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Regulating large chromatin domains

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Jonathan B Weitzman
Email: jonathanweitzman@hotmail.com

The thymocyte-specific SATB1 (special AT-rich sequence binding 1) protein binds to base-unpairing regions (BURs) of chromosomal DNA within matrix-attachment regions (MARs) and assembles a SATB1 network structure that can regulate gene expression over relatively large distances. In the October 10 Nature, Yasui *et al.* describe biochemical analysis of SATB1 within BUR-binding complexes (*Nature* 2002, **419:**641-645). They analysed extracts from the thymi of normal and knockout (*SATB1*$^{-/-}$) mice and found that components of the NURD, CHRAC and ACF chromatin-remodelling complexes co-purified with SATB1. Immunoprecipitation analysis showed that SATB1 recruits histone deacetylases and remodelling complexes, and represses the *IL-2Ralpha* (*inteleukin-2 receptor alpha* gene) locus. Changes in nucleosome positioning in the absence of SATB1 could be observed as much as 8 kilobases away, suggesting that mechanisms of this sort play a general a role in global gene regulation.

References

1. A tissue-specific MAR/SAR DNA-binding protein with unusual binding site recognition.

2. *Nature*, [http://www.nature.com]