid system and whole system cell suspension. Each cell contents were then seeded with Tunicate Culture Medium. Determining what type of cell content from the colony to use that promotes cell adhesion and survival the best is an essential first step to achieving cell proliferation to create a cell culture line.

The results of my research showed the start of cell survival and adhesion for zooid and ampulla trials but ultimately resulted in contamination and bacteria growth. After 48 hours, each cell content trial resulted in cell death, contamination, and/or bacterial organism growth of Thraustochytrids. This hinders the advancement of getting the cells to proliferate due to the contaminants and bacteria that cannot be present when trying to develop an immortalized cell culture line from the *Botryllus schlosseri* marine invertebrates.