How zebrafish might be the solution to heart disease

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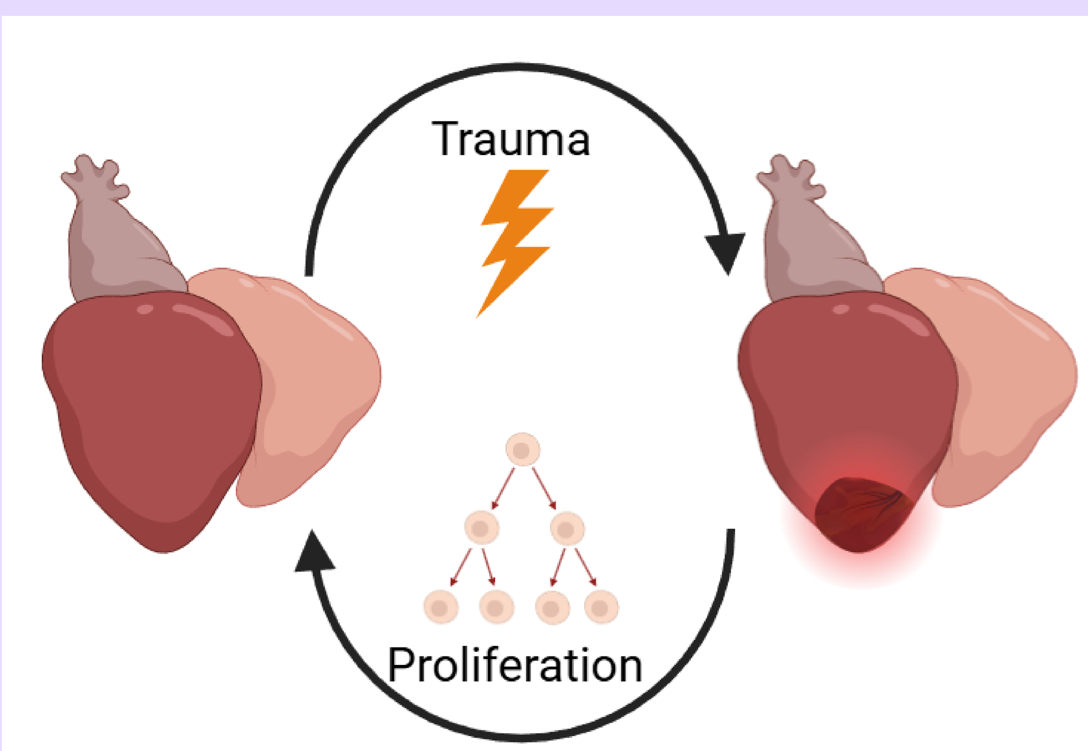
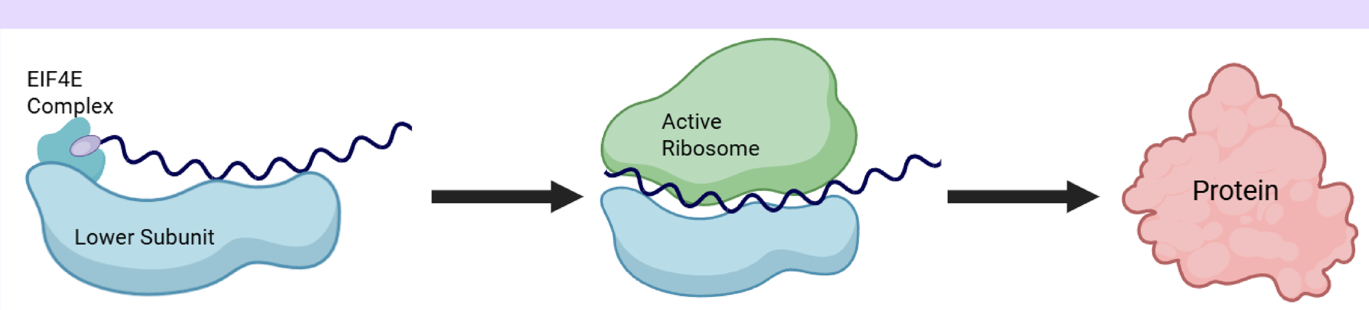
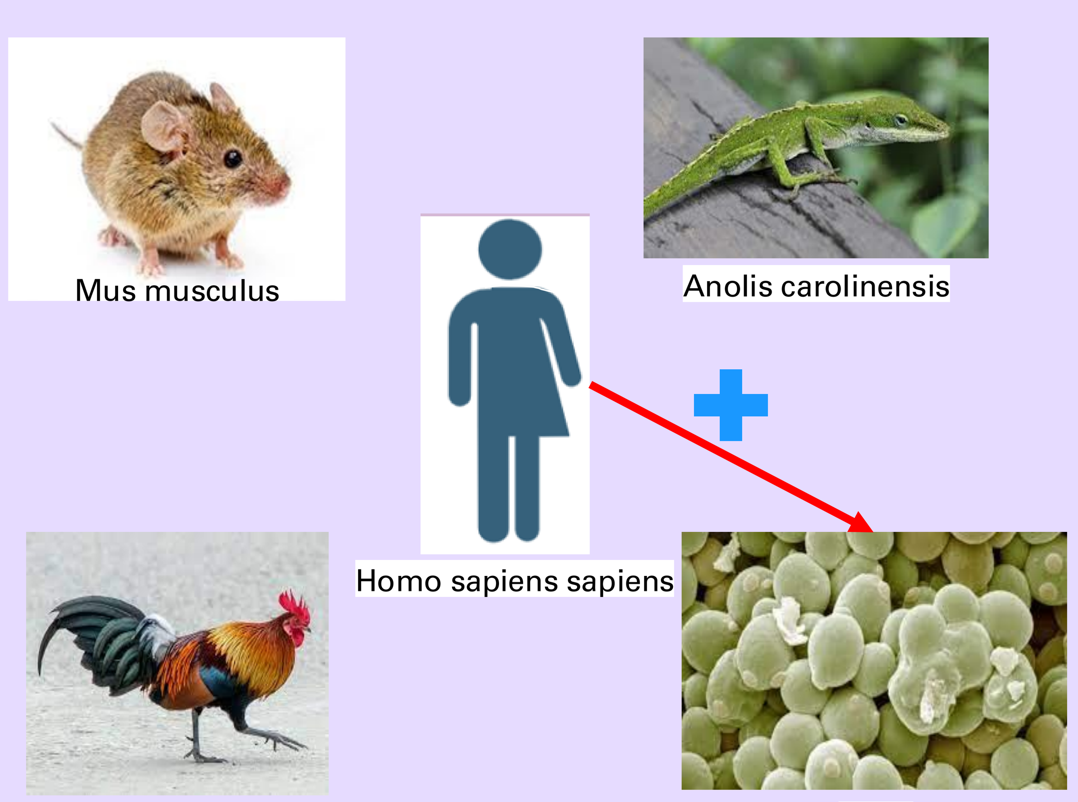
Background

