

**Effect of the Deletion of 4 HCNEs on *Drosophila melanogaster***  
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Highly conserved non-coding elements (HCNEs) are segments of the genome that have high rates of conservation between taxa that diverged over 4 million years ago. All DNA segments naturally accumulate mutations over time, while sequences that encode important biological functions experience lower rates of mutation due to their functional constraint. Therefore, when sequences that do not even code for proteins have extremely low rates of mutation, this indicates that there must be some functional constraint that causes them to experience such low rates of mutation over millions of years. We tested the hypothesis that these non-coding sequences in some way affect *Drosophila melanogaster* fitness by assaying various elements of flies reared with the deletion of 4 of these HCNEs.