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Analysing Xist

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Inactivation of the X chromosome requires the *Xist* gene, whose product, a noncoding RNA, associates with chromatin on the inactive X chromosome and causes transcriptional silencing. In an Advanced Online Publication from Nature Genetics, Anton Wutz and colleagues at the Whitehead Institute for Biomedical Research report their analysis of functional domains within the mouse *Xist* RNA (DOI:10.1038/ng820). They used mouse embryonic stem (ES) cells expressing different *Xist* transgenes under the control of a tetracycline-inducible promoter. Deletion of the 5' end completely abolished silencing function, whereas large deletions in the middle and 3' region of *Xist* did not affect *Xist* function. Localization studies indicated that chromosome localization and gene silencing functions are independent and reside in distinct domains of the *Xist* RNA. A conserved sequence in the 5' region is required for silencing, while the localization sequences show little homology and are scattered throughout the gene.

References

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