Zebrafish fully regenerate their hearts following damage, but how do they do it?

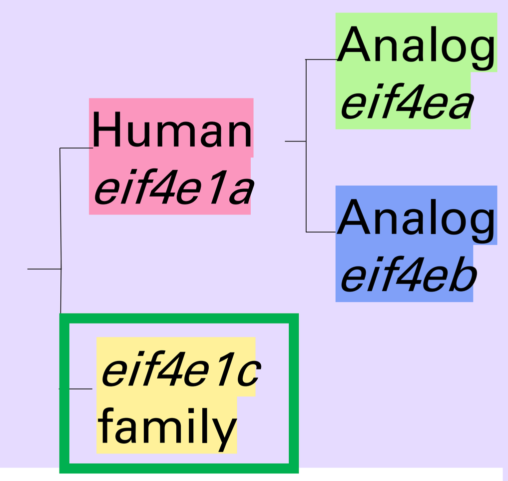


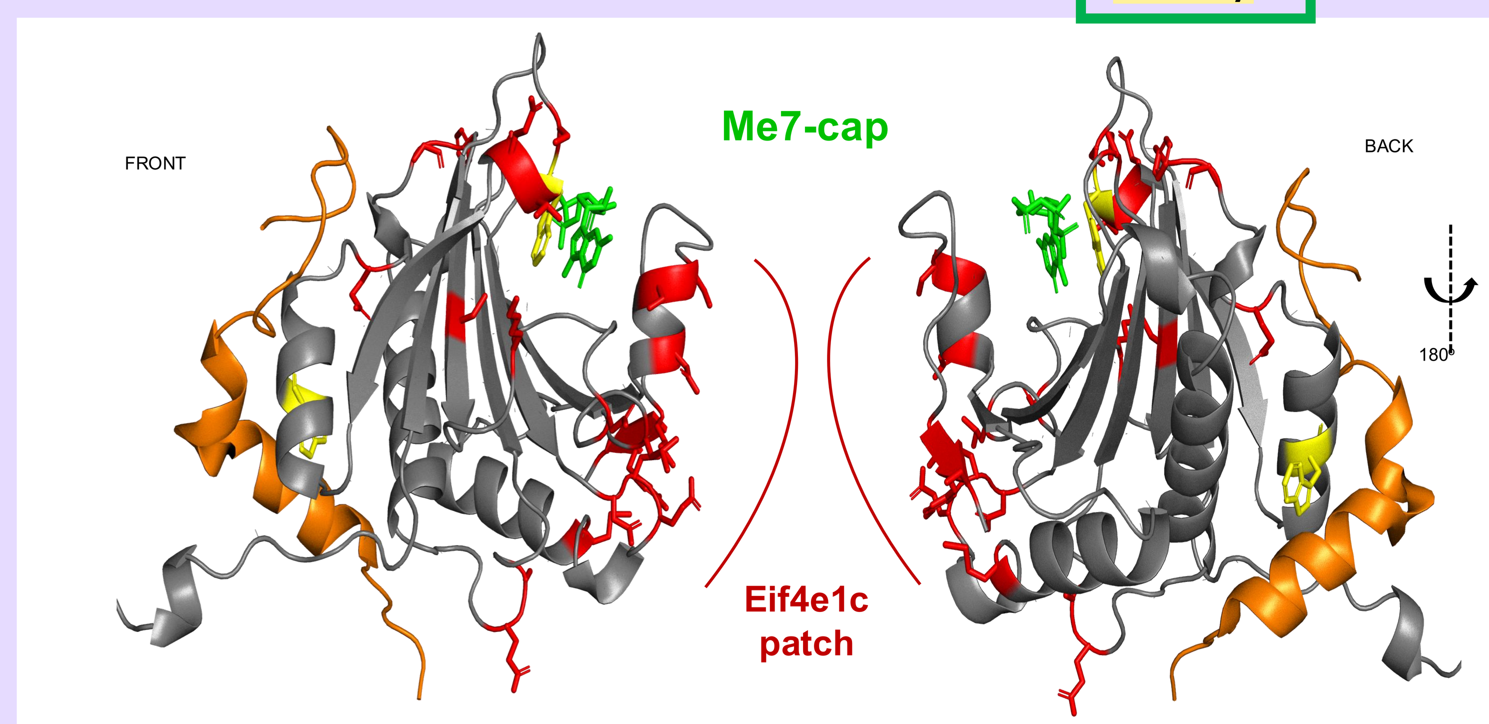
Eif4e1a cap binding proteins are vital to life.





