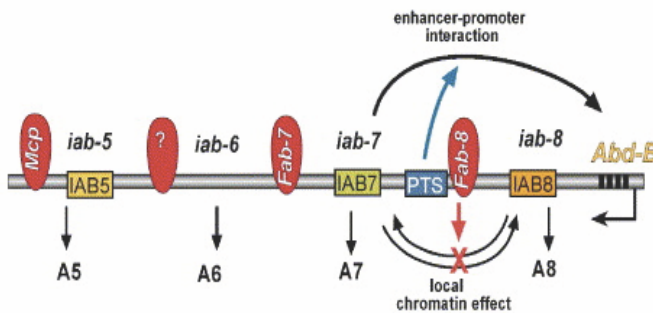
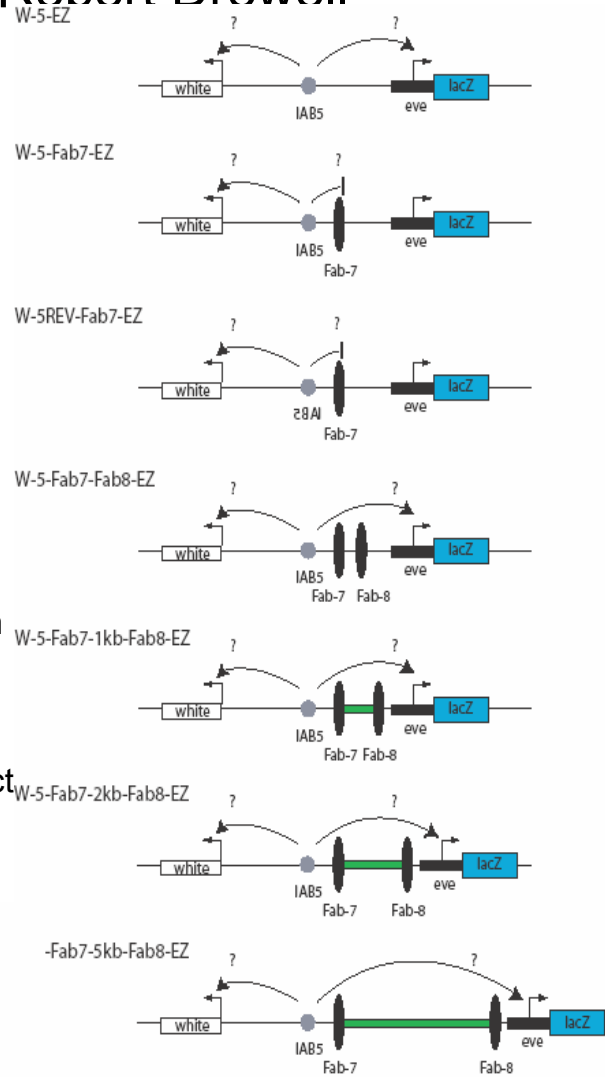


# Investigating pairwise insulator interactions in the bithorax complex of *Drosophila melanogaster*

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**Intro.** Chromatin insulators are important regulatory elements that often decrease gene expression by blocking interactions between enhancers and promoters. The bithorax complex of *Drosophila* contains at least seven different insulators, making it an excellent system for studying how insulators work. It has been shown that placing two copies of the Mcp insulator in between an enhancer and a promoter actually allows the interaction; however, it is unknown if the same result might be obtained with two heterologous insulators. We plan to investigate the interaction when the insulators Fab-7 and Fab-8 are placed between enhancer and promoter with varied spacing.

**Materials and Methods.** A total of six expression constructs (4 experimental, 2 control) will be built and injected into flies. Transgenic fly lines will be expanded, and eventually embryos will be collected for in situ hybridization to show the exact patterns of gene expression.



**Results.** As of yet, the W-5-Fab-7-EZ and the W-5REV-Fab-7-EZ constructs have been sent to Berkeley for injection. The W-5-Fab-7-EZ construct is also ready for addition to its AscI site. Lastly, Fab-8 has been isolated from the pGEMT-Easy vector, and the Fab-8-1 kb fragment has been successfully cloned into pGEMT-Easy.

**Discussion.** There is still a good deal of work to be done on this project. All four experimental constructs have yet to be built. We look forward to seeing the results of in situ hybridizations in 2008. We are particularly interested to see the effect of spacing between Fab-7 and Fab-8, as this may support or contest the direct contact model of insulator action. Future projects may involve varying the spacing between IAB5 and Fab-7.