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Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

DNA methylation patterns that reflect a chromosome's parental origin are thought to regulate the establishment and maintenance of genomic imprinting. But the mechanisms controlling differential methylation and imprinting have not been elucidated. In an Advanced Online Publication in [Nature Genetics](#) Schoenherr *et al.* describe a role for the zinc-finger protein CTCF in maintaining methylation at the *Igf2/H19* imprinted locus (*Nature Genetics*, 2 December 2002, DOI:10.1038/ng1057). CTCF binds to the unmethylated maternal ICR (imprinting control region) to create a chromatin boundary between the *Igf2* and *H19* genes. Schoenherr *et al.* generated mice with a mutated ICR that bound CTCF very poorly. The mutation resulted in methylation of the maternal ICR allele and re-expression of the maternal *Igf2* gene and reduced *H19* expression levels. Thus, CTCF binding appears to protect from methylation and is essential for the maintenance of differential methylation and imprinting patterns; CTCF is important for establishing the chromatin boundaries that regulate transcriptional territories.

References

1. *Nature Genetics*, [<http://www.nature.com/ng>]
2. *H19* and *Igf2* monoallelic expression is regulated in two distinct ways by a shared *cis* acting regulatory region upstream of *H19*.