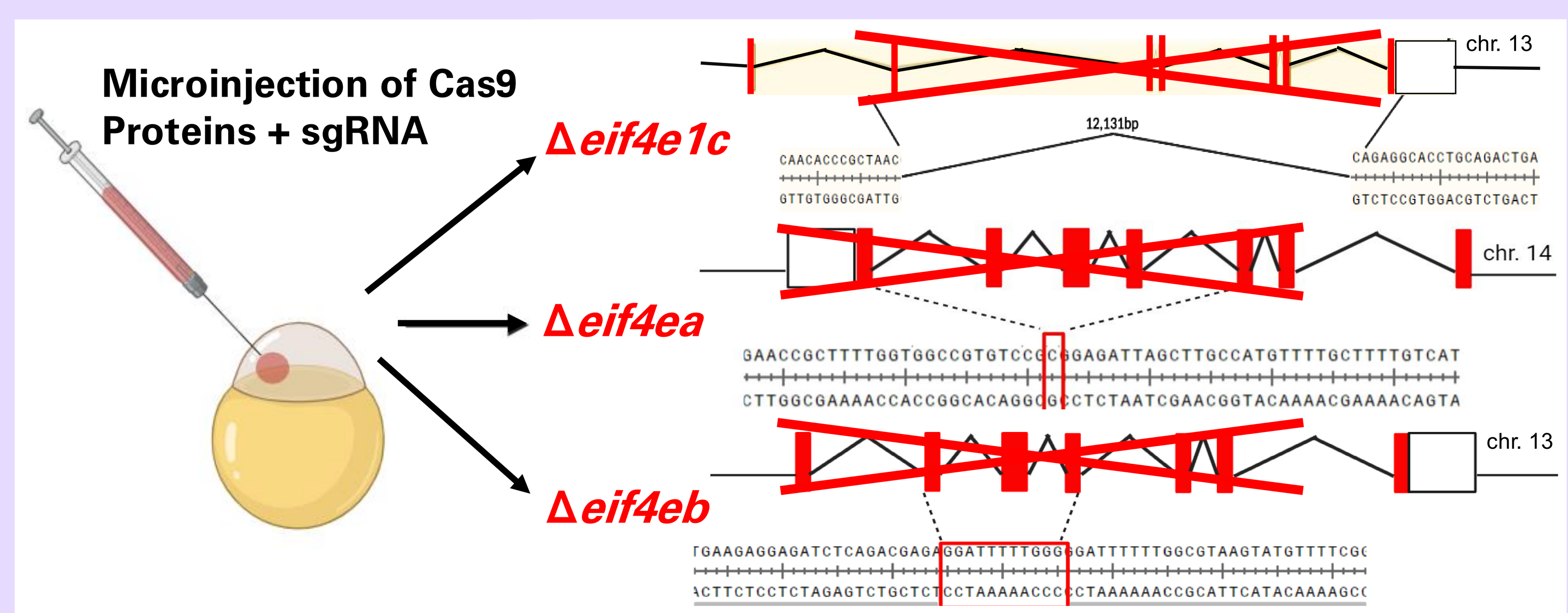
Zebrafish have a closely related, yet unique version called *eif4e1c* alongside human analogs.



