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Chromosome conformation

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Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

In the February 15 [Science](#), Dekker *et al.* describe an ingenious high-throughput method to analyse the spatial organization and physical properties of whole chromosomes (*Science* 2002, **295**:1306-1311). They call their technique 'chromosome conformation capture' (3C); it involves the isolation of intact nuclei, followed by formaldehyde fixation which causes cross-linking of genomic segments that are in contact via their DNA-bound proteins. The cross-linking frequencies can then be measured by restriction enzyme digestion, ligation of intramolecular fragments and detection by PCR amplification. Dekker *et al.* applied the technique to analysis of chromosome III of *Saccharomyces cerevisiae*, and could show that the telomeres are in close spatial proximity and that there are dynamic changes in centromere interactions during meiosis. AT- and GC-rich domains exhibited different curved conformations and constraints. Dekker *et al.* also demonstrate that the 3C technique can be used to analyse chromatin flexibility and the importance of looping and long-range interactions along the chromatin fibre.

References

1. *Science*, [<http://www.sciencemag.org>]