
Project

Determining the mechanisms that control successful heart regeneration in zebrafish following injury

Description

The regenerative capacity of the heart varies widely among the animal kingdom. Mammals which include humans have a poor regenerative response following heart injury (heart attack). As a result, patients often form complications due to the lack of treatments that directly address the cause of injury. The zebrafish on the other hand displays a remarkable ability to naturally regenerate its heart following injury. Therefore, by identifying the zebrafish factors and mechanisms that drive a positive regenerative response, we can potentially use this knowledge and apply it to animals that display a poor regenerative response in the form of novel treatments and therapies. In this project, we will use a combination of genetic manipulation and advanced live imaging to identify and control potential factors on the cells important during heart regeneration. As a result, this project will provide new insights on the complex interaction within individual cells as well as between cells in order to successfully complete regeneration.

Techniques

cloning, immunofluorescence, RNA insitu hybridization, genetic manipulation (RNA, crispr, tol2, mutants, transgenics), zebrafish handling, live confocal imaging

References

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