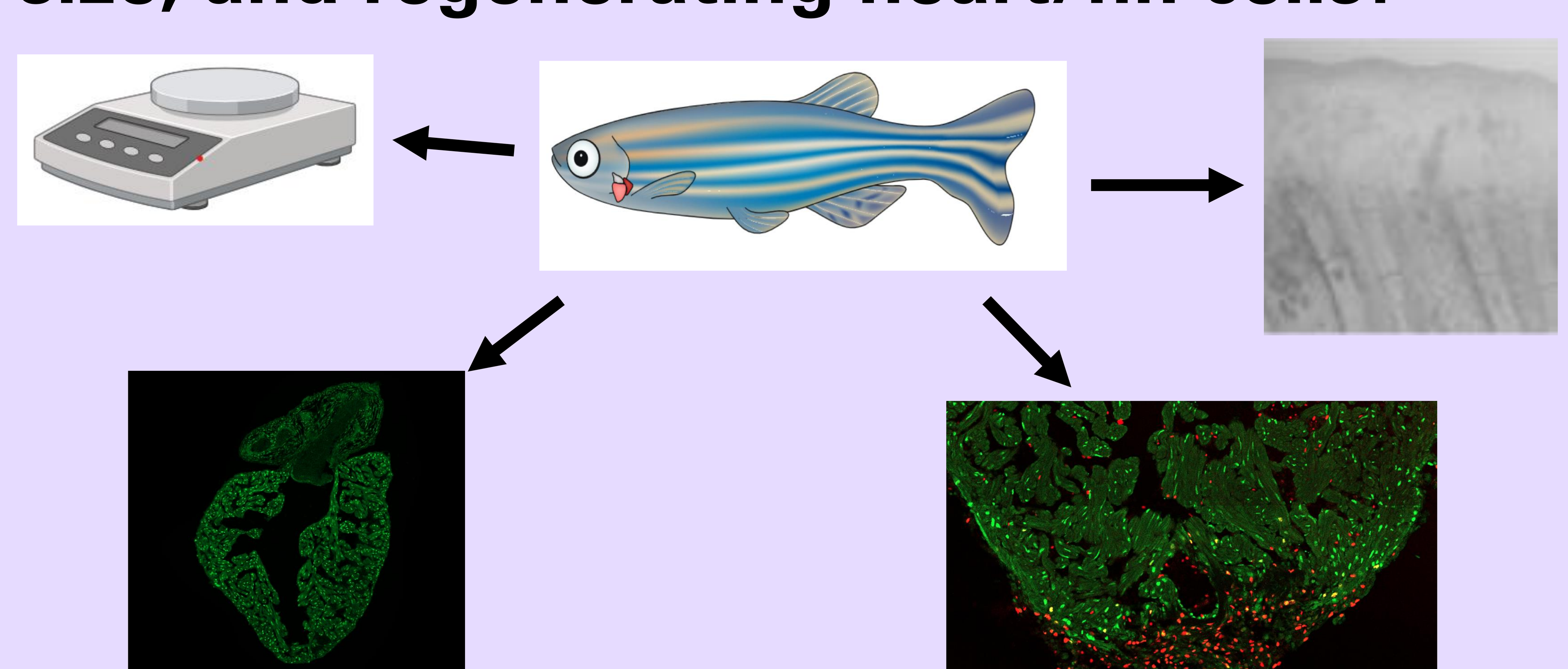


Methods

By deleting genes in these fish, we can better understand the roles they play.

