

Mari Cobb Final Project Summary

MOTIVATION:

My motivation for this project stemmed from my thesis. I was working on a *Drosophila* actin-microtubule cross linker called Short Stop this year and came across various homologs to Short Stop in other organisms. I wanted to see how similar *Drosophila* Short Stop is to human ACF1, mouse MACF7, and mouse BPAG1. I put in two mouse proteins because I thought maybe it could serve as a control of sorts because I thought two proteins from the same animal might be inherently more similar in pair-wise comparisons than two proteins from two different animals. This was not the case as the

-My phylogenetic tree obtained from this data shows that in order of similarity, it goes mouse MACF7, Mouse BPAG1, Drosophila Short Stop, and Human ACF1. This is a confusing result because I expected to see that Drosophila and Human cross linkers were the least similar out of the four proteins I was comparing between.

-I think in order to apply this to broader situations, I would have to fix my local alignment function so that it would not just compute the length of the shorter of the two proteins as its local alignment score. These functions all took a really long time as well. It took about an hour for the human v drosophila alignment/scores to compute. It would be good to optimize it to run faster in the future.

FIGURES:







