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Tethering elements

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Different mechanisms have been proposed to explain the specificity of **enhancer-promoter interactions**, including promoter competition and insulator DNA elements. In the July 9 **Proceedings of the National Academy of Sciences**, Calhoun *et al.* propose a different model, involving promoter-proximal tethering elements (**Proc Natl Acad Sci USA2001,99:9243-9247**). They studied the **Antennapedia gene complex** (ANT-C) of *Drosophila* that contains a cluster of homeobox genes. Expression of the *Scr* selector gene depends on a distal enhancer T1 located 25 kb upstream. In between *Scr* and T1 lies the pair-ruled gene *ftz*, which is regulated by the intergenic enhancer AE1. Calhoun *et al.* attached the *Scr* and *ftz* promoter regions to *CAT* and *LacZ* reporter genes; they then showed that the core promoter elements were not important for regulating enhancer specificity. Promoter deletion constructs demonstrated that an *Scr* promoter fragment of 450 bp was sufficient to direct T1 to an adjacent gene promoter. The authors propose that the *Scr450* elements acts as a 'tether' for the distal T1 enhancer.

References

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