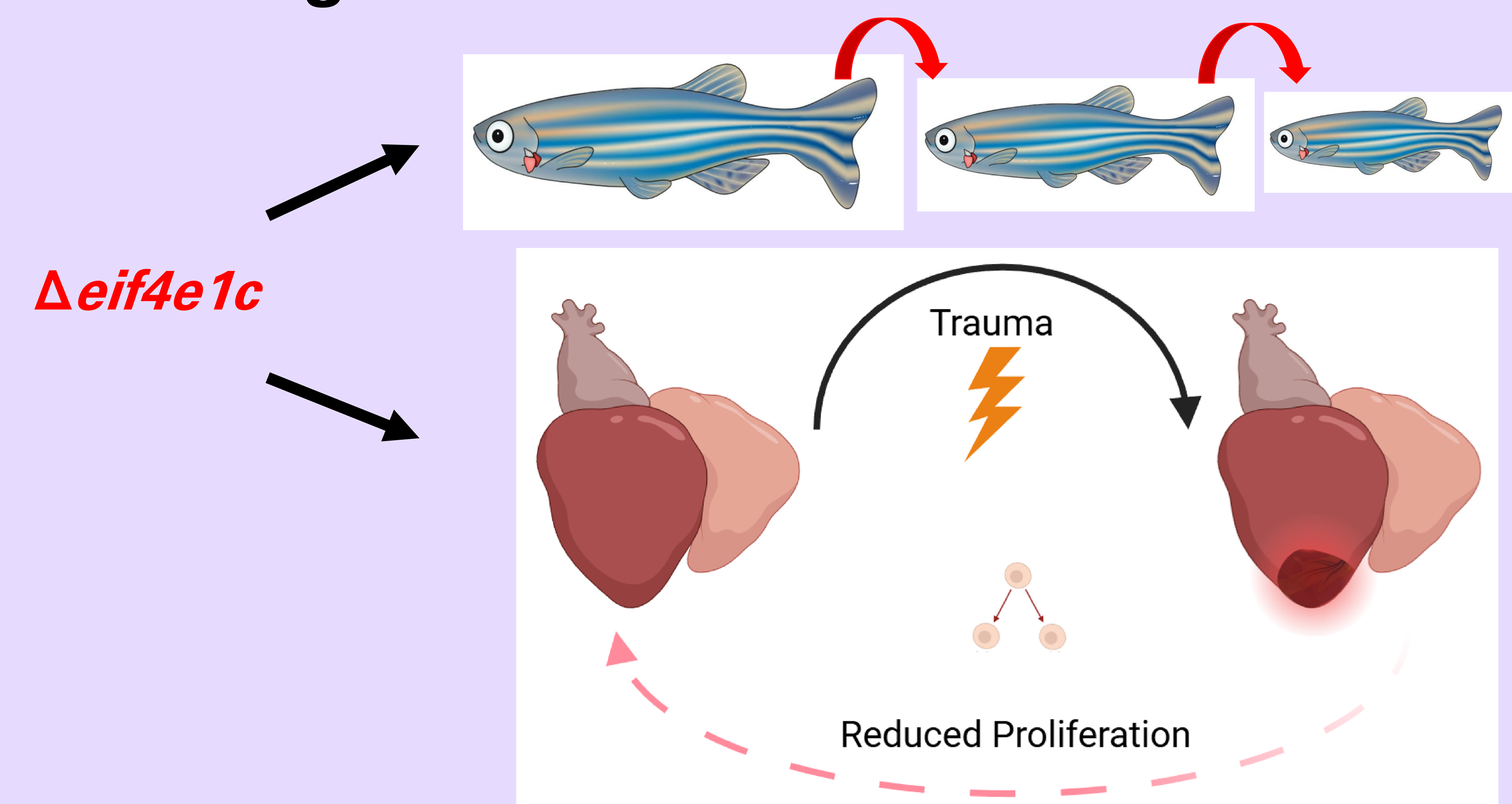


We measure effects in body size, heart size, and regenerating heart/fin cells!

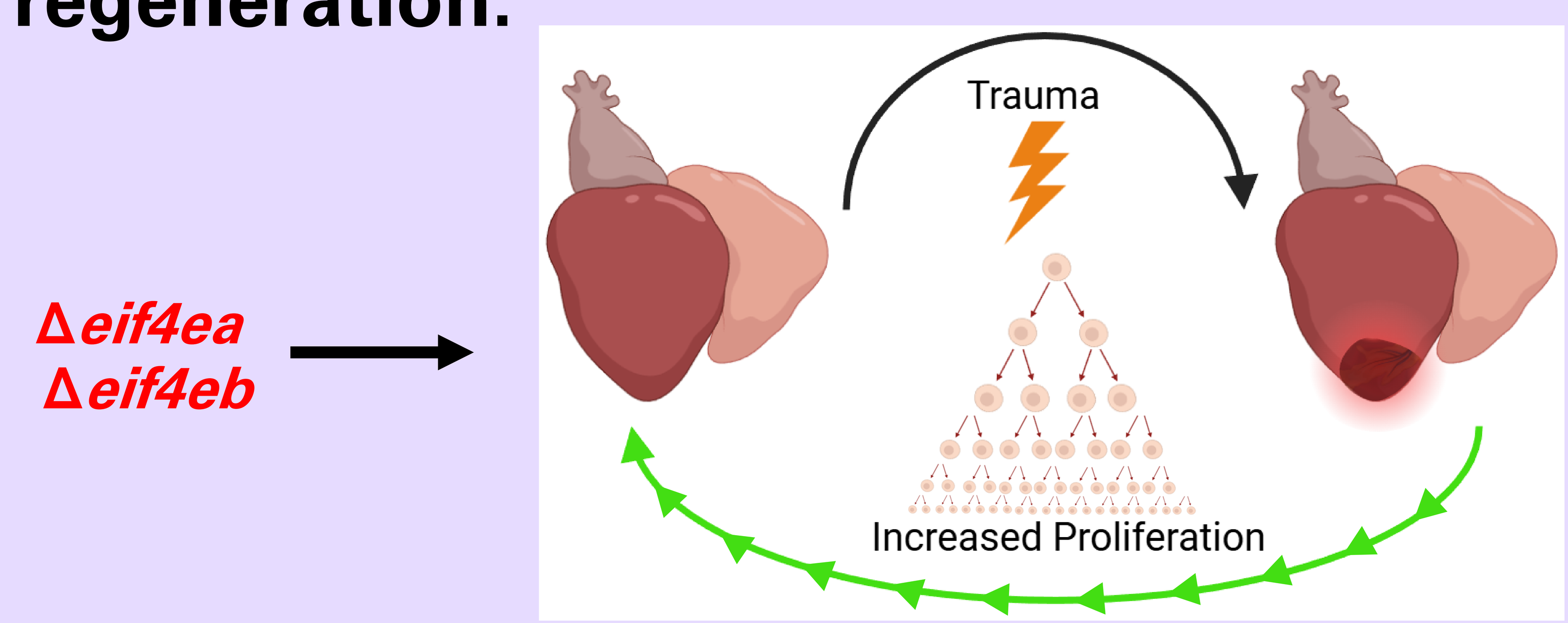


Results & Impact

Deleting *eif4e1c* stunted development and heart regeneration.



Deleting human analogs promoted heart regeneration.



We've proven *eif4e1c* is a uniquely functioning protein during growth and regeneration.

- Heart disease, the leading cause of mortality contributes to 1 in 5 deaths globally.
- Humans struggle to replace damaged and lost cardiomyocytes.
- Understanding how zebrafish enable this process may be the key in developing therapeutics.