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## The roles of long noncoding RNA in epigenetic regulation

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<b>Citation</b>	Lee, Jeannie T. 2013. The roles of long noncoding RNA in epigenetic regulation. <i>Epigenetics &amp; Chromatin</i> 6(Suppl 1): O31.
<b>Published Version</b>	<a href="https://doi.org/10.1186/1756-8935-6-S1-O31">doi:10.1186/1756-8935-6-S1-O31</a>
<b>Accessed</b>	February 19, 2015 12:01:09 PM EST
<b>Citable Link</b>	<a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:10609669">http://nrs.harvard.edu/urn-3:HUL.InstRepos:10609669</a>
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ORAL PRESENTATION

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# The roles of long noncoding RNA in epigenetic regulation

Jeannie T Lee<sup>1,2,3</sup>

From *Epigenetics and Chromatin: Interactions and processes*  
Boston, MA, USA. 11-13 March 2013

The X-linked region now known as the 'X-inactivation center' (Xic) was once dominated by protein-coding genes but, with the rise of Eutherian mammals some 150-200 million years ago, became infiltrated by genes that produce long noncoding RNA (lncRNA). Some of the noncoding genes have been shown to play crucial roles during X-chromosome inactivation (XCI), including the targeting of chromatin modifiers to the X. The rapid establishment of lncRNA hints at a possible preference for long transcripts in some aspects of epigenetic regulation. We will consider advantages lncRNA offers in delivering allelic, cis-limited, and locus-specific control. Unlike proteins and small RNAs, long ncRNAs are tethered to the site of transcription, and can therefore tag the allele of origin and mark unique regions in a complex genome. We will discuss general roles of lncRNA, with special consideration of XCI and developmental consequences when Xist RNA is aberrantly expressed. Like small RNAs, lncRNAs may emerge as powerful regulators of the epigenome.

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Published: 18 March 2013

doi:10.1186/1756-8935-6-S1-O31

Cite this article as: Lee: The roles of long noncoding RNA in epigenetic regulation. *Epigenetics & Chromatin* 2013 **6**(Suppl 1):O